Promoting and implementing self care: a mixed methods study of offshore workers and remote healthcare practitioners

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"Cogito ergo sum"

Rene Descartes, Philosopher

Abstract

The oil and gas industry is a vital contributor to the global economy and a key source of employment within oil-producing countries. Oil production is largely dependent on a skilled population who are adept in coping with the demands of an offshore environment. Due to the high risk nature of work offshore, it is a requisite that personnel engage in health promoting behaviours. The research aimed to identify aspects of offshore workers self care which required behaviour change and the behavioural determinants which were associated with engagement in self care. A mixed methods design was utilised to generate novel data and original findings.

Phase 1 used a quantitative cross-sectional online survey to assess offshore workers' (n=352, 53.6% response rate) health, quality of life, mental wellbeing and self care status. The findings highlighted key areas of concern, as indicated by negative scoring across measures, relating to: overweight/obesity; absenteeism (with regard to travelling offshore); medical evacuation; lack of adherence to 5-a-day fruit and vegetable guidelines; physical activity; smoking; hazardous alcohol use, and insomnia.

Phase 2 used qualitative theory-based telephone interviews to explore self care behaviours from the perspective of offshore workers (n=16). Offshore workers who had completed a survey and indicated they would like to receive further information on the interviews were invited to participate. Both the interview schedule and data analysis were informed by the Theoretical Domains Framework (TDF). Healthy eating and physical activity were the behaviours most frequently discussed by offshore workers and identified as areas requiring behaviour change. TDF domains representing both behaviours included: beliefs about capabilities; beliefs about consequences; intentions; goals; memory, attention and decision processes; environmental context and resources; social influences; emotion, and behavioural regulation.

Phase 3 used qualitative theory-based telephone interviews to explore offshore workers' (n=13) self care behaviours from the perspective of remote healthcare practitioners. Both the interview schedule and data analysis were informed by TDF. Healthy eating and harmful/hazardous alcohol use were the behaviours most frequently discussed by remote healthcare practitioners and identified as areas requiring behaviour change. TDF domains representing both behaviours included: knowledge; environmental context and resources; social influences; emotion, and behavioural regulation.

The findings, when triangulated suggest that offshore workers may benefit from the implementation of a self care intervention which targets healthy eating, physical activity and alcohol consumption. It is advised that the intervention target multiple self care behaviours and that development is underpinned by behaviour change theory to ensure effectiveness. The intervention may be tailored in accordance with the TDF domains identified in this research as determinants of healthy eating, physical activity and alcohol use behaviours.

Keywords: offshore workers; self care; health; wellbeing; quality of life; occupational health; behaviour change; health promotion

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Dedicated to my family. In particular, my husband, Fraser, and parents, Steve and Christine.

Publications

1. Gibson Smith, K., Paudyal, V., Stewart, D., Klein, S. The health and wellbeing of offshore workers: a narrative review of the published literature. *The Journal of the Institute of Remote Health Care*, 2015; 6 (2): 10-23.

Conference abstracts

2. Gibson Smith, K., Paudyal, V., Stewart, D., Klein, S. The self care behaviours of offshore workers: opportunities for behaviour change interventions. *International Journal of Pharmacy Practice*. 2015; 23 (Supplement 2); 6: 6. (Oral presentation at Royal Pharmaceutical Society Conference: 13-14 September, 2015; Birmingham). DOI: 10.1111/ijpp.12209.

3. Gibson Smith, K., Paudyal, V., Stewart, D., Klein, S. Profiling offshore workers' engagement in self care: opportunities for behaviour change interventions. (Poster presentation at United Kingdom Society for Behavioural Medicine Conference: 8-9 December, 2015; Newcastle).

4. Gibson Smith, K., Paudyal, V., Quinn, F., Klein, S., Stewart, D. Self care behaviours of offshore workers: exploration using the Theoretical Domains Framework (TDF). *International Journal of Pharmacy Practice*. 2016; 24 (Supplement 1); 6: 6. (Oral presentation at Health Services Research and Pharmacy Practice Conference: 7-8 April, 2016; Reading). DOI: 10.1111/ijpp.12258.

5. Gibson Smith, K., Paudyal, V., Quinn, F., Klein, S., Stewart, D. Determinants of offshore workers self-care behaviour: exploration using the Theoretical Domains Framework. (Poster presentation at Rethinking Remote: 23-24 May 2016; Inverness).

6. Gibson Smith, K., Paudyal, V., Quinn, F., Stewart, D., Klein, S. Health behaviours in offshore workers: Exploration of behavioural determinants using the Theoretical Domains Framework. (Poster presentation at European Health Psychology Conference: 23-26 August 2016; Aberdeen).

Awards

1. Gibson Smith, K. Self care behaviour change: reaching the unreached. *Self Care Journal and International Self Care Foundation International Essay Competition*, Runner up (Awarded £750). 2016.

Always keen for a new challenge and to learn something new, I felt that undertaking a PhD may be an ideal opportunity to channel my drive and thirst for knowledge. I had developed quite a passion for research during my undergraduate studies, particularly health topics, and was curious about pursuing a career in academia. My background in Social Sciences, I found, also lent itself relatively well to pursuing health research.

After spending a few years undertaking work as a research assistant, my thirst grew further. My studies and work experience really helped in shaping my understanding of the specific direction I would like to take, and where I further honed my interest in health research. Whilst my academic background has been a major influence, my granddad and parents have been instrumental in influencing my path. All are known for their inquisitive nature and they have duly encouraged and nurtured that in me over the years.

I can say with certainty that the PhD has met my original objectives. The journey has enabled me to broaden my knowledge and develop my skill base in a variety of areas. Secondly, it has challenged me in ways I did not know it would. Perhaps more importantly, and rather unexpectedly, the PhD has had a significant impact on me as a person, particularly in terms of developing my confidence.

I can wholeheartedly say that the PhD has been a thoroughly enjoyable experience and I feel incredibly fortunate to have had the opportunity to meet and learn from so many great people along the way. I have also been encouraged to develop myself out with the PhD and have gained experience in teaching and demonstrating, further work as a research assistant, to a Robert Gordon University project on homeless reintegration, and as Student Ambassador for the Study Skills unit at the university.

The remaining will be dedicated to an outline of the doctoral research which has been conducted over the last three years. The seven chapters outline the background to the research, the research aims and objectives, philosophies and methods, findings and main conclusions.

Chapter 1 provides an overview of the doctoral research. It describes how the offshore workforce operates in the United Kingdom, and serves as an introductory text on public health and self care. The chapter ends with a summary of the background, in the context

of the doctoral research, describing how the offshore workforce may benefit from engaging in self care.

Chapter 2 reports the findings of a narrative review which aimed to identify and synthesise the relevant published literature on offshore health and wellbeing. An overview of the current evidence base and the strengths and limitations of research published in the area has been explored. The overall research aims and research questions of the doctoral research programme are outlined at the end of the chapter.

Chapter 3 provides an overview of research methodology and detail how it has been integrated into the doctoral research. Methodological approaches, research philosophy, design, methods, sampling, quality and theory are discussed in relation to the overall study, the study aims and objectives.

Chapter 4 (Phase 1) presents the findings from the phase 2 survey which was developed to evaluate the extent to which offshore workers engage in self care behaviour. Engagement in self care was measured using a cross-sectional survey which incorporated a range of validated health, quality of life, mental wellbeing and self care measures.

Chapter 5 (Phase 2) explores the determinants of self care behaviour within the offshore workforce from the perspective of offshore workers. Behaviour was explored using qualitative semi-structured telephone interviews. Development of interview schedules and analysis was based on the Theoretical Domains Framework (TDF).

Chapter 6 (Phase 3) explores the determinants of self care behaviour within the offshore workforce from the perspective of remote healthcare practitioners with experience in offshore health. Behaviour was explored using qualitative semi-structured telephone interviews. Development of interview schedules and analysis was based on the Theoretical Domains Framework (TDF).

Chapter 7 restates the overall aims of the research, highlights the key findings associated with each phase, the originality of the research and triangulates the outcomes from each phase. Finally, future research and the impact of the current research has been explored prior to outlining the main conclusions.

Abbreviations

ASAS-R	Appraisal of Self Care Agency Scale
BCT v1	Behaviour change taxonomy v1
BCT	Behaviour change technique
BMI	Body mass index
FACET	Food and Community Evaluation Tool
FAST	Fast Alcohol Screening Tool
FFQ	Food Frequency Questionnaire
FOET	Further Offshore Emergency Training
FPH	Faculty of Public Health
GATS	Global Adult Tobacco Survey
IPAQ	International Physical Activity Questionnaire
IRHC	Institute of Remote Healthcare
LTHC	Long term health condition
MAAS	Mindful Attention Awareness Scale
MET	Metabolic equivalent
MRC	Medical Research Council
MVPA	Moderate-vigorous physical activity guidelines
NICE	National Institute for Health and Care Excellence
NHS	National Health Service
OGUK	Oil and Gas United Kingdom
PIRS-2	Pittsburgh Insomnia Rating Scale-2
PTS	Petrofac Training Services
RCT	Randomised Controlled Trial
RCUK	Research Councils United Kingdom
SIMD	Scottish Index of Multiple Deprivation
SQDUST	Single Question Drug Use Screening Test
TDF	Theoretical Domains Framework
UK	United Kingdom
UKCS	United Kingdom Continental Shelf
WEMWBS	Warwick-Edinburgh Mental Wellbeing Scale
WHO	World Health Organisation

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Introduction

Background and review of the literature

1.1 Chapter introduction

This chapter will provide a background to the doctoral research outlining how the offshore workforce operates in the UK and illustrating key concepts such as public health and self care. In addition, the chapter will describe how the workforce may benefit from engaging in self care and will highlight the role of behaviour change interventions in facilitating engagement in self care behaviour. The chapter ends with a summary of the background in the context of the doctoral research.

1.2 The offshore workforce

1.2.1 The United Kingdom Continental Shelf

Oil and gas production in the United Kingdom (UK) predominantly takes place in the region of seas which surround the country, commonly referred to as the United Kingdom Continental Shelf (UKCS). It is estimated that the UKCS is responsible for around 99% of the oil and gas produced in the UK (1). Six sectors comprise the UKCS, namely: the Northern North Sea; Central North Sea; Southern North Sea; Irish Sea; Moray Firth, and West of Shetland. According to the latest update, published in April 2016, the total number of oil and gas installations in the UKCS is 302. Of this total, 154 installations are manned by a crew of offshore workers (2).

1.2.2 The offshore workforce in the United Kingdom

For over 30 years, the Oil and Gas Industry has provided a significant source of employment within Scotland, with a recent estimate, by Oil and Gas UK (OGUK), placing UKCS employment at around 400,000. Of this figure, the total offshore workforce is estimated to be 64,000 with a core workforce (i.e. those working over 100 nights a year offshore) of 29,000, representing 45% of the total offshore workforce (3).

The 2014 UKCS Offshore Workforce Demographics Report reports that over a quarter of offshore workers, operating within the region, live in Aberdeen. Almost 85% of offshore workers who are employed in the UKCS are UK nationals. The offshore workforce is predominantly male, with females only being representative of 3.6% of the total number of personnel. Further, the average age of personnel is 40.8 years, a figure which has remained relatively stable over the last few years (3).

1.2.3 Working offshore in the United Kingdom

As a vital contributor to the global economy and a key source of employment within the UK, the Oil and Gas Industry is largely dependent on a core workforce who commits themselves to a unique and arduous working lifestyle. Described as "…*among the harshest and most stressful working environments in the world*", offshore work is typically labour-intensive (4). The offshore workforce comprises both operating staff, contractors and self-employed personnel. Operator employees are employed by the company who assume ownership of the installation. Contractors and those who are self-employed perform tasks which have been outsourced by operating companies (5).

In the UKCS, workers are required to travel via helicopter to oil installations and vessels located throughout the North Sea. The majority of the workforce, whilst offshore, work 12 hours per day for a continuous period of approximately 14 to 21 days (5-7). Upon completion of an offshore rotation, personnel are transported back onshore to commence their period of leave. Employees will typically be entitled to shore leave of 'equal time'. 'Equal time' refers to a period of leave which is equal to the amount of time spent offshore e.g. two weeks offshore followed by two weeks onshore (6).

Offshore installations may perform production or drilling activities and greatly range in terms of both their size, and the number of crew on board. For example, some installations may operate unmanned whilst the number of personnel on-board others may exceed 250. Further, the number of crew on-board may be dependent on the type of work that is being performed on the installation (7,8). Sleeping and hygiene facilities on offshore installations are typically shared between 2 people; however, in some circumstances this may be up to 4 personnel. Moreover, installations are often equipped with a canteen, a recreational room (typically with a television) and a gym (5-7).

1.2.4 Availability of healthcare in offshore environments

Offshore workers operating in UK territories are entitled to access healthcare from the National Health Service (NHS) (9). Healthcare provision offshore is typically the responsibility of the employing organisation (10). Installations and vessels tend to be located in remote geographical locations thereby impeding access to medical services. Accordingly, minor ailments and injuries are treated on-board by a qualified remote healthcare practitioner, often termed the installation medic, in a 'sick bay' (8,10,11).

The certified offshore medic (typically in the UK a nurse, paramedic or armed services medical attendant) may be supported by crew members who are trained in first aid and an onshore physician or "topside support" (8,11). Medics and first aiders are required to undertake the relevant training to achieve certification and are recertified after three years provided they attend a refresher course and are successful in their re-examination (10).

The onshore physician must be a qualified registered medical practitioner with knowledge and experience of the offshore environment and the possible environment-specific conditions which may be encountered by those working on installations. Supervision from the onshore physician would typically involve overseeing the ordering and supply of drugs and medical equipment, applying medical policy and procedures, providing non-urgent medical advice and ensuring the training of the medic (7,10).

Due to space constraints, medical facilities and supplies on-board installations may be limited. Consequently, some medical issues may require additional assistance or treatment from onshore healthcare services. In the event of medical emergencies, medical evacuation via helicopter may be deemed necessary, which can be costly and potentially dangerous due to adverse weather conditions. Delay in reaching the individual, may impact adversely on treatment and subsequent health and wellbeing outcomes (8).

According to a report on fitness to work offshore published by the International Association of Oil and Gas Producers (12), an unhealthy offshore workforce will incur higher rates of absenteeism, and will increase the likelihood of medical evacuations from an installation. Moreover, a paper on fitness standards offshore, "*A Recommended Fitness Standard for the Oil and Gas Industry*"(13) published by the Energy Institute, advises that improving the health and wellbeing of employees working within the offshore industry could be a critical determinant in ensuring economic opportunities are maximised and the longevity of the workforce.

Sustained working periods, allied to the intrinsic demands and hazards of offshore work, may place a significant physical and psychological burden on workers (13). For example, demands and hazards specific to the offshore environment may include: chemicals (toxic, corrosive, irritant and carcinogens); physical (vibration, radiation, noise, temperature extremes); biological (flu, food poisoning); ergonomic (manual handlings), and psychological/physiological (shift work/travel/isolation) (7,14).

1.2.5 Medical screenings in the offshore workforce

In an effort to ensure wellness within the workforce, personnel operating in the UKCS are required to undertake an initial medical screening prior to securing employment within the industry and thereafter, every two years to maintain their certification. Medical screenings are mandatory within the UKCS and, in accordance with Oil and Gas UK (OGUK) (7) regulations, must be undertaken by a physician who has been approved to do so by OGUK.

Medical assessments are comprehensive and inclusive of multiple health screenings from body mass index (BMI) to visual acuity. Although previously there were a number of long term health conditions which precluded individuals from being employed offshore, advancements in medicine have enabled better symptom management, and hence, there have been multiple reclassifications with regard to what is considered a medical exemption (7).

Although medical screenings may serve to mitigate particular health issues within the workforce, and as a consequence it is often assumed that offshore personnel are fit and healthy. This is perceived to be particularly crucial given the remote locations of offshore working environments and the inherent occupational hazards which are present (14). The potential role of preventive medicine, delivered via a workplace intervention, in promoting health within the workforce has been highlighted.

1.3 Public health and self care

1.3.1 Public health

The Faculty of Public Health (FPH), a standard setting body for public health specialists in the UK, suggests that public health may be defined as "*the science and art of promoting and protecting health and wellbeing, preventing ill health and prolonging life through the organised efforts of society*".   Disease prevention and health promotion are at the core of public health efforts (15).   The FPH outline three key domains of public health which include: health improvement; improving services, and health protection (Figure 1.1).

Health improvement

Inequalities
Education
Housing
Employment
Family/community
Lifestyles
Surveillance and monitoring of specific
diseases and risk factors

Improving services

Clinical effectiveness
Efficiency
Service planning
Audit and evaluation
Clinical governance
Equity

Health protection

Infectious diseases
Chemicals and poisons
Radiation
Emergency response
Environmental health hazards

Figure 1.1 Three key domains of public health practice (16-18)

1.3.2 Key challenges to public health

Overall health is determined as a consequence of a complex interplay between factors. Factors which influence health are often regarded as determinants. As highlighted in Figure 1.2, there are multiple determinants of health including: age, sex and hereditary factors; individual lifestyle factors; social and community issues; living and working conditions, and general socio-economic, cultural and environmental factors (17). Determinants of health, such as the environment an individual lives and works in, play the greatest role in ensuring the health of populations (19).
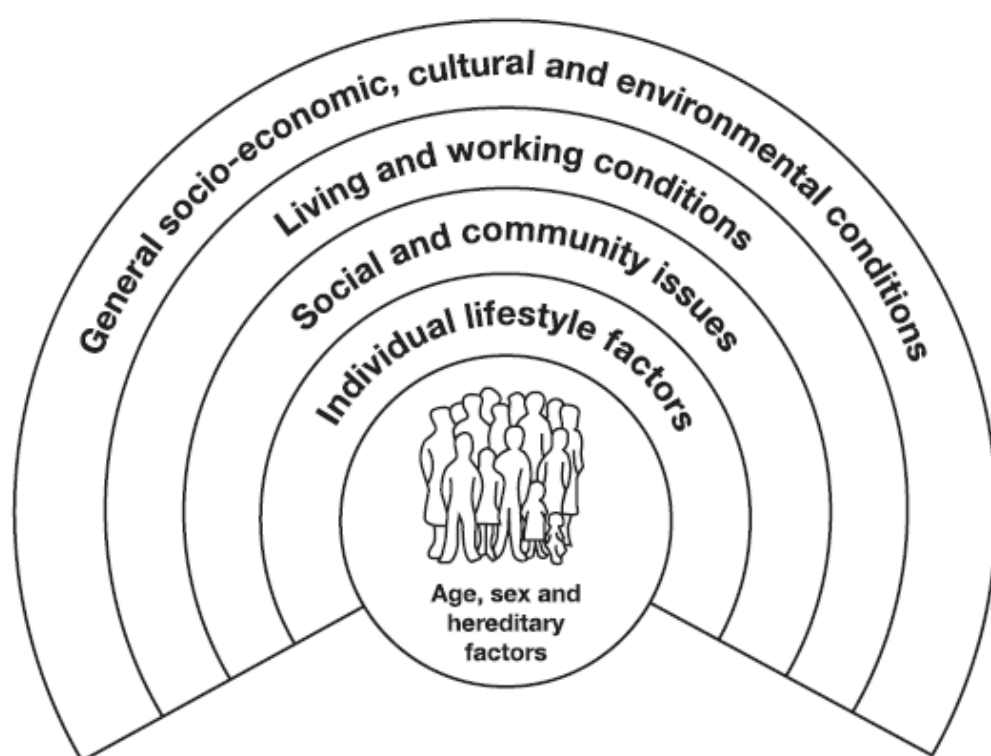
Figure 1.2 Determinants of health (17)

As evidenced, social, economic and environmental contexts are key factors which influence health. These factors are often at the root of the differences in health that are experienced by certain groups within the population. For example, inherent socioeconomic and cultural differences may contribute to poorer health status in those groups whom are disadvantaged (19,20). These disadvantages represent health inequality which is typically described as the observed differences in health status or health determinants between populations (21).

Determinants of health may be modifiable, referring to factors which are changeable e.g. lifestyle, or non-modifiable, whereby factors cannot be changed e.g. sex or genetics. There are a number of modifiable risk factors which are known predictors of long term health issues. For example, the World Health Organisation has identified five behaviours which they have identified as being implicated in the development of chronic disease. The behaviours include an unhealthy diet and large energy intake, sedentary behaviour, smoking and harmful alcohol use (22). Accordingly, reducing engagement in modifiable risk factors may lead to improved health status (23).

1.3.3 Self care

The Wanless report on "*Securing Good Health for the Whole Population*" (24) highlights the role of collective action from social institutions, e.g. engagement from healthcare services or workplaces, in reducing the incidence of disease and health problems within the population. Another important aspect of maintaining health and wellbeing is, according to the report, encouraging the individual to take ownership of their own health. Encouraging individuals to take ownership of their health, via engagement in self care, may be critical in facilitating health improvement amongst target populations (25).

Self care refers to engagement with health behaviours which prevent the onset of illness and promote wellbeing, and embodies multiple aspects of psychological and physical health (26,27). It has been proposed that self care comprises a number of factors including: hygiene; nutrition; lifestyle; environmental; socioeconomic; self medication. Further, although historically self care and self management have been viewed as distinct constructs, contemporary definitions of self care are inclusive of self management behaviours. This means that self care definitions are typically inclusive of preventative, relating to health preservation, and reactive, in response to illness or disease, health care strategies (26).

A number of self care definitions have been reported over the last few decades, yet there is no single agreed universal definition (Table 1.1). It has been proposed that a lack of consensus may due to the contextual relevance of definitions to the period in which they were devised, and the subsequent changes in cultural definitions and evolving health care practices which proceed to outdate them (27).   Although there are broad similarities in definitions, there is disparity in terms of the degree to which the individual is held solely responsible for their own self care and the extent to which others are involved in assisting with self care (27,28).

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For example, Barofsky (29) outlined four typologies of self care, which included: regulatory (referring to eating, sleeping and bathing); preventative (referring to exercising, dieting and brushing teeth); reactive (referring to responding to symptoms of ill health without assistance from a physician); restorative self care (referring to behaviour change and compliance with prescribed regimes). The majority of the typologies emphasise patient empowerment; however, the stipulation that complete patient autonomy and compliance are distinctive features of reactive and restorative self care is now considered controversial. Particularly since the assumptions are incongruent with recent developments which highlight the importance of the partnership between individuals and healthcare professionals in furthering self care (30,31).

The incongruence is evidenced by Blenkinsopp (32), who proposes that self care is best viewed on a continuum whereby individual self care, representing complete self-sufficiency in caring for oneself, is positioned at one end of the spectrum, and total dependence on a professional to provide care, is placed at the other. The continuum highlights the varying degrees of self care, and outlines the potential role of healthcare professionals in supporting individuals to self care.

In accordance with the position that self care operates along a continuum, the World Health Organisation's (25) definition of self care encompasses the notion of self care as both an individual ability and a participatory action "*the ability of individuals, families and communities to promote health, prevent disease, and maintain health and to cope with illness and disability with or without the support of a health-care provider*".

Table 1.1 Definitions of self care

Source	Definition
Department of Health (33)	"…*the actions people take for themselves, their children and their families to stay fit and maintain good physical and mental health; meet social and psychological needs; prevent illness or accidents; care for minor ailments and long term conditions; and maintain health and well-being after an acute illness or discharge from hospital*"
Haly (34)	"*What people do to maintain their health, prevent illness, seek treatment or support, manage symptoms of illness and side effects of treatment, accomplish recovery and rehabilitation and manage the impact of chronic illness and disability on their lives and independence*"
Martyn (35)	"*Self care is all about individuals taking responsibility for their own health and wellbeing. This includes: staying fit and healthy, both physically and mentally; taking action to prevent illness and accidents; the better use of medicines; treatment of minor ailments and better care of long term conditions*"
World Health Organisation (36)	"*Self-care is what people do for themselves to establish and maintain health, prevent and deal with illness. It is a broad concept encompassing: hygiene (general and personal); nutrition (type and quality of food eaten); lifestyle (sporting activities, leisure, etc.); socioeconomic factors (income level, cultural beliefs, etc.); self-medication*"
World Health Organisation (37)	"*Self care in health refers to the activities individuals, families and communities undertake with the intention of enhancing health, preventing disease, limiting illness, and restoring health. These activities are derived from knowledge and skills from the pool of both professional and lay experience. They are undertaken by lay people in their own behalf, either separately or in participative collaboration with professionals*"
World Health Organisation (25)	"*Self-care is the ability of individuals, families and communities to promote health, prevent disease, and maintain health and to cope with illness and disability with or without the support of a health-care provider*"

1.3.4 Self care behaviours

In self care behaviour change research, it may be beneficial to develop a clear understanding of the specific behaviours comprising self care. Webber, Guo and Mann (27), in a review on defining and measuring contemporary definitions of self care, propose a framework which encapsulates seven domains (Table 1.1) pertaining to self care and which may assist researchers in identifying behaviours relevant to self care. The framework highlights the multifaceted nature of self care and stresses the importance of considering key sub-components of self care behaviour.

Table 1.2 Self Care Framework (27)

Domain of Self Care	Practices and Behaviours
Health literacy	Ability to access and understand information regarding health to inform health-related decisions
Self-awareness of physical and mental condition	Awareness of BMI; CVD risk factors and degree of engagement with appropriate health screening
Physical activity	Adherence to recommended guidelines
Healthy eating	Adherence to a balanced diet
Risk avoidance or mitigation	Smoking, alcohol, drug and safe sex practices
Good hygiene	Behaviours which promote hygiene: hand washing; brushing teeth; food sanitation
Rational and responsible use of products, services, diagnostics and medicines	Using products, series, diagnostics and medicines where appropriate and necessary

1.3.5 Self care behaviour change

Programmes and interventions developed to support individual's in taking ownership of their health are becoming increasingly prevalent (38).   For example, the Expert Patient programme, which provided individuals with support and tools to manage their long term health conditions, has demonstrated effectiveness across a range of health outcomes e.g. increasing confidence in ability to self-manage conditions (39). Hence, self care behaviour change interventions proffer critical opportunities in increasing quality of life.

The workplace provides an optimal milieu for implementation of health-related behaviour change interventions due to the large number of hours typically spent in a working environment and subsequent potential for a captive audience (40). The National Institute for Health and Care Excellence (NICE), have demonstrated their support for implementation of health interventions in the workplace by publishing a series of guidance documents advising employers on best practice across five key areas. The areas outlined include: increasing physical activity (41); smoking cessation (42); adoption of a healthy diet (43); reducing alcohol intake (43), and mental wellbeing (44).

As a consequence of a favourable evidence-base, implementation of health and/or lifestyle workplace interventions, which aim to promote widespread engagement across a range of self care behaviours, is increasing. This is demonstrated by the wealth of systematic reviews which have been conducted within the area. For example, reviews demonstrating the effectiveness of interventions across a number of health domains including: improving physical activity (45-47); improving diet (45,46,48); reduce sitting (49); reduce lower back pain (50), and managing symptoms of anxiety and depression (51).

1.4 Developing behaviour change interventions

Although behaviour change interventions may be a viable method of increasing participation in self care, inherent challenges in administering these programmes exist. For example, randomised controlled trials (RCTs) that focus on promoting health behaviour change often fail to achieve similar effectiveness when rolled out to larger target populations (52).

In an effort to overcome some of the issues typically associated with the development and implementation of a behaviour change intervention, the Medical Research Council (MRC) in the UK has issued guidance on developing and evaluating complex interventions. According to the guidance, interventions which comprise multiple interrelating modules are referred to as complex. The modules which are regarded as complex need not necessarily relate to the mechanisms of behaviour change that have been integrated in the intervention, rather they may refer to individual behaviours that the intervention is designed to change, the target populations or anticipated outcomes (53).

The MRC advises that complex interventions are developed in accordance with the development-evaluation-implementation process (Figure 1.3). The process outlines four key elements, including: feasibility/piloting; evaluation; implementation, and development. Stages of the process are not intended to follow a structured sequence but are to be undertaken in an iterative manner in that each can be used to inform the activity of another (53).

Feasibility/Piloting

1. Testing procedures
2. Estimating recruitment/retention
3. Determining sample size

Development

1. Identifying the evidence base
2. Identifying/developing theory
3. Modelling process and outcomes

Evaluation

1. Assessing effectiveness
2. Understanding change process
3. Assessing cost-effectiveness

Implementation

1. Dissemination
2. Surveillance and monitoring
3. Long term follow-up

Figure 1.3 The MRC Framework for developing complex interventions (53)

1.5 Chapter summary

This chapter has described the offshore workforce in the UK highlighting how the remote and hostile nature of the working environment means that maintenance of health and wellbeing is a key priority. Hence, offshore workers taking ownership of their health and engaging with self care is imperative. Self care is an important aspect of preventive healthcare and it has been suggested that promotion within populations may assist in overcoming and ameliorating many health related issues.

The workplace may be an optimum environment to implement an intervention promoting self care due to the increased opportunity to maximise capture within the environment. Accordingly, offshore workers may benefit from implementation of a workplace intervention which promotes engagement in self care. Successful implementation would ensure that the offshore workforce is equipped with the skill base to better maintain their health. The proceeding chapter will present the findings of a narrative review on the current evidence on health and wellbeing in the workforce.

2

Narrative Review

The health and wellbeing of offshore workers: a narrative review of the literature

2.1 Chapter introduction

This narrative review aimed to identify and synthesise the relevant published literature on offshore health and wellbeing. The chapter will provide an overview of the current evidence base and highlight the strengths and limitations of research published in the area. The overall research aims of the doctoral research programme, and corresponding questions, will also be outlined.

2.3 Background

As described in chapter 1, the oil and gas industry is a vital contributor to the global economy and a key source of employment in oil-producing countries. Financial forecasts predict its continued economic influence; however, oil production is, in part, largely dependent on a core workforce who will commit themselves to a unique and somewhat arduous working lifestyle. Sustained working periods, allied to the intrinsic demands and hazards of offshore work, may place significant physical and psychological burden on workers, and consequently, would necessitate that workers are in good health over the course of their career.

As stipulated by Oil and Gas UK, it is mandatory that all offshore workers undertake a medical examination, conducted by a certified doctor, once every two years to maintain their certificate to work. In an effort to ensure health standards are upheld and to mitigate incidences of poor health, workers are required to satisfy the minimum criteria on a range of medical assessments, including screening across a range of outcomes (body mass index, vision, pulse and blood pressure, lung capacity and urinalysis) (7). Increasingly providers are utilising Functional Capacity Evaluations to assess physical fitness. Such measures seek to evaluate: strength; stamina; aerobic fitness, and role-specific functional task simulation (11).

Well maintained health stands to benefit employee safety in addition to the broader personal gains that may be achieved via undertaking health improvement. Further, according to a report published by the International Association of Oil and Gas Producers (12), an unhealthy workforce will incur higher rates of absenteeism, and will increase the likelihood of emergency evacuation from an installation. The paper, A Recommended Fitness Standard for the Oil and Gas Industry (13), advises that improving the health and wellbeing of employees working within the offshore industry could be a critical determinant in ensuring economic opportunities are maximised and the longevity of the workforce.

Developing an understanding of the health and wellbeing of personnel working in offshore environments is of significant interest to researchers working in the field of offshore health. The aim of this narrative review is to provide an overview and synthesis of the published literature on health and wellbeing in the offshore workforce.

2.4 Method

2.4.1 Narrative reviews

A narrative review is typically defined as an overview and synthesis of literature pertaining to a specific topic. Narrative reviews differ from systematic reviews across a number of key areas (Table 2.1). For example, systematic reviews tend to utilise systematic approaches to select and appraise literature, whilst, the methods used in narrative reviews tend to be less structured. Although systematic reviews are widely considered in the research community to represent a 'gold standard', there are occasions where narrative reviews would be regarded as being more appropriate. By way of illustration, systematic reviews are best suited to performing focussed reviews of the literature, e.g. on one specific theme, or an aspect of wellbeing, and not to providing a comprehensive overview of a broad topic, for example, overall wellbeing (54-56).

Hence, the narrative review was selected over a systematic review for this research on the basis that a broad overview, rather than a focussed review, of the current literature on offshore health and wellbeing was sought, e.g. a broad overview of topics pertaining to health and wellbeing rather than a focus on a single aspect. Whilst narrative reviews are not required to be explicit about the methods used to collect and evaluate literature, it is strongly advised that researchers provide appropriate evidence to enable replication and ensure that the approaches utilised are transparent. Accordingly, the explicit details of literature searches and inclusion criteria should be sufficiently documented, and researchers should endeavour to ensure that high levels of methodological rigour have been applied throughout the process (54,57).

Table 2.1 Comparing narrative and systematic reviews (54-58)

Narrative review	Systematic review
Most suited to comprehensive overviews of literature	Most suited to focussed reviews of literature
Broad coverage of a topic	Focussed on answering a specific research question
Conclusions may be more subjective	Conclusions may be more objective
Disclosure of search and inclusion criteria need not be explicit	Explicit reporting of search and inclusion criteria
Selection of evidence may not be systematic	Selection of evidence is criterion-based and systematic
Typically does not report on the validity of studies included	Explicit reporting on the validity of studies included
Broadly descriptive in nature	Involves systematic appraisal and synthesis of evidence

2.4.2 Literature searching

Electronic searches were carried out using: The Cochrane Library, Cumulative Index to Nursing and Allied Health Literature, Medical Literature Analysis and Retrieval System Online, PsycArticles, and Web of Science databases. Key terms were separated by the Boolean Operator AND, and truncated, where appropriate, using the asterisk symbol (*). Key word searches included: *offshore* AND *health**; *offshore* AND *well** (to cover wellbeing and wellness).

2.4.4 Inclusion criteria

All study designs (qualitative; quantitative; mixed methods; systematic reviews) were included in the review. In addition, the inclusion criteria specified that studies on offshore health and wellbeing were published: in the English language; between January 1994 and November 2014. Hand searching, to identify eligible articles which may not have been indexed using the key terms, was performed on the reference list of each article identified within the electronic search. Up-to-date literature was ensured throughout the process via database alerts.

2.5 Results

A total of 26 papers satisfied the inclusion criteria and included: two systematic reviews; 23 quantitative, and one qualitative study. Articles were collated into broader categories, based on their findings, and nine domains of health and wellbeing were identified: (i) occupational stress; (ii) mental wellbeing; (iii) body mass index; (iv) diet; (v) physical activity; (vi) musculoskeletal disorder; (vii) smoking; (viii) alcohol and drug use, and (ix) shift work. Results are presented according to each of the health and wellbeing domains outlined in Table 2.2.

Table 2.2 Domains and definitions

Domain	Definition
Occupational stress	"*the adverse reaction people have to excessive pressures or other types of demand placed on them at work*" (59)
Mental health	"*a state of wellbeing in which every individual realises his or her own potential, can cope with the normal stresses of life, can work productively and fruitfully, and is able to make a contribution to her or his community*" (60)
Body mass index (BMI)	"*Index of weight-for-height that is commonly used to classify overweight and obesity in adults. It is defined as a person's weight in kilograms divided by the square of his height in meters (kg/m²)*" (61)
Diet	"*specific recommendations for a healthy diet include: eating more fruit, vegetables, legumes, nuts and grains; cutting down on salt, sugar and fats. It is also advisable to choose unsaturated fats, instead of saturated fats and towards the elimination of trans-fatty acids*" (62)
Physical activity	"*any bodily movement produced by skeletal muscles that requires energy expenditure*"(63)
Musculoskeletal disorder	"*any injury, damage or disorder of the joints or other tissues in the upper/lower limbs or the back*"(64)
Smoking	*Not applicable*
Alcohol and drug use	*Not applicable*
Shift work	"*employment in any work schedule that is not a regular daytime schedule (that is, approximately 0900 to 1700)*" (65)

2.5.1 Occupational stress

Ten quantitative studies reported occupational/work related stress. All studies included within the occupational work/related stress analysis used cross-sectional survey methods. Six studies were conducted amongst the Chinese offshore workforce and the remaining, undertaken within the Norwegian offshore workforce (Table 2.3).

Frequently induced via exposure to physical and psychosocial stressors, stress pertaining to the workplace is reportedly a key source of discontent among industry personnel. For example, Bjerkan (66) reported that offshore workers were significantly more likely to perceive their work environment as more hazardous than their onshore counterparts.

2.5.1.1 Sources of occupational stress in the offshore industry

Wong et al (67) applied the Chinese Occupational Stress Scale to assess the nature of work-related stress in offshore workers. The validated scale contains 51 items which are used to assess stress across the following domains: factors intrinsic to the job; career and achievement; relationship with others at the work; safety; managerial role, and interface between job and social, and family life. A number of stressors were reported, the four most

prominent relating to the physical environment, safety, the interface between job and family/social life, and career and achievement.

2.5.1.2 Factors associated with occupational stress and its impact on the offshore industry

Associations between experiences of occupational stress and a number of variables have been demonstrated: low social support; Type A personality (characterised by a competitive, urgent and hostile nature) (68); musculoskeletal pain (69); engagement in health behaviours (70), and poorer mental health (71).

Moreover, personnel who had sustained an injury whilst at work perceived a higher risk, reported greater dissatisfaction with safety, and experienced a larger degree of occupational stress (72). The findings in relation to risk were verified in another study demonstrating a significant association between near misses and higher levels of risk perception (73). Occupational strain has been associated with job dissatisfaction, lack of social support from a supervisor and an increased likelihood of absenteeism (74).

Table 2.3 Occupational stress in the offshore industry

Study	Aims/Objectives	Study design	Setting, participants (response rate)	Key findings
Bjerkan, A.M. (2011) (66)	To evaluate onshore and offshore employees perceptions of psychological and physical health.	Cross-sectional survey of Norwegian offshore workers and onshore employees working within the same organisation.	A purposive sample of onshore and offshore workers were mailed the questionnaire, n=414 (47%: onshore: n=290 70%; offshore: n=90,22%).	Offshore workers were significantly more likely than their onshore counterparts, to perceive their work environment as hazardous.
Chen, W.Q., et al. (2003) (68)	To identify the determinants of perceived occupational stress among Chinese offshore workers.	Cross-sectional survey, using the Occupational Stress Scale, of Chinese offshore workers within the same organisation.	A purposive sample of offshore workers returning from their offshore rotation completed the questionnaire, n=561 (97%).	Social support was significantly associated with stress: lower perceived levels were associated with greater stress. Type A personality's experienced higher perceived occupational stress.
Chen, W.Q., Yu, I T-S., Wong, T.W. (2005) (69)	To determine the impact of occupational stress and psychosocial factors on musculoskeletal pain.	Cross-sectional survey, using the Occupational Stress Scale, of Chinese offshore workers within the same organisation.	A purposive sample of offshore workers returning from their offshore rotation completed the questionnaire, n=561 (97%).	56.3% of respondents reported multiple symptoms of musculoskeletal pain. Six sources of occupational stress were significantly associated with musculoskeletal pain.
Chen, W.Q., Wong, T.W., Yu, I T-S. (2008) (70)	To explore the relationship of occupational stress and social support with health-related behaviours.	Cross-sectional survey, using the Occupational Stress Scale, of Chinese offshore workers within the same organisation.	A purposive sample of offshore workers returning from their offshore rotation completed the questionnaire, n=561 (97%).	Significant association between aspects of occupational stress and engagement in risky health behaviours.
Chen, W.Q., Wong, T.W., Yu, I T-S. (2009) (71)	To explore the influence of occupational stress on mental	Cross-sectional survey, using the Occupational Stress Scale, of Chinese offshore workers within the same organisation.	A purposive sample of offshore workers returning from their offshore rotation completed the questionnaire, n=561 (97%).	Nine domains of occupational stress associated with mental health and accounting for 19.9% of the total variance: "interface between job and family/social life"; "career and achievement"; "safety"; "management problems and relationships

	health in offshore workers.			with others at work"; "physical environment of the workplace"; "ergonomics"; "organisational structure".
Nielsen, M.B., Tvedt, S.D., Matthiesen, S.B. (2011) (73)	To determine the association between risk perception and positive psychological safety to job satisfaction.	Cross-sectional survey of Norwegian offshore workers.	A random sample of offshore employees were sent a questionnaire via post (no information on randomisation process), n=1017 (59%).	High levels of perceived risk are significantly associated with near misses.
Rundmo, T. (1990) (72)	To assess the effect of injury on risk perception, job satisfaction and stress.	Cross-sectional survey of Norwegian offshore workers.	Questionnaire method and sampling strategy unknown, n=915 (92%).	Injured employees may perceive higher risk, dissatisfaction with safety and higher levels of occupational stress.
Ulleberg. P., Rundmo, T. (1997) (74)	To examine how job stress may affect workers' experience of strain.	Cross-sectional survey of Norwegian offshore workers.	Questionnaire distributed on-board installations using a purposive sampling technique, n=1137 (87%).	Job stress significantly associated with job satisfaction and strain. Social support from supervisor mediated strain. Experience of workplace strain was significantly associated with employee absenteeism.
Wong. T.W. et al.(2002) (67)	To explore the perceived sources of occupational stress.	Cross-sectional survey, using the Occupational Stress Scale, of Chinese offshore workers within the same organisation.	A purposive sample of offshore workers returning from their offshore rotation completed the questionnaire, n=561 (97%).	Five main stressors included: unpleasant working condition due to noise; feeling isolated from home and world events whilst offshore; awareness that safety of others may be compromised as a result of misjudgement; disruption to social life whilst working offshore; cannot play family roles while offshore.

2.5.2 Mental health

Three quantitative studies explored the prevalence and nature of poor mental health. Two of the studies included used cross-sectional survey methods whilst the other, used a longitudinal survey which was administered at two different time points, six months apart. The settings for the studies included both the Norwegian and Chinese offshore workforces (Table 2.4).

2.5.2.1 Exploring poor mental wellbeing in the offshore industry

Three studies explored the effects of individual and psychosocial work factors on mental distress.   One reported an association between poor mental health and several domains of the Chinese Occupational Stress Scale (71). In addition, further developments in the area note the association of reduced mental wellbeing with gender (male employees are more likely to experience mental distress than female personnel), increasing job demands, poor social support and lack of satisfaction with the home/work interface (75).

Similarly, in a longitudinal survey analysis of psychological distress, it was concluded that the strongest predictors of distress at follow-up were distress at baseline, exposure to bullying in the workplace and management by leaders who utilise a laissez-faire managerial approach (characterised by providing workers with full autonomy in decision making) (76).

Table 2.4 Mental health in the offshore industry

Study	Aims/Objectives	Study design	Setting, participants (response rate)	Key findings
Chen, W., Wong, T.W., Yu, I. (2009) (71)	To explore the influence of occupational stress on mental health.	Cross-sectional survey of Chinese offshore workers working within the same organisation.	A purposive sample of offshore workers returning from their offshore rotation completed the questionnaire, n=561 (97%).	Poorer mental health significantly associated with occupational stress and avoidant/negative behaviour coping styles.
Ljosa, C.H., Tyssen, R., Lau, B. (2011) (75)	To investigate the association between individual and psychosocial work factors and mental distress.	Cross-sectional survey of Norwegian offshore workers working within the same organisation.	A purposive sample of offshore workers were invited to complete a web-based questionnaire, n=1336 (56%).	High scores on quantitative demands, low scores on social support and high scores on shift work home-interface were all significantly associated with mental distress.
Nielsen, M., Tvedt, S., Matthiesen, S. (2013) (76)	To investigate the prevalence of psychological distress and stressors in the work environment as prospective predictors of distress.	Longitudinal survey, administered at two time points 6 months apart, of Norwegian Continental Shelf workers.	A purposive sample was mailed the questionnaire. Baseline: n=1017 (59%); Follow-up: n=741 (72%).	8-9% suffered from psychological distress. Strongest significant predictors of psychological distress at follow-up were baseline distress, exposure to workplace bullying and laissez-faire leadership.

2.5.3 BMI

Four quantitative studies which sought to determine the prevalence of overweight and obese BMI profiles in the offshore population and the associated factors were identified. Of the studies reported, two used cross-sectional surveys, one a longitudinal survey administered at two time points seven years apart, and an unknown survey method. Each study was conducted in a setting within the UK (Table 2.5).

2.5.3.1 The body profile of offshore workers

Two longitudinal studies sought to evaluate trends in the weight and BMI of offshore workers in the UK. The studies have reported that the average weight has increased from 79.4kg to 87.6kg from 1984 to 2005 (77), and similarly, that BMI has significantly increased over from 1995 to 2000 (78). Further, it has been reported, from two separate cross-sectional studies on health in the UK offshore workforce, that 52% were classified as overweight, and a further 12-15% categorised as obese. Consequently, the data are indicative that 64-67% of employees are of a weight which is out with the upper limits of a BMI within the normal range (14,79).

2.5.3.2 Predictors of BMI

One study explored the association between BMI and other key health variables. Using longitudinal analysis, conducted over a seven year period, age, educational level, smoking, physical activity and marital status were identified as predictors of BMI (78). In addition, it was reported that those with higher BMIs were more likely to be working in sedentary roles (79).

Table 2.5 BMI in the offshore industry

Study	Aims/Objectives	Study design	Setting, participants (response rate)	Key findings
Civil Aviation Authority. (2011) (77)	To compare the weight estimates of offshore workers from one time period to another.	Unknown survey of offshore workers' weight.	Data not available.	Average weight of a male passenger had increased from 79.4kg (1984) to 87.6kg (2005).
Mearns, K., Hope, L. (2005) (14)	To explore the health related practices of workers on offshore installations.	Cross-sectional survey of UK offshore workers. Questionnaire distributed by medics.	A purposive sample of workers completed the questionnaire whilst on the installation, n=1928 (57%).	64% respondents with a BMI classified as overweight (52%) or obese (12%).
Mearns, K., Hope, L., Reader, K. (2006) (79)	To explore health and wellbeing of offshore workers	Cross-sectional survey of UK offshore workers. Questionnaire distributed by medics.	A purposive sample of workers completed the questionnaire whilst on the installation, n=703 (35%).	67% respondents classified as overweight (52%) or obese (15%)
Parkes, K.R. (2003) (78)	To examine BMI of offshore workers in relation to known predictors.	Longitudinal survey research conducted in 1995 and 2002 amongst UK offshore workers.	A purposive sample of workers were recruited by researchers who were on-board the installation. Baseline: n=1598, 83%); follow-up: n=354 (35%).	Significant increase in BMI from 1995-2002. Proportions of increments were found to be no higher than population averages. Smoking significantly associated with, BMI, physical activity and marital status.

2.5.4 Diet

Despite the current interest in intervening to stabilise or reduce the increasing BMI of offshore workers, there is only a small body of research, comprising three quantitative studies, exploring the dietary choices of personnel. All three of the studies outlined utilised a cross-sectional survey which was administered to the offshore workers operating in the UK (Table 2.6).

2.5.4.1 Exploring diet in the offshore workforce

Findings from three studies indicate that, amongst workers operating in the UK Continental Shelf (UKCS) that self-reported diet was unhealthy ('unhealthy' or 'healthy' was not defined in two of the studies and the other utilised a food frequency measure) (14,79,80) with under one third report eating healthily each day (79).

Table 2.6 Diet in the offshore industry

Study	Aims/Objectives	Study design	Setting, participants (response rate)	Key findings
Horsley, H. (1996) (80)	To explore the prevalence of risk factors for coronary heart disease amongst offshore workers.	Cross-sectional survey completed during offshore survival training conducted in the North East of Scotland.	A purposive sample of workers completed the questionnaire whilst in attendance at offshore survival training, n=507 (93%).	Offshore workers perceived that their diet was healthier onshore.
Mearns, K., Hope, L. (2005) (14)	To explore the health practices of offshore workers.	Cross-sectional survey of UK offshore workers. Questionnaire distributed by medics.	A purposive sample of workers completed the questionnaire whilst on the installation, n=1928 (57%).	Offshore diet was perceived to be less healthy (23% classified their diet as unhealthy or not very healthy) than onshore (8% classified their diet as unhealthy or not very healthy).
Mearns, K., Hope, L., Reader, K. (2006)(79)	To explore health and wellbeing of offshore workers.	Cross-sectional survey of UK offshore workers. Questionnaire distributed by medics.	A purposive sample of workers completed the questionnaire whilst on the installation, n=703 (35%).	Only 29% respondents reported healthy eating habits everyday on the installation.

2.5.5 Physical activity

Three quantitative studies and one qualitative report exploring physical activity have been identified. Three of the studies utilised cross-sectional survey methods, and the other, semi-structured interviews. All four studies were based on offshore workers operating in the UK (Table 2.7).

Research by Bell et al (81) has outlined the combined effect of reduced physical activity and long periods of sitting on increasing the incidence of obesity. Accordingly, determining the degree to which offshore personnel engage in physical activity is pertinent to any evaluation of the health of the workforce.

2.5.5.1 Physical activity in the offshore workforce

Three quantitative studies exploring the prevalence of physical activity in the offshore workforce published results on engagement. Only 27% of workers were reported to undertake physical exercise three or more times per week when offshore. Further, findings indicate that personnel are more likely to engage in physical activity when onshore (14,80). For example, Mearns and Hope (14) report that 50% respondents reported engaging in light to moderate physical activity when offshore compared with 69% onshore.

2.5.5.2 Barriers to physical activity in the offshore workforce

Barriers to physical activity amongst offshore personnel have been explored using both quantitative and qualitative methods. One quantitative study reported that the majority of workers who completed a questionnaire on barriers were either too tired after work (43%) or disliked working out in gyms (25%) (79). Further, in a series of interviews with participants working offshore, it was recounted that there is a sense of inequality on-board installations between operating and contracting employees. The author noted that company, or operator employees are granted exclusive access of the gym out with core working hours, whilst contracting personnel are not. In addition, one of the female respondents discussed her initial reluctance to visit the gym on-board the installation due to the perception that it was a masculine domain. The restrictions with regard to employment status and perceived gendered environments may serve as a barrier to the use of recreational facilities and as a means to reinforce inequality within the population (5).

Table 2.7 Physical activity in the offshore industry

Study	Aims/Objectives	Study design	Setting, participants (response rate)	Key findings
Collinson, D. (1998) (5)	To explore the power relations and inequalities inherent within the offshore industry.	Semi-structured interviews with offshore personnel operating in the UK.	Participants were purposively selected based on their occupation and were invited to participate, all interviews were conducted on the offshore installation recruitment site, n=85.	Gendered physical activity environments affect participation.
Horsley, H. (1996) (80)	To explore the prevalence of risk factors for coronary heart disease.	Cross-sectional survey completed during offshore survival training conducted in the North East of Scotland.	A purposive sample of workers completed the questionnaire whilst in attendance at offshore survival training, n=507 (93%).	41% and 49% respondents exercised regularly offshore and: onshore respectively.
Mearns, K., Hope, L. (2005) (14)	To explore the health practices of offshore workers.	Cross-sectional survey of UK offshore workers.	A purposive sample of workers completed the survey whilst on the installation, n=1928 (57.2%).	Respondents were less likely to participate in low to moderate physical activity offshore (50%) than when onshore (69%). 43% of those who stated they did no or very little exercise when offshore were too tired after work. A further 25% disliked using gyms.
Mearns, K., Hope, L., Reader, K. (2006) (79)	To explore health and wellbeing in the offshore workforce	Cross-sectional survey of UK offshore workers. Questionnaire distributed by medics.	A purposive sample of workers completed the questionnaire whilst on the installation, n=703 (35%).	27% respondents exercised 3x p/w; 18% rarely, 20% occasionally and 10% never used the gym when on-board an installation.

2.5.6 Musculoskeletal disorder

Two studies on the prevalence and causes of musculoskeletal disorder in offshore workers have been identified. Both a cross-sectional survey method and analysis of secondary data were reported. One study was conducted in a UK setting and the other, in the Norwegian offshore industry (Table 2.8).

The Health and Safety Executive, a UK regulatory body, cite back pain and musculoskeletal disorder as a major cause of work related absence (82). The prevalence of such may have significant implications for labour intensive workplaces and particularly for the offshore industry since musculoskeletal disorder is one of the main causes of medical evacuation (83).

2.5.6.1 Exploring musculoskeletal disorder in the offshore industry

Thirty six percent of offshore workers report experiencing muscular pain, of which 67% believe this has been aggravated by their work offshore (79). A retrospective analysis of health records was indicative that the majority of reported disorders related to the upper limbs (53%) and back (20%). In addition, 40% of cases had been filed by maintenance workers (84).

Table 2.8 Musculoskeletal disorder in the offshore industry

Study	Aims/Objectives	Study design	Setting, participants (response rate)	Key findings
Mearns, K., Hope, L., Reader, K. (2006) (79)	To explore health and wellbeing of offshore workers.	Cross-sectional survey of UK offshore workers. Questionnaire distributed by medics.	A purposive sample of workers completed the questionnaire whilst on the installation, n=703 (35%).	36% of respondents reported muscular pain, and noted that this was aggravated by their work offshore (67%).
Morken, T., Mehlum, I.S., Moen, B.E. (2007) (84)	To analyse the number of reported work-related musculoskeletal disorders and risk factors amongst offshore workers.	Retrospective analysis of a registry of work-related diseases offshore in Norway from 1992 to 2003 obtained from the Petroleum Safety Authority.	3131 new cases of musculoskeletal disorders (6725 cases in total reported).	Majority were disorders of the upper limbs (53%); back pain (20%); neck disorders (8%); disorders of the lower limbs (16%): knee injuries (12%). 40% of musculoskeletal disorder cases were reported by maintenance workers. 38% of musculoskeletal disorder cases were perceived to be caused by a high physical workload.

2.5.7 Smoking

Three quantitative studies have been identified which report on the prevalence of smoking within the offshore workforce. The three studies reported used cross-sectional survey methods within the UK offshore workforce (Table 2.9).

According to the World Health Organisation (85), smoking tobacco is a major cause of premature mortality. Increasing wellness with regard to smoking stands to benefit both the individual and employer.

2.5.7.1 The prevalence of smoking in the offshore workforce

The prevalence of smoking amongst offshore workers, according to the published data of multiple large scale studies, is typically higher than population averages that have been taken at the time (14,80). The most recent data from the UKCS indicate that around one third smoke (31-32%) and a further quarter classified as ex-smokers (24-27%) (14,79). The figure is less than what was previously reported (80) and is indicative of a decreasing trend in the prevalence of smoking within the offshore workforce.

Table 2.9 Smoking in the offshore industry

Study	Aims/Objectives	Study design	Setting, participants (response rate)	Key findings
Horsley, H. (1996) (80)	To explore the prevalence of risk factors for coronary heart disease amongst offshore workers.	Cross-sectional survey completed during offshore survival training conducted in the North East of Scotland.	A purposive sample of workers completed the questionnaire whilst in attendance at offshore survival training, n=507 (93%).	37% were classified as smokers.
Mearns, K., Hope, L. (2005) (14)	To explore the health practices of offshore workers.	Cross-sectional survey of UK offshore workers. Questionnaire distributed by medics.	A purposive sample of workers completed the questionnaire whilst on the installation, n=1928 (57.2%).	32% respondents were smokers; 27% previously smoked.
Mearns, K., Hope, L., Reader, K. (2006) (79)	To explore health and wellbeing of offshore workers.	Cross-sectional survey of UK offshore workers. Questionnaire distributed by medics.	A purposive sample of workers completed the questionnaire whilst on the installation, n=703 (35%).	31% of respondents were classified as smokers.

2.5.8 Alcohol and drug use

Three studies have focussed on alcohol use within the industry. Two of the studies utilised a cross-sectional survey method. The remaining used semi-structured interviews to explore alcohol use. All three studies were conducted in the UK (Table 2.10).

Typically offshore installations operate a zero-tolerance policy on alcohol and drug abuse, whereby employees are subject to random testing at heliports (11). Regular testing, does not however, preclude engagement in risky behaviours onshore.

2.5.8.1 The prevalence of alcohol and drug use within the offshore workforce

The most recent data on alcohol use in offshore workers indicated that around one third (32%) consumed alcohol either 5-6 days per week (17%), or everyday (15%) when onshore (14). A qualitative interview study outlined a pattern of alcohol use which is congruent with the opportunity to over-indulge viewpoint, and notes that offshore workers had described heavy onshore alcohol use as a release, and method of expressing freedom (5).

Table 2.10 Alcohol and drug use within the offshore industry

Study	Aims/Objectives	Study design	Setting, participants (response rate)	Key findings
Collinson, D. (1998) (5)	To explore the power relations and inequalities of the offshore industry.	Semi-structured interviews conducted on-board with contract workers in the UK.	Participants were purposively selected based on their occupation and were invited to participate, all interviews were conducted on the offshore installation recruitment site, n=85.	Alcohol used to express a sense of freedom and as release when offshore workers returned from their offshore rotation.
Horsley, H. (1996) (80)	To explore the prevalence of risk factors for coronary heart disease in offshore workers.	Cross-sectional survey completed during offshore survival training conducted in the North East of Scotland.	A purposive sample of workers completed the questionnaire whilst in attendance at offshore survival training, n=507 (93%).	32% respondents reported consuming more than 21 units per week, which was higher than the national average at the time.
Mearns, K., Hope, L. (2005) (14)	To explore the health practices of offshore workers.	Cross-sectional survey of UK offshore workers. Questionnaire distributed by medics.	A purposive sample of workers completed the questionnaire whilst on the installation, n=1928 (57.2%).	32% reported consuming alcohol on either 5-6 days a week or ever day when on shore leave.

2.5.9 Shift work

Perhaps one of the most extensively researched areas within the field of offshore health relates to shift work. Five studies in total have been identified on exploring the effects of shift work within the offshore industry and include: two systematic reviews, and three quantitative studies. Two systematic reviews, one before and after study, a longitudinal survey and cross-sectional survey were included in the analysis (Table 2.11).

2.5.9.1 Shift work and health

Evidence suggests that shift work disrupts the normal circadian system and has subsequent effects on: reducing sleep quality; impairing alertness; decreasing performance (86,87). Further, offshore night shift work is associated with poorer sleep quality, gastric issues, increased risk of injury and reduced mental wellbeing (86). In contrast, however, Fossum et al (87) report no association between shift work and poor mental health.

2.5.9.2 Shift work, sleep and health

Additional research has focussed on the effects of shift work disorder (characterised by a significant sleep disturbance). An incidence of 23.3% of shift work disorder has been observed within offshore personnel and it has been demonstrated that those with shift work disorder were more likely to report subjective health complaints, pseudoneurological issues and gastric problems. In addition, workers who met the criteria for diagnosis demonstrated lower coping scores and poorer sleep quality (88).

Whilst there is evidence that offshore shift work rotations may induce an array of negative health outcomes, the findings from the literature suggest that the nature of the shift schedule has little effect on wellbeing. For example, in a study of personnel working three different shift schedules no differences in reaction time tests were observed. However, night shift workers were significantly more likely to experience tiredness than those returning from working day or swing shift rotations (89).

The study of health outcomes in relation to offshore shift work has also been extended to determine sleep quality before and after a two week work schedule. A reduction in sleep quality and insomnia across the work period was observed. Personnel on a swing shift

rotation were significantly more likely to report experiencing symptoms of insomnia than day shift workers (90).

Table 2.11 Shift work, sleep and health in the offshore industry

Study	Aims/Objectives	Study design	Setting, participants (response rate)	Key findings
Fossum, I., Bjorvatn, B., Waage, S., Pallesen, S. (2013) (87)	To examine effects of shift and night work in the offshore industry amongst offshore workers.	Systematic review of offshore shift work studies.	29 papers were included in the review.	Poorer sleep quality in offshore nightshift workers.
Parkes, K. (2012) (86)	To examine offshore day/night shift patterns in relation to operational safety and individual health risks amongst offshore workers.	Systematic review of offshore shift work studies.	24 papers were included in the review.	Survey data: Shift pattern (night work) related to gastric issues, poorer mental health and impaired sleep quality. Field data: association between circadian desynchrony and reduced sleep quality, alertness and impaired performance. Secondary data: Shift work, of day/night nature, linked with higher rates of injury. Re-adaptation from night to day shift typically takes longer than adaptation to night shift, and interventions which have endeavoured to assist with re-adaptation have not demonstrated success to a high level.
Waage, S., et al. (2009) (88)	To examine shift work disorder (SWD: characterised by significant sleep disturbance) in North Sea offshore workers.	Cross-sectional survey of Norwegian Continental Shelf Workers.	Workers were recruited whilst on the installation, n=204 (78.8%): 103 were working swing shift and were included in the study.	23.3% met criteria for shift work disorder: characterised by insomnia during sleep cycle (day in the case of night workers). Those with SWD more likely to report subjective health complaints; musculoskeletal pain; and pseudo neurological; gastrointestinal. Those with SWD demonstrated lower coping scores
Waage, S., et al. (2012) (89)	To examine sleepiness in three different shift work schedules	Before and after (within-subjects) study of offshore workers working in	Objective and subjective measurements were taken on installation, n=28 (87.5%).	Subjective sleepiness higher initially in night shift workers. Higher levels of self-reported sleepiness after night shift when returning home. No differences in objective measures when offshore.

	amongst offshore workers.	Norway on a swing shift, day or night shift rotation.		
Waage, S., et al. (2013) (90)	To compare subjective sleep and subjective health complaints in offshore workers.	Longitudinal study of Norwegian offshore employees who completed a survey (pre and post rotation).	Workers were sampled onshore, n=188 (72.6).	Significant differences between day and swing shift workers across age, years with offshore work and self-rated health. Those working a swing shift were significantly more likely to report symptoms of insomnia during their two week work period than day shift workers.

2.6 Discussion

2.6.1 Key findings

This narrative review has provided a synthesis of the research literature on the health and wellbeing of offshore workers from an international perspective. Literature pertained to occupational stress, mental wellbeing, body mass index, diet, physical activity, musculoskeletal disorder, smoking, alcohol and drug use, and shift work. The results of the review suggest that, within the offshore workforce, there are multiple key areas which are worth considering for future research.

2.6.1.1 Coverage of health and wellbeing topics

A number of health and wellbeing topics were outlined within the review and represent the unique issues facing the offshore workforce. However, there are a range of concepts which may warrant attention. For example, there is a lack of evidence on drug use within the offshore population and there are a number of domains for which the data is particularly dated. The last study to publish data on offshore workers' BMI, smoking, alcohol use, physical activity and diet was conducted almost a decade ago (79). Changes in offshore population demographics and health, such as an increase in female employment and reported rise in BMI, mean that regular sampling is important, and necessitate the development of an up-to-date evidence base.

Whilst there is a body of literature dedicated to exploring the presence of poor mental health within the industry, exploration of mental wellbeing is largely ignored. Mental wellbeing encompasses a broader perspective and has been defined as: "*… a dynamic state in which the individual is able to develop their potential, work productively and creatively, build strong and positive relationships with others and contribute to their community. It is enhanced when an individual is able to fulfil their personal and social goals and achieve a sense of purpose in society*" (44). It is believed to be an important concept since positive mental wellbeing is not necessarily as a consequence of the mere absence of poor mental health. Consequently, mental wellbeing within the offshore industry remains unknown and is deserving of a focus within future work.

2.6.1.2 Study design considerations

The majority of studies within this review utilised quantitative data collection methods in an effort to explore the health and wellbeing of the offshore workforce. Whilst this has enabled a number of associations between key variables to be determined, and permitted identification of areas which may prove cause for concern, the methods do not allude to the behavioural determinants involved. For example, poor diet has been identified as a health issue and it has been established that offshore eating patterns, and choices, are healthier when workers are onshore. There is however, little in the way of exploring the factors that affect these choices from the worker's perspective.

The majority of studies identified in this review were cross-sectional in nature and principally used survey methods to gather data. Although the reliance on cross-sectional data may be regarded as a criticism, due to issues with the generalisability of data and determining cause-effect relationships, the transient nature and wide geographical spread of worksites mean that alternative methods of data collection could prove problematic for researchers. In addition, cross-sectional methods are useful for providing a large amount of data and producing descriptive accounts of concepts (91).

Most of the aforementioned research comprised male dominant samples. Although fewer females work within the offshore industry, their numbers are increasing (3). Hence, future research would benefit from increasing representativeness and by ensuring a female perspective since it may differ from a male viewpoint, particularly when evaluating components of health, wellbeing and lifestyle.

2.6.1.3 Appropriateness of the tools utilised

It is apparent that a number of studies included within this review did not utilise validated tools to assess either physical activity or diet. Whilst there may have been a number of difficulties in employing use of such, e.g. appropriateness for use in the offshore workforce, doing so enables comparisons to be made with population averages both within and out with the offshore workforce. Validated measures can also ensure robustness in data collection particularly in domains which need to be well-defined, such as physical activity, which can be particularly vulnerable to subjective interpretation.

Further, Mearns and Hope (14) and Horsley (80) utilised measures of alcohol consumption which do not permit the data attained to be compared with current government guidelines. The Department of Health's (92) most recent guidance stipulates that harmful drinking is defined by both the frequency of use and the number of units consumed per day. Consequently, the aforementioned either generated data on weekly alcohol consumption in units (80) or the weekly frequency of use (14).

While the literature on offshore health does provide a broad overview of key issues within the industry, there are a number of limitations within the current evidence base. A number of studies have focussed on workers operating from a specific geographical location, for example the Norwegian Continental Shelf, and whilst these are helpful in exploring the health and lifestyle of the workforce, they lack generalisability or transferability to other settings due to wide variation in cultural norms and working patterns.

2.6.2 Strengths and weaknesses

A key strength of the review was the adoption of a systematic approach to literature searching. Inclusion and exclusion criteria were determined from the outset. Their adoption ensured that searches could be sufficiently replicated and that search processes were transparent. In addition, the search was not restricted by study design and was thereby inclusive of a large range of studies and methodologies. Inclusion of multiple designs added to the depth of the review and enhanced understanding of the methods commonly used in health and wellbeing research in the offshore workforce.

Whilst the narrative review has endeavoured to synthesise the literature in a structured manner, there are some limitations of the methods utilised. For example, only studies published in English were included in the review and this may have limited the scope. Further, although attempts were made to include grey literature, due to issues in searching for unpublished sources there may be a number of studies which have been unintentionally excluded from the review. However, as aforementioned and in an effort to overcome selection bias, which is often an inherent feature in narrative reviews; a structured search strategy was established prior to searching for sources.

2.6.3 Future research

As evidenced by the outcomes of this narrative review, there is a need for further research within the health of the offshore workforce. Whilst previous work does provide a body of

evidence on multiple aspects of health and wellbeing, and as such may prove as a useful comparator, there are key elements which require revisiting due to the significant time lapse since the last publication. In particular, future work should seek to provide a broad overview of health and wellbeing within the industry which is inclusive of a range of concepts. Mixed-methods or qualitative approaches, such as interviews of focus groups, may prove useful in providing a deeper exploration of determinants of offshore workers' behaviour. Future sampling procedures adopted should endeavour to ensure representativeness of the current workforce.

2.6.4 Conclusions

The narrative review of the literature provides an overview of the health and lifestyle of offshore workers, covering health domains such as: occupational stress; mental wellbeing; body mass index; diet; physical activity; musculoskeletal disorder; smoking; alcohol and drug use, and shift work. However, there were a number of limitations relating to research design, coverage of health and wellbeing topics, and the tool utilised to measure concepts which require addressing. Future research in the area should focus on enhancing the existing knowledge base and addressing the key limitations identified.

2.7 Chapter summary

The health status of offshore workers' is proving as a cause for concern due to the number engaging in a range of negative health practices; smoking; heavy alcohol use; sedentary behaviours, and unhealthy diets. Whilst these evaluations have been useful in advancing knowledge, demonstrating that there is a need for the development of an intervention promoting engagement in self care, they do not provide the evidence required to move forward. For example, a number of the aforementioned have; omitted appraisal of key health behaviours, such as drug use, which are important when developing an understanding of self care; utilised restrictive methods which do not permit evaluation of mechanisms underpinning behaviour, and been limited to male populations despite the increasing number of females employed in the industry.

In the absence of such, there remains a need to: determine the current level of engagement in self care behaviours amongst offshore workers using a representative sample; identify the underlying mechanisms which facilitate and hinder engagement within the population using a method which elicits a deep understanding of behaviour, and ascertain how best to facilitate workforce engagement in a behaviour change intervention.

Developments, in accordance with guidance on designing and evaluating complex interventions issued by the Medical Research Council (53), should be evidence-based and draw on theory to enable rigorous assessment of the mechanisms which facilitate or hinder behaviour change.

This doctoral research will use a multiphase approach to assess the perceived health and self care status of offshore workers and to identify behavioural determinants associated with their engagement in self care. The World Health Organisation's (25) definition of self care will be adopted within this doctoral research. Accordingly, self care will be regarded as "*the ability of individuals, families and communities to promote health, prevent disease, and maintain health and to cope with illness and disability with or without the support of a health-care provider*". Further, the self care framework will be used to guide selection of behaviours pertaining to the concept (27).

The three phases of the doctoral research will each make a standalone contribution in an effort to further understanding the topic area and will encompass both the perspective of offshore workers and remote healthcare practitioners with experience in the offshore industry. The study aims and research questions are outlined in relation to each phase in the proceeding section.

2.8 Doctoral study aims and research questions

The overall aim of the doctoral research programme is to assess the perceived health and self care status of offshore workers, and to identify behavioural determinants associated with their engagement in self care.

2.8.1 Phase 1 study aim

To assess offshore workers' health, quality of life, mental wellbeing, and self care status.

2.8.2 Phase 1 research questions

(i)   How do offshore workers perceive their quality of life and mental wellbeing?

(ii)   How do offshore workers perceive their health status?

(iii)   How do offshore workers perceive their self care status?

(iv)   Which factors are associated with offshore workers' perceived self care status?

2.8.3 Phase 2 study aim

To explore offshore workers' self care behaviours from their own perspective.

2.8.4 Phase 2 research questions

(i)   Which aspects of health and self care do offshore workers' perceive to be areas which require behavioural modification?

(ii)   What are the determinants of offshore workers' self care behaviour?

(iii)   What are offshore workers' experiences of health promotion interventions/programmes within the offshore environment?

(iv)   How could engagement in self care be facilitated amongst offshore workers?

2.8.5 Phase 3 study aim

To explore offshore workers' self care behaviours from the perspective of remote healthcare practitioners.

2.8.6 Phase 3 research questions

(i)   Which aspects of health and self care do remote healthcare practitioners' perceive to be areas which require behavioural modification?

(ii)   What are the determinants of offshore workers' self care behaviour?

(iii)   What are remote healthcare practitioners' experiences of health promotion interventions/programmes within the offshore environment?

(iv)   How could engagement in self care be facilitated amongst offshore workers?

Methodology

3. 1 Chapter introduction

This chapter will provide an overview of research methodology and detail how it has been integrated into the research study. Methodological approaches, research philosophy, design, methods, sampling, quality and theory will be discussed in relation to the overall study, and in relation to each of the study aims, and objectives.

3.2 Approaches to research

There are three approaches that may be used to underpin research and each offers a unique stance on which to form a basis with which to progress. The approaches are inclusive of: qualitative; quantitative, and mixed methods research. The section will elaborate on each of the approaches and describe the approach used in the current research.

3.2.1 Quantitative approaches

In an effort to test research questions and hypotheses, quantitative researchers may collect numerical data on observations, and examine associations between key variables using statistical models and procedures. The testing of key variables is achieved by developing research tools, some of which have undergone extensive validation procedures, to measure concepts and phenomena (91,93,94).

3.2.2 Qualitative approaches

Qualitative approaches are concerned with understanding the meaning of social phenomena (94) and tend to form more naturalistic forms of enquiry whereby respondents are observed in their social milieu and not in artificial research environments (91,94,95). Within the qualitative tradition, the researcher may be used as a data collection tool (95) and thus, the background and prior experience of the researcher may have a significant influence on the process of enquiry (94).

3.2.3 Mixed methods approaches

Known as the 'third paradigm' (96) mixed methods research encompasses both qualitative and quantitative approaches (97,98). Unification of the approaches directly opposes the beliefs of qualitative and quantitative purists who perceive that due to the divergence in

underpinning philosophies, quantitative and qualitative methods of inquiry are irreconcilable (97). Mixed methods researchers advise that the unified method of inquiry may aid researchers' in eliminating some of the issues typically associated with using a single approach (94,99).

3.2.4 The approach to the current research

A mixed methods design, integrating both qualitative and quantitative approaches, was deemed to be the most appropriate approach to address each of the phase aims and research questions. Accordingly, utilisation of a mixed methods approach enabled the researcher to conduct a comprehensive exploration of self care within the offshore workforce.

3.3 Philosophical paradigms

Philosophical paradigms form the basis of research and serve as the underpinnings of the three approaches aforementioned. Each paradigm reflects a unique ontological (concerned with the nature of reality), epistemological (concerned with how knowledge is acquired and the relationship between the researcher and study subject), methodological (concerned with research processes) and axiological (concerned with the study of value) stance (93,94). Although there are a number of paradigms underpinning research, four tend to dominate academic discourse and include: postpositivism; constructivism; transformative; and pragmatism (94,95,100). This section will discuss the four philosophical paradigms in greater detail and describe the underpinnings of this research.

3.3.1 Postpositivism

Postpositivism is guided by a scientific belief system and underpinned by a deterministic philosophy which emphasises the cause-effect relationship between variables (94,95,100). The philosophy typically guides quantitative research (98). Postpositivists assume that information is ubiquitous and existing, and advise that the primary role of the researcher is to methodically collect data, via a research instrument, that is already in existence (101). Further, the paradigm typically assumes a deductive approach, whereby data is used to test hypotheses or theories, and consequently, the data collected typically pertains to the measurement of observations on a particular research interest (102).

3.3.2 Constructivism

Constructivism, also known as social constructivism or interpretivism, is the prevailing paradigm underpinning qualitative approaches within the social science disciplines (98). The four tenets of constructivism espouse that phenomena which were once believed to be an inherent feature of the social world (critical), norms and values (social), knowledge (epistemological) and reality (ontological) are social constructions (101). Research grounded in constructivism centres on the respondent and how they interpret their environment. Constructivist researchers will ask relatively general questions to enable the respondent to further develop their understanding. The paradigm also considers the social, historical and cultural contexts of respondents, and how these interact. In an effort to contextualise data, constructivists typically use an inductive approach, whereby data is used to guide theory selection or is used to develop theory (94,95).

3.3.3 Transformative

The transformative paradigm was borne out of discontent with both postpositivist and constructivist worldviews, since it was perceived that neither philosophy could be applied to understanding the experiences of minority groups, for example feminists or disabled groups. Accordingly, transformative researchers use both qualitative and quantitative methods to support their research (98). The paradigm advocates the integration of politics within the research process and suggests that assimilation is a critical factor in promoting social reform or change for marginalised members of society. The research process typically involves collaboration between the researcher and members of minority groups in an effort to enhance advocacy. Further, transformative researchers typically employ both inductive and deductive approaches (94,95).

3.3.4 Pragmatism

Pragmatists are primarily concerned with resolving research issues by searching for solutions and do not restrict themselves to a single philosophy or approach, rather they are free to develop research programmes in a way that best suits their research aims and objectives. Pragmatists discredit the incompatibility thesis, a proposition which posits that qualitative and quantitative methodologies cannot be merged due to incongruent philosophical bases and promote the notion of research as a continuum which opposes a polarised position (98,103). Further, the pragmatic approach emphasises the importance of using both inductive and deductive reasoning (98).

3.3.5 Research philosophy and paradigms of inquiry: the current research

The research will be underpinned by the pragmatist perspective which advocates adopting a unified stance whilst simultaneously honouring the traditional philosophical underpinnings of qualitative (constructionist) and quantitative (post-positivist) epistemologies (104). Accordingly, Phase 1 was grounded in postpositivism since the aims were primarily concerned with establishing trends in data, particularly in relation to the health and self care behaviour of offshore workers. Phases 2 and 3 aimed to conduct in-depth explorations of the self care behaviours of offshore workers and consequently, were rooted in constructivism.

3.4 Research design

A research design, or strategy of inquiry, refers to the manner of investigation that is used within quantitative, qualitative and mixed methods approaches. The varying types aid in guiding the selection of subsequent methods. The following sections will discuss quantitative, qualitative and mixed methods designs and highlight the options that are available to researchers

3.4.1 Quantitative design

Quantitative research designs are typically inclusive of experimental and survey typologies. Survey research is used to quantify research phenomena and is typically conducted on a sample who is perceived to be representative of the population of interest. Methods which are commonly used include questionnaires and quantitative interviews (91,94).

3.4.2 Qualitative design

There a five main typologies of qualitative research, namely: narrative research; phenomenology; grounded theory; ethnography, and case study. Methods which are commonly utilised in qualitative designs include interviews, observations, audio-visual, documents and reports. Table 3.1 outlines the key features associated with each design (94).

Table 3.1 Key features of qualitative research designs (94)

Design	Key features
Narrative	Uses storytelling methods to enable a single individual to provide a narrative account of their life and lived experiences
Phenomenology	Encompasses multiple individual perspectives and seeks to develop an understanding of how a group of individuals perceive a specific phenomenon e.g. experiences of grief
Grounded theory	Encompasses multiple individual perspectives and endeavours to allow theory to generate from the data, as opposed to beginning the research with a specific theory in mind
Ethnography	Cultural groups are studied and observed by a researcher n an effort to understand group behaviours, social processes, beliefs and norms
Case study	Developing an understanding of an issue using multiple cases from a specific setting or context

3.4.3 Mixed methods design

Mixed methods research, in the truest sense, will encompass, at the very least, one quantitative and one qualitative component or 'strand' (95,98). Strands are defined as an element of either quantitative or qualitative approaches such as the research question, data collection, data analysis and interpretation of findings (95).

There are six mixed methods designs which are traditionally utilised by mixed methods researchers to inform the structure of their research (95). These include convergent parallel, explanatory sequential, exploratory sequential, embedded, transformative and multiphase designs. Each design along with definition is outlined in Table 3.2.

Table 3.2 Key features of mixed methods research designs (95)

Design	Key features
Convergent parallel	• Data from qualitative and quantitative strands collected at a similar point in time
Explanatory sequential	• Quantitative strand completed and followed by qualitative strand
Exploratory sequential	• Qualitative strand completed and followed by quantitative strand
Embedded	• One strand is embedded within the opposing strand e.g. quantitative in a larger qualitative study
Transformative	• Quantitative and qualitative strands are informed by theoretical framework e.g. feminism
Multiphase	• Multiple quantitative and qualitative strands are used in research concerned with evaluation and intervention

3.4.3.1 Triangulation in mixed methods research

Triangulation is a critical concept in mixed methods research and has historically, referred to the application of multiple methodologies to enhance understanding of a single

phenomenon (105). Combining methodologies via triangulation is perceived to be beneficial in terms of increasing the certainty of research findings. For example, if findings corroborate across a number of different sources, the strength of the research would be enhanced and uncertainty reduced (94).

Triangulation may be achieved in a manner of ways and processes typically involve "*combinations and comparisons of multiple data sources, data collection and analysis procedures, research methods, investigators, and/or inferences that occur at the end of a study*" (98). Four typologies have been outlined and include: data triangulation; methodological triangulation; investigator triangulation, and theory triangulation (Table 3.3).

Table 3.3 Four typologies of triangulation (98,105)

Triangulation typology	Key features
Data triangulation	Using different sources of information
Methodological triangulation	Using a number of different methods
Investigator triangulation	Involvement of different investigators
Theory triangulation	Use of different perspectives to understand meaning of data

3.4.4 Design: the current research

The current study utilised a multiphase design comprising three distinct phases. Each phase, as described below, was underpinned by a relevant quantitative or qualitative design.

(i) Phase 1, a quantitative study, utilised a survey design and questionnaire method. Since the primary concern of the phase was to generate a large amount of data detailing offshore workers' health, quality of life, mental wellbeing and self care

(ii) Phase 2 and 3,qualitative studies, utilised a phenomenological design and interview method since it enabled in- depth data on behavioural determinants of self care to be produced

3.5 Research methods

As aforementioned, there are a number of research methods available to researchers and which may be used to assist in collecting data. This section will highlight the questionnaire and interview methods that have been used in this study to facilitate data collection in each of the phases.

3.5.1 Data collection methods

Researchers using a quantitative approach will frequently utilise experiments and survey methods to conduct research. Conversely, those utilising a qualitative approach may select from a number of research methods, including: observations; interviews; documents; and audio-visual. Table 3.4 highlights the research methods typically associated with quantitative and qualitative research, and the corresponding key features. The following sections will explore questionnaires and qualitative interviews in more detail.

Table 3.4 Research methods used by quantitative and qualitative researchers (93,94)

Approach	Method	Defining characteristics
Quantitative	Questionnaire	Questionnaire methods provide a means for researchers to establish trends in data and measure key concepts, and criterion
	Experiment	Experiments intend to observe cause and effect within two or more conditions, and will manipulate a variable (termed an independent variable) in an effort to establish what effect this may have on certain outcomes (dependant variable)
Qualitative	Observations	Observation, or ethnographic, research requires the researcher to immerse themselves in the sphere of interest for a specified period duration in an effort to develop an understanding of social norms and values
	Interviews	Interviews offer a means to collect in-depth data and are typically conducted one-to-one or in a focus group format (involving a group of 6-8)
	Document analysis	Qualitative analysis of documents may involve examination of personal, official and media sources of evidence
	Audio-visual	Audio-visual analysis refers to the investigation of virtual, sound, photographic and art outputs

3.5.2 Questionnaires

Questionnaires provide researchers with a means to quantify attitudes, behaviours and experiences (91). Quantification may be achieved by using scales with response categories which correspond with a numerical value. For example, a Likert scale, whereby respondents select the point (which has previously been assigned a numerical value) which best represents their belief, may be used (93). Quantitative data attained from questionnaires may be subsequently analysed to establish patterns, trends and to determine relationships or associations between variables (91,94).

Both longitudinal, involving multiple administrations of the same questionnaire to a sample at pre-determined intervals, and cross-sectional, measurement at a single point in time, may be used. Although the nature of cross-sectional methods does not permit the

measurement of causal relationships, since they are only administered at one point in time, they are comparatively low cost and enable large samples to be targeted within a relatively short time frame (91,94,106).

3.5.2.1 Web-based questionnaires

Web-based, or online, questionnaires are completed over the internet. Web-based questionnaires, due to worldwide increases in internet usage and broadening access, have become an increasingly popularised method of collecting data (107,108). Their use has perhaps been further propagated by continuing developments in software which have enabled researchers to enhance questionnaires design and ameliorate some of the issues typically associated with traditional paper based methods. For example, the length of questionnaires may be significantly reduced since digital applications permit developers to reduce visible content, set stipulations that ensure respondents complete key questions or allow them to skip content that is not relevant to them (109).

Although there has been concern expressed over the true representativeness of respondents' answers when completing web-based questionnaires, a review has highlighted that web-based methods may be an appropriate medium to research sensitive topics (110). For example, the results of a study on the influence of survey medium on responses highlighted that respondents were more likely to report a higher degree of engagement with risk behaviours when completing a web-based questionnaire than a paper alternatives (111).

Web-based questionnaires have historically demonstrated higher response rates than traditional paper methods; however, they have been declining in recent years (107).It has been reported that the lower responses often encountered may be due to a number of factors, including: initial contacts with respondents being made online; having to take time out to go online and complete the questionnaire; apprehension about data protection and confidentiality; poor technological literacy, and increased probability of breaking off and not completing the questionnaires. It has been suggested that researchers make efforts by incorporating counteractive strategies to circumvent these (109).

3.5.2.2 Quantitative data analysis

Quantitative data analysis is typically conducted using computer packages which enable statistical analysis of key variables. Variables may be presented descriptively or subject

to more in-depth analysis to determine associations and relationships, known as inferential analysis. Results may be used to answer research questions or hypotheses (91,94,106).

3.5.3 Qualitative interviews

Interviews aim to develop an understanding of how individuals' perceive lived experiences (107,112). Consequently, they offer a means to collect in-depth data on a range of phenomena. Open-ended questions are a key feature of qualitative interviews, and permit interviewees to provide in-depth answers and ensure that the data attained, is rich and meaningful (94). Typically, formats are either unstructured, which stylistically are more conversational and free-flowing, or semi-structured, where the interview is directed by an interview schedule or protocol which contains a series of pre-determined questions used to guide the conversation (93).

As outlined in Table 3.4, interviews may follow either a one-to-one or focus group format. One-to-one interviews typically differ from focus groups in terms of the number of respondents, the data extracted and the nature of the data that is collected over the course of the interview. For example, data extracted from one-to-one interviews concerns individual beliefs, meanings and behaviours, whereas data from focus groups relates to group norms and processes. In terms of the nature of the data collected, one-to-one interviews focus on the social interaction between the individual and the researcher, and focus groups, on interactions between each of the members of the focus group, and the researcher (91,93,113,114).

3.5.3.1. Qualitative telephone interviews

Telephone interviews are becoming increasingly favoured by qualitative researchers who are eager to increase the efficacy, safety and expediency of research without compromising on the effectiveness or fidelity that traditional face-to-face methods provide (91,93). Despite their widespread use within qualitative research, there are a number of potential drawbacks of using telephone interviews. Table 3.5 outlines the main advantages and disadvantages of telephone interviews in comparison with face-to-face methods.

Table 3.5 Advantages and disadvantages of telephone interviews (91,115,116)

Advantages of telephone interviews	Disadvantages of telephone interviews
Economic in relation to time (e.g. travelling)	Absence of non-verbal cues
Economic in relation to resources (e.g. travelling)	May not be as appropriate for exploring sensitive topics
Increase access for those who are harder to reach (e.g. remote populations)	Interviewees more likely to answer 'don't know'
Promote safety of the interviewer	Increased likelihood of interview ending early
Increased accuracy of reporting health issues	Often preferred by interviewees

3.5.3.2 Transcribing interviews

Transcribing of qualitative data refers to written documentation of audio or visual data (117). If completed by researchers themselves, the very nature of the transcription process, due to multiple exposures to interview content, will enhance familiarity with the data. Further, transcribing is often considered a critical step in preliminary data analysis since it enables researchers to engage in analytical thoughts as they proceed throughout the documentation process (118).

Pragmatic transcribing, stipulates that protocols may be devised by the researcher and relative to the aims of the research. This technique is less intensive than conversation analysis, where there is a key focus on the interviewer-interviewee relationship, and more comprehensive than other methods which only seek to summarise those key concepts perceived as important. Consequently, the pragmatist approach permits researchers to omit key linguistic features where appropriate, such as pauses or breaks, whilst still retaining depth in terms of verbatim data (119).

3.5.3.3 Analysis of qualitative data

Qualitative methods typically generate a large amount of textual data and thus, the data should be analysed systematically (93). Data analysis procedures in qualitative research involve a process of organising the data, coding, reducing codes and categorising in accordance with emergent themes (94). Further, there are a number of strategies available to assist and guide analysis, including thematic analysis, content analysis and framework analysis.

3.5.3.3.1 Thematic analysis

Thematic analysis is an analytical approach used to analyse qualitative data sets to determine overarching themes and trends (120). Themes represent meaning within the data and should pertain to the overarching aims and objectives of the research. The process of thematic analysis may be either deductive (Section 3.22), for example if there was a theoretical basis, or inductive (Section 3.2.1) (93,120). A six step approach to thematic analysis is preferred and outlined in Table 3.6.

Table 3.6 The thematic approach to data analysis (120)

Stage	Description
Familiarisation	Immersion in the data by reading and if appropriate, transcription of data
Generating initial codes	Coding the data for themes and patterns
Searching for themes	Sorting of codes into meaningful themes
Reviewing themes	Refining and collapsing themes
Defining and naming themes	Defining, refining and naming themes
Reporting	Reporting and the data in a meaningful way

3.5.3.3.2 Framework analysis

The Framework Method offers a unique perspective on the analysis and management of qualitative data (121). Typically, data collected using the approach is gathered in a structured manner, presented in a matrix, and often, interview topic guides are constructed around a theoretical framework. Historically, the method was developed for use in policy research, however, has since been applied to a number of qualitative disciplines including health services research (91,122,123). Gale et al (122) outline a step-by-step procedure for analysis comprising the following stages (Table 3.7). Further, the authors highlight the importance of secondary checks to the data analysis procedure and advise that two researchers independently code interview content and develop the analytical framework.

Table 3.7 The framework analysis approach to data analysis (122)

Stage	Description
Transcription	Verbatim transcripts are preferred however the researcher may omit pauses and breaks as these offer little value to the approach since the content of the interview is the key focus
Familiarisation with interview content	Re-listening the audio recording and re-reading the transcripts
Coding	Coding lines of the transcript either using an inductive approach, coding all content perceived to be pertinent, or deductive, coding in relation to a theoretical framework
Developing a working analytical framework	The framework should assist further coding
Applying the analytical framework	Application of the agreed framework to interview transcripts
Charting data into the framework matrix	Synthesis of data into categories

3.5.4 Data collection methods: the current research

The current study utilised two different methods to underpin the research and these were used across the three phases. The questionnaire method was deemed appropriate to the aims of phase 1 since it would facilitate the gathering of a descriptive data, pertaining to offshore workers' health status and engagement in self care, across a large sample.

Phases 2 and 3 were primarily concerned with obtaining in-depth data on offshore workers' self care behaviours and one-to-one interviews were deemed most appropriate for these strands of the research. Interview methods were also selected on the basis that principal focus was to centre discussions on individual behaviour change. Further, analyses of the interviews from phases 2 and 3 were conducted in accordance with thematic and framework approaches.

3.6 Sampling

Sampling refers to a process of "*…selecting units of analysis (e.g. people, groups, artefacts, settings) in a manner that maximises the researcher's ability to answer research questions set forth in a study*" (124). This section will describe the sampling approaches which typically underpin quantitative and qualitative philosophies in the context of sampling methods used in this study.

3.6.1 Sampling methods

When selecting a sample, it is critical that this sub-population accurately represents the sample population, in terms of individual characteristics, to minimise bias and error (93,125). Accordingly, there are a number of sampling methods which aid researchers in selecting a sample and these are grouped into two categories: probability sampling; non-probability sampling.

3.6.1.1 Probability sampling

Probability, or random, sampling refers to a specific sub-type which ensures that all members of a sample population have a chance of being sampled. This probability is assured since study participants are selected at random from the sample population. The random sampling of participants is beneficial in terms of ensuring the representativeness of study samples and generalisability of findings to the wider population (91,93,125,126). Bowling (91) and Howitt and Cramer (126) outline a number of probability sampling methods which may be utilised by researchers (Table 3.8).

Table 3.8 Probability sampling methods (91,126)

Sample	Meaning
Simple random	Individuals are selected randomly from a database
Systematic	Selection begins from a starting point and at set intervals thereafter
Multi-stage	Both research sites and participants are selected at random
Stratified	Strata are identified based on key characteristics and participants are sampled proportionately in accordance
Disproportionate stratified	Minority groups within populations are oversampled
Cluster	Subsets of the population are identified and participants selected at random

3.6.1.2 Non-probability sampling

Although probability sampling methods are often preferred, it may not be necessary or feasible for researchers to incorporate probability sampling methods into a study design. For example, some researcher projects may not aim to extrapolate findings to wider populations; but rather to determine if there are any associations between key variables (126). Consequently, it may be more appropriate to incorporate non-probability sampling

methods into the study design (Table 3.9). Whilst non-probability samples are widely used, researchers using such methods should be aware of the risk of bias since the sample may not be representative of the wider population (93).

Table 3.9 Non-probability sampling methods (93)

Sample	Meaning
Convenience	Participants who are easily accessed are recruited
Snowball	Participants are used to initiate further contacts, typically the researcher will recruit a small number of persons who are relevant to the research, and ask them to make recommendations on other suitable persons.
Quota	The characteristics of the study sample proportionately reflect those of the population sample
Purposive	Participants are selected on the basis that they are judged by the researcher to be important to the research
Theoretical	Additional participants are recruited as theoretical ideas emerge. The process is iterative and involves periods of recruitment, data collection, analysis and further recruitment

3.6.1.3 Data saturation in qualitative research

Data saturation, was initially proposed by Charmaz (127), and refers to the point at which a researcher uncovers no additional emergent themes within a data set, that is all themes or categories have become saturated (93,94). Sample size and data saturation are, within qualitative research, related concepts. However, there is very little existing guidance to inform researchers as to what the most appropriate sample size is for qualitative interview research and the research that does exist is conflicting.

For example, Guest, Bunce and Johnson (128) reports, in an experimental paper to decipher how many interviews are required to achieve saturation, that there is a high degree of variance in both practice and with regard to guidance on sample sizes. The authors advise that, from the results of their own research, that saturation within a homogenous group may be achieved within twelve interviews.

Francis et al (129), in a paper focussed on determining the most appropriate sample size for interviews, have criticised the methodology of the study by Guest, Bunce and Johnson and the subsequent recommendations that were issued, highlighting that "…*as the analysis proceeded in sets of six, it is not clear when their identified level of saturation was reached; it was somewhere between 7 and 12 interviews*".

Further, in response, the authors outline a systematic approach to sample size selection which enhances rigour in terms of ensuring that data saturation has been attained. Owed

to the objective and transparent nature of the approach, the authors suggest that utilisation will aid researchers in overcoming some of the issues typically associated with achieving data saturation in qualitative research. The stages outlined by the authors are inclusive of:

(i) Stipulate a baseline sample size a priori, herein referred to as the initial analysis sample, for which a preliminary analysis will be performed. The authors recommend that the initial analysis sample is set at ten for research which involves two to three stratification variables (e.g. gender and age).

(ii) Specify a stopping criterion, e.g. in increments of three (+3), which will be used to assess data saturation. For example, data saturation will be assessed after each cohort of three is sampled. It is assumed that data saturation has been achieved if no new themes have emerged at this point. If new themes emerge after the initial +3, interviews will be conducted in increments of three until data saturation has occurred.

3.6.2 Sampling: the current research

A sampling method was not used for phase 1 of the research due to the nature of recruitment. A simple random technique was utilised in both phase 2 and 3 of the research. The approach ensured that the representativeness of the sample was optimised. The 10+3 approach to data saturation was also integrated into the study design of both phases.

3.7 Promoting quality in research

Incorporation of principles recognised to promote quality within research is a key consideration. This section will describe how rigour and robustness is promoted in quantitative and qualitative research.

3.7.1 Quantitative research: reliability, validity, responsiveness to change, sensitivity and specificity

Quantitative researchers, when developing research processes and measurement tools will be mindful of ensuring that these are both reliable and objective. Reliability primarily refers to how consistent a measure is and validity is concerned with if research tools actually measure what they purport to. As outlined in Table 3.10, there are multiple measures of reliability and validity, and attainment of each is critical in ensuring the robustness of research (91,93,130).

Table 3.10 Measurements of reliability and validity (91,93,130)

Concept	Measurement	Meaning
Reliability	Test-retest	The similarity of results attained from the measure over multiple administrations, e.g. the stability of the instrument, and is often determined via correlation.
	Inter-rater	The similarity of results attained from two raters.
	Alternate form	The responses from the measure are correlated with the responses from an alternate, related measure to determine if they produce similar outcomes.
	Internal consistency	The relatedness of the items in the measure and in particular, their ability to measure the intended construct. This may be assessed by using Cronbach's alpha.
Validity	Face validity	The test appears to measure the construct.
	Criterion validity	The test correlates with another validated measure which measures a related construct. Evidenced by concurrent (the measure is positively correlated with an objective measurement) and predictive (the measure predicts anticipated changes in outcomes upon additional administrations) validity.
	Construct validity	The test measures the intended construct. Evidenced by convergent (the test demonstrates a positive correlation with similar measures) and discriminant validity (the test demonstrates a negative correlation with dissimilar measures).
	Content validity	The test comprehensively measures the intended construct.
	Internal validity	The confidence to which the true cause-effect relationship was observed.
	External validity	The extent to which the results from the sample can be generalised to the sample population.

Quantitative measurement tools should also demonstrate responsiveness to change whereby they are able to detect inherent changes that occur over time e.g. the ability of a measure of mental wellbeing to identify important changes from one point to another. In addition, sensitivity and specificity are key concepts in promoting quality within quantitative research specifically in relation to measurement tools and tests. The sensitivity of a test refers to the probability of correctly identifying both individuals who are actual cases, e.g.

have a pre-existing diagnosis. Specificity is demonstrated by ensuring that there is a reasonable probability of identifying those who are not affected, e.g. they do not have a pre-existing diagnosis (91).

Bias, referring to systematic error, may pose as an inherent threat to reliability, validity, responsiveness to change, sensitivity and specificity and may compromise research findings if researchers do not take the appropriate steps to circumvent. Table 3.11 outlines the main sources of bias and error which have been identified in the literature. Although mitigation of bias and error is important in ensuring robustness, it is proposed that there will be inherent flaws, which prove difficult to control, across all studies. Thus, complete elimination of bias and error is perhaps unattainable and consequently, researchers may wish to simply be aware of threats and minimise where suitable (91).

Table 3.11 Sources of bias and error (91)

Source of bias/error	Meaning
Acquiescence response bias	Survey respondents responses agree with items or respond positively regardless of content of the question
Assumption bias	Inaccurate judgement by the researcher which affects the basis of the research and outcomes
Bias in handling outliers	Unwarranted exclusion/inclusion of extreme values
Design bias	Flawed research design
Evaluation apprehension	Unease of participants with regard to being the subject of a study and the effect this may have on responses
Interviewer bias	Effect of the interviewer influencing participants' responses
Mood bias	Negative mood states may affect truthfulness of responses
Non-response bias	Representativeness of the sample is compromised by non-responders
Observer bias	During observation, the biases of the researcher affect the outcome
Publication bias	Failure of publishers to publish studies with non-significant results
Random error	Error occurs by chance alone
Reactive effects/Hawthorne effect	A participant's awareness of being a subject of a study influences their behaviour
Recall bias	Occurs when a participant fails to accurately recall information
Reporting bias	Participant withholds information or fails to answer a question
Response style bias	The tendency for an individual to answer "yes" despite the content of the question
Sampling error	Use of a sample which is intrinsically different from the sample population
Sampling bias	Key members of the sampling population have a low likelihood of being selected
Selection bias	The characteristics used to select a sample fail to enable true randomisation
Social desirability bias	Participants respond in accordance with what is deemed to be socially normative
Systematic error	Errors which are not due to chance alone but rather are intrinsic features of the study
Total survey error	The total number of bias and error present in the study

3.7.2 Quantitative research, reliability and validity: the current research

A description of the approaches used to ensure the reliability and validity of the quantitative phase of the current research described in Chapter 4 Section 4.3.2.

3.7.3 Qualitative research and trustworthiness

Reliability and validity, as aforementioned, are grounded in positivist traditions and as a consequence, are incongruent with the qualitative approach and its underlying philosophies. Consequently, the paradigm has been criticised on the basis of how

trustworthiness is assured (131). In response and in an effort to provide a means of ensuring trustworthiness, Guba (132), has outlined four key criteria (Table 3.12), each corresponding with positivist concepts, to be integrated into qualitative research designs: credibility (as opposed to internal validity); transferability (as opposed to external validity); dependability (as opposed to reliability); confirmability (as opposed to objectivity) (131,133). Further, Shenton (131) has highlighted a number of practical strategies that may be integrated into qualitative research to ensure trustworthiness across Guba's criterion.

Table 3.12 Recommended strategies to ensure trustworthiness (131,133)

Criteria	Strategy
Credibility	Using established research methods
	Developing familiarity with the research context and participants
	Random sampling of participants
	Triangulation (use of different methods or sampling a broad range of participants)
	Promoting honesty within participants (achieved by permitting participants to opt-out of recruitment and use of interview techniques which promote honesty)
	Iterative questioning and probing (to uncover any data which may false)
	Negative case analysis (revising hypotheses in accordance with the data)
	Debriefing (within the research team to enhance the depth of the research)
	Peer review/examination of research and data
	Reflective commentary (continuous evaluation of the research project)
	Reflexivity (awareness of how the researcher's own experience may affect data collection and analysis)
	Member checks (verification of transcripts with participant)
	In-depth description of the phenomenon under scrutiny
	Congruence of research findings with previous research
Transferability	In-depth description
	Nominated sample (using judges to select sample)
	Comparison of sample to demographic data (using knowledge of demographics of population to select sample)
	Reporting study-specifics (disclosure of: participating organisations; participant exclusions; sample size; data collection procedures; number and length of each data collection session; project timeline)
Dependability	Dependability audit (ability to trace the decisions made throughout the research process)
	In-depth description of research methods
	Stepwise replication (researchers each analyse a section of the data and compare results)
	Triangulation (use of different methods)
	Peer review/examination of research and data
	Code-recode procedure (recode after a two week interval)
Confirmability	Confirmability audit (external audit of research project and decisions)
	Triangulation (use of different methods, data sources and theoretical perspectives)
	Reflexivity (analysis to demonstrate awareness of how the researcher may affect data collection and outcomes)

3.7.4 Qualitative research and trustworthiness: the current research

A description of the approaches which were used to ensure trustworthiness was incorporated into the qualitative study designs of the doctoral thesis is outlined in Chapter 5 Section 5.3.9 and 6 Section 6.3.9.

Theory is an integral component of research and is often used to underpin both quantitative and qualitative methods. This section will describe the use of theory within research and detail its application to the current research.

3.8.1 Behaviour change theory

It has been proposed that the use of behaviour change theory may strengthen the evidence base of interventions and provide a starting point on which to achieve sustainable health behaviour change. Guidance from the Medical Research Council (MRC) (53) on developing complex interventions has provided further support on the use of theory by highlighting the importance of using behaviour change theory to underpin intervention development.

The MRC advises that integration of theory is critical in ensuring robustness in research since it permits determinants of behaviour to be reliably mapped, and intervention content to be tailored accordingly. The systematic process of integrating theory into intervention content will bolster delivery and may further assist in ensuring that any behaviour change achieved is sustained over a lengthy time period. Consequently, the use of theory to assist development and evaluate intervention effectiveness is strongly advised (53).

However, as discussed by Stewart and Klein (134), there are a number of complexities in embedding theory into research. They advise that integration of theory may be overwhelming for researchers due to the large number of behaviour change models which are available for use and little consensus on which are best fit for purpose. This is not to say that these theoretical models should be disregarded, rather theory selection should be reliably informed and justified.

3.8.2 The Theoretical Domains Framework

In an effort to make theory more accessible to those out with the psychology disciplines, a panel of behaviour change experts have developed the Theoretical Domains Framework (TDF) which aims to synthesise behaviour change theory into one framework (135). The TDF is in its second iteration, and the number of domains included has recently increased from 12 to 14. As outlined in Table 3.13, the domains are inclusive of a number of

behavioural constructs, which can all be traced back to one of the 33 health psychology theories included in the synthesis (135,136).

The TDF includes a large amount of behaviour change theories however, it does not proclaim to be a theory, meaning it does not seek to identify relationships between or the trajectories of constructs, rather it is to be used as a consultative tool to guide theory selection (135,137). Whilst the framework is a relatively recent development, it has demonstrated strength in a number of applications and the evidence-base continues to grow (135,138).

Further, Michie, Atkins and West (139) advise that the Behaviour Change Taxonomy Version 1 (BCTv1), a consultative tool which has synthesised 93 BCTs into 16 categories, may be used to match domains with appropriate BCTs. It is anticipated that by identifying the theoretical basis of barriers and facilitators, intervention developers will be able to target interventions in relation to these, consequently creating a strong evidence-base rooted in theory. Use of the TDF may enable researchers to approach intervention design systematically since it promotes simultaneous consideration of a number of domains which influence behaviour and permits matching to relevant BCTs.

Table 3.13 The Theoretical Domains Framework (136)

Domain	Behavioural Constructs
Knowledge An awareness of the existence of something	Knowledge; procedural knowledge; knowledge of task environment
Skills An ability or proficiency acquired through practice	Skills; skills development; competence; ability; interpersonal skills; practice; skill assessment
Social/professional role and identity A coherent set of behaviours and displayed personal qualities of an individual in a social or work setting	Professional identity; professional role; social identity; Identity; professional boundaries; professional confidence; group identity; leadership Organisational commitment
Beliefs about capabilities Acceptance of the truth, reality, or validity about an ability, talent, or facility that a person can put to constructive use	Self-confidence; perceived competence; self-efficacy; perceived behavioural control; beliefs; self-esteem; empowerment; professional confidence
Optimism The confidence that things will happen for the best or that desired goals will be attained	Optimism; pessimism; unrealistic optimism; identity
Beliefs about consequences Acceptance of the truth, reality, or validity about outcomes of a behaviour in a given situation	Beliefs; outcome expectancies; characteristics of outcome expectancies; anticipated regret; consequents
Reinforcement Increasing the probability of a response by arranging a dependent relationship, or contingency, between the response and a given stimulus	Rewards (proximal/distal, valued/not valued, probable/improbable); incentives; punishment; consequents; reinforcement; contingencies; sanctions
Intentions A conscious decision to perform a behaviour or a resolve to act in a certain way	Stability of intentions; Stages of Change model; Transtheoretical model and Stages of Change
Goals Mental representations of outcomes or end states that an individual wants to achieve	Goals (distal/proximal); goal priority; goal / target setting; goals (autonomous / controlled); action planning; implementation intention
Memory, attention and decision processes The ability to retain information, focus selectively on aspects of the environment and choose between two or more alternatives	Memory; attention; attention control; decision making; cognitive overload / tiredness
Environmental context and resources Any circumstance of a person's situation or environment that discourages or encourages the development of skills and abilities, independence, social competence, and adaptive behaviour	Environmental stressors; resources / material resources; organisational culture /climate; salient events / critical incidents; person x environment interaction; barriers and facilitators
Social influences Those interpersonal processes that can cause individuals to change their thoughts, feelings, or behaviours	Social pressure; social norms; group conformity; social comparisons; group norms; social support; power; intergroup conflict; alienation; group identity; modelling
Emotion A complex reaction pattern, involving experiential, behavioural, and physiological elements, by which the individual attempts to deal with a personally significant matter or event	Fear; anxiety; affect; stress; depression; positive / negative affect; burn-out
Behavioural regulation Anything aimed at managing or changing objectively observed or measured actions	Self-monitoring; breaking habit; action planning

3.8.3 Use of theory in the current research

The TDF was used to underpin phases 2 and 3 of the research. The framework was selected to enhance the evidence-base and to ensure that the study satisfied MRC recommendations. As discussed, the TDF is a comprehensive synthesis of behaviour change theory and thus, integration ensures the breadth of the research in relation to coverage of key theories.

3.9 Chapter summary

The current study utilised a multiphase design comprising three phases. The structure of the proposed programme ensures that each phase not only makes a standalone contribution to research on self care in the offshore workforce, but when evaluated as a whole, creates an in depth evidence-base incorporating a strong theoretical basis which can be mapped onto the development of a self care intervention for offshore workers.

4

Phase 1

Offshore workers perceived quality of life, mental wellbeing, health and self care status

4.1 Chapter introduction

This chapter presents the findings from the phase 2 survey which was developed to evaluate the extent to which offshore workers engage in self care behaviour. Engagement in self care was measured using a cross-sectional survey which incorporated a range of validated health and self care measures.

4.2 Research aims and objectives

4.2.1 Aim

The aim of the survey was to assess offshore workers' quality of life, mental wellbeing and health and self care status.

4.2.2 Research questions

(i)   How do offshore workers perceive their quality of life and mental wellbeing?

(ii)   How do offshore workers perceive their health status?

(iii)   How do offshore workers perceive their self care status?

(iv)   What are the factors associated with offshore workers' perceived self care status?

4.3 Method

4.3.1 Design

The survey was underpinned by a quantitative research design which was grounded in the post positivist research paradigm (see Chapter 3 Section 3.3 for a discussion on research philosophy) (95). A questionnaire was used to determine offshore workers' quality of life, mental wellbeing, health and self care status.

4.3.2 Questionnaire measures

The questionnaire (Appendix 4.1) was developed using SNAP 10™ software, spanned 36 individual webpages when viewed in its entirety and comprised 4 sections: demographics; quality of life and mental wellbeing; health status; and self care. All questionnaire items and measures were assessed for suitability by the research team and expert panel prior to their inclusion. Where possible, reliability, validity and responsiveness criteria for

validated measures were evaluated, using existing evidence which has been published by the authors responsible for developing the tools, and used to guide selection. The reliability, validity, responsiveness, sensitivity and specificity (see Chapter 3 Section 3.7.1) of measures will be outlined in the sections proceeding and where comprehensive criteria are unavailable; the principles used to justify selection will be discussed.

Reliability of measures was evaluated using existing evidence, where available, on the alternate form reliability, test-retest reliability and internal consistency of measures. Validity was assessed, where appropriate, via construct, criterion and content validity. Construct validity, criterion validity, alternate forms reliability and test-retest reliability typically utilise correlations to demonstrate effectiveness. Correlations range from negative (1.0) to positive (1.0) and higher values typically, represent a greater degree of similarity whereas lower values, represent dissimilarity.

The measures utilised were considered to be of a high standard in relation to construct and criterion validity if they demonstrated a significant correlation or a large value, indicating either good positive or negative correlation (130). Further, confirmatory factor analysis (CFA) may be used to assess a measure's construct validity. Studies performing CFA were assessed in terms of their goodness of fit index (GFI) and adjusted goodness of fit index (AGFI) values. Values exceeding 0.9 and 0.8 respectively were deemed to be indicative of satisfactory construct validity (140).

Measures were judged to demonstrate reasonable alternate forms reliability if r>0.80. Internal consistency and test-retest reliability is frequently assessed by using Cronbach's alpha whereby a minimum value of 0.70 is representative of an acceptable standard, hence, measures were considered reliable if the value reported exceeded the cut-off. Responsiveness to change, sensitivity and specificity will also be reported, where appropriate, and discussed. The findings will be used to highlight the rigour and robustness of measures.

4.3.2.1 Demographics

The demographics section of the questionnaire included both open and closed questions pertaining to the following information: offshore workers location at the time of completing the questionnaire e.g. if they were on or offshore; age; gender; home postcode; marital status; highest level of education; ethnicity; nationality, and co-habiting status.

Offshore workers' home postcodes were entered manually by the student researcher into the Scottish Index of Multiple Deprivation (SIMD) postcode database to determine deprivation ranks for each individual (141). Lower SIMD ranks are indicative of greater deprivation. The SIMD permits identification of areas of deprivation across Scotland. Accordingly, only respondents with a Scottish postcode were entered into the database. Deprivation ranks were further categorised into corresponding quintiles (142) (Table 4.1).

Table 4.1 SIMD deprivation ranks and corresponding quintiles (142)

SIMD deprivation rank range	Quintile category
1-1301	1 (most deprived)
1302-2602	2
2603-3903	3
3904-5204	4
5205-6505	5 (least deprived)

4.3.2.2 Employment offshore

The employment section of the questionnaire comprised seven questions which pertained to offshore workers' employment within the offshore industry: number of years worked offshore; current job title; name of installation currently working on; employee status e.g. employed/self-employed as contractor or operator; length of time with current employer; nature of current rotation e.g. ad hoc or regular (working for a specified period with a clearly defined break), and shift schedule e.g. days, nights, both (one rotation of day shifts followed by another of night) or swing shift (7 days followed by 7 nights in the same rotation).

4.3.2.3 Quality of life and mental wellbeing

4.3.2.3.1 Quality of life

The SF-8 4-week recall is a measure of quality of life (143) and was included in this study to determine offshore workers physical and mental functioning over the four weeks previous. The SF-8 is a short form measure of the SF-36. Respondents are required to answer six items using a 5-point Likert scale and two items using a 6-point Likert scale.

Scores are generated using licenced software from Quality Metric and two summative scores pertaining to physical and mental quality of life are produced. The survey developers advocate using the norm-based cut-off value of 50.0 for each score rather than

the possible range of scores. Scores greater than 50.0 SF-8 are indicative of greater quality of life (143).

Selection was based on the brevity of the measure, previous successful application to an offshore workforce (144), and since it has demonstrated satisfactory reliability and validity. Each subscale of the SF-8 demonstrated acceptable internal consistency and thus, there is sufficient evidence to suggest that the items are related to the same sub-scale concepts (PCS=0.73; and MCS=0.74). In addition, alternate forms reliability (calculated by correlating SF-8 items with related components of the SF-36) was satisfactory (PCS=0.88; and MCS=0.82).

Content validity was established by comparing the content of the SF-8 with its SF-36 counterpart. Perhaps unsurprisingly, since the SF-8 was derived from the comparator, the items compared positively with those in the SF-36. Construct validity was supported via similar comparisons with the SF-36. For example, correlations between the items on SF-36 and SF-8 were positive and indicative of a high degree of correlation (all were >0.70). Responsiveness to change was indicated by comparing SF-8 scores over a three month period to headache severity. The results supported the hypothesis that SF-8 scores would decrease with symptom worsening and increase as the symptoms improved (143).

4.3.2.3.2 Mental wellbeing

It was perceived that a measure of negative mental states may arouse discomfort in respondents, due to the nature of questioning, and that it may be more appropriate to measure positive mental wellbeing. Accordingly, the 14-item Warwick-Edinburgh Mental Wellbeing Scale (WEMWBS) scale (140) was selected for use within this sample since it frames wellbeing in a positive context and has a large amount of population data which is available for comparison. Respondents are required to answer items on the WEMWBS using a 5-point Likert scale to evaluate their mental wellbeing over the previous two week period. Total scores are generated by summing each individual item score and are in the range of 14-70 with higher scores representing greater mental wellbeing.

Further, the scale has demonstrated satisfactory reliability and validity (140). Test-retest reliability (0.83) was sufficient and indicative that the results achieved after multiple administrations were stable over time. Satisfactory internal consistency (0.83) was reported and thereby, implies that individual elements measured the same construct. Moreover, satisfactory content validity was demonstrated by the high response and

completion rates and thereby, it is assumed that items together comprehensively measure mental wellbeing.

Construct validity was supported by confirmatory factor analysis (GFI=0.91 and AGFI=0.87) and thus, it is assumed that items on the WEMWBS comprehensively mental wellbeing. The WEMWBS demonstrated significant positive correlations with other mental health and wellbeing scales and thus, was indicative of good criterion validity which relates how well the instrument measures the concept it intends to (140,145).

4.3.2.4 Health status

Measurements of facets pertaining to health status were deemed to be critical in enhancing the depth of the data attained and furthering exploratory analyses. The following aspects were investigated: body mass index; long term health conditions; illness and offshore travel, and seeking health advice.

4.3.2.4.1 Body mass index

Data on respondents' height (cm/feet and inches) and weight (kg/stones and pounds) were collected. Body mass index was calculated by using standard formulae (dividing respondents weight in kilograms by height in metres squared). Scores were classified into the following categories: underweight (<18.5); normal (18.5-24.9); overweight (25-29.9), and obese (>30) (146).

4.3.2.4.2 Long term health conditions

Offshore workers were asked two screening questions pertaining to long term health conditions (LTHC). The screening questions aimed to identify if respondents had a LTHC and if they took any medication for LTHCs. Respondents declaring a LTHC were directed to additional sections for each condition reported. Additional sections contained further questions specific to each LTHC and included: name; if respondents perceived that they took an active role in caring for their LTHC, and number of medications taken. This sequence permitted respondents to provide details of up to 10 LTHCs.

4.3.2.4.3 Absences from offshore installations and medical evacuation

The prevalence of absences and medical evacuation were explored via two questions seeking to determine if the respondent had previously been unable to travel offshore and if they had ever required medical evacuation from an installation.

4.3.2.4.4 Seeking health advice

Respondents were asked an initial screening question to determine if they had sought advice on their health in the previous 12 months. Subsequent questioning was dependant on the initial response: a maximum of fourteen additional questions were asked. The questions in this section sought to determine when respondents last required health advice for a health issue, who they elicited advice from and the nature of advice sought.

4.3.2.5 Caring for minor ailments and leading a healthy lifestyle

Two questions were included in this section of the questionnaire which had been sourced from the Department of Health (147) study on attitudes to self care study. The questions included: '*how often do you take an active role in leading a healthy lifestyle?*'; and '*how often do you take an active role in treating yourself for minor ailments?*'. Respondents were required to answer using a 7-point Likert scale.

4.3.2.6 Self care

The seven pillar self care framework, developed by Webber, Guo and Mann (27), was used, alongside the extant literature on health in the offshore population, as a basis to guide the design of the self care section of the questionnaire. Validated measures were used to assess: self care agency; alcohol use; diet; smoking; physical activity; mindfulness; insomnia, and drug use.

4.3.2.6.1 Self care agency

The Appraisal of Self Care Agency Scale-Revised (ASAS-R) (148) was used to assess self care agency, referred to as "…*an individual's capability to perform self care activities or health promoting behaviours on their own behalf to maintain life, health and wellbeing*". The majority of items are scored from 1 (strongly disagree) to 5 (strongly agree) with the

exception of questions 4, 11, 14-15, which are reverse scored. Items are summed to produce an overall score. Scores range from 15-75 and lower scores are indicative of decreased self care agency.

The 15-item measure has demonstrated reasonable internal consistency (0.89) which is indicative that the 15 items are related to one another. Further, the ASAS-R demonstrated a significant positive correlation with a related measure and thereby, it may be assumed that the instrument adequately captures the construct of self care agency (148).

4.3.2.6.2 Alcohol use

The Fast Alcohol Screening Test (FAST) tool was used to identify hazardous alcohol users (149). Respondents were asked an initial screening question to determine alcohol consumption in terms of units; three questions were asked thereafter if the individual reported that they had consumed more than six (female) or eight (male) units on a single occasion in the last year. Total scores were generated by summing the numerical values associated with responses. The minimum total score of the FAST is 0 and the maximum 16. Individuals with a score greater than seven were categorised as harmful alcohol users; between three and six as hazardous alcohol user, and less than three, as non-hazardous (150).

The FAST tool has demonstrated satisfactory sensitivity (92.8%) and specificity (87.6%) in detecting hazardous alcohol use in patients, within a medical setting, when compared with the gold standard Alcohol Use Disorders Identification Test (149). This means that the test has reasonable probability of correctly identifying both individuals who are hazardous alcohol users (sensitivity) and those who are not (specificity).

4.3.2.6.3 Diet

The Food Frequency Questionnaire (FFQ) component was extracted from the Food and Community Evaluation Tool (FACET) and used to evaluate offshore workers' diet. The FACET was developed by the Medical Research Council to evaluate diet within the UK and has demonstrated reasonable validity demonstrating positive correlation with dietary intake reported in the FFQ and in a food diary (151-153). The FFQ element enabled researchers to directly measure fruit and vegetable consumption within the population. Further, when compared to other FFQ questionnaires which are typically comprehensive

(151), the measure used was relatively short. Brevity of individual items was deemed critical due to the large amount of measures included in this study.

Respondents completing the FFQ were required to indicate the number (1, 2, 3 or 4+) of portions of foods, from a list of 14, they had consumed in the last 24 hours. Scores for fruit and vegetable intake were summed from each of the nine items of the FFQ. National Health Service guidelines indicate that potatoes do not count towards five-a-day and as such, they were excluded from the total count (154).

Total scores were transformed into categories in accordance with whether respondents were adherent to five-a-day guidelines. An error was recorded in the summing of scores, the maximum entries a respondent could enter was 4+, thereby if an individual reported 0 on all but one foods, the total sum would be 4+ and would preclude that respondent from being categorised as adherent to the guidelines. There was one case where this error occurred, and consequently, the respondent was excluded from the analysis. In addition, respondents were asked to report on their diet on and offshore to determine if there was any divergence in behaviour. Respondents were required to answer using a 5-point Likert scale.

4.3.2.6.4 Smoking

The three basic questions deemed the highest priority measures, from the Global Adult Tobacco Survey (GATS) were used to evaluate smoking within the offshore population. The measure is a "*…global standard protocol for consistent monitoring of adult tobacco use*" (155). The measure poses one question to all respondents, which depending on the response, may be followed by another. The nature of the questioning ensures that respondents are accurately categorised as smokers, ex-smokers or non-smokers.

Selection was based on the comprehensiveness of the measure and since it has been standardised for use by the World Health Organisation for the Global Tobacco Surveillance System programme (155,156). In addition, respondents, who were smokers, were asked to report on their smoking on and offshore to determine if there was any divergence in behaviour e.g. if they smoked more onshore. Respondents were required to answer using a 5-point Likert scale.

4.3.2.6.5 Physical activity

The International Physical Activity Questionnaire (IPAQ) short form (157) was used to assess physical activity over a seven day period. A minimum of 4, and maximum of 7 questions are asked, selection is dependent on response. Respondents were required to report the number of days, hours and minutes that they exercise vigorously, moderately and walk for 10 minutes or more. In addition, there is a single question on the amount of time spent sitting.

Metabolic equivalent (MET) scores, which provide an indication of individual energy expenditure, were calculated for walking, moderate and vigorous exercise using the scoring protocol. Total MET scores are generated by summing each component and can be further classified, in accordance with the protocol stipulations, into high, moderate and low physical activity categories.

In addition, respondents were further categorised in accordance with NHS moderate-vigorous physical activity (MVPA) guidelines which stipulate that adults aged 19-64 should complete a minimum of 150-minutes of moderate or 75-minutes of vigorous physical activity per week (158).

The measure has demonstrated satisfactory test-retest reliability (r = 0.75) and moderate criterion validity (r = 0.39, p = 0.015) (157,159,160). This suggests that the scores obtained from the IPAQ are stable over time and that it measures what it intends to.

In addition, respondents were asked to report on their physical activity on and offshore to determine if there was any divergence in behaviour. Respondents were required to answer using a 5-point Likert scale.

4.3.2.6.6 Mindfulness

Mindfulness, defined as "*the state of being attentive to and aware of what is taking place in the present*", was considered by the research team to be an appropriate concept pertaining to self care (161). The 15-item Mindful Attention Awareness Scale (MAAS) was used to determine mindfulness. Statements in the 15-item MAAS were worded negatively and exemplified decreased mindfulness e.g. '*I find myself preoccupied with the future or the past*'. Responses were measured using a 6-point Likert scale. Total scores were generated by summing the responses, positively worded items were reverse scored, and dividing by the total number of items. The minimum mean score of the MAAS is 1 and

the maximum 6. Higher scores represent greater engagement in mindfulness and hence are indicative of a degree of positive functioning.

The MAAS has demonstrated satisfactory reliability with regard to internal consistency (0.82–0.87) and thus, there is sufficient evidence to suggest that the 15 items are related to the same concept. Further, the measure has demonstrated reasonable test-retest reliability (0.81) and is indicative that scores are stable over time. In addition, the measure correlated positively with a range of comparable measures although correlations were moderate and thus, suggestive that the instrument measured a distinct construct. The trend in correlations supports the convergent and discriminant validity (criterion validity) of the measure (161).

4.3.2.6.7 Sleep

The Pittsburgh Insomnia Rating Scale-2 (PIRS-2) (162) was used to assess insomnia in respondents and was included as a measurement since the literature on health in the offshore workforce has highlighted its importance to overall wellbeing and occupational safety.

Respondents were required to answer two questions using 5-point Likert scale response options. Total scores were obtained by adding the numbers associated with each response. The minimum total score of the PIRS-2 is 0 and the maximum 6. A score of 0-1 would indicate that the individual was at low risk insomnia, a score of 2 that the risk is moderate and 3 or more, that the risk was higher.

The scale was selected on the basis that it has good internal consistency (α= 0.77), meaning that the items on the scale relate to one another. Further, the PIRS-2 has demonstrated good criterion validity evidenced by the positive correlations between the measure and similar instruments (162).

In addition, respondents were asked to report on their sleep quality on and offshore to determine if there was any divergence in behaviour. Respondents were required to answer using a 5-point Likert scale.

4.3.2.6. 8 Single Question Drug Use Screening Test

Respondents were asked to complete the Single Question Drug Use Screening Test (SQDUST) (163): "*How many times in the past year have you used an illegal drug or used a prescription medication for non-medical reasons?*". The test demonstrated satisfactory sensitivity (92.9%) and specificity (94.1%) in detecting self-reported drug use in a sample of adults who attended a primary care facility (163). This means that the test has reasonable probability of correctly identifying both individuals who are recreational drug users (sensitivity) and those who are not (specificity). Respondents were required to select an answer from the following options: 0; 1-5; 6-10; 10+.

4.3.3 Pre-testing

4.3.3.1 Expert panel

In an effort to ensure face and content validity (164), eight experts in research design, offshore health and self care, were invited, via email, to participate in an expert panel review of the questionnaire. Panel members were sent a review pack (Appendix 4.2) containing: the draft questionnaire, which had been initially reviewed by the research team (Appendix 4.1); an outline of the research aims and objectives; details of the theoretical basis of the questionnaire; a draft respondent information sheet; and instructions for performing the appraisal.

The expert panel were all professional contacts of the research team and included:

i.   Dr Brian Wells: *Consultant Pharmacist, Wells Offshore.*
ii.   Dr David Webber: *President of the International Self Care Foundation.*
iii.   *Professor Graham Furnace: Medical Advisor, Oil and Gas UK.*
iv.   Mr Harry Horsley: *Occupational Health Adviser/Medic, British Petroleum.*
v.   *Professor James Ferguson: Clinical Lead, Centre for Scottish Telehealth and Telecare.*
vi.   Dr Katie MacLure: *Senior Research Fellow and Lecturer, Pharmacy and Life Sciences, Robert Gordon University.*
vii.   Ms. Kira Duckworth: *Lecturer in Occupational Health, School of Nursing and Midwifery, Robert Gordon University.*
viii. Mr Neil Hayward: *Pharmacist Manager, Wells Offshore.*

All eight invitees provided a review of the questionnaire via email. A large number of the comments pertained to grammatical, formatting and structural errors; however, feedback

on the appropriateness of self care measures was also received. Each review was discussed by the research team prior to any changes being made (see Appendix 4.3 for questionnaire revisions and an example of the expert panel comments received).

4.3.3.2 Think aloud

A sample of offshore workers (n= 2), who had been identified via personal contacts of the research team, were invited to participate in a 'think aloud' study. The think aloud method permits researchers to test the usability of questionnaire measures e.g. how easily items are interpreted. Think aloud studies are typically conducted with a small sample of participants who are representative of the main study target population. The sample are asked to think aloud whilst a researcher observes them completing a questionnaire or task. Thinking aloud requires participants to talk through thought and decision-making processes, highlighting any problem areas. The process permits the researcher to assess the clarity of questions and procedures from the participant's perspective (165,166).

A think aloud protocol, comprising verbal instructions for conducting the study, was developed in accordance with a previous exemplar (167). Respondents were provided with a briefing in accordance with the protocol (Appendix 4.4) and asked to complete the questionnaire whilst talking the researcher through their thought and decision-making processes. Notes were taken to record areas that respondents had difficulty in interpreting or understanding. Probing questions were used, where appropriate, to clarify further. Negative respondent evaluations lead to the revision of problematic items. However, respondents did not foresee any issues with the content of validated measures and thus, the only modifications made pertained to rephrasing in light of colloquial terminology.

4.3.4 Promoting quality in research

A number of steps were undertaken in phase 1 to promote quality in research, ensuring that the data collected was both valid and reliable and that any occurrence of bias was minimised (see Chapter 3 section 3.7.1 for a discussion on validity, reliability and bias). For example, all questionnaire items and measures were evaluated by the research team and expert panel prior to their inclusion in an effort to enhance face and content validity.

In addition, in an effort to reduce respondent fatigue, short form measures were utilised where appropriate and respondents permitted to omit answers from individual items and pages (168,169). Further, questionnaire content was tailored to respondents' responses

so that the questions displayed were dependant on previous answers. This design ensured that the length of the questionnaire was reduced and that fatigue, was minimised.

In addition, a number of measures which have been reported to increase responses to electronic questionnaires (169,170) were incorporated into the study design:

    i.   Personalisation of email invitation e.g. addressing the individual by name
    ii.   Email content kept to a minimum
    iii.   Specification of deadline for completion in email invitation
    iv.   Picture included in email
    v.   Exclusion of 'survey' from email subject heading
    vi.   Use of white background for questionnaire
    vii.   Use of simple headers in questionnaire
    viii.   Reminder emails (minimum of 1)
    ix.   Reminder to be sent between 1 and 2 weeks after initial invitation
    x.   Use of vouchers/lotteries (a £50 Amazon gift card was used to incentivise)

4.3.5 Pilot study

A pilot study was used to evaluate the proposed data collection procedures, and to inform the direction of the main survey phase.

4.3.5.1 Objectives

    i)   To assess the appropriateness of the proposed recruitment strategy
    ii)   To estimate the duration of the recruitment phase in terms of the number of weeks required to ensure an adequate sample size
    iii)   To evaluate the appropriateness of questionnaire measures in capturing health and self care amongst offshore workers
    iv)   To estimate the response rate in the main survey

4.3.5.2 Respondents and recruitment

The inclusion criteria were outlined prior to collecting data and negotiating access to a sample, and were outlined as:

i. respondents had prior experience of working in an offshore environment (including offshore installations and vessels)

ii. their current employment required them to travel and stay overnight in an offshore environment.

The inclusion criteria were critical in influencing the selection of a recruitment site. Although the research team considered a number of methods of recruiting offshore workers to the study, a face-to-face approach to recruitment was deemed most appropriate since it would offer a higher level of personalisation. In ensuring this approach, operational training environments for offshore personnel, located within the North East of Scotland, were identified as potential recruitment sites. Sites were selected on the basis that they would enable the researcher to capture a large sample of offshore workers from a range of occupational backgrounds and who were representative of multiple global oil and gas companies.

First contacts were initiated with Petrofac Training Services (PTS) who are located in Aberdeen. Discussions were facilitated via an employee of the company who was a contact of the research team. Access was granted by a senior member of PTS and negotiations made with the Safety and Survival Training Manager to utilise a sample from the Further Offshore Emergency Training (FOET) course. The FOET operates on a daily basis with a maximum number of 16 attendees, and is a one day refresher course, to be completed every four years by offshore personnel, enabling delegates to maintain their current certification for working offshore in the UK Continental Shelf (UKCS).

The researcher was offered access to a range of courses, however, the FOET was perceived to be the most appropriate since it enabled the researcher to maximise the number of personnel captured in the study. In addition, it was a prerequisite that personnel on the FOET had previously completed basic offshore training and thus, increased the likelihood that delegates had prior experience of working in an offshore environment. Hence, sampling from the FOET ensured that the inclusion and exclusion criteria were fulfilled. It was noted, through initial discussions, with PTS that course finish times were variable and thus, it would not be possible to determine an exact finish time in advance. In an effort to ensure that researcher presence at the recruitment site was kept to a minimum, the research team agreed in advance that the researcher would be notified of the finish time by a PTS employee on the afternoon of each course.

Whilst recruitment from multiple training sites was considered, it was deemed inappropriate due to the logistics of managing course finish times and the geographical spread of sites and thus, PTS was identified as the sole recruitment site. Moreover, although it was acknowledged that recruitment from a single site may elicit recruitment bias, the delegates attending the course were employees of the oil and gas industry, and represented multiple global employing organisations. Further, successful completion of the FOET is a prerequisite for maintaining any type of employment within the UK Continental Shelf and consequently, attracts delegates from a diverse range of occupational backgrounds e.g. catering crew, engineers, oil installation managers, divers, welders. Thus, due to the factors aforementioned, the selection of a single recruitment site was warranted and ensured that the sample population was representative of the diversity observed in the wider offshore population.

4.3.5.3 Procedure

The researcher attended the recruitment site daily for a period of five days (Monday to Friday only) and recruited from five individual courses. Delegates attending the FOET course were informed by a PTS Trainer that the researcher would be providing a brief summary of a research study. The researcher presented details of the study in person, prior to delegates being issued with their training completion certificates, in accordance with a script (Appendix 4.5) to ensure consistency. Interested persons were asked to complete a contact form (Appendix 4.6) with details of their name and email address. All data, once received, was stored on an electronic database which was password protected and accessible only by the primary researcher. All paper contact forms were destroyed promptly after the delegates' details were entered into the electronic database.

Email invitations (Appendix 4.7), including a link to the questionnaire, were sent out within a 24 hour period, and recipients were asked to complete the questionnaire by the deadline date, set for two weeks from the point of contact. Respondents were asked at the end of the questionnaire if they would like to receive further information on the interview phase of the study, and if they would like to be entered into a prize draw for a £50 Amazon voucher. All respondents were provided with the opportunity to complete the form anonymously.

Questionnaire responses were received via email in a coded format to ensure that all information remained confidential. Emails were imported into the SNAP software and from there, exported into a database hosted by SPSS. The names and contact details of those respondents who elected into the interview phase or prize draw were deleted from the

SPSS database to ensure confidentiality. Two separate databases, hosting the names and contact details of those interested in the interview phase or wishing to participate in the prize draw, were created using Microsoft Excel.

4.3.5.4 Pilot study results

A total of 51 delegates (87.9% of those attending the FOET course) provided contact information, 9 of whom completed the questionnaire (17.6% response rate). The mean age of respondents was 43.4years ($SD = 10.9$).

4.3.5.5 Discussion

i)   To assess the appropriateness of the proposed recruitment strategy
ii)   To evaluate the appropriateness of questionnaire measures in capturing health and self care amongst offshore workers
iii)   To estimate the response rate in the main survey

As reflected by the response rate both the proposed recruitment strategy and questionnaire measures utilised were deemed appropriate. Accordingly, no changes were made to the questionnaire after conducting the pilot study. The response rate of 17.6% was achieved in the absence of reminder emails, consequently, and in an effort to increase the response rate in the main survey, it was agreed that two reminder emails would be sent to respondents at fortnightly intervals. Based on previous published estimates (171), the addition of reminder emails would double the response rate, increasing to approximately 35%.

4.3.6 Main survey

4.3.6.1 Sample size estimate

It was predicted, due to the scope of the study, that a number of statistical analyses may be performed on the data set. This required estimation of individual power size in accordance with relevant tests to be used to analyse the datasets (t-tests, Mann Whitney U Test, ANOVA and chi-square).

A priori power calculations were performed and whilst the final analysis did not use ANOVA, the ANOVA power analysis produced the largest sample size and subsequently,

was selected as a basis for recruitment to ensure that the minimum criteria were satisfied. The results obtained from using G Power V software suggest a sample size of approximately n= 324 for a one way fixed effects, omnibus ANOVA, using a medium effect size (0.25) as outlined by Cohen's criteria (172), alpha= 0.05 and power= 0.95.

4.3.6.2 Respondents and recruitment

Respondents were recruited from the same operational training environment that was used in the pilot (PTS) and were all delegates of either the FOET or an offshore health and safety course. Delegates (n = 776) in attendance had prior experience of working in offshore environments and were from a diverse range of occupational backgrounds e.g. catering crew, engineers, oil installation managers, divers, welders.

4.3.6.3 Procedure

The procedure from the pilot survey was replicated in the main survey, with the addition of reminder emails. A total of two reminder emails (Appendix 4.8) were sent to those who had not been marked as interested in the qualitative interview phase of the research or entered into the prize draw. The first reminder email was sent on the 12th day, calculated from the date of the invitation email, and the second, 14 days after the deadline date had lapsed. The researcher attended the recruitment site daily for a period of 16 weeks (Monday to Friday only) and recruited from 72 individual courses.

4.3.6.4 Analysis

A number of statistical methods were used to assist the analysis. Descriptive statistics were used to report demographics, employment, health status, quality of life and mental wellbeing, and self care. Means and standard deviations were used where distributions were normal, and medians and interquartile ranges, when the distribution was non-normal.

Cross-tabulations were performed on categorical data to determine if there was a statistically significant association between demographic and health status variables, and self care domains. P-values ≤ 0.05 were deemed significant. In the event that expected frequencies were less than 20%, the Pearson's chi square statistic was interpreted from the cross tabulation (130).

If expected frequencies exceeded 20% in a two-by-two table the Fisher's exact test value was used to determine statistical significance. Fisher's exact test was only available on the SPSS package utilised for two-by-two tables and thus, if cross-tabulations exceed a two-by-two format, and expected frequencies violated the assumptions of Pearson's chi square, statistical significance was not tested (130).

Independent t-tests and Mann Whitney U tests were used to determine associations between age, quality of life and mental wellbeing variables and self care domains. The analysis of quality of life and mental wellbeing variables in relation to self care domains was supported by a Department of Health study which reported that engagement in self care lead to improved quality of life and wellbeing (147).

When determining associations between continuous age, quality of life and mental wellbeing variables and binary self care domain variables, data sets were analysed to determine normality. The Kolmogorov-Smirnov test was performed on each data set to identify where data was normally distributed. Komogorov-Smirnov tests with alpha values >0.05 were considered non-significant, and indicative that the data did not significantly differ from a normal distribution. In instances where the alpha value was ≤0.05, it was assumed that the data was not normally distributed.

Independent t-tests were performed if data sets were normally distributed and where the aim of an analysis was to determine if there was a significant association between a continuous and binary categorical variable. Mann Whitney U tests were used when data was non-normal. Accordingly, Mann Whitney tests were used to test associations between all continuous age, quality of life and mental wellbeing variables and self care domains since each produced a non-significant Komogorov-Smirnov alpha value.

Whilst the use of multivariate statistical procedures was considered to explore self care domains in greater detail, it was decided after consultation with a statistician from the Wellcome Trust, Edinburgh, that these would be inappropriate given the aims of the research. For example, the data attained from the phase was collected in an effort to provide a snapshot of health, mental wellbeing and self care in the offshore workforce. The purpose of the subsequent phases was to explore self care in greater depth and thus, producing statistical models of behaviour at this stage was deemed unnecessary.

4.3.6.5 Analysis of missing data

Non-response to questionnaire items is commonplace, particularly in surveys of considerable length. Whilst there are a number of strategies available to researchers to assist in the analysis of missing data, such as multiple imputation, these methods assume that data is missing at random and consequently, their use may bias the data (173). Accordingly, pairwise deletion was used. This method specifies that if there is data missing from individual scales and measurement tools, all data pertaining to that specific scale/tool is deleted. This is in contrast to listwise deletion whereby entire cases are deleted if there is any missing data on any item across the questionnaire (174).

4.3.6.6 Research governance

The Research Ethics: Research Student and Supervisor Assessment (RESSA) form (Appendix 4.9) was completed and submitted alongside an ethics protocol document, which outlined all the research procedures and safeguards, to the Ethical Review Panel of the School of Pharmacy and Life Sciences, Robert Gordon University (Appendix 4.10). Ethical approval was granted on 17th May 2014 and prior to commencement of data collection (Appendix 4.11). Approval to access the sample at PTS was granted on 13th August 2014. Ethical approval was not required from the recruitment site to access delegates. Procedures to preserve confidentiality, anonymity and harm to respondents were integrated into the research design.

All respondents contact information was recorded on an electronic password protected database and hard copies destroyed after upload. Although contact details were recorded, they were only used to send respondents a link to the questionnaire and reminder emails, and were deleted from the questionnaire database upon completion of the phase 1.

The details were not used to initiate any further unsolicited contacts. Respondents who volunteered themselves for interview, or who wished to be entered into the prize draw, were required to provide contact information alongside their questionnaire. Although provision of such information could have rendered respondents identifiable, it was believed to be a necessary measure in ensuring criteria for interview are fulfilled and in increasing participation in the questionnaire.

In an effort to preserve anonymity in these cases, identifiable information was removed from respondents' responses and each, was assigned a unique identifier code, upon being imported to the SPSS database. All procedures conformed to the principles outlined in the Data Protection Act (1998) (175).

4.4 Results

4.4.1 Demographics and employment offshore

A total of 776 delegates (657 provided contact details; response rate = 84.7%) attended the FOET course, of which 352 completed the questionnaire (45.4% response rate). Respondents (n = 346) were aged 22-64 years (*Mean* = 42.9, *SD* = 10.1). Table 4.2 outlines the demographic and employment data collected from study respondents.

Table 4.2 **Demographic data**

Item (n)	n (%)
Gender (348)	
Female	13 (3.7)
Male	335 (96.3)
Marital status (348)	
Single	72 (20.7)
Married/In a Civil Partnership	258 (74.1)
Divorced	18 (5.2)
Live alone when onshore (349)	
Yes	58 (16.6)
No	291 (83.4)
Scottish Index of Multiple Deprivation (283)	
1 (most deprived)	19 (6.7)
2	25 (8.8)
3	43 (15.2)
4	99 (35.0)
5 (least deprived)	97 (27.6)
Highest level of education (349)	
Secondary School	72 (20.6)
College	158 (45.3)
University	102 (29.2)
Other	17 (4.9)
Ethnic group (350)	
White	340 (97.1)
Asian	3 (0.9)
Black	3 (0.9)
Mixed	4 (1.1)
Place of birth (346)	
UK	321 (92.8)
Other Europe	18 (5.2)
Africa	3 (0.9)
North America	2 (0.6)
Asia	2 (0.6)
Years worked offshore (350)	
<1 year	5 (1.4)
1-5 years	61 (17.4)
6-10 years	113 (32.3)
11-15 years	47 (13.4)
16-20 years	33 (9.4)
20+ years	91 (26.0)
Employment (350)	
Employee of a contracting company	147 (42.0)
Employee of an operating company	137 (39.1)
Self employed working for a contracting company	44 (12.6)
Self employed working for an operating company	22 (6.3)
Years with current employer (347)	
<1 year	36 (10.4)
1-5 years	174 (50.1)
6-10 years	70 (20.2)
11-15 years	21 (6.1)
16-20 years	16 (4.6)
>20 years	30 (8.6)
Shift (350)	
Day	203 (58.0)
Night	33 (9.4)

Swing shift	19 (5.4)
Both	56 (16.0)
Other	39 (11.1)
Rotation pattern (351)	
2 weeks on/2 weeks off	32 (9.1)
2 weeks on/3 weeks off	74 (21.1)
Other	125 (35.6)
No specific pattern	120 (34.2)
Rotation type (352)	
Regular	212 (60.2)
Ad hoc	140 (39.8)
Location of completion of questionnaire (346)	
Onshore	250 (72.3)
Offshore	96 (27.7)

4.4.2 Perceived quality of life and wellbeing

4.4.2.1 Quality of life

Median scores for the SF-8 physical (n = 338) and mental components (n = 342) were 56.12 (*IQR* = 4.88) and 54.67 (*IQR* = 8.12) respectively. The largest median was attributable to the bodily pain domain *(Median* = 60.77, *IQR* = 7.42)* of the SF-8, and the smallest, to role emotional *(Median* = 52.42, *IQR* = 0.00)*. Lower scores on the SF-8 are indicative of poorer health rated quality of life (Table 4.3).

Table 4.3 SF-8 Scores

SF-8 Domain (n)	Median (*IQR*)
Physical functioning (347)	54.05 (0.00)
Role physical (343)	53.98 (0.00)
Bodily pain (345)	60.77 (7.42)
General health (346)	52.83 (6.40)
Vitality (338)	55.62 (0.00)
Social functioning (348)	55.25 (5.78)
Role emotional (352)	52.42 (0.00)
Mental health (350)	56.79 (7.20)

4.4.2.2 Mental wellbeing

Respondents WEMWBS scores (n = 326) ranged from 19.00 to 70.00 *(Median* = 52.00, *IQR* = 9.00)*. Higher WEMWBS scores are indicative of greater mental wellbeing.

4.4.3 Perceived health status

4.4.3.1 Body mass index

The median height (n = 349) and weight (n = 350) of respondents was 1.78 metres (*IQR* = 0.10) and 86.05 kilogrammes (*IQR* = 16.00) respectively. Respondents' BMI values (n = 347) ranged from 17.74 to 40.57, with a median value of 27.34 (*IQR* = 4.85). The largest number of respondents' were classified as either overweight or obese (n = 256, 73.8%) (Table 4.4).

Table 4.4 BMI values and corresponding BMI classifications

BMI Classification (n = 347)	n (%)
Underweight (<18.5)	1 (0.3)
Normal (18.5-24.9)	90 (25.9)
Overweight (25-29.9)	182 (52.4)
Obese (>30)	74 (21.3)

4.4.3.2 Long term health conditions

Fifty-two respondents (14.8%) reported a long term health condition. The majority disclosed they only suffered from one condition (n = 37, 82.2%) and the remainder reported multiple conditions (n = 8, 17.8%), ranging from two to six. The largest percentage of respondents indicated that they took an active role in caring for their long term health condition(s), and that they would do so 'all the time' (n = 31, 49.2%). Please note that the number of responses (Table 4.5) equates to the number of long term health conditions disclosed.

The long term health conditions disclosed (n = 60), included: acid reflux (n = 5, 8.3%); anterior cruciate ligament reconstruction (n = 1, 1.7%); arterial fibrillation (n = 1, 1.7%); asthma (n = 13, 21.7%); arthritis (n = 1, 1.7%); back pain (n = 2, 3.3%); cartilage degeneration (n = 1, 1.7%); chronic pain (n = 1, 1.7%); Crohn's disease (n = 1, 1.7%); depression (n = 2, 3.3%); type 2 diabetes (n = 4, 6.7%); eczema (n = 1, 1.7%); epilepsy (n = 1, 1.7%); Factor V Leiden Mutation Heterozygous (n = 1, 1.7%); hiatus hernia (n = 1, 1.7%); hypertension (n = 11); heart condition (n = 2, 3.3%); high cholesterol (n = 4, 6.7%); hypothyroidism (n = 2, 3.3%); myocardial infarction (n = 1, 1.7%); Primary Raynaud's Syndrome (n = 1, 1.7%); sciatica (n = 1, 1.7%); spondylitis (n = 1, 1.7%); spondylolisthesis (n =1, 1.7%), and ulcerative colitis (n = 1, 1.7%).

Table 4.5 Caring for long term health condition(s)

How often do you take an active role in caring for your long term health condition? (n=63)	n (%)
All the time	31 (49.2)
Most of the time	17 (27.0)
Quite often	4 (6.3)
Sometimes	10 (15.9)
Never	1 (1.6)

4.4.3.3 Medicines use

Eighty percent of respondents (n = 40) who disclosed having at least one long term condition reported taking medication for a long term illness. The number of medicines taken for each long term health condition ranged from 0 to 5.

4.4.3.4 Medicines advice

The majority of respondents who disclosed that they took medication for a long term health condition (n = 52) reported that they would normally obtain information on medicines use from their general practitioner (GP) (n = 35, 67.3%) (Table 4.6).

Table 4.6 Obtaining information on taking medicines

Where do you normally obtain information on taking medication? (n = 52)	n (%)
NHS 24	1 (1.9)
GP	35 (67.3)
Practice Nurse	6 (11.5)
Pharmacist/Chemist	9 (17.3)
Rig Medic	1 (1.9)

4.4.3.6 Absenteeism

Around one fifth (n = 70, 20.1%) of respondents (n = 348) stated that they had, at some point, been unable to travel to an offshore installation. Reasons for absenteeism (n = 77) included: injury (n = 30, 39.0%); health condition (n = 35, 45.5 %); other (n = 7, 9.1%); personal or emotional problem (n = 5, 6.5%). Other included: anterior cruciate reconstruction; appendix removal; back surgery; bowel removal; broken ribs and punctured lung; injury to family member, and sexism in the workplace.

4.4.3.7 Medical Evacuation

Forty two (12.1%) respondents noted that they had required medical evacuation from an offshore platform at some point over the course of their career; over one third of which (n = 14, 34.1%) were emergency cases. Over the course of their offshore career, the majority (n = 34, 85.0%) of evacuees reported that they had been evacuated on only one occasion (Table 4.7).

Table 4.7 Medical evacuations over the course of a year

Number of medical evacuations over the course of career (n = 40)	n (%)
1	34 (85.0)
2	4 (10.0)
3	0 (0.0)
4	1 (2.5)
5	0 (0.0)
6	0 (0.0)
7	0 (0.0)
8	0 (0.0)
9	0 (0.0)
10+	1 (2.5)

The reasons provided for evacuation (n = 44), included: medical (n = 19, 43.1%); injury (n = 15, 34.1%); other (n =8, 18.2%); personal or emotional problem (n =2, 4.5%). Due to a failure in the design of the questionnaire, individuals who selected other were unable to provide comments for their answer.

4.4.3.8 Seeking health advice in the offshore workforce

The majority of respondents (n = 212, 60.9%) reported that they had sought health advice within the last year (Table 4.8). Most had sought advice from their GP (n = 256, 67.9%), however, a number reported seeking advice from: rig medic (n = 69, 18.3%); other source (n= 25, 6.6%); pharmacist/chemist (n = 12, 3.2%); nurse (n = 8, 2.1%); NHS 24 (n = 7, 1.9%). Other professionals/services for which advice was sought included: accident and emergency; chiropractor; consultant; dentist; optometrist; psychotherapist; physiotherapist; specialist, and surgeon.

Table 4.8 Seeking health advice

When did you last seek health advice for any health issues? (n = 348)	n (%)
Never	13 (3.7)
Within the last week	11 (3.2)
Within the last month	52 (14.9)

Within the last 6 months	100 (28.7)
Within the last year	49 (14.1)
Over a year ago	123 (35.3)

As outlined in Table 4.9, the nature of advice most frequently sought from GPs (n = 116, 43.8%), rig medics (n = 43, 62.3%) and pharmacists (n = 9, 69.2%) related to short term illness. Further, respondents did not report seeking any advice on personal or emotional problems from a rig medic, pharmacist, nurse or NHS 24. This type of advice was either discussed with a GP (n = 13, 4.9%) or other healthcare professional (psychotherapist) (n = 1, 3.%).

The 'other' domain in relation to advice sought included a number of issues. Advice sought, pertaining to the 'other domain', from GPs (n = 57, 21.5%) included: annual health monitoring; anxiety; back pain; benign cyst; blood pressure checks; cholesterol monitoring; examination of lump; dermatological issue; foot care; gastric reflux; hay fever; headaches; haemorrhoid; hypertension clinic; insomnia; issues associated with being overweight; kidney stones; knee pain; medicines review; minor ailment; phlebitis; protein in urine; respiratory; sciatica; thyroid; travel inoculations. Advice provided by the rig medic, pertaining to the 'other' domain, included (n = 15, 21.7%): blood in urine; cholesterol check; cough; dermatology; ear ache/infection; eye complaint; foot care; general check; irregular bowel movements; malaria medication advice; nicotine replacement therapy; provision of sun cream, and urinary tract infection.

The respondent who reported calling NHS 24 for advice on 'other' could not recall the reason. Advice on a fungal nail infection and dental issue was sought from a pharmacist (n = 1, 7.7%) and nurse (n = 1, 12.5%) respectively, and was also included in the 'other' domain. The following were listed as 'other' health advice sought from a healthcare professional/service not included in the original list (n = 7, 26.9%): back pain (physiotherapist); blurred vision (optometrist); dental check (dentist); gastric reflux (specialist); gall bladder recovery (consultant); hernia; hives (consultant), and keratoconus (optometrist).

Table 4.9 Nature of health advice sought from professional/service

Nature of advice	Professional/Service (n)					
	GP (265)	Medic (69)	Pharmacist (13)	Nurse (8)	NHS 24 (7)	Other (26)
Short term illness	116 (43.8)	43 (62.3)	9 (69.2)	2 (25.0)	3 (42.9)	3 (11.5)

Long term illness	17 (6.4)	1 (1.4)	0 (0.0)	3 (37.5)	0 (0.0)	0 (0.0)
Personal/emotional	13 (4.9)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	1 (3.8)
Injury	50 (18.9)	8 (11.6)	1 (7.7)	1 (12.5)	1 (14.3)	7 (26.9)
Dental issue	12 (4.5)	2 (2.9)	2 (15.4)	1 (12.5)	2 (28.6)	8 (30.8)
Other	57 (21.5)	15 (21.7)	1 (7.7)	1 (12.5)	1 (14.3)	7 (26.9)

Percentages in parenthesis

4.4.4 Caring for minor ailments and leading a healthy lifestyle

4.4.4.1 Self care of minor ailments

The majority of respondents, when asked if they took an active role in treating minor ailments (n = 352), reported that they did so 'all the time' (n = 150, 42.6%) (Figure 4.1).
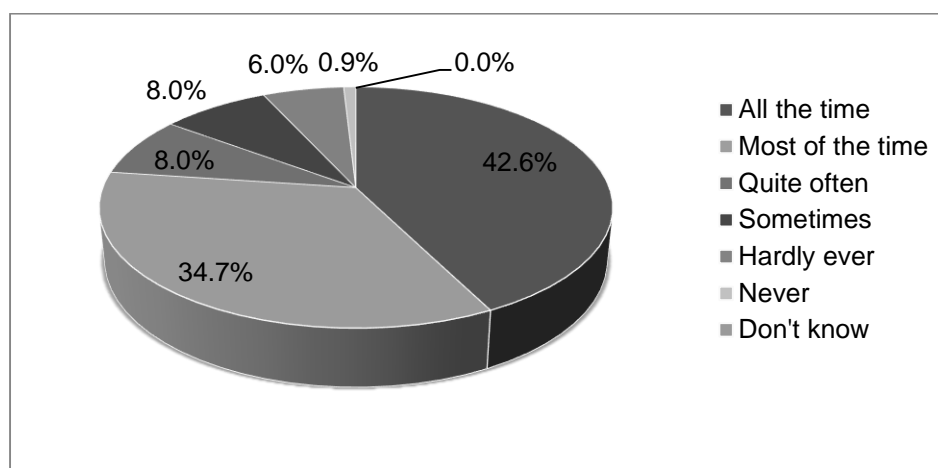
Figure 4.1 Self care of minor ailments (n = 352)

4.4.4.2 Leading a healthy lifestyle

In terms of taking an active role in leading a healthy lifestyle (n = 345) the largest proportion of respondents stated that were likely to do this 'most of the time' (n = 128, 37.1%) (Figure 4.2).
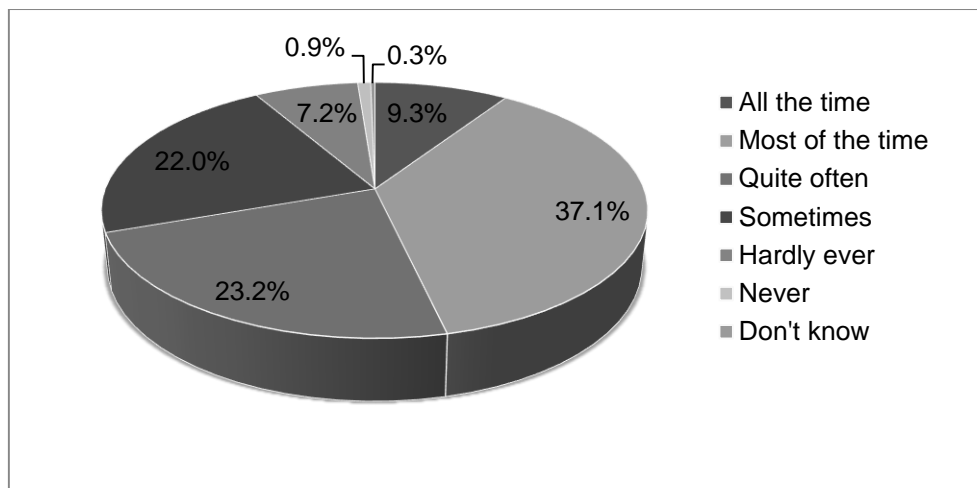
Figure 4.2 Leading a healthy lifestyle (n = 345)

4.4.5 Perceived self care status

4.4.5.1 Self care agency

The scores (n = 315) from the ASAS-R ranged from 29 to 72. The median value was 56.00 (*IQR* = 9.00). Lower scores (range between 15 and 75) are indicative of decreased self care agency.

4.4.5.2 Physical activity

Over half of respondents (n = 352) were deemed to have 'high' physical activity levels over the last seven day period (n = 201, 57.1%), one quarter classified as having 'low' levels (n = 91, 25.9%) and the remaining, as being moderately active (n = 60, 17.0%).

Over 70% (n = 250, 71.0%) of respondents achieved the recommended MVPA guidelines. 29% of respondents did not achieve the recommended level of physical activity. The largest proportion of respondents reported that they were a lot more physically active when they were onshore (n = 102, 29.1%) (Table 4.10).

Table 4.10 Physical activity on and offshore

Please select the most appropriate response with regard to your physical activity (n = 351)	n (%)
I am a lot more physically active when I am onshore	102 (29.1)
I am a little more physically active when I am onshore	58 (16.5)
There is no real difference in my physical activity on or offshore	85 (24.2)
I am a little more physically active when I am offshore	58 (16.5)
I am a lot more physically active when I am offshore	48 (13.7)

4.4.5.3 Diet

The median number of portions of fruit and vegetables consumed by respondents (n = 349) in a 24 hour period was 4.00 (*IQR* = 4.00); however, the number of portions reported ranged from 0 to 24.

Just under 50% of respondents (n = 349) achieved (n = 174, 49.9%) five-a-day fruit and vegetable guidelines and just over fifty percent, did not achieve the target (n = 175, 50.1%). The largest proportion of (n = 130, 37.0%) of respondents reported that there was a no real difference in their diet on or offshore (Table 4.11).

Table 4.11 Diet on and offshore

Please select the most appropriate response with regard to your diet (n = 351)	n (%)
I eat a lot more healthily when I am onshore	89 (25.4)
I eat a little more healthily when I am onshore	57 (16.2)
There is no real difference in my diet on or offshore	130 (37.0)
I eat a little more healthily when I am offshore	53 (15.1)
I eat a lot more healthily when I am offshore	22 (6.3)

4.4.5.4 Smoking

Around one fifth of respondents were current smokers (n = 70, 19.9%), a quarter ex-smokers (n = 87, 24.7%) and over one half, have never smoked (n = 195, 55.4%). The largest proportion (n = 20, 29.0%) of respondents reported that they smoke a lot more frequently when they are offshore (Table 4.12).

Table 4.12 Smoking on and offshore

Please select the most appropriate response with regard to your smoking (n = 69)	n (%)
I smoke a lot more frequently when I am onshore	13 (18.8)
I smoke a little more frequently when I am onshore	11 (15.9)
The amount of cigarettes I smoke is the same both on or offshore	15 (21.7)
I smoke a little more frequently when I am offshore	10 (14.5)
I smoke a lot more frequently when I am offshore	20 (29.0)

4.4.5.5 Alcohol use

The mean FAST score was 3.00 (*IQR* =3.0) and scores ranged from 0 to 12. Over fifty percent (n = 183, 52.0%) of respondents were classified as having a positive score and deemed to be at risk of harmful or hazardous alcohol use (Table 4.13).

Table 4.13 FAST score

Category (n = 352)	n (%)
Harmful (>7)	29 (8.2)
Hazardous (3-6)	154 (43.8)
Non-hazardous (<3)	169 (48.0)

4.4.5.6 Drug use

The majority of the sample reported that they had not used an illegal substance within the specified time frame (n = 327, 94.8%). Eighteen offshore workers (5.2%) did report using a recreational drug and the largest percentage of those reporting so had used on 1-5 occasions (Table 4.14) in the last year (n = 11, 3.2%).

Table 4.14 Recreational drug use

Frequency (n = 345)	n (%)
0	327 (94.8)
1-5	11 (3.2)
6-10	1 (0.3)
10+	6 (1.7)

4.4.5.7 Mindfulness

MAAS scores (n = 317) ranged from 1.73 to 6, with a median of 4.53 (*IQR* = 1.10). Higher scores (range between 1 and 6) represent greater engagement with mindfulness.

4.4.5.8 Sleep

The median PIRS-2 score was 2.00 (*IQR* = 3.00) and scores ranged from zero to six. The largest proportion of respondents were classified as being at high risk of insomnia (n = 161, 47.1%). One third (n =113, 33.0%) were deemed to be at low risk and around one fifth (n =68, 19.9%), at moderate risk. The largest percentage of respondents reported sleeping a lot better when they were onshore (n = 118, 34.3%) (Table 4.15).

Table 4.15 Sleep offshore

Please select the most appropriate response with regard to your sleep (n = 344)	n (%)
My sleep quality is a lot better when I am onshore	118 (34.3)
My sleep quality is a little better when I am onshore	52 (15.1)
My sleep quality is the same both on and offshore	108 (31.4)
My sleep quality is a little better when I am offshore	52 (15.1)
My sleep quality is a lot better when I am offshore	14 (4.1)

4.4.6 Positive and negative scoring across self care domains

Respondents individual scores across each self care domain were categorised as either being positive scores or negative scores. Table 4.16 describes the parameters used to categorise domains.

Table 4.16 Parameters used to categorise self care

Domain	Positive self care score	Negative self care score
Self care agency	> sample median (≥56)	< sample median (≤55)
Physical activity	Achieving MVPA guidelines	Not achieving MVPA guidelines
Diet	Achieving 5-a-day guidelines	Not achieving 5-a-day guidelines
Smoking	Not current smoker (ex and non)	Current smoker
Alcohol use	FAST non-hazardous	FAST hazardous/ harmful
Drug use	No use	Drug use
Mindfulness	> sample median (≥4.53)	< sample median (≤4.52)
Insomnia	Low risk of insomnia	High/moderate risk of insomnia

The majority of offshore workers' scores were classified as positive across physical activity (n = 250, 71.0%), smoking (n = 282, 80.1%) and drug use (n = 327, 94.8%) domains (Table 4.17).

Conversely, the largest proportion of respondents insomnia scores (n = 229, 67.0%) were categorised as negative. Self care agency, diet, alcohol use and mindfulness domains scores were almost equally split across the categories.

Table 4.17 Overview of positive and negative scoring across self care domains

Domain (n)	Positive self care score (%)	Negative self care score (%)
Self care agency (315)	161 (51.1)	154 (48.9)
Physical activity (352)	250 (71.0)	102 (29.0)
Diet (349)	174 (49.9)	175 (50.1)
Smoking (352)	282 (80.1)	70 (19.9)
Alcohol use (352)	169 (48.0)	183 (52.0)
Drug use (345)	327 (94.8)	18 (5.2)
Mindfulness (317)	160 (50.5)	157 (49.5)
Insomnia (342)	113 (33.0)	229 (67.0)

4.4.7 Negative scores across multiple self care domains

Scores across self care domain were summed to determine a cumulative score in terms of how many self care domains offshore workers scored negatively across. Only offshore workers who completed each of the eight self care domains were included in the analysis (n = 277).

Only seven respondents' (2.5%) scores were classified as positive across each of the eight domains. One respondent (0.4%) scored negatively across all eight domains (Table 4.18).

Over 95% (n = 269, 97.1%) of respondents had between one and seven scores classified as negative. The median number of self care domains which offshore workers scored negatively across was 3.00 (*IQR* = 2.00).

Table 4.18 The frequency of negative scoring across self care domains

No. domains(n = 277)	n (%)
0	7 (2.5)
1	35 (12.6)
2	54 (19.5)
3	64 (23.1)
4	56 (20.2)
5	40 (14.4)
6	16 (5.8)
7	4 (1.4)
8	1 (0.4)

4.4.8 Characteristics of the offshore workforce associated with self care domains

Mann-Whitney U tests, Chi-square analyses, and Fisher's Exact Test were used to determine if there was any association between selected demographic/health status characteristics of the offshore workforce and scores across each of the self care domains.

Gender was excluded from the analysis since only 13 females completed the questionnaire.

As outlined in Table 4.19, categories were merged in accordance with the guidelines outlined by De Vaus (176). For example, categories were combined where there were few responses within a single category.

Table 4.19 Justification for condensing and excluding response categories

Measure	Justification	New categories
SIMD	The majority of respondents were represented by the two least deprived SIMD quintiles and the fewest, in the three most deprived. Thus, in an effort to ensure a more even distribution, the three most deprived quintiles were condensed, and the remaining, reduced to another category.	Greater deprivation (quintiles 1-3) Lesser deprivation (quintiles 4-5)
Marital status	The fewest number of respondents were divorced, and consequently, the divorced and single categories were collapsed into one, to represent those that were not married. This ensured that responses were more evenly distributed across each category.	Single/divorced Married
Education	'Other' response excluded since the number was too small to include in analysis, and there was no justification for condensing with another category.	School College University
Years offshore	The number of respondents distributed across the categories was unequal. The midpoint was used as a cut-off and responses were condensed into two categories to ensure a more even distribution.	≤10 ≥11 years
Employee status	The number of respondents distributed across the categories was unequal. The employee status categories were collapsed to represent whether the respondent was employed by a contractor or operator. Whilst the categories could have been collapsed to represent self-employed and company employees, the offshore health literature has highlighted health differences between contractor and operator employees (83).	Employed by contractor Employed by operator
Years with employer	The number of respondents distributed across the categories was unequal. The midpoint was used as a cut-off and responses were condensed into two categories to ensure a more even distribution.	≤10 ≥11 years
BMI	One respondent was classified as having a BMI in the underweight range, and rather than exclude them from the analysis, BMI categories were merged into two further categories representing healthy and unhealthy BMIs.	Healthy BMI Unhealthy BMI
Time since last sought health advice	The number of respondents distributed across the categories was unequal. Consequently, seeking health advice categories were collapsed to represent whether the respondent had ever sought advice or if they had sought advice within or out with the last year.	Never Within the last year Over a year ago

4.4.8.1 Self care agency

A Mann-Whitney U test indicated that there was no significant difference in the median ages of those with ASAS-R scores below the median *(Median* = 43.00, *IQR* = 18.00) when compared with those with median scores above the median *(Median* = 42.00, *IQR* = 18.00), *U*= 11410.50, p = 0.45. Consequently, the results are indicative that age is not associated with ASAS-R score.

The results of a Pearson's chi square demonstrated that ASAS-R scores below the median was significantly associated with the number of years with employer, χ^2 (1) = 3.96, p = 0.05: a greater percentage of those with had been with their employer for 11 years or more had an ASAS-R score below the median (60.0%) than those who had worked for their employer for ten years or less (46.1%) (Table 4.20).

Table 4.20 Association between self care agency and demographic, and health status domains

Domain	ASAS-R below median, n (%)	ASAS-R above median, n (%)	P value (Chi square)
SIMD			
Greater deprivation	37 (47.4)	41 (52.6)	0.80
Lesser deprivation	86 (49.1)	89 (50.9)	
Marital status			
Single/divorced	35 (42.7)	47 (57.3)	0.24
Married	115 (50.2)	114 (49.8)	
Education			
School	31 (48.4)	33 (51.6)	
College	64 (45.7)	76 (54.3)	0.44
University	51 (54.3)	43 (45.7)	
Living Status			
Alone	24 (45.3)	29 (54.7)	0.58
Co-habiting	129 (49.4)	132 (50.6)	
Years offshore			
≤10	70 (44.3)	88 (55.7)	0.08
≥11	84 (54.2)	71 (45.8)	
Employee status			
Employed by contractor	84 (49.7)	85 (50.3)	0.66
Employed by operator	68 (47.2)	76 (52.8)	
Years with employer			
≤10	113 (46.1)	132 (53.9)	0.05
≥11	39 (60.0)	26 (40.0)	
Rotation type			
Ad-hoc	92 (47.9)	100 (52.1)	0.67
Regular	62 (50.4)	61 (49.6)	
Rotation pattern			
No specific pattern	61 (50.4)	60 (49.6)	
2/2	11 (37.9)	18 (62.1)	
2/3	39 (57.4)	29 (42.6)	0.48
3/3	7 (46.7)	8 (53.3)	
4/4	19 (43.2)	25 (56.8)	
Other	16 (43.2)	21 (56.8)	
Shift schedule			
Days	90 (50.6)	88 (49.4)	
Night	11 (35.5)	20 (64.5)	0.30
Swing	10 (62.5)	6 (37.5)	
Both	38 (47.5)	42 (52.5)	
BMI			
BMI outwith healthy range	114 (49.1)	118 (50.9)	0.87
BMI in healthy range	38 (48.1)	41 (51.9)	
Long term health condition			
Yes	26 (55.3)	21 (44.7)	0.34
No	128 (47.8)	140 (52.2)	
Absenteeism			
Yes	33 (54.1)	28 (45.9)	0.35
No	119 (47.4)	132 (52.6)	
Medical evacuation			
Yes	20 (55.6)	16 (44.4)	0.35
No	130 (47.3)	145 (52.7)	
Sought health advice in last year			
Never	8 (66.7)	4 (33.3)	
Within the last year	93 (49.7)	94 (50.3)	0.31
Over a year ago	50 (44.6)	62 (55.4)	

4.4.8.2 Physical activity

A Mann-Whitney U test indicated that there was a significant difference in the median ages of those with who achieved MVPA guidelines *(Median* = 42.00, *IQR* = 18.00) when compared with those not achieving *(Median* = 45.00, *IQR* = 14.00), *U* = 10463.50, p = 0.02. The results suggest that age was associated with physical activity: those more likely to achieve the recommended MVPA guidelines were younger in age than those who were not achieving.

Chi-square analyses demonstrated no significant differences, at an alpha level of 0.05, in variables when comparing those achieving physical activity guidelines and those who were not (Table 4.21).

Table 4.21 Association between achieving MVPA and demographic and health status domains

Domain	Does not achieve MVPA guidelines, n (%)	Achieves MVPA guidelines, n (%)	P value (Chi square)
SIMD			
Greater deprivation	25 (28.7%)	62 (71.3)	0.57
Lesser deprivation	63 (32.1)	133 (67.9)	
Marital status			
Single/divorced	23 (25.6)	67 (74.4)	0.44
Married	77 (29.8)	181 (70.2)	
Education			
School	22 (30.6)	50 (69.4)	0.51
College	40 (25.3)	118 (74.7)	
University	32 (31.4)	70 (68.6)	
Living Status			
Alone	14 (24.1)	44 (75.9)	0.35
Co-habiting	88 (30.2)	203 (69.8)	
Years offshore			
≤10	46 (25.7)	133 (74.3)	0.15
≥11	56 (32.7)	115 (67.3)	
Employee status			
Employed by contractor	52 (27.2)	139 (72.8)	0.54
Employed by operator	48 (34.2)	111 (69.8)	
Years with employer			
≤10	77 (27.5)	203 (72.5)	0.18
≥11	24 (35.8)	43 (64.2)	
Rotation type			
Ad-hoc	62 (29.2)	150 (70.8)	0.90
Regular	40 (28.6)	100 (71.4)	
Rotation pattern			
No specific pattern	40 (29.4)	96 (70.6)	0.09
2/2	4 (12.5)	28 (87.5)	
2/3	30 (40.0)	45 (60.0)	
3/3	5 (26.3)	14 (73.7)	
4/4	11 (22.9)	37 (77.1)	
Other	12 (29.3)	29 (70.7)	
Shift schedule			
Days	65 (31.9)	139 (68.1)	0.35
Night	6 (18.8)	26 (81.3)	
Swing	4 (21.1)	15 (78.9)	
Both	23 (26.4)	64 (73.6)	
BMI			
BMI out with healthy range	80 (31.1)	177 (68.9)	0.16
BMI in healthy range	21 (23.3)	69 (76.7)	
Long term health condition			
Yes	14 (26.9)	38 (73.1)	0.72
No	88 (29.3)	212 (70.7)	
Absenteeism			
Yes	25 (35.7)	45 (64.3)	0.17
No	76 (27.3)	202 (72.7)	
Medical evacuation			
Yes	16 (38.1)	26 (61.9)	0.16
No	84 (27.5)	221 (72.5)	
Sought health advice in last year			
Never	4 (30.8)	9 (69.2)	0.51
Within the last year	66 (31.1)	146 (68.9)	

| Over a year ago | 31 (25.2) | 92 (74.8) | |

Fisher's Exact Test

4.4.8.3 Diet

A Mann-Whitney U test indicated that there was no significant difference in the median ages of those not achieving five-a-day fruit and vegetable guidelines *(Median =43.00, IQR = 15.00)* when compared with those achieving *(Median = 42.00, IQR =19.00)*, $U = 14630.00$, p = 0.87. Consequently, the results are indicative that age was not associated with five-a-day fruit and vegetable consumption.

The results of a Pearson's chi square demonstrated that achievement of five-a-day fruit and vegetable guidelines was significantly associated with BMI, χ^2 (1) = 4.37, $p = 0.04$: a greater percentage of those with an unhealthy BMI did not achieve five-a-day fruit and vegetable guidelines (53.9%) than those with a healthy BMI (41.1%) (Table 4.22).

Table 4.22 Association between diet and demographic, and health status domains

Domain	Does not achieve five-a-day guidelines, n (%)	Achieves five-a-day guidelines, n (%)	P value (Chi square)
SIMD			
Greater deprivation	49 (56.3)	38 (43.7)	0.31
Lesser deprivation	97 (49.7)	98 (50.3)	
Marital status			
Single/divorced	42 (46.7)	48 (53.3)	0.52
Married	129 (50.6)	126 (49.4)	
Education			
School	38 (53.5)	33 (46.5)	
College	81 (51.6)	76 (48.4)	0.62
University	47 (46.5)	54 (53.5)	
Living Status			
Alone	28 (49.1)	29 (50.9)	0.89
Co-habiting	145 (50.2)	144 (49.8)	
Years offshore			
≤10	95 (53.7)	82 (46.3)	0.18
≥11	79 (46.5)	91 (53.5)	
Employee status			
Employed by contractor	97 (51.1)	93 (48.9)	0.71
Employed by operator	77 (49.0)	80 (51.0)	
Years with employer			
≤10	144 (50.4)	152 (54.3)	0.87
≥11	33 (49.3)	29 (43.3)	
Rotation type			
Ad-hoc	70 (50.0)	70 (50.0)	0.97
Regular	105 (50.2)	104 (49.8)	
Rotation pattern			
No specific pattern	67 (49.3)	69 (50.7)	
2/2	14 (43.8)	18 (56.3)	
2/3	39 (52.0)	36 (48.0)	0.36
3/3	13 (68.4)	6 (31.6)	
4/4	19 (41.3)	27 (58.7)	
Other	23 (57.5)	17 (42.5)	
Shift schedule			
Days	107 (52.5)	97 (47.5)	
Night	15 (48.4)	16 (51.6)	0.73
Swing	8 (42.1)	11 (57.9)	
Both	40 (47.1)	45 (52.9)	
BMI			
BMI out with healthy range	137 (53.9)	117 (46.1)	0.04
BMI in healthy range	37 (41.1)	53 (58.9)	
Long term health condition			
Yes	29 (55.8)	23 (44.2)	0.38
No	146 (49.2)	151 (50.8)	
Absenteeism			
Yes	37 (52.9)	33 (47.1)	0.57
No	135 (49.1)	140 (50.9)	
Medical evacuation			
Yes	20 (47.6)	22 (52.4)	0.74
No	152 (50.3)	150 (49.7)	
Sought health advice in last year			
Never	8 (61.5)	5 (38.5)	
Within the last year	103 (49.0)	107 (51.0)	0.68
Over a year ago	61 (50.0)	61 (50.0)	

4.4.8.4 Smoking

A Mann-Whitney U test indicated that there was no significant difference in the median ages of those who were current smokers *(Median* = 41.00, *IQR* = 17.00) when compared with those not currently smoking *(Median* = 42.00, *IQR* = 17.00), *U* = 9916.50, p = 0.63. Consequently, the results are indicative that age was not associated with smoking status.

The results of a Pearson's chi square demonstrated that smoking was significantly associated with multiple variables (Table 4.23). Smoking was significantly associated with employee status, $\chi^2(1)$ = 3.93, *p* = 0.05: a greater percentage of contractors smoked (23.6%) than operators (15.1%).

Similarly, smoking was significantly associated with medical evacuation, $\chi^2(1)$ = 5.72, *p* = 0.02: a greater percentage of those who had been evacuated were smokers (33.3%) than those who had not been evacuated (17.7%). Marital status, although not significant, demonstrated a borderline association with single/divorced respondents (n = 24, 26.7%) being more likely to smoke than married offshore workers (n = 45, 17.4%).

Table 4.23 Association between smoking and demographic, and health status domains

Domain	Current smoker, n (%)	Does not currently smoke, n (%)	P value (Chi square)
SIMD			
Greater deprivation	22 (25.3)	65 (74.7)	0.26
Lesser deprivation	38 (19.4)	158 (80.6)	
Marital status			
Single/divorced	24 (26.7)	66 (73.3)	0.06
Married	45 (17.4)	213 (82.6)	
Education			
School	16 (22.2)	56 (77.8)	0.90
College	34 (21.5)	124 (78.5)	
University	20 (19.6)	82 (80.4)	
Living Status			
Alone	16 (27.6)	42 (72.4)	0.12
Co-habiting	54 (18.6)	237 (81.4)	
Years offshore			
≤10	37 (20.7)	142 (79.3)	0.65
≥11	32 (18.7)	139 (81.3)	
Employee status			
Employed by contractor	45 (23.6)	146 (76.4)	0.05
Employed by operator	24 (15.1)	135 (84.9)	
Years with employer			
≤10	55 (19.6)	225 (80.4)	0.82
≥11	14 (20.9)	53 (79.1)	
Rotation type			
Ad-hoc	22 (15.7)	118 (84.3)	0.11
Regular	48 (22.6)	164 (77.4)	
Rotation pattern			
No specific pattern	21 (15.4)	115 (84.6)	0.17
2/2	8 (25.0)	24 (75.0)	
2/3	21 (28.0)	54 (72.0)	
3/3	2 (10.5)	17 (89.5)	
4/4	7 (14.6)	41 (85.4)	
Other	10 (24.4)	31 (75.6)	
Shift schedule			
Days	42 (20.6)	162 (79.4)	0.65
Night	4 (12.5)	28 (87.5)	
Swing	5 (26.3)	14 (73.7)	
Both	17 (19.5)	70 (80.5)	
BMI			
BMI out with healthy range	50 (19.5)	207 (80.5)	0.91
BMI in healthy range	18 (20.0)	72 (80.0)	
Long term health condition			
Yes	11 (21.2)	41 (78.8)	0.80
No	59 (19.7)	241 (80.3)	
Absenteeism			
Yes	18 (25.7)	52 (74.3)	0.17
No	51 (18.3)	227 (81.7)	
Medical evacuation			
Yes	14 (33.3)	28 (66.7)	0.02
No	54 (17.7)	251 (82.3)	
Sought health advice in last year			
Never	1 (7.7)	12 (92.3)	0.31
Within the last year	40 (18.9)	172 (81.1)	
Over a year ago	29 (23.6)	94 (76.4)	

4.4.8.5 Alcohol use

A Mann-Whitney U test indicated that there was a significant difference in the median ages of those classified as hazardous alcohol users *(Median* = 40.00, *IQR* = 15.00) when compared with those who were non-hazardous *(Median* = 45.00, *IQR* = 17.00), *U* = 11669.00, p = <0.001. Consequently, the results are indicative that age is associated with alcohol use, in that hazardous alcohol users are typically younger than non-hazardous users.

The results of a Pearson's chi square demonstrated that hazardous alcohol use was significantly associated with multiple variables (Table 4.24). Alcohol use was significantly associated with SIMD category, $\chi^2(1)$ = 6.37, p = 0.01: a greater percentage of those with a postcode categorised within an area of lesser deprivation (51.0%) were non-hazardous alcohol users than those living in an area of greater deprivation (34.5%).

Alcohol use was also significantly associated with education, $\chi^2(2)$ = 10.52, p = 0.05: a greater percentage of those educated to university level (61.8%) were classified as non-hazardous alcohol users when compared with those educated to school (44.4%) or college level (41.8%).

Further, alcohol use was significantly associated with disclosure of a long term health condition, $\chi^2(1)$ = 5.84, p = 0.02: a greater percentage of those with a long term health condition (63.5%) were non-hazardous alcohol users than those without a long term health condition (45.3%).

Table 4.24 Association between alcohol use and demographic, and health status domains

Domain	Non-hazardous, n (%)	Hazardous, n (%)	P value (Chi square)
SIMD			
Greater deprivation	30 (34.5)	57 (65.5)	0.01
Lesser deprivation	100 (51.0)	96 (49.0)	
Marital status			
Single/divorced	42 (46.7)	48 (53.3)	0.82
Married	124 (48.1)	134 (51.9)	
Education			
School	32 (44.4)	40 (55.6)	
College	66 (41.8)	92 (58.2)	0.05
University	63 (61.8)	39 (38.2)	
Living Status			
Alone	29 (50.0)	29 (50.0)	0.79
Co-habiting	140 (48.1)	151 (51.9)	
Years offshore			
≤10	81 (45.3)	98 (54.7)	0.29
≥11	87 (50.9)	84 (49.1)	
Employee status			
Employed by contractor	87 (45.5)	104 (54.5)	0.32
Employed by operator	81 (50.9)	78 (49.1)	
Years with employer			
≤10	128 (45.7)	152 (54.3)	0.11
≥11	38 (56.7)	29 (43.3)	
Rotation type			
Ad-hoc	71 (50.7)	69 (49.3)	0.41
Regular	98 (46.2)	114 (53.8)	
Rotation pattern			
No specific pattern	70 (51.5)	66 (48.5)	
2/2	14 (43.8)	18 (56.3)	
2/3	32 (42.7)	43 (57.3)	0.74
3/3	10 (52.6)	9 (47.4)	
4/4	21 (43.8)	27 (56.3)	
Other	22 (53.7)	19 (46.3)	
Shift schedule			
Days	94 (46.1)	110 (53.9)	
Night	16 (50.0)	16 (50.0)	0.55
Swing	12 (63.2)	7 (36.8)	
Both	41 (47.1)	46 (52.9)	
BMI			
BMI outwith healthy range	122 (47.5)	135 (52.5)	0.44
BMI in healthy range	47 (52.2)	43 (47.8)	
Long term health condition			
Yes	33 (63.5)	19 (36.5)	0.02
No	136 (45.3)	164 (54.7)	
Absenteeism			
Yes	33 (47.1)	37 (52.9)	0.87
No	134 (48.2)	144 (51.8)	
Medical evacuation			
Yes	24 (57.1)	18 (42.9)	0.21
No	143 (46.9)	162 (53.1)	
Sought health advice in last year			
Never	7 (53.8)	6 (46.2)	
Within the last year	109 (51.4)	103 (48.6)	0.25
Over a year ago	52 (42.3)	71 (57.7)	

4.4.8.6 Drug use

A Mann-Whitney U test indicated that there was a significant difference in the median ages of those who reported using illicit drugs in the last 12 months *(Median = 33.00, IQR = 7.00)* when compared with those who had not *(Median =43.00, IQR = 17.00)*, U = 1462.50, p = <0.001. Consequently, the results are indicative that age is not associated with illicit drug use, in that those using drugs are younger than those not using.

The results of a Pearson's chi square demonstrated that illicit drug use was significantly associated with offshore experience, $\chi^2(1)$ = 3.80, p = 0.05: a greater percentage of those living alone (10.5%) reported using illicit drugs within the last 12 months than those who cohabited (4.2%) (Table 4.25).

Further, the results of a Pearson's chi square demonstrated that illicit drug use was significantly associated with offshore experience, $\chi^2(1)$ = 5.44, p = 0.02: a greater percentage of those working offshore for less than ten years (8.0%) reported using illicit drugs within the last 12 months than those with ten or more years' experience (2.4%) (Table 4.25).

Lastly, the results of a Pearson's chi square demonstrated that employee status was significantly associated with offshore experience, $\chi^2(1)$ = 4.15, p = 0.04: a greater percentage of employed by a contractor (7.5%) reported using illicit drugs within the last 12 months than those employed by an operator (2.6%) (Table 4.25).

Table 4.25 Association between drug use and demographic, and health status domains

Domain	Used in the last 12 months, n (%)	Has not used in the last 12 months, n (%)	P value (Chi square)
SIMD			
Greater deprivation	7 (8.0)	80 (92.0)	0.07
Lesser deprivation	6 (3.2)	184 (96.8)	
Marital status			
Single/divorced	8 (9.1)	80 (90.9)	0.06
Married	10 (4.0)	243 (96.0)	
Education			
School	2 (2.8)	70 (97.2)	0.22
College	11 (7.1)	144 (92.9)	
University	3 (3.1)	95 (96.9)	
Living Status			
Alone	6 (10.5)	51 (89.5)	0.05
Co-habiting	12 (4.2)	273 (95.8)	
Years offshore			
≤10	14 (8.0)	161 (92.0)	0.02
≥11	4 (2.4)	164 (97.6)	
Employee status			
Employed by contractor	14 (7.5)	173 (92.5)	0.04
Employed by operator	4 (2.6)	152 (97.4)	
Years with employer			
≤10	16 (5.8)	258 (94.2)	0.36
≥11	2 (3.0)	64 (97.0)	
Rotation type			
Ad-hoc	9 (6.6)	127 (93.4)	0.35
Regular	9 (4.3)	200 (95.7)	
Rotation pattern			
No specific pattern	9 (6.8)	123 (93.2)	NA
2/2	3 (9.7)	28 (90.3)	
2/3	3 (4.1)	71 (95.9)	
3/3	0 (0)	19 (100.0)	
4/4	2 (4.3)	45 (95.7)	
Other	1 (2.4)	40 (97.6)	
Shift schedule			
Days	15 (7.6)	182 (92.4)	NA
Night	3 (9.4)	29 (90.6)	
Swing	0 (0)	19 (100)	
Both	0 (0)	86 (100)	
BMI			
BMI out with healthy range	14 (5.6)	238 (94.4)	1.00*
BMI in healthy range	4 (4.5)	84 (95.5)	
Long term health condition			
Yes	3 (5.8)	49 (94.2)	0.74*
No	15 (5.1)	278 (94.9)	
Absenteeism			
Yes	6 (8.6)	64 (91.4)	0.22*
No	12 (4.4)	260 (95.6)	
Medical evacuation			
Yes	2 (4.8)	40 (95.2)	1.00*
No	16 (5.4)	283 (94.6)	
Sought health advice in last year			
Never	0 (0)	13 (100)	0.66
Within the last year	12 (5.8)	196 (94.2)	

| Over a year ago | 6 (5.0) | 114 (95.0) | |

4.4.8.7 Mindfulness

A Mann-Whitney U test indicated that there was no significant difference in the median ages of those with MAAS scores below the median *(Median = 42.00, IQR = 18.00)* when compared with those with scores above the median *(Median = 43.00, IQR = 17.00)*, $U = 12057.00$, p = 0.81. Consequently, the results are indicative that age is not associated with mindfulness.

The results of a Pearson's chi square demonstrated that mindfulness was significantly associated with multiple variables (Table 4.26). Mindfulness was significantly associated with marital status, $\chi^2(1) = 4.37$, $p = 0.04$: a greater percentage of those who were single/divorced (59.0%) scored a MAAS score below the median, indicative of poorer mindfulness, than those who were married (45.7%).

Further, mindfulness was significantly associated with absenteeism, $\chi^2(1) = 7.68$, $p = 0.01$: a greater percentage of those who had been absent had a MAAS score below the median (64.7%) than those who had not reported any absence (45.7%).

Table 4.26 Association between MAAS and demographic, and health status domains

Domain	MAAS below median, n (%)	MAAS above median, n (%)	P value (Chi square)
SIMD			
Greater deprivation	34 (43.6)	44 (56.4)	0.23
Lesser deprivation	92 (51.7)	86 (48.3)	
Marital status			
Single/divorced	49 (59.0)	34 (41.0)	0.04
Married	105 (45.7)	125 (54.3)	
Education			
School	24 (40.0)	36 (60.0)	
College	77 (51.7)	72 (48.3)	0.18
University	50 (54.9)	41 (45.1)	
Living Status			
Alone	31 (58.5)	22 (41.5)	0.15
Co-habiting	124 (47.5)	137 (52.5)	
Years offshore			
≤10	81 (48.8)	85 (51.2)	0.74
≥11	76 (50.7)	74 (49.3)	
Employee status			
Employed by contractor	90 (52.6)	81 (47.4)	0.28
Employed by operator	67 (46.5)	77 (53.5)	
Years with employer			
≤10	124 (48.8)	130 (51.2)	0.45
≥11	32 (54.2)	27 (45.8)	
Rotation type			
Ad-hoc	61 (51.2)	61 (48.8)	0.63
Regular	93 (48.4)	99 (51.6)	
Rotation pattern			
No specific pattern	60 (49.2)	62 (50.8)	
2/2	12 (48.0)	13 (52.0)	
2/3	33 (46.5)	38 (53.5)	0.38
3/3	5 (31.3)	11 (68.8)	
4/4	28 (62.2)	17 (37.8)	
Other	18 (48.6)	19 (51.4)	
Shift schedule			
Days	97 (52.4)	88 (47.6)	
Night	13 (46.4)	15 (53.6)	0.30
Swing	5 (29.4)	12 (70.6)	
Both	36 (46.8)	41 (53.2)	
BMI			
BMI out with healthy range	116 (50.7)	113 (49.3)	0.34
BMI in healthy range	37 (44.6)	46 (55.4)	
Long term health condition			
Yes	25 (55.6)	20 (44.4)	0.38
No	132 (48.5)	140 (51.5)	
Absenteeism			
Yes	44 (64.7)	24 (35.3)	0.01
No	112 (45.7)	133 (54.3)	
Medical evacuation			
Yes	24 (61.5)	15 (38.5)	0.10
No	130 (47.6)	143 (52.4)	
Sought health advice in last year			
Never	5 (41.7)	7 (58.3)	
Within the last year	97 (50.8)	94 (49.2)	0.80
Over a year ago	54 (48.6)	57 (51.4)	

4.4.8.8 Sleep

A Mann-Whitney U test indicated that there was no significant difference in the median ages of those with at low risk of insomnia *(Median =* 44.00, *IQR =* 17.00) when compared with those at moderate/high risk *(Median =* 42.00, *IQR =* 17.00), *U =* 11600.50, p =0.24. Consequently, the results are indicative that age is not associated with insomnia.

The results of a Pearson's chi square demonstrated that insomnia was significantly associated with multiple variables (Table 4.27). Insomnia was significantly associated with education, $\chi^2(2) = 6.57$, $p = 0.04$: a greater percentage of those who were educated to university level (71.0%) were at moderate/high risk of insomnia, than those who were reported that their highest level of education was either college (69.3%) or school (53.6%).

Further, insomnia was significantly associated with seeking health advice, $\chi^2(2) = 14.49$, $p =<0.001$: those at moderate/high risk of insomnia were most likely to have sought medical advice within the last year (69.9%), than they were to have sought either never (16.7%) or over a year ago (66.7%).

Table 4.27 Association between PIRS-2 and demographic, and health status domains

Domain	Low risk insomnia, n (%)	Moderate/high risk insomnia, n (%)	P value (Chi square)
SIMD			
Greater deprivation	28 (33.3)	56 (66.7)	0.64
Lesser deprivation	58 (30.5)	132 (69.5)	
Marital status			
Single/divorced	24 (26.7)	66 (73.3)	0.13
Married	88 (35.5)	160 (64.5)	
Education			
School	32 (46.4)	37 (53.6)	
College	47 (30.7)	106 (69.3)	0.04
University	29 (29.0)	71 (71.0)	
Living Status			
Alone	16 (27.6)	42 (72.4)	0.33
Co-habiting	96 (34.2)	185 (65.8)	
Years offshore			
≤10	59 (33.9)	115 (66.1)	0.70
≥11	53 (31.9)	113 (68.1)	
Employee status			
Employed by contractor	56 (29.8)	132 (70.2)	0.21
Employed by operator	55 (36.2)	97 (63.8)	
Years with employer			
≤10	92 (33.9)	179 (66.1)	0.42
≥11	19 (28.8)	47 (71.2)	
Rotation type			
Ad-hoc	41 (29.5)	98 (70.5)	0.25
Regular	72 (35.5)	131 (64.5)	
Rotation pattern			
No specific pattern	40 (29.6)	95 (70.4)	
2/2	11 (35.5)	20 (64.5)	
2/3	26 (35.1)	48 (64.9)	0.36
3/3	4 (26.7)	11 (73.3)	
4/4	13 (28.3)	33 (71.7)	
Other	19 (47.5)	21 (52.5)	
Shift schedule			
Days	66 (33.3)	132 (66.7)	
Night	10 (31.3)	22 (68.8)	0.74
Swing	4 (22.2)	14 (77.8)	
Both	30 (35.7)	54 (64.3)	
BMI			
BMI out with healthy range	89 (35.6)	161 (64.4)	0.08
BMI in healthy range	22 (25.3)	65 (74.7)	
Long term health condition			
Yes	12 (23.1)	40 (76.9)	0.10
No	101 (34.8)	189 (65.2)	
Absenteeism			
Yes	19 (27.9)	49 (72.1)	0.31
No	93 (34.4)	177 (65.6)	
Medical evacuation			
Yes	16 (39.0)	25 (61.0)	0.40
No	96 (32.4)	200 (67.6)	
Sought health advice in last year			
Never	10 (83.3)	2 (16.7)	
Within the last year	63 (30.1)	146 (69.9)	<0.001
Over a year ago	39 (33.3)	78 (66.7)	

4.4.9 Association of self care domains with: quality of life and mental wellbeing

Mann-Whitney U tests were used to determine if there was any association between selected mental wellbeing and quality of life scores, and self care.

4.4.9.1 Mental Wellbeing

The Mann-Whitney U test indicated there was a significant difference in the median WEMWBS score of those classified as hazardous alcohol users *(Median* = 51.00, *IQR* =9.00) when compared with non-hazardous users *(Median* = 53.00, *IQR* = 9.00), *U* = 11119.00, p = 0.01. Consequently, the results are indicative that alcohol use was not associated with WEMWBS score, in that, hazardous alcohol users reported poorer mental wellbeing than those classified as non-hazardous (Table 4.28).

Median WEMWBS scores for those with mindfulness scores above the median *(Median* = 55.00, *IQR* = 6.00), indicative of greater mindfulness, were significantly different, *U* =4558.00, p = <0.001, than those with scores below the median *(Median* = 48.00, *IQR* = 10.75), and thus, indicative that those classified as having a greater degree of mindfulness experienced more positive mental wellbeing (Table 4.28).

Further, median WEMWBS scores for those categorised as being at low risk of experiencing insomnia *(Median* = 55.00, *IQR* =8.50) were significantly different, *U* = 6768.00, p = <0.001, than those who deemed to be at moderate/high risk *(Median* = 50.00, *IQR* = 9.00), and consequently indicative that those classified as low risk experienced more positive mental wellbeing (Table 4.28).

Lastly, median WEMWBS scores for those with self care agency scores above the median *(Median* = 54.00, *IQR* =8.00), indicative of greater self care agency, were significantly different, *U* = 6499.50, p = <0.001, than those with scores below the median *(Median* = 49.00, *IQR* = 11.00), and consequently, indicative that those classified as having greater self care agency experienced more positive mental wellbeing (Table 4.28).

Table 4.28 Association between WEMWBS score and self care agency, and self care domains

Domain	Median WEMWBS (*IQR*)	P value (Mann Whitney U Test)
Alcohol use (FAST)		
Hazardous	51.00 (9.00)	0.01
Non-hazardous	53.00 (9.00)	
Physical activity (IPAQ)		
Achieves	53.00 (9.00)	0.07
Does not achieve	50.00 (8.00)	
Diet (FACET)		
Achieves	52.00 (9.00)	0.15
Does not achieve	51.00 (8.00)	
Smoking (GATS)		
Current smoker	51.50 (10.75)	0.24
Does not currently smoke	52.00 (9.00)	
Mindfulness (MAAS)		
Above median	55.00 (6.00)	<0.001
Below median	48.00 (10.75)	
Insomnia (PIRS-2)		
Low risk	55.00 (8.50)	<0.001
Moderate/High risk	50.00 (9.00)	
Drug use (SQDUST)		
Uses	48.50 (14.75)	0.09
Does not use	52.00 (9.00)	
Self care agency (ASAS-R)		
Above median	54.00 (8.00)	<0.001
Below median	49.00 (11.00)	

4.4.9.2 Physical quality of life

A Mann-Whitney U test indicated that the median PCS scores for those with mindfulness scores above the median *(Median = 56.60, IQR = 3.84)*, were indicative of greater mindfulness, were significantly different, U = 9870.50, p = 0.02, than those with scores below the median *(Median = 55.25, IQR = 5.87)*, and consequently, indicative that those classified as having a greater degree of mindfulness experienced greater physical quality of life (Table 4.29).

Further, median PCS scores for those categorised as being at low risk of experiencing insomnia *(Median = 56.64, IQR = 3.73)* were significantly different, U = 10270.00, p = 0.05, than those deemed to be at moderate/high risk *(Median = 55.40, IQR = 5.59)*, and consequently indicative that those classified as low risk experienced greater physical quality of life (Table 4.29).

Lastly, median PCS scores for those with self care agency scores above the median *(Median = 56.60, IQR = 4.56)*, indicative of greater self care agency, were significantly different, U = 10001.00, p = 0.05, than those with scores below the median *(Median*

=55.40, *IQR* = 5.48), and consequently, indicative that those classified as having greater self care agency experienced more positive mental wellbeing (Table 4.28).

Table 4.29 Association between SF-8 PCS score and self care agency, and self care domains

Domain	Median (*IQR*)	P value (Mann Whitney U Test)
Alcohol use (FAST)		
Hazardous	55.95 (5.12)	0.67
Non-hazardous	56.19 (4.44)	
Physical activity (IPAQ)		
Achieves	56.12 (4.96)	0.85
Does not achieve	56.13 (4.82)	
Diet (FACET)		
Achieves	56.12 (5.29)	0.89
Does not achieve	55.83 (4.15)	
Smoking (GATS)		
Current smoker	56.26 (5.87)	0.76
Does not currently smoke	56.12 (4.76)	
Mindfulness (MAAS)		
Above median	56.60 (3.84)	0.02
Below median	55.25 (5.87)	
Insomnia (PIRS-2)		
Low risk	56.64 (3.73)	0.05
Moderate/High risk	55.40 (5.59)	
Drug use (SQDUST)		
Uses	56.68 (3.93)	0.42
Does not use	55.95 (4.99)	
Self care agency (ASAS-R)		
Above median	56.60 (4.56)	0.05
Below median	55.40 (5.48)	

4.4.9.3 Emotional quality of life

As outlined in table 4.32, a Mann-Whitney U test indicated that there was a significant difference in the median MCS score of those classified as hazardous alcohol users *(Median* = 52.60, *IQR* = 9.23)* when compared with non-hazardous users *(Median* =56.97, *IQR* = 5.62)*, *U* =11095.00, p = <0.001. The results are indicative that alcohol use was associated with MCS score, in that; hazardous alcohol users reported poorer emotional quality of life than those classified as non-hazardous (Table 4.30).

Median MCS scores for those with mindfulness scores above the median *(Median* = 57.32, *IQR* =5.23)*, indicative of greater mindfulness, were significantly different, *U* =7515.50, p = <0.001, than those with scores below the median *(Median* = 52.31, *IQR* = 11.11)*, and consequently, indicative that those classified as having a greater degree of mindfulness experienced greater emotional quality of life (Table 4.30).

Further, median MCS scores for those categorised as being at low risk of experiencing insomnia, *(Median* = 57.43, *IQR* = 5.26), were significantly different, *U* =8272.00, p = <0.001, than those deemed to be at moderate/high risk *(Median* =52.69, *IQR* = 9.15), and consequently indicative that those classified as low risk experienced greater emotional quality of life (Table 4.30).

In addition, median MCS scores for those reporting illicit drug use, *(Median* = 49.98, *IQR* =15.66) were significantly different, *U* = 1747.00, p = 0.03, than those who had not used drugs *(Median* = 54.77, *IQR* =8.08), and consequently, indicative that those classified as non-users experienced greater emotional quality of life (Table 4.30).

Lastly, median MCS scores for those with self care agency scores above the median *(Median* = 57.25, *IQR* = 5.60), indicative of greater agency, were significantly different, *U* =8842.00, p = <0.001, than those with scores below the median, *(Median* =53.54, *IQR* = 10.27), and consequently, indicative that those classified as having greater self care agency experienced greater emotional quality of life (Table 4.30).

Table 4.30 Association between SF-8 MCS score and self care agency and self care domains

Domain	Median (MCS)	P value (Mann Whitney U Test)
Alcohol use (FAST)		
Hazardous	52.60 (9.23)	<0.001
Non-hazardous	56.97 (5.62)	
Physical activity (IPAQ)		
Achieves	55.12 (7.98)	0.15
Does not achieve	54.30 (8.83)	
Diet (FACET)		
Achieves	54.56 (7.98)	0.55
Does not achieve	54.75 (8.50)	
Smoking (GATS)		
Current smoker	52.74 (8.97)	0.10
Does not currently smoke	54.78 (7.98)	
Mindfulness (MAAS)		
Above median	57.32 (5.23)	<0.001
Below median	52.31 (11.11)	
Insomnia (PIRS-2)		
Low risk	57.43 (5.26)	<0.001
Moderate/High risk	52.69 (9.15)	
Drug use (SQDUST)		
Uses	49.98 (15.66)	0.03
Does not use	54.77 (8.08)	
Self care agency (ASAS-R)		
Above median	57.25 (5.60)	<0.001
Below median	53.54 (10.27)	

This section will outline the key findings of phase 1, discuss the interpretation of the findings, highlight the strengths and limitations of the study, outline the principal conclusions and emphasise the implications that the findings have on phase 2 of the research.

4.5.1 Key findings of Phase 1

The findings from this cross-sectional study has furthered understanding of offshore workers' quality of life, wellbeing, health, and self care, and highlighted key areas of concern. Moreover, the study has identified the factors associated with self care. Key issues facing offshore workers included: overweight/obesity; inability to travel offshore; medical evacuation; lack of adherence to 5-a-day fruit and vegetable guidelines; hazardous/harmful alcohol use, and insomnia.

Offshore workers, however, demonstrated positive health and self care across a number of domains including: quality of life; mental wellbeing; physical activity; self care agency; smoking; drug use, and mindfulness. Further, the research suggests that the majority of offshore workers' score negatively across multiple self care domains. A number of significant associations were observed between self care, demographic/employment variables, health, quality of life and mental wellbeing.

4.5.2 Strengths and weaknesses of Phase 1

This research has addressed the paucity of literature around aspects of health, self care, quality of life and mental wellbeing amongst the offshore workforce. The study included a broad range of concepts which pertained to a number of domains. In doing so, the study overcame the limitations that were commonly associated with the extant literature in terms of providing evidence over a broad range of constructs known to impact offshore workers.

The self-report data collected in this study may be vulnerable to recall, reporting and response style bias (91). In an effort to overcome bias associated with self-report, the study utilised a range of standardised measures which have previously demonstrated validity and reliability in measuring the key concepts. An additional strength of using standardised measures is that they enable direct comparison with findings from previous studies. Further, the questionnaire was subject to rigorous pre-testing, via Expert Panel

Review and Think Aloud procedures, to ensure adequate face and content validity, and that it was intelligible to offshore workers.

The recruitment procedures adopted were a key strength of the study. As the researcher was granted access to a training facility with a large daily attendance of offshore workers comprising a broad demography in terms of age, location of employment, primary employer and occupational status it facilitated the recruitment of a large and diverse sample who were representative of the current offshore workforce. The diversity and representativeness ensured the external validity and generalisability of findings.

A key strength of the study was the large sample size utilised. The total sample exceeded the a priori sample size calculations and thus, ensured that the adequate criteria were fulfilled to perform inferential statistical analysis on the data. Relatedly, the response rate was higher than anticipated for an email survey. For example, published meta-analysis advise, for web-based surveys, to expect a response rate between 34% and 39.6% (174,177). The response rate may be attributed to the researcher presence at the recruitment site, which increased the personalisation of the research, and also to the joint working relationship achieved between the researcher and site staff or gatekeepers.

Related to response, 15.3% of those attending the FOET did not complete a contact sheet to receive an email link to the questionnaire. Whilst some were not eligible to take part, since they did not fulfil the inclusion criteria, the reasons for their unwillingness were unknown although anecdotally included, no access to emails. Similarly, although the response rate was greater than anticipated, almost half of respondents did not return a completed questionnaire, the reasons for which are unknown. Moreover, a tracking tool which quantifies non-completers was not set up on the questionnaire host website and thus, it was not possible to populate data on those who started a questionnaire but failed to complete and submit.

Although there was a section which asked offshore workers to report where they were completing the questionnaire, the time which they had spent in the environment was unknown. This could be an important consideration when interpreting data, particularly those which asked offshore workers to recall behaviour over a certain period since they could have been reporting their behaviour onshore, offshore or across both environments. The student researcher and supervisory team considered asking respondents to recall behaviour both on and offshore; however, ultimately, this approach was deemed to be highly susceptible to recall bias. For example, some offshore workers operate on an ad

hoc basis and have long periods between trips and thus, could be attempting to recall behaviour after a significant time lapse. However, in an effort to illustrate onshore and offshore behaviour, where relevant, offshore workers were asked how engagement varied across environments.

4.5.3 Interpretation of Phase 1 findings

4.5.3.1 Demographics

The average age of the offshore workers in this study was similar to the mean age which was published in 2015, and similarly the percentage of offshore workers who were female was almost identical to those reported previously (3). The comparative figures suggest that the sample used in this study are representative, in terms of demography, of the broader offshore workforce.

4.5.3.2 Quality of life and mental wellbeing

Offshore workers quality of life was deemed positive. This was evidenced by the higher comparative scores achieved by offshore workers in this study, for both physical and mental quality of life, when equated with those published for a comparator population of the Dutch offshore workforce (178). Similarly, mental wellbeing amongst offshore workers was considered positive due to the relatively high median score. Although aspects of psychological health have been explored previously in the offshore workforce, these analyses have centred on determining the prevalence of poor mental health, as opposed to framing wellbeing in a positive context, and thus, do not offer a suitable comparator. To the knowledge of the author, this is the first study to report on the positive mental health status of the workforce.

The positive quality of life and mental wellbeing of offshore workers in this study is perhaps reflective of the low prevalence of long term health conditions within the workforce, also evidenced by the current findings. Those who are suffering from long term health conditions often experience decreased quality of life and mental wellbeing (179) and thus, it would be anticipated that these would be at an increased level in a population with low prevalence.

4.5.3.3 Health status

The average BMI of offshore workers in this study was similar to which has been recently published for a comparator sample of offshore workers operating in Dutch waters although, the prevalence of overweight and obesity was considerably greater (178). Further, the percentage of offshore workers categorised as overweight or obese was higher than historical estimates (14,79), thereby endorsing concerns about the increasing prevalence of such within the workforce.

A prevalence of absenteeism and medical evacuation were identified within this study. Absenteeism estimates were relatively similar to those published for Dutch offshore workers (178). Similarly, the prevalence of medical evacuation were comparable to those reported from a study on offshore workers operating in the United States (181). In accordance with trends observed by Horsley (80) and Norman et al (182), the majority of evacuations were for reasons relating to personal illness. Both pose significant costs to both the employee, via lost time which may not be remunerated, and the employing organisation, via associated costings.

4.5.3.4 Self care behaviour

Despite public health promotion campaigns to encourage healthy eating by increasing the consumption of plant based products, adherence to five-a-day fruit and vegetable guidelines was markedly poor within the target population. This reflects findings from the extant literature which have highlighted the pervasiveness of unhealthy eating habits amongst offshore workers (79). Similarly, the findings from this study corroborated conclusions from previous research in that offshore workers were more likely to eat a healthier diet onshore than offshore (14).

The findings from this study serve to reaffirm concerns regarding hazardous and harmful alcohol use within the offshore workforce (14,80). Alcohol is typically prohibited on installations although this does not prevent the ill effects of high levels of intoxication spilling over from onshore to offshore environments. Industry experts have ascertained that the cognitive ill-effects would, amongst those who engage in heavy episodes of binge drinking, continue into the duration of a worker's offshore rotation and thereby, may present as a significant threat to overall safety in the workplace (183).

Further, poor sleep quality and insomnia were key issues facing the workforce. A similar finding has been reported in a study amongst Dutch offshore workers, where the majority reported suffering from prolonged fatigue (178). Relatedly, shift work disorder, characterized by sleep disturbance, has been reported previously in offshore workers and has been associated with subjective health complaints, pseudo-neurological issues and gastric problems (88). Accordingly, poor sleep quality and insomnia may have a significant effect on other aspects of offshore workers health, quality of life and mental wellbeing.

The domains identified as positive are perhaps unsurprising due to the nature of offshore work. For example, it may be anticipated that since offshore workers are fitness-screened that they would exhibit high levels of self care agency, psychological and physical wellness. Similarly, the low prevalence of drug use may be expected due to the random drug testing that offshore workers are subjected to. Further, the high level of mindfulness observed in the offshore population may be attributed to the widespread emphasis of human factors approaches to health and safety, and the resultant emphasis on maintaining awareness and alertness (184). Accordingly, offshore workers' role may contribute to an increased degree of mindfulness.

Although offshore workers' physical activity and smoking behaviours in this study were categorised as positive, the results should be interpreted with caution. For example, the findings suggested a comparatively higher level of physical activity than previous estimates (79). As previously reported, offshore workers in this study believed that they were more physically active when they were onshore (14). Nevertheless, there were still a large percentage of offshore workers who were not achieving MVPA guidelines. Hence, increasing engagement in physical activity may still be a key issue within the workforce. Similarly, the prevalence of smoking was decidedly lower than both historical (79) and recent estimates (178). However, although smoking was regarded as a positive aspect of self care in this study, since the majority were categorised as ex/non-smokers, any prevalence should be regarded as a risk. Thus, it would be remiss to exclude it is a behaviour that did not warrant attention.

Lastly, the majority of offshore workers' in this study scored negatively across a number of self care domains suggesting that there are multiple aspects within each individual that may require behaviour change. Engagement with multiple risk factors is known to increase the likelihood of developing a long term health condition and the risk of premature mortality (185). Further, in recognition, there has been an increasing focus within health behaviour change literature on tackling multiple risk behaviours (186). In the context of

the workplace, it has been ascertained that having three or more risk factors would significantly increase the likelihood of absenteeism (187). Hence, reducing engagement across multiple domains may be of paramount importance.

4.5.3.5 Key associations between self care and demographic, employment, health, quality of life and wellbeing variables

A number of associations were observed between self care and demographic, employment, health, quality of life and wellbeing variables. The findings exemplify the multifaceted nature of self care and illustrate on the complex interplay of factors with regard to self care. In particular, they highlight the strength of the association between a key self care domains and quality of life, and mental wellbeing. To elucidate, self care agency, harmful/hazardous alcohol use, drug use, decreased mindfulness and moderate/high risk of insomnia were all associated with poorer quality of life and reduced mental wellbeing.

The observed associations are, in the context of the extant literature, unsurprising. The Department of Health have advised that increasing engagement in self care may lead to improved quality of life and mental wellbeing (33). Although the findings reflect the literature, in that there are associations between the variables, due to the cross-sectional nature of the research, the direction of the relationship cannot be specified. Thus, the results cannot identify behavioural predictors or identify cause-effect relationships. Accordingly, there is an association between the variables; however, the direction of the relationship cannot be specified.

4.5.4 Phase 1 Conclusions

The findings from the study suggest that offshore workers' behaviour may be improved across BMI, diet, alcohol, insomnia, physical activity and smoking domains. The workforce may hence, benefit from implementation of an intervention which encourages offshore workers to engage with self care. The majority of offshore workers scored negatively across multiple self care domains and thus, improvement may be attained via implementation of an intervention which promotes engagement across multiple behaviours. Encouraging offshore workers to take ownership of their own health may have a positive impact on their overall health status and reduce the prevalence of medical evacuation which was a key finding of this research.

4.5.5 Implications for Phase 2 of the research

Maintaining and improving the health of employees working in remote and hostile offshore environments may be a crucial component in maximising economic opportunity, ensuring the longevity of the workforce and reducing the occurrence of critical medical incidents. The behaviours identified within this phase were used to inform the development of the interview schedule in phase 2 of the research (Chapter 5: a qualitative study with offshore workers).

5

Phase 2

Exploring the self care behaviour of the offshore workforce: the offshore workers' perspective

5. 1 Chapter introduction

This chapter explores the determinants of self care behaviour within the offshore workforce from the perspective of offshore workers. Behaviour was explored using qualitative semi-structured telephone interviews. Development of interview schedules and analysis was based on the Theoretical Domains Framework (TDF).

5.2 Research aims and objectives

5.2.1 Aim

The aim of this qualitative study was to explore offshore workers' self care behaviours from their own perspective.

5.2.2 Research questions

(i)   Which aspects of health and self care do offshore workers perceive to be areas which required behavioural modification?

(ii)   What are the determinants of offshore workers' self care behaviour?

(iii)   What are offshore workers' experiences of health promotion interventions/programmes within the offshore environment?

(iv)   How could engagement in self care be facilitated amongst offshore workers?

5.3 Method

5.3.1 Design

Phase 2 was underpinned by a qualitative research design since the nature of the aim, and subsequent research questions, necessitated collection of data which was rich and meaningful. Further, the research was grounded in constructivism and utilised a phenomenological approach (95). Semi-structured telephone interviews (Chapter 3 Section 3.5.3 outlines approaches to interviewing) were administered to a sample who had participated previously in the cross-sectional phase of the study and who expressed interest in the interview phase.

5.3.2 Interview development

A semi-structured interview schedule (Appendix 5.1) was developed and consisted of four sections relating to each of the research questions. Section (i) centred on identifying any changes that offshore workers would like to make to their health and self care behaviour. Section (ii) aimed to identify the determinants of a single health behaviour that interviewees wished to change and contained a number of questions which were structured in accordance with the TDF (Chapter 3 Section 3.8.2).

Table 5.1 outlines the domains and the related items within the interview schedule. Section (iii) was developed to explore offshore workers' experiences of health promotion interventions/programmes within the offshore environment. Section (iv) aimed to explore how self care may be facilitated in offshore populations and how they might perceive implementation of a self care intervention in the future.

Table 5.1 TDF domains and related interview schedule items

Domain	Related interview items
Knowledge	Why do you think making this change is important?
Skills	What do you think might help you in coping with these situations if you were to [insert behaviour]?
Social/professional role and identity	Do you feel that there may be an expectation to [insert behaviour]?
Beliefs about capabilities	How confident are you that you would be able to make this change? Do you think you would manage to stick to this change?
Optimism	Do you think that making this change would have a good or bad effect on things?
Beliefs about consequences	Do you think that making this change would have a good or bad effect on things?
Reinforcement	In what ways does [insert behaviour] help you?
Intentions	Have you been thinking about [insert behaviour] prior to our conversation?
Goals	If you were to think about things that are important to you, how important would changing this behaviour be to you?
Memory, attention and decision processes	Are there certain situations where you find you are more likely or are less likely to [insert behaviour]?
Environmental context and resources	How do you think things at home would affect these changes? How do you think things at work would affect these changes?
Social influences	Do those close to you also [insert behaviour]? Do you feel that there may be an expectation to [insert behaviour]? How do you think that the people close to you might help you make these changes? How do you think that the people close to you might make it difficult to make these changes?
Emotion	In what ways does [insert behaviour] help you?
Behavioural regulation	What steps do you think you would need to take to help you make these changes?

* [insert behaviour] refers to the behaviour which interviewees identified as a behaviour requiring modification

5.3.3 Pre-testing and piloting

5.3.3.1 Expert Panel

An expert panel review of the interview schedule was undertaken in an effort to enhance the credibility of the research (Chapter 3 Section 3.7.3 outlines trustworthiness principles). Five professional experts from diverse backgrounds including health services research, offshore health and health psychology, were invited, via email, to undertake the review of the interview schedule. The panel members were asked to review, via email, different components of the interview schedule in accordance with their expertise.

For example, panel members with expertise in health services research and health psychology were sent an outline of the TDF, which contained information on each of the domains, along with the aims and research questions of the phase. Invitees were asked to comment on the appropriateness of the questions which pertained to the TDF (e.g. if they adequately reflected TDF domains). Conversely, panel members with experience in offshore health were asked to provide feedback in relation to their expertise but not on the TDF content. All members of the expert panel were personally identified by the research student and supervisory team, and included:

i) Professor Graham Furnace: *Medical Advisor, Oil and Gas UK*

ii) Professor James Ferguson: *Clinical Lead, Centre for Scottish Telehealth and Telecare*

iii) Dr Francis Quinn: *Lecturer in Psychology, School of Applied Social Studies, Robert Gordon University*

iv) Dr Katie MacLure: *Senior Research Fellow, School of Pharmacy and Life Sciences, Robert Gordon University*

v) Dr Katrina Forbes-McKay: *Lecturer in Psychology, School of Applied Social Studies, Robert Gordon University*

The feedback received included recommendations to modify the wording of some questions to enhance clarity and ensure that the question content adequately reflected the TDF content that it was attempting to elicit (see Appendix 5.2 for an example). All modifications were discussed within the research team prior to making any final changes.

5.3.3.2 Pilot

The interview schedule was piloted with one offshore worker, who had participated in Phase 1 of the research study and was randomly selected using SPSS, to determine the length of the interview and usability of the interview schedule. The interviewee was asked to complete and return a consent form (Appendix 5.3), and provide details of their availability by either post or email within a two week period. The interview was conducted over the telephone. No significant changes to the schedule were made although some questions were reordered in an effort to enhance the flow of the interview.

5.3.4 Data saturation and sample size

Due to the nature of the study and subsequent broad aims of the phase, saturation principles were applied to the overarching thematic content of the behavioural component of the interview. The interviews endeavoured to determine the behaviours which offshore workers' felt important to change. Consequently, it was perceived to be important that the direction of interviews was participant-led, and thus, each respondent was asked to identify a single health behaviour which would form the focus of subsequent questioning. Interviewees were permitted to discuss any health or lifestyle behaviour which they thought required addressing. There were no restrictions on selection aside from interviewees were urged to discuss a behaviour that (a) required that the individual themselves contributed to making the change and (b) was related to their health and wellbeing.

Thus, due to the nature of the questioning, it was anticipated that offshore workers may discuss a wide range of behaviours. Given the potential for discussions to centre on a plethora of behaviours, it was perhaps ambitious and out with the scope of the project to await theoretical saturation of TDF domains within individual behaviours. Rather, it was deemed that data saturation analysis should be performed with regard to the behavioural content (e.g. the behaviour that interviewees identified as requiring behaviour change) of the interviews. Data saturation was assumed at the point at which there were no additional behaviours uncovered within the interviews.

The sample size selection method outlined by Francis et al (129) and described in Chapter 3Section 3.6.1.3 was used to establish the sample parameters of this study and to optimise data saturation at the behavioural level. An initial sample size of ten was specified and deemed to be suitably aligned to the number of stratification variables in this study (e.g. gender and age). Further, in accordance with the principles of the method, interviews were conducted in cohorts of three (+3) until data saturation was achieved (no new behaviours were discussed). The data were analysed initially by the researcher and discussed with the research team thereafter to determine if saturation had been achieved. Figure 5.1 illustrates how the 10+3 approach was integrated into this study.
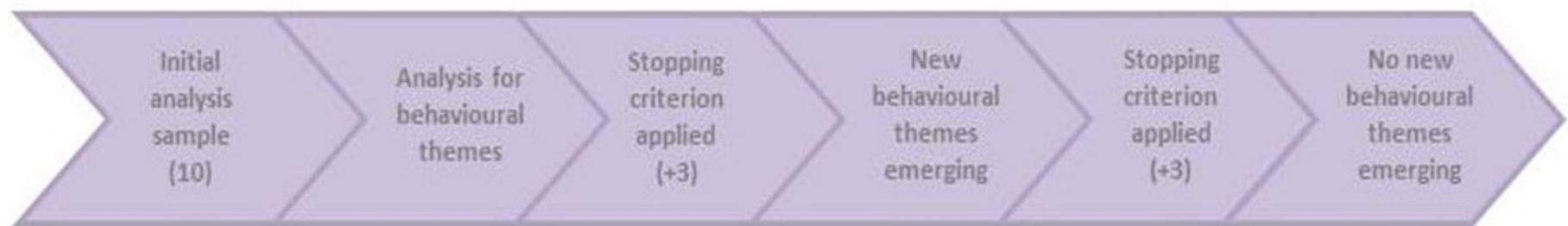
Figure 5.1 Data saturation process using the 10+3 method

5.3.5 Participants and recruitment

Offshore workers from the global oil and gas community were recruited from the primary recruitment site (PTS) described in Chapter 4 Section 4.3.5.2. Only delegates who completed a phase 1 survey, submitted contact information and returned a consent form were eligible for interview. No further inclusion or exclusion criteria were applied to phase 2 of the research.

5.3.6 Interview procedure

Offshore workers who completed a survey (n = 352) from phase 1 of the research and submitted their contact details to receive further information on the qualitative study (n = 134) were eligible for inclusion in phase 2. There were no exclusion criteria for this stage of the research since it was assumed that offshore works had satisfied the initial inclusion criteria outlined in Chapter 4 Section 4.3.5.2. Prior to submitting contact information, respondents were asked at the end of the survey if they would prefer to be emailed or mailed an interview information pack. Interviewees indicating their interest in phase 2 were sent an invitation (Appendix 5.4) letter, consent form (Appendix 5.3) and participant information sheet (Appendix5.5) either by email or mail depending on their preference. Mailed information packs contained a pre-paid envelope for offshore workers to return their completed consent form.

Offshore workers who returned a consent form (n = 37) were selected for interview at random using SPSS. Selection was conducted in accordance with the 10+3 procedure aforementioned (Figure 4.1). Initially ten offshore workers (initial sample) were selected from the total sample and contacted by email to arrange an interview. Once offshore workers had been contacted with an invitation to participate, their corresponding case number was deleted from the total sample prior to using SPSS to randomly select further cohorts. Three offshore workers did not reply to the invitation, within a four-week time period, and thus, a further three were randomly selected to ensure that the initial sample fulfilled the predetermined initial sample of 10. An interview time and date was arranged with all offshore workers who replied to the interview invitation. Each was contacted by telephone on the relevant day and time to conduct the interview. All interviews were recorded using an electronic recording device.

Once the initial sample were interviewed, transcribed and analysed, an additional three (+3 stopping criterion) offshore workers were randomly sampled from the total sample.

The data, upon completion of the three interviews, was analysed to determine if data saturation had been achieved. The initial 10+3 sample did not reach saturation and thus, a further three offshore workers (+3 stopping criterion) were randomly selected from the total sample. As prior, two did not respond, and a further two were sampled at random from the total sample. Interview data from these three interviewees was analysed and it was concluded that data saturation had been achieved at this level.
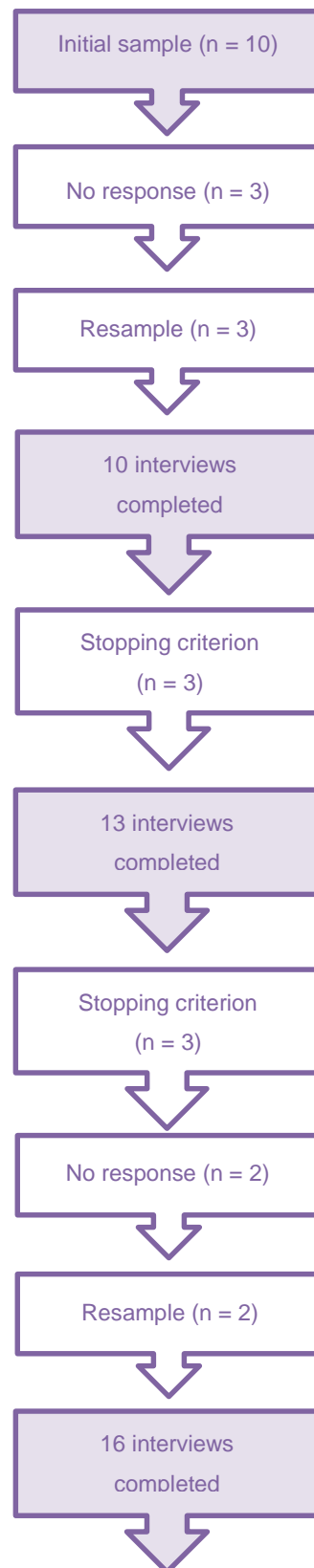
Figure 5.2 Recruitment process

5.3.7 Conduct of the interview

Survey respondents from phase 1 of the research who requested an information pack and returned a completed consent form were added to an interview database. Information packs were sent out by either post or email depending on the individual's preference. All interviews were conducted via telephone. Speakerphone was used to enable audio recording of the calls. Each was recorded using an electronic recording device. Interviews were scheduled for around 30 to 45 minutes, although in practice ranged from 20 to 65 minutes. Member checking, whereby interviewees are sent a copy of the transcripts or are presented with the overarching themes attained from the analysis to check that the content is an accurate reflection of their narrative, was not considered appropriate for this research due to the time constraints of the study.

5.3.8 Analysis

All interview content was transcribed verbatim by the student researcher using a pragmatic approach (as outlined in Chapter 3 Section 3.3.4) which permits researchers to omit key linguistic features where appropriate, such as pauses or breaks, whilst still retaining depth in terms of verbatim data. Two transcripts were checked by the principal supervisor (VP) for accuracy. The first transcript omitted a few key words which were later added, no errors were identified by the principal supervisor when reviewing the second transcript. Both framework and thematic analysis approaches (Chapter 3 Sections 3.5.3.3.1 and 3.5.3.3.2) were utilised to analyse the interview data. Count data was also generated to detail the behaviours that offshore workers wished to change.

5.3.8.1 Framework analysis

The framework approach, using the TDF as the main theoretical underpinning, was utilised to identify the behaviour determinants relating to research question two. The systematic method firstly required familiarisation with the transcript, and involved the researcher replaying the recording whilst reading through accompanying notes. After familiarisation, each line in the transcript was coded using deductive codes which pertained to each of the TDF domains (Table 5.2). Due to the nature of the analysis, it was necessary for each transcript to be reviewed by another researcher who had knowledge of the TDF to ensure accuracy.

Accordingly, all analyses were completed independently by the student researcher and a health psychologist (Dr Francis Quinn) from the School of Applied Social Studies, at Robert Gordon University. Upon completion of the first three reviews, the researchers met to discuss and compare their coding systems, and to finalise an analytical framework to be used on the remaining transcripts. The analytical framework was applied to the remaining transcripts and the researchers met upon completion of all analyses to discuss the coding. Discrepancies in coding were resolved via discussion and upon agreement, a final code applied. Completed data was charted onto a matrix to summarise key theoretical ideas.

Thereafter, and as in previous studies which have utilised the TDF to identify determinants of behaviour (188,189) (Table 5.2), sub-themes were generated for each statement identified in the analysis. Sub-themes (Table 5.2) represented the content of each statement in brief form and were applied in an effort to develop an idea of the themes that were being conveyed by interviewees. The count or number of interviewees whose statements reflected a sub-theme was recorded to add depth to the analysis. Conflicting statements were coded using the same domain and the divergence represented in the sub-themes. Finally, sub-themes were organised into overarching themes (Table 5.2) and which were developed to represent the determinants of behaviour more broadly.

Table 5.2 Terms used within the analysis and their corresponding definitions

Term	Definition
Behaviour	Health or self care behaviour that interviewees discussed in the context of behaviour change E.g. smoking cessation.
TDF domain	Represented by one of the 14 domains highlighted in the framework. E.g. knowledge.
Sub-theme	Represent the specific content of each interviewee's statement. E.g. positive influence of others on behaviour.
Theme	Represent the content of the sub-themes more broadly. E.g. influence of others on behaviour.

5.3.8.2 Thematic analysis

A thematic analytic approach was utilised for all data pertaining to the first, third and fourth research questions. Accordingly, the approach discussed in Chapter 3 Section 3.5.3.3.2 was applied to the data. Initially, the student researcher carried out a familiarisation procedure, transcribing the data and reading through the finalised transcripts. The data were then coded for themes and patterns, and grouped into broader themes. For example, data were gathered into themes which represented the content of the response e.g. benefits of health promotion. Due to the nature of the questioning, which tended to be

more focused, some of the content was a direct reflection of what was asked. However, since the interviews were semi-structured the nature of questioning and subsequent responses varied considerably. Hence, the data was viewed in its' entirety and coded accordingly. Once established, the themes were further refined and grouped into broader categories and then each theme, defined and named. Thereafter, sub-themes were generated for each response. Sub-themes represented the specific content of each interviewee's statement (Table 5.2).

5.3.9 Promoting quality in research

Interviews were developed in accordance with the trustworthiness principles outlined by Guba (132) which includes (a) credibility, (b) transferability, (c) dependability and (d) confirmability (Chapter 3 Section 3.7.3 for a discussion on trustworthiness). Credibility was ensured by using research methods with a favourable evidence base and which were deemed fit-for-purpose (interviews were guided by the TDF, evaluated by an Expert Panel and conducted via telephone in an effort to mediate sensitivity). In addition, the student researcher had prior experience of conducting telephone interviews which further enhanced the credibility of the study.

The student researcher, in an effort to promote the transferability of research findings, ensured that all aspects of the context and environment in which the study was conducted were logged including information on: participating organisations; interviewees who have been excluded and the reasons as to why; the number of interviewees included in the final study; all the collection methods which have been utilised; the number of interviews and length of time of each ran for, and the timeframe of data collection (131).

Dependability, referring to the stringency of research findings if the method were to be repeated, was attained by ensuring accuracy in the reporting of data and methods with regard to: the research design and execution; processes of data collection; truthful appraisal of the research methods. Moreover, steps were undertaken to promote confirmability whereby the researcher attempts to minimise the effect of their own beliefs on the research process. The steps included the student researcher remaining cognisant throughout the data collection and analysis procedures of the influence that their beliefs may have on interpretation. Further, a detailed account of development, collection and analysis methods have been outlined in an effort to enable others to clearly visualise and track key decisions made throughout the process (131).

A number of measures were integrated into the study design to reduce bias (Chapter 3 Section 3.7.1 highlights common sources of bias). Interviewees were selected at random from the total sample in an effort to promote the representativeness of the sample and reduce selection bias. The effect of interviewer bias, whereby interviewees' statements are biased by the interviewer, was considered and an interview schedule developed in an effort to standardise the questions asked. Standardisation would aid in ensuring that interviewees were all presented with the same questions and thus, would imply that any observed variance in responses was due to inherent individual differences (190) Probing was utilised with the objective being to mitigate the occurrence of social desirability bias whereby interviewees provide answers in accordance with perceived social conventions. This technique is used to promote the interviewer-interviewee relationship and to develop in-depth conversation (190).

5.3.10 Research governance

The Research Ethics: Research Student and Supervisor Assessment (RESSA) form (Appendix 4.9) was completed and submitted alongside an ethics protocol document, which outlined all the research procedures and safeguards, to the Ethical Review Panel of the School of Pharmacy and Life Sciences, Robert Gordon University (Appendix 4.10). Ethical approval for the study was granted on 17th May 2014 (Appendix 4.11). Approval to access the sample at PTS was granted on 13th August 2014. Ethical approval was not required from the recruitment site to access delegates. Procedures to preserve confidentiality, anonymity and harm to interviewees were integrated into the research design.

Interviewees' contact information, obtained from phase 1 of the study, was stored on a password protected database, accessible only by the student researcher. Contact details were stored on a separate database from questionnaire data to preserve confidentiality and anonymity. Each respondent was assigned a unique identifier code which enabled questionnaire data to be matched with interviewees. Interviews were recorded on an electronic recording device and, prior to deletion from the device, uploaded to a password protected computer system. All conversations were transcribed verbatim to preserve the authenticity of the interviews.

5.4.1 Recruitment

A total of 352 offshore workers completed a survey from phase 1 of the research, of which 134 supplied their contact details to receive further information on the interview phase of the research (38.1% response rate). Thirty-seven interviewees returned a consent form (27.6%).

5.4.2 Sample

Sixteen offshore workers were selected randomly from the total sample (n = 37) for the study. Interviewees were aged between 38 and 57 years. The majority were male (n = 15), married or in a civil partnership (n = 8), educated to university level (n = 7) and had between six and ten years' experience of working offshore (n = 8). Table 5.3 outlines the demographics of interviewees who were interviewed.

Table 5.3 Demographics of interviewees who completed a recruitment questionnaire

ID	Age	Gender	Marital status	Education	Offshore experience (years)
1	29	Male	Single	University	1 - 5
2	28	Male	Single	University	1 - 5
3	50	Male	Married/In a civil partnership	Secondary school	>20
4	28	Male	Single	Secondary school	6 - 10
5	46	Male	Married/In a civil partnership	Secondary school	>20
6	57	Male	Married/In a civil partnership	Secondary school	>20
7	32	Male	Married/In a civil partnership	University	6 - 10
8	50	Male	Married/In a civil partnership	NA	>20
9	51	Male	Divorced	College	6 - 10
10	32	Male	Married/In a civil partnership	University	1 - 5
11	36	Male	Single	University	6 - 10
12	39	Male	Married/In a civil partnership	Secondary school	16 - 20
13	42	Male	Married/In a civil partnership	College	6 - 10
14	41	Female	Single	University	6 - 10
15	37	Male	Single	University	6 - 10
16	54	Male	Divorced	College	6 - 10

5.4.3 Saturation

As described previously, the 10+3 data saturation principles were applied to the data from phase 2 (Table 5.4). It was concluded, after completion of data analysis and discussion of the results within the research team, that there were no new themes emerging after the stopping criterion had been applied the second time and thus, further recruitment was stopped.

Table 5.4 Applying the 10+3 method to interview data

Interview	Behaviour
1	Work-life balance
2	Healthy eating
3	Stress management
4	Smoking
5	Sleep management
6	Healthy eating
7	Healthy eating
8	Physical activity
9	Physical activity
10	Sleep management
11	Physical activity
12	Alcohol
13	Alcohol
14	Healthy eating
15	Healthy eating
16	Smoking

5.4.4 Research question 1: whichaspects of health and self care do offshore workers perceive to be areas which required behavioural modification?

Offshore workers were asked to consider a health behaviour that they wished to change and discuss the determinants of this behaviour. Each of the behaviours identified pertained to aspects of health and self care (Table 5.4) and included: eating healthily (n = 5); increasing engagement in physical activity (n = 3); reducing alcohol intake (n = 2); smoking cessation (n = 2); improving sleep (n = 2), and stress management (n = 1); managing work-life balance (n = 1).

5.4.5 Research question 2: what are the determinants of offshore workers' self care behaviour?

As aforementioned, offshore workers identified seven health and self care behaviours that they wished to change.   While the principal focus of the interviews was centred on the

specific behaviour that the interviewee wished to change, the majority of interviewees described a number of additional self care behaviours. Consequently, these descriptions were included in the analysis of behavioural determinants.

The following section will review the determinants of self care behaviour with regard to each of the behaviours discussed.   All statements relating to behavioural determinants were analysed using a framework analysis approach as outlined in Section 5.3.8.1. Behaviours will be presented in accordance with associated TDF domains, themes and sub-themes.   Eating healthily and engaging in physical activity were predominant behaviours as illustrated by the number of interviewees choosing to discuss these behaviours during the interviews. Data pertaining to these behaviours will be presented in detail in this chapter.

5.4.5.1 Determinants of healthy eating

Twelve interviewees discussed eating healthily within their interviews. The following sections will discuss the TDF domains that were associated with healthy eating. Twelve TDF domains were identified as potential determinants of healthy eating amongst offshore workers (Table 5.5).

Table 5.5 TDF domains associated with eating healthily

TDF domain (n = count of interviewees identifying TDF domains as determinant)	Themes	Sub-themes	Count (number of interviewees who discussed determinant out of interviewees determining TDF domains as determinant)
Knowledge (n = 4)	Influence of nutritional knowledge on healthy eating	There is a lack of information on the nutritional content of food that is prepared offshore	3/4
		Having knowledge of nutrition is not associated/associated with eating healthily/preparing healthy food	3/4
Beliefs about capabilities (n = 1)	Influence of preparedness on healthy eating	Having control of preparing food increases likelihood of eating healthily	1/1
Beliefs about consequences (n = 4)	Influence of associated health outcomes on healthy eating	Unhealthy eating associated with negative health outcomes	3/4
		Healthy eating associated with positive health outcomes	3/4
Reinforcement (n = 2)	Eating unhealthily is associated with positive reward	Food as a reward/incentive	2/2
Intentions (n = 4)	Influence of stability of intentions on eating healthily	Influence of stable intentions on eating unhealthily	3/4
		Delaying making changes to eat healthily	1/4
		Strong resolve to eat healthily	3/4
Goals (n = 2)	Goals facilitate healthy eating	Goal setting facilitates healthy eating	2/2
Memory, attention and decision processes (n = 4)	Taking ownership of decision to eat healthily	Making a deliberate effort to eat healthily	3/4
	Influence of willpower on eating healthily	Having/not having the willpower to eat healthily	1/4
	Decision making is affected by inattention	Boredom/tiredness is associated with eating unhealthily	2/4
Environmental context and resources	Influence of environmental stressors on healthy eating	Environmental stressors offshore increase likelihood of eating unhealthily	2/10

(n = 10)	Influence of food provisions offshore on healthy eating	Influence of the availability of healthy/unhealthy foods offshore on healthy eating	10/10
Social influences (n = 4)	Effect of others on healthy eating	Eating is a social event onshore/offshore	2/4
		Negative influence of others on eating unhealthily	2/4
Emotion (n = 2)	Influence of emotional state on healthy eating	Eating alleviates boredom	2/2
Behavioural regulation (n = 8)	Influence of habits on healthy eating	Breaking bad eating habits	1/8
		Unhealthy eating has become a habit	1/8
	Influence of willpower on healthy eating	Lacking/having the willpower to eat healthily	4/8
	Importance of action planning to healthy eating	Delaying starting to make changes to eating habits	1/8
		Making plans to eat healthily	6/8

The following sections will explore TDF domains associated with eating healthily in relation to each theme identified from the analysis and their representative sub-themes (Table 5.5).

Knowledge

Two sub-themes (Table 5.5) pertained to one theme which described the influence of nutritional knowledge on healthy eating.

Theme 1. Influence of nutritional knowledge on healthy eating

It was highlighted that there was a lack of information on the nutritional content of prepared food offshore. Interviewees stressed that it was often difficult when they were offshore to know what ingredients were in the food they were eating since they were not in control of how it had been prepared.

"*The way the food is cooked makes it difficult, cause you don't actually know if you are eating the right thing, you might think you are eating the healthy option and then it may not be healthy at all*" P6, male, aged 57 years

Interviewees identified that having knowledge of nutrition is associated with eating healthily/preparing healthy food. For example, the majority of interviewees reported that having knowledge of nutrition would increase the likelihood of healthy eating. Being conscious and having an understanding of how to eat healthily, allied to developing an awareness of the nutritional content of food, was deemed to promote healthier eating.

"…*it is just having a bit of dietary knowledge as well*" P6, male, aged 57 years

Although the majority noted the positive influence knowledge had on behaviour, one interviewee questioned the role of knowledge in influencing healthy eating and suggested that making unhealthy food choices was not due to a lack of understanding or awareness of what was needed to eat healthily.

"*I am certainly cognisant of what I need to be eating to be healthy, so it is certainly not an issue of knowledge*" P11, male, aged 36 years

Beliefs about capabilities

One overarching theme and a corresponding sub-theme were identified from the analysis and corresponded with the beliefs about capabilities domain (Table 5.5). The theme highlighted the influence of preparedness on healthy eating.

Theme 1. Influence of preparedness on healthy eating

One sub-theme pertained to the theme and described the influence of preparedness on healthy eating. Within which it was highlighted that having control over how food was prepared increased the likelihood of making healthy food choices.

"…*that if I am in control of what I am cooking, the way I want to eat, then I am a lot more likely to eat healthily*" P1, male, aged 29 years

Beliefs about consequences

A single overarching theme and two sub-themes (Table 5.5) were identified as representative of the beliefs about consequences domain of the TDF. The theme emphasised the influence of associated health outcomes on healthy eating.

Theme 1. Influence of associated outcomes on healthy eating

Interviewees highlighted the importance of being cognisant of the positive health outcomes of eating healthily and the effect that this had on their behaviour.

"…*definitely want to reduce em the amount of medication I take and basically getting the, I would love to get my weight down so my sugar levels could be controlled just by diet rather than medication*" P6, male, aged 57 years

The influence of associating unhealthy eating with a negative health outcome, such as poor sleep quality or incidence of disease, was emphasised by some interviewees. It was also noted that being mindful of this relationship when making decisions on food choices left them feeling more encouraged to eat healthily.

"*I expect that it might have a psychological impact in terms of, not being willing to exercise and then just going back to old habits and routines, where I was drinking a lot of fizzy juice*

and things like that, which made me lethargic and affected my sleep and things like that, so I guess the opposite of what I am doing at the moment" P2, male, aged 28 years

Reinforcement

One sub-theme (Table 5.5) pertained to the theme and highlighted that eating unhealthily is associated with positive reward.

Theme 1. Eating unhealthily is associated with positive reward

The use of food as a reward or incentive was highlighted. It was reported that eating unhealthily was often used by interviewees to reward themselves whilst they were offshore.

"*…a little treat, cause you know you are away quite a while*" P15, male, aged 37 years

Intentions

A single overarching theme and three sub-themes (Table 5.5) were identified as representative of the intentions domain of the TDF. The theme emphasised the influence of stability of intentions on eating healthily whereby it was suggested that having stable intentions to eat healthily increased the likelihood of achieving what was intended whilst unstable intentions lead to a reduced ability to execute the behaviour.

Theme 1. Influence of stability of intentions on healthy eating

The first sub-theme 1 outlined the influence of stable intentions on healthy eating. Interviewees suggested that making a deliberate effort to eat healthily increased the likelihood of achieving what they had intended to whilst unstable intentions lead to a reduced ability to execute the behaviour.

"*…once I started the longer I get on with it [eating healthily] the more I don't want to ruin it*" P15, male, aged 37 years

Secondly the role of delaying making changes to eat healthily on subsequent eating behaviours was identified. One interviewee reported that delaying making the commitment to changing behaviour, despite having the intentions to eat healthily, had a negative impact on reaching desired goals. Accordingly, although the intention was there, it did not play a role in facilitating behaviour change with regard to healthy eating.

"*I would say maybe a month or two, maybe part of that was when I was thinking about it and was maybe not proactive enough, I was delaying it*" P2, male, aged 28 years

The final sub-theme stressed the importance of having a strong resolve to eat healthily. Offshore workers noted that behaviour change required a deliberate and conscious effort.

"*…so I'd, I make an effort every time I go offshore not to eat as much as I do, I certainly eat less offshore than I do onshore*" P6, male, aged 57 years

Goals

A single overarching theme and one sub-theme (Table 5.5) were identified as representative of the goals domain of the TDF. The theme specified that having goals facilitated healthy eating.

Theme 1. Goal setting facilitates healthy eating

The sub-theme highlighted how having predetermined goals promoted healthy food choices. Broadly, the goals discussed concerned physical activity. Accordingly, interviewees reported that their goals with regard to increasing physical activity, or improving outcomes which related to exercise, facilitated healthy eating.

"*…yeah probably if I got back into some sort of competitive sport I would say em like that is what I am trying to do just now*" P15, male, aged 37 years

Memory, attention and decision processes

Three themes were identified and pertained to each of the three sub-themes represented by the memory, attention and decision processes domain (Table 5.5). The first theme emphasised taking ownership of the decision to eat healthily. The second highlighted the

influence of willpower on eating healthily and the third, stressed how decision making was affected by inattention.

Theme 1. Taking ownership of the decision to eat healthily

Interviewees reported that in making a deliberate effort to eat healthily and taking ownership of the decision better equipped them to make changes to their diet.

"…*just trying to eh make choices which are the closest to your plan, if you are trying to stick to healthy*" P2, male, aged 28 years

Theme 2. Influence of willpower on healthy eating

It was reported that having the willpower to eat healthily increased the likelihood of behavioural execution, conversely, it was also discussed that decreased willpower impeded on an individual's ability to eat healthily.

"…*you just go out with your best intentions and hope your willpower can carry you over for three weeks, I don't see any other way, I don't see any other sort of magic solution to addressing the problem [eating healthily]*"P6, male, aged 57 years

Theme 3. Decision making affected by inattention

Boredom and tiredness impeded on interviewees decision making processes, and lead to an increased likelihood of eating unhealthily.

"*I am much less likely to eat healthily if I am tired*" P14, female, aged 41 years

Environmental context and resources

Two themes were identified and pertained to each of the two sub-themes represented by the environmental context and resources domain (Table 5.5). The two themes highlighted the influence of: offshore environmental stressors on healthy eating; and food provisions offshore in healthy eating.

Theme 1. The influence of offshore environmental stressors on healthy eating

It was specified that offshore environmental stressors increased the likelihood of unhealthy eating. For example, stressors inherent to the offshore environment, such as extreme heat or cold temperatures, increased the likelihood of eating unhealthily,

"*I guess sometimes you feel a bit drained when you come back inside and sometimes you want to, you know, em you know, you have got whatever is in there cans of fizzy drink, cans, things with sugar and all the rest of it and you just think rather than monitoring your intake of sugar for instance, you would, you tend to find yourself just grabbing stuff you know, a can of coke, whatever cause you want to relax so that is generally what happens*" P15, male, aged 37 years

Theme 2. The influence of food provisions offshore on healthy eating

Interviewees highlighted the influence of the availability of healthy/unhealthy foods offshore on healthy eating. Although one interviewee reported that there were healthy food alternatives available offshore, the remainder highlighted that the abundance of unhealthy food offshore, poor quality of the food, lack of healthy options and nutritional information impeded on their ability to eat healthily.

"…*it tends to be there is chips and burgers and so on, as a general rule I would say, it is mostly, you know, the food, you do normally have a healthy option but that is probably maybe ten percent of what is on offer but the rest of it for everyone else is chips, ice cream every night and so on*" P15, male, aged 37 years

Interviewees also reported the negative and positive effects of restricted eating times on their diet, highlighting that whilst they often prevented overeating they were restrictive and may encourage unhealthily eating.

"…*you might only have twenty minutes to actually get fed and get back to your work, let the other guy, there is four of us in the team, tends to be two of you go for food and you've got to get back to let the other two guys get fed em so you might not have enough time to kind of be a little bit, you maybe have to go up, right grab whatever is going, get it down you and get back, so there is that aspect to it yeah"* P15, male, aged 37 years

Further, one interviewee who suffered from coeliac disease reported that the offshore environments that he had experience of working in had struggled to accommodate his dietary requirements.

"*I find it quite hard to obviously deal with that, so I have to make sure that they are aware of it and it quite be limited sometimes, in choice*"P7, male, aged 32 years

Interviewees emphasised that increasing the supply and availability of healthy foods in offshore environments would better equip them with the means and resources to eat healthily.

"*… we could use a bigger choice of healthy options, but I think the rules say they have to give us a healthy option but, when you see what they pick sometimes as a healthy option, you wonder if they have actually put a lot of thought into it, but the thing is you just have to make a point of, what you do is, you get three meals a day plus they give you, you get handed out, your morning break has usually got bacon rolls and stuff like*" P6, male, aged 57 years

Social influences

One theme was identified and pertained to each of the two sub-themes represented by the social influences domain (Table 5.5). The theme highlighted the effect of others healthy eating.

Theme 1. The effect of others on healthy eating

Within sub-theme 1, interviewees discussed the social nature of eating both on and offshore, describing the negative influence that this may have on their behaviour.

"*I wouldn't say it is so much a pressure but sometimes you know the guys are buying you cans of juice or whatever, a can as a gesture, and em sometimes like that, they you would, you would just drink it and so*" P2, male, aged 28 years

Interviewees highlighted the negative influence of others on eating unhealthily, noting that they had felt pressure from others to eat unhealthily or to deviate from their diets.

"*I think they just, some people don't give you the, the positive vibes or maybe, try and deter you a wee bit*" P2, male, aged 28 years

One interviewee felt a reluctance to approach members of the catering crew to enquire about the nutritional content of food or to request a healthy option.

"*I don't like to stand and interrogate the chefs*" P6, male, aged 57 years

Emotion

One theme was identified and pertained to one sub-theme represented by the emotion domain (Table 5.5). The theme highlighted the influence of offshore workers' emotional state on their healthy eating.

Theme 1. The influence of offshore workers' emotional state on their healthy eating

The sub-theme that was generated pertained to how eating alleviated boredom in the offshore environment (Table 5.4). Interviewees stressed that the boredom that they experienced offshore lead them to making unhealthy choices or to eating unnecessarily.

"*…it is like, boredom too, a lot of boredom offshore that makes you eat, that you know, I am bored of this, I have been waiting two or three days for a permit, you are bored, you know, so it is very difficult to go no I am not going to have a rhubarb crumble today*" P8, male, aged 50 years

Behavioural regulation

Three themes were identified and pertained to five individual sub-themes represented by the behavioural regulation domain (Table 5.5). The themes highlighted the: influence of habits on healthy eating; influence of willpower on healthy eating; and the importance of action planning to healthy eating.

Theme 1. The influence of habits on healthy eating

The importance of breaking bad eating habits when offshore was highlighted. For example, one interviewee highlighted that he believed his eating may be better controlled by leaving the offshore installation canteen after he had finished his meal.

"…*you just need to be firm with yourself and say no I am not gonna, I am going to have one meal and one course and then just get up and leave, we definitely get enough calories, there is no getting away from that, so as I've said previously, it is all down to willpower*" P6, male, aged 57 years

The relative ease of getting into bad eating habits was also highlighted. For example, one interviewee highlighted that it was easy to get into poor eating habits and to not be mindful of what food was being consumed.

"…*yeah it is too easy just to get in the habit of eating whatever, rather*" P15, male, aged 37 years

Theme 2. The influence of willpower on healthy eating

The effect that lacking or having willpower had on eating healthily was stressed. Interviewees noted that they often lacked the willpower to eat healthily and this resulted, in unhealthy food choices.

"…*yeah, I have been offshore for thirty years [laughs] and I think I've been trying, I think I have been trying to make that change every time I have been offshore but there is questions of willpower*" P6, male, aged 57 years

Theme 3. The importance of action planning to eating healthily

The negative influence of delaying behaviour change on eating healthily was highlighted. One interviewee discussed how he repeatedly delayed changing his behaviour and that this presented a challenge in terms of eventually initiating change.

"…*it is always the getting started that is the problem, you always think oh I will get into it this time or tomorrow or whatever, and you don't or you get involved with something else or whatever, then it just goes on from there, yeah*" P15, male, aged 37 years

The importance of having plans and being prepared and the effect that this had on subsequent eating behaviours was emphasised. Interviewees highlighted that being prepared meant ensuring that they had: the appropriate ingredients to eat healthily stocked at home, and taken their own healthy food supplies with them when they went offshore.

"*…um well I tend to take my own snacks with me, or try to, so that that will sort of help me to not go and eat cakes when they are on offer if I have got some nuts or a protein shake or something like that, that I can go and have instead, so if I get hungry I am not just grabbing the nearest thing*" P14, female, aged 41 years

One interviewee discussed that it was important to establish a routine of healthy eating and ensure that it could withstand that transient nature of the offshore lifestyle.

"*I think the main thing is just getting into a routine and when you have an offshore lifestyle you are moving around a bit then it can be tricky as I have sort of explained, to keep that up if you are, you know, doing travelling for one or two days, em you know sometimes you are very much just eating on the go*"P2, male, aged 28 years

5.4.5.2 Determinants of engaging in physical activity

Eleven interviewees discussed determinants of engaging in physical activity within their interviews. The following sections will discuss the TDF domains that were broadly associated with engaging in physical activity. As outlined in Table 5.6, 11 TDF domains were identified as potential determinants of engaging in physical activity amongst offshore workers.

Table 5.6 TDF domains associated with engagement in physical activity

TDF domain (n = count of interviewees identifying TDF domains as determinant)	Themes	Sub-themes	Count (number of interviewees who discussed determinant out of interviewees determining TDF domains as determinant)
Skills (n = 1)	Better time management may facilitate engagement in physical activity	Managing time will increase likelihood of engaging in physical activity	1/1
Beliefs about capabilities (n = 2)	Influence of confidence on engagement in physical activity	Older age makes it difficult to engage in physical activity	2/2
Beliefs about consequences (n = 6)	Engagement in physical activity is associated with positive health outcomes	Physical activity associated with positive health outcomes	6/6
Intentions (n = 3)	Influence of stability of intentions on engaging in physical activity	Environment has a negative effect on intention to engage in physical activity	1/3
		Motivation facilitates engagement in physical activity	3/3
		Planning increases intentions and likelihood of engaging in physical activity	1/3
Goals (n = 3)	Influence of goal setting and action planning to engaging in physical activity	Goal and target setting increase engagement in physical activity	3/3
Memory, attention and decision process (n = 3)	Taking ownership of decision to engage in physical activity	Lack of focus has a negative effect on engagement in physical activity	2/3
	Engagement in physical activity affected by inattention	Tiredness is associated with decreased physical activity	2/3
Environmental context and resources (n = 9)	Environment and resources influence engagement in physical activity	Offshore environment restricts engagement in physical activity	8/9
		Increase number of opportunities for personnel to engage in physical activity when offshore	3/9
Social influences (n = 4)	Influence of others on engagement in physical activity	Negative influence of others on engaging in physical activity	1/4
		Positive influence of others on engaging in physical activity	4/4

Emotion (n = 3)	Influence of emotional state on engagement in physical activity	Influence of enjoyment of physical activity on engagement	3/3
Behavioural regulation (n = 3)	Influence of habits on engagement in physical activity	Breaking the habit of not engaging in physical activity	2/3
	Importance of self-monitoring on engagement in physical activity	Self-monitoring of physical activity increases engagement	1/3

The following sections will explore TDF domains associated with engaging in physical activity in relation to each theme identified from the analysis and their representative sub-themes (Table 5.6).

Skills

One theme was identified and pertained to each of the two sub-themes represented by the skills domain (Table 5.6). The theme highlighted that better time management may facilitate engagement in physical activity.

Theme 1. Better time management may facilitate engagement in physical activity

The effect of managing time on increasing the likelihood of engaging in physical activity was emphasised. One interviewee reported that developing good time management skills whilst offshore, for example ensuring that work finishes on time, would ensure adequate time to attend the gym.

"*…other than, trying to manage your time better offshore, making sure you do finish on time, particularly if you know you are not one of the guys who works a fixed shift, make sure that you do finish on time and manage your time is probably the best thing you can do*" P1, male, aged 29 years

Beliefs about capabilities

One theme was identified and corresponding sub-theme were represented by the beliefs about capabilities domain (Table 5.6). The theme identified outlined the influence of confidence on engagement in physical activity.

Theme 1. Influence of confidence on engagement in physical activity

The effect that older age had on engagement with physical activity was highlighted. For example, interviewees reported that they felt that their older age made it more difficult to engage in physical activity due to the physical limitations that they perceived.

"*…if I was 25 then I probably would be playing football, you know stuff like that but it, the age I am at, you eh you have your limits em and certainly some things are easier to take on than others*" P9, male, aged 51 years

Beliefs about consequences

One theme was identified and corresponded with one sub-theme represented by the beliefs about consequences domain (Table 5.6). The theme highlighted that engagement in physical activity was associated with positive health outcomes.

Theme 1. Engagement in physical activity is associated with positive health outcomes

Interviewees highlighted that engagement in physical activity was associated with positive health outcomes. Interviewees reported that the positive health outcomes that they associated with exercise served as a facilitator to their engagement.

"…*you have to do this for your own wellbeing sort of thing*" P9, male, aged 51 years

Intentions

One theme was identified and corresponded with three sub-themes represented by the intentions domain (Table 5.6). The theme highlighted the influence of the stability of intentions on engagement with physical activity whereby it was suggested that having stable intentions to engage in exercise increased the likelihood of achieving what was intended whilst unstable intentions lead to a reduced ability to execute the behaviour.

Theme 1. Influence of stability of intentions on engaging in physical activity

The influence of offshore workers environment on their intention and subsequent, engagement in physical activity was noted. One interviewee discussed the influence of their environment on their will to engage in physical activity and suggested that being able to exercise outdoors increased the likelihood of engagement.

"*I found it to be a bit of an expensive luxury and I didn't really... I didn't, I prefer to be outside rather than stuck in a gym*" P9, male, aged 51 years

The role of motivation in facilitating engagement in physical activity was highlighted. Interviewees reported that having a lack of motivation was a barrier to engagement and that being motivated increased the likelihood of performing the behaviour.

"I am doing things like I have got a personal trainer and he keeps me motivated" P2, male, aged 28 years

The effect of planning on increasing intention and the likelihood of engaging in physical activity was stressed. It was reported that scheduling time to attend an exercise class lead to a greater probability that the behaviour was executed.

"*I found the predictability of having to get to a spin class was quite good because that kind of gave me a commitment*" P9, male, aged 51 years

Goals

One theme was identified and corresponded with one sub-theme represented by the goals domain (Table 5.6). The theme highlighted the influence of goal setting and action planning on engagement in physical activity.

Theme 1. Influence of goal setting and action planning to engaging in physical activity

It was reported that goal and target setting increased engagement in physical activity. Interviewees suggested that setting goals and targets to increase their physical activity or improve on specific areas, e.g. to achieve 10,000 steps a day, facilitated their engagement.

"..when I do go to the gym rather than I tend to go and do whatever I feel like on the day but I, when I would probably be better off following a plan, getting a plan together, a training plan, and say right today I am going to do this, try to hit this target, go on the treadmill and run for a certain amount of time, at a certain pace or something like that" P15, male, aged 37 years

Memory, attention and decision processes

Two themes were identified and two corresponding sub-themes represented by the memory, attention and decision processes domain (Table 5.6). The themes highlighted the influence of: taking ownership of the decision to engage in physical activity; and inattention on engagement with physical activity

Theme 1. Influence of taking ownership of the decision to engage in physical activity

Interviewees referred to how a lack of focus had a negative effect on engagement in physical activity. Interviewees highlighted the importance of taking ownership of engaging in physical activity in fulfilling their targets, they stressed that the lack of focus that they often experience has a negative effect on their engagement.

"*…again being a bit more deliberate in what I am doing rather than just being kind of random, a bit random and a bit haphazard I suppose would be the word*" P15, male, aged 37 years

Theme 2. The effect of inattention on engagement in physical activity

Interviewees highlighted the effect of inattention on their ability to engage in physical activity, noting that tiredness had a negative impact on their exercise habits.

"*I am aware that I get into the cycle of, if I don't get enough sleep I don't do any exercise and then I get tired and then I still want to sleep more, and then you don't end up doing any exercise*" P14, female, aged 41 years

Environmental context and resources

One theme was identified and corresponded with two sub-themes represented by the environmental context and resources domain (Table 5.6). The theme highlighted how the environment, and resources within, influences engagement in physical activity.

Theme 1. Environment and resources influence engagement in physical activity

The effect of the environment and available resources on engagement in physical activity was broadly described. Although one interviewee discussed the influence of his home environment, particularly the effect of weather conditions, on his ability to exercise, a number of interviewees referred to their working environment in relation to their physical activity. Interviewees further highlighted the negative impact of fixed meal times, working hours, poor gym facilities and lack of exercise equipment/space on willingness to exercise.

"*I have not been on a rig where the gym couldn't be improved, cause obviously you go in at a fixed time and if you particularly want to use a, not a fixed time but it is obviously*

sometime after you have finished your shift, em so if somebody is on the machine that you want to use you can't sort of force them off of the sort of thing eh so simply more equipment" P6, male, aged 57

Interviewees stressed that workforce engagement in physical activity may be facilitated by increasing the number of opportunities for offshore workers to exercise when they were offshore. It was further recommended that space on offshore installations was better utilised and that investment in gym facilities was increased.

"*I think it would be very important if I was working out there on a regular basis but I am fortunate that I am not but eh, certainly, I will use the template of Norway again, the Norwegian guys have thought it out, you can do lots of different stuff out there, they have clubs, they have little groups and they have spinning classes, they have a thing called 'bandy' which is indoor hockey and all these things and there was a whole list of things you can join when you go there, you know, that you can go and take part in and they actively encourage you to take part, never seen that in the UK*" P8, male, aged 50 years

Social influences

One theme was identified and corresponded with two sub-themes represented by the social influence domain (Table 5.6). The theme highlighted the influence of others on engagement in physical activity.

Theme 1. Influence of others on engagement in physical activity

The negative influence of others on engagement was highlighted. One interviewee noted that he found some gym members offshore intimidating and this had a negative effect on his willingness to exercise.

"*…the gyms are dominated by the guys that wanna beat themselves up*" P9, male, aged 51 years

The positive influence of others on exercise was also highlighted. Interviewees stressed the role of others in motivating them to exercise and cited partners, friends and colleagues as being instrumental.

"*…I think em I did have a colleague who was quite good at helping me, em like go to the gym and get healthier when I was sort of at my biggest em so I would say if you have got a group of people, perhaps around you that might support you then they will maybe go to the gym with you em and sort of encourage you from that point of view, but aside from that, I wouldn't say there is much other support or assistance I have been getting*" P2, male, aged 28 years

Emotion

One theme was identified corresponding with one sub-theme represented by the emotion domain (Table 5.6). The theme highlighted the influence of emotional state on engagement in physical activity.

Theme 1. Influence of emotional state on engagement in physical activity

The influence of enjoyment of physical activity on engagement was described. Interviewees perceived that deriving enjoyment from physical activity facilitated their engagement, whilst a lack of enjoyment presented as a barrier.

"*I have trouble of finishing what I start, I think I get distracted by something or get bored or something*" P11, male, aged 36 years

Behavioural regulation

Two themes were identified and corresponded with two sub-themes represented by the behavioural regulation domain (Table 5.6). Theme 1 highlighted the influence of habits on engagement in physical activity and theme 2, stressed the importance of self-monitoring on subsequent engagement.

Theme 1. Influence of habits on engagement in physical activity

The role of breaking the habit of not engaging in physical activity in facilitating behavioural execution was outlined. Interviewees discussed the cycle of breaking a good exercise routine and needing to break the habit of not exercising in an effort to restart.

"*I managed to do some regular thing for some time but then when the routine is broken it is difficult to start again*" P11, male, aged 36 years

Theme 2. Importance of self-monitoring on engagement in physical activity

It was reported that self-monitoring strategies which enable tracking of physical activity levels increased overall engagement.   For example, one interviewee highlighted that monitoring, via feedback from a pedometer, the amount of steps he took in a day motivated him to meet his daily target.

"*…and it [pedometer] sets you a target and em even if you get to 7,000 [steps] you think well if I walk another mile and a half I will get to 10,000*" P9, male, aged 51 years

5.4.5.3 Determinants of reducing alcohol intake

Three interviewees discussed determinants of reducing their alcohol intake within their interviews. The following sections will outline the TDF domains that were broadly associated with reducing alcohol intake. Eleven TDF domains were identified as potential mechanisms of behaviour. Table 5.7 outlines each TDF domain in relation to illustrative quotes, relevant themes and sub-themes. The majority of interviewees statements pertained to social/professional role and identity, beliefs about capabilities/consequences, environmental context and resources, social influences and emotion domains.

Interviewees described how their social identity influenced their alcohol intake, highlighting that their role within the family prevented excessive consumption whilst their masculinity and identity as an offshore worker facilitated alcohol use. The influence of interviewees having confidence in their ability to reduce alcohol consumption was perceived to either positively or negatively affect their behaviour. It was also highlighted that beliefs about consuming alcohol influenced intake, for example, some reported that the positive outcomes that were associated with consumption increased the likelihood of them engaging with the behaviour.

Interviewees' environmental context and resources was perceived to increase the likelihood of alcohol consumption. It was emphasised that the restriction-release pattern of offshore work, having alcohol use restricted offshore and freely available onshore, increased temptation to consume alcohol. All interviewees discussed the influence of others on alcohol consumption highlighting that this may be either positive or negative. The effect of emotion on consumption was also noted to either facilitate, for example if interviewees were stressed, or reduce intake, if they were concerned about their alcohol use.

Table 5.7 TDF domains associated with reducing alcohol intake

TDF domain (n = count of interviewees identifying TDF domains as determinant)	Themes	Sub-themes	Illustrative quote	Count (number of interviewees who discussed determinant out of interviewees determining TDF domains as determinant)
Social/professional role and identity (n = 2)	Influence of social identity on alcohol consumption	Identity and social role within family prevents excessive alcohol consumption	"*I know guys that really go for it when they are at home you know and they come back and they are in a bad way you know, I mean I have got family*" P12	2/2
		Masculinity/identity as an offshore worker facilitates alcohol consumption	"*it is not like a, it is probably more of a pressure I put on myself, it is not like I would get ridiculed, I would get hassled if I said no but just that bloke thing, guy thing at the pub*" P11	2/2
Beliefs about capabilities (n = 2)	Influence of confidence on ability to reduce alcohol consumption	Confident that alcohol intake could be reduced	"*yeah fairly confident, yeah if I wanted to, in fact I have thought about*" P11	2/2
		Not confident that alcohol intake could be reduced	"*I don't actually think I can change it*" P12	1/2
Beliefs about consequences (n = 3)	Influence of beliefs about consuming alcohol on consumption	Alcohol use is not considered problematic	"*it is definitely something I wouldn't want to make a habit of , but I kind of justify it to myself that I don't do it that often and I get away with it having any kind of detrimental affect on me*" P11	1/3
		Excessive alcohol use is associated with negative health/life events	"*they virtually spend their whole time off in the pub, there is a lot of failed marriages as you know, and all this kind of stuff you know, and I don't want that to happen to me*" P12	2/3
		Positive outcomes associated with consuming alcohol e.g. relaxation	"*when you come back home and you wanna relax, you might participate em too much in the consumption of alcohol*" P2	3/3

Reinforcement (n = 1)	Alcohol consumption associated with positive outcomes	Consuming alcohol increases positive feelings	"*I don't think it is like a stress reliever, I mean I am busy at work and the rest of it, I don't think it is a stress reliever or anything like that, I guess I have been looking at it when I have done it and you get that nice warm fuzzy feeling*" P11	1/1
Intentions (n = 1)	Influence of stability of intentions on alcohol consumption	Strong resolve to limit alcohol intake	"*I don't know, I am guessing, it is my only sort of resolve that stops me doing that, it is not eh, it would be easy to slip into that, very easy, to slip into that lifestyle*" P12	1/1
Goals (n = 1)	The influence of goal setting on reducing alcohol consumption	Setting a goal to reduce alcohol intake	"*one of those things is to have a dry month*" P11	1/1
Memory, attention and decision processes (n = 1)	Decision making affected by inattention	Distraction reduces alcohol intake	"*for example, you know, my wife and kids are at work and eh I could easily sit down and have a beer, I am keeping active, I have got, I mean the house is in a real mess at the moment cause I am sorting out all the paperwork which has been sitting for months, this is the kind of stuff I do and you know, I have got jobs in the garden and other stuff to keep me busy but it would be easy to avoid all that and head down to the pub with the guys*" P12	1/1
	Influence of willpower on alcohol consumption	Having the willpower to maintain responsible alcohol intake	"*but if I didn't have the strength or the motivation to do things for my wife and my family*" P12	1/1
Environmental context and resources (n = 3)	Influence of environment on alcohol consumption	Effect of restriction-release on alcohol use	"*I mean you only get a chance, to have, to go for a beer at the start and the finish of a job, it probably doesn't do your much favours even then, because with it being offshore it does tend to be a bit em what's the word excessive, you know people go*"	3/3

			out and have a beer so tend to go for it a bit too much" P14	
		Alcohol use is engrained in community	"*it is engrained almost, especially with the, in the community it is engrained, the drinking thing here, yeah, and you fall into that easily, well I do*" P11	2/3
Social influences (n = 3)	Influence of others on alcohol consumption	Alcohol used/is not used as a means of socialising	"*I have got a weakness where I kind of get through a couple of pints and I will get in with company and eh I can't always say no*" P11	3/3
		Positive influence of family on alcohol intake	"*I know guys that really go for it when they are at home you know and they come back and they are in a bad way you know, I mean I have got family and eh it is not, shocking the amount to me, but I guess to someone that is not you know working in that industry, you probably thought, would think it is excessive you know*" P12	2/3
		Pressure to consume alcohol	"*I think around here, probably, generally people think if you go into a pub you've gotta drink or you've got to have a good reason for not drinking*" P11	2/3
Emotion (n = 2)	Influence of emotion on alcohol consumption	Alcohol used as a means of coping	"*I know I said I don't drink on my own, but that first day, that is real pressure release you know*" P12	2/2
	Fear about alcohol consumption	Concern about alcohol use	"*certainly the last time I went out for a couple of pints, I stayed out, it is the fact that you get too drunk you can't remember, it is that worry*" P11	1/1
Behavioural regulation (n = 1)	Influence of self-monitoring on alcohol consumption	Difficulty controlling alcohol use	"*but it is also, I need, I have never had this, it is a self control thing with me it is like having this, a cut-off, a limit switch, I need that to say that that is enough, it is not something I have ever, I think, I think that I have tried to do it but say, something switches off, there is no limit, there is no stopping eh the drink and that*"	1/1

			you know, I am not falling about, I am not doing any trouble it is just, you get too drunk" P11	
		Effect of self-monitoring on alcohol consumption	"I put on the old IPhone, I think it was the drink aware app and logged it over six months, so that was me I suppose, it was a curiosity thing, I was wondering what I do drink and yeah, from the back of that I have thought well wait a minute you drink more than you think" P11	1/1

5.4.5.4 Determinants of smoking and cessation

Three interviewees discussed determinants of smoking cessation. The following sections will outline the TDF domains that were broadly associated with smoking cessation. Ten TDF domains were identified as potential mechanisms of behaviour. Table 5.8 outlines each TDF domain in relation to illustrative quotes, relevant themes and sub-themes. TDF domains that were commonly described included beliefs about capabilities, beliefs about consequences, memory, attention and decision processes, environmental context and resources, social influences, and emotion.

Interviewees discussed the influence of preparedness on smoking cessation, highlighting that they believed confidence and a positive mentality would contribute to successful efforts to abstain. The influence of outcomes associated with smoking and cessation were highlighted as having an effect on behaviour. For example, it was perceived that cessation was contingent on whether stopping was viewed positively or negatively. Interviewees also highlighted the positive influence of being distracted and having willpower on smoking cessation.

The offshore environment was perceived to trigger smoking and interviewees suggested that cessation may be facilitated by avoiding smoking environments whilst offshore. The effect of how others may positively influence cessation efforts was described, although it was also noted that smoking was often used as a means to socialise. Both interviewees highlighted how smoking may be used to alleviate stress or cope with boredom.

Table 5.8 TDF domains associated with smoking cessation

TDF domain (n = count of interviewees identifying TDF domains as determinant)	Themes	Sub-themes	Illustrative quote	Count (number of interviewees who discussed determinant out of interviewees determining TDF domains as determinant)
Knowledge (n = 1)	Influence of knowledge on smoking cessation	Awareness of negative effects of smoking would have aided cessation	"*I wish I knew smoking was bad for me but I definitely wouldn't have smoked for all those years*" P11	1/1
Beliefs about capabilities (n = 2)	Influence of preparedness on smoking cessation	Smoking cessation requires confidence	"*pretty confident anyway but you can, you only, like you need to be a hundred percent confident before you stop smoking so yeah pretty confident I could do it anyway*" P3	1/2
		Smoking cessation requires a positive mentality	"*I don't know about anything else really as long as you've got a good mental approach to it then you can do it, you know what I mean, you don't need anything else*" P3	1/2
Beliefs about consequences (n = 3)	Influence of associated outcomes on smoking and cessation	Smoking associated with negative outcomes e.g. health	"*my health and fitness eh yeah and it is not exactly the nicest habit either*" P3	3/3
		Smoking cessation associated with positive/negative outcomes e.g. health	"*I don't think anything different in my social aspects, or anything like that but definitely fitness and eh what I enjoy doing basically so, I mean the day I can cycle up [location] in an hour, an hour and fifteen minutes, what could you do if you weren't a smoker you know?*" P3	2/3
Intentions (n = 1)	Influence of resolve on smoking cessation	Strong resolve influences smoking cessation	"*you have to be wanting to stop not a sort of half arsed attempt*" P3	1/1
		Lack of resolve to quit smoking	"*I don't know, not in the right frame of mind to do it tomorrow*" P3	1/1

Goals (n = 1)	Influence of physical activity on smoking cessation	Engagement in physical activity would increase the likelihood of stopping smoking	"*probably just em, I suppose eh getting more and more into like downhill biking where you have gotta have, be a lot fitter than what I am right now so if you are enjoying something and then you start thinking about how you can be better at it, then yeah you might have the natural ability to do something but then if you are a bit fitter then it would make things ten times easier*" P3	1/1
Memory, attention and decision processes (n = 2)	Influence of distraction on smoking cessation	Being busy decreases the likelihood of smoking	"*you know, busier, I can be busier at home but you are not eh you are not in a wee offshore prison, so you can do as you please, the one place you get told how to do everything and the other you can do as you please, I suppose in general busier*" P3	2/2
	Influence of willpower on smoking cessation	Willpower increases likelihood of stopping smoking	Quote unavailable	1/2
Environmental context and resources (n = 2)	Influence of environment on smoking and cessation	Elements of the environment trigger smoking	"*I would say there are more triggers to smoke offshore*" P3	2/2
		Smoking cessation would be helped by avoiding smoking environments offshore	"*I suppose the main thing offshore is to stay out the smoking tv room and smoking tea shack, that is all the things you could do as that is the only places you could smoke*" P3	1/2
Social influences (n = 2)	Influence of others on smoking	Positive influence of others on promoting smoking cessation	Quote unavailable	1/2
		Smoking as a means of socialising	"*yeah, yeah there definitely is, that is how you get stuff done [laughs], believe it or not that is true*" P3	1/2
Emotion (n = 2)	Influence of emotion on smoking	Smoking as a means to alleviate boredom	"*I think it is just, be like because of the whole boredom thing*" P3	2/2
		Smoking as a means to reduce stress	"*I think if you end up getting yourself all worked up then you will end up going*	2/2

			out and buying yourself a packet of fags" P3	
Behavioural regulation (n = 1)	Influence of breaking habits on smoking cessation	Breaking the habit of smoking	"*so if you have a cup of tea and a cigarette after you have had something to eat, then you need to get up and go outside and go for a walk, so I think the walking came about from that*" P3	1/1

5.4.5.5 Determinants of sleep management

Two interviewees discussed determinants of sleep management within their interviews. The following sections will outline the TDF domains that were broadly associated with sleep management. Five TDF domains were identified as potential mechanisms of behaviour. Table 5.9 outlines each TDF domain in relation to illustrative quotes, relevant themes and sub-themes.

TDF domains that were commonly described included environmental context and resources, and emotion. Both interviewees highlighted the influence of the environment on their sleep, and suggested that work-related factors and elements of the offshore environment had a negative impact on sleep quality. Further, the effect of emotion on sleep quality was also discussed. Interviewees reported on the negative effect that stress had on their ability to manage their sleep.

Table 5.9 TDF domains associated with sleep management

TDF domain (n = count of interviewees identifying TDF domains as determinant)	Themes	Sub-themes	Illustrative quote	Count (number of interviewees who discussed determinant out of interviewees determining TDF domains as determinant)
Skills (n = 1)	Influence of skills on sleep management	Sleep hygiene strategies	"*maybe advice on strategies to eh to wind down , things that prepare you well for sleeping*" P9	1/1
Beliefs about consequences (n = 1)	Influence of beliefs about physical activity on sleep management	Physical activity associated with increased sleep management	"*I know for myself it is often at the end of a day I kind of wind down by going to the gym*" P9	1/1
Memory, attention and decision processes (n = 1)	Impact of tiredness on other health behaviours and outcomes	Negative impact of poor sleep on other health behaviours and outcomes	"*yeah sometimes, well obviously you are eating less, your energy levels, you are feeling a bit down* " P4	1/1
Environmental context and resources (n = 2)	Influence of environment on sleep management	Work-related factors have a negative effect on sleep quality	"*I guess em volume of workload potentially , there has probably been an increase rather than a decrease of late*" P9	2/2
		Elements of the offshore environment have a negative effect on sleep quality	"*maybe with the noise that is outside, you can obviously hear the noise of what is happening outside, cranes banging and people going back and forward in the corridors as well, so that doesn't help*" P4	2/2
Emotion (n = 2)	Influence of emotion on sleep management	Negative affect of stress on sleep	"*I think it is stress-related, it is worrying about what is happening while you are trying to get to sleep*" P2	2/2

5.4.5.6 Determinants of stress management

One interviewee discussed determinants of stress management. The following sections will outline the TDF domains that were broadly associated with stress management. Three TDF domains were identified as potential mechanisms of behaviour. Table 5.10 outlines each TDF domain in relation to illustrative quotes, relevant themes and sub-themes.

The TDF domains categorised from the interviewee's statements pertained to beliefs about capabilities, beliefs about consequences, and environmental context and resources. Broadly the interviewee discussed how stress was managed and the factors contributing to increased stress.

Table 5.10 TDF domains associated with stress management

TDF domain (n = count of interviewees identifying TDF domains as determinant)	Themes	Sub-theme	Illustrative quote	Count (number of interviewees who discussed determinant out of interviewees determining TDF domains as determinant)
Beliefs about capabilities (n = 1)	Influence of confidence on ability to manage stress	Unable to adapt thinking processes to reduce stress	"*I guess the other one, I don't know how to do it, would be to care less, em but it is not in my make up so I think it is something that I just have to deal with*" P2	1/1
Beliefs about consequences (n = 1)	Influence of physical activity on stress management	Physical activity leads to better stress management	"*I find walking is a great aid, even on the rig on the helideck for maybe, oh, I try do 10,000 steps a day and I do that at home with the dog and I find that is a great stress relief*" P2	1/1
Environmental context and resources (n = 1)	Influence of environment on stress management	Communication with family enables better stress management	"*I am quite fortunate that in the position that I am in, that I have access to all these mediums to contact my family anytime but there is a lot of people that don't*" P2	1/1
		Aspects of the offshore environment enable better stress management	"*I mean it is not too bad actually, if I can't get for a walk on the helideck because of the weather, then we have got the gym with the walking machines and everything so yeah*" P2	1/1

5.4.5.7 Determinants of maintaining work-life balance

One interviewee discussed determinants of maintaining work/life balance. The following section will highlight the TDF domains that were broadly associated with maintaining work/life balance. Six TDF domains were identified as potential mechanisms of behaviour. Table 5.11 outlines each TDF domain in relation to illustrative quotes, relevant themes and sub-themes.

The TDF domains categorised from the interviewee's statements pertained to skills, beliefs about consequences, memory, attention and decision processes, environmental context and resources, social influences and emotion. Broadly the interviewee discussed how work-life balance was managed and the factors which contributed to a good work-life balance.

Table 5.11 TDF domains associated with maintaining work-life balance

TDF domain (n = count of interviewees identifying TDF domains as determinant)	Themes	Sub-themes	Illustrative quote	Count (number of interviewees who discussed determinant out of interviewees determining TDF domains as determinant)
Skills	Effective management of work promotes good work-life balance	Good time management skills promote a positive work-life balance	"*I am quite bad at ignoring it and not responding , I tend to, if I get something at the weekend, that I think I can respond to there and then, then I will just respond to it and that obviously keeps you thinking about work when you are not supposed to be, and I guess I can delete my work email off my phone, that might help*" P1	1/1
Beliefs about consequences	Positive outcomes associated with hard work	Belief that hard work may reduce likelihood of being made redundant	"*like I said I think with the way the industry is at the moment as well that definitely weighs on everybody's minds at the end of the day, we have all got mortgages to pay so we don't want to be sitting there doing nothing and being the people they are thinking about when they are making cuts so I think that pretty much weighs on a lot of the guy's minds at the moment*" P1	1/1
Memory, attention and decision processes	Effective management promotes good work-life balance	Decision making impedes on work-life balance	"*I am pretty bad at organising, deciding what meetings I need to attend*" P1	1/1
Environmental context and resources	Negative of work on work-life balance	Work demands impede on work-life balance	"*I think there is quite a hefty workload*" P1	1/1
Social influences	Influence of others on work-life balance	Positive/negative influence of others on work-life balance	"*good question, yeah I don't know if there is a lot they can really do as I say particularly with the way the industry is at the moment, everybody I work with is kind of going through the same thing as well but, I think yeah, we try*	1/1

			to, we try to... I mean I work with quite a good team, we try to have quite a good social side as well so it is not all about work and people aren't always talking about work" P1	
Emotion	Engagement with work is associated with positive feelings	Enjoyment from work impedes on ability to switch off	*"I enjoy what I do and I enjoy the guys that I work with a stuff so em I mean, I think actually enjoying my job and stuff kind of takes the ability away from trying to step away from it sometimes"* P1	1/1

5.4.6 Research question 3: what are offshore workers' experiences of health promotion interventions/programmes within the offshore environment?

Interviewees described the health promotion interventions/programmes that were available to them whilst they were offshore. Programmes were often based on setting health targets, either as a team or individually, and monitoring progress. Team target-setting programmes were competitive and involved groups competing with one another to meet a specific group goal or target.

Further, they were often incentivised and rewards-based programmes. Programmes were typically delivered by health professional and included installation medics, visiting company staff or experts from external companies. Health professionals offered advice on a range of health topics, including on nutrition, smoking and exercise, and conducted health checks for offshore workers.

Interviewees' statements pertaining to the third research question were analysed using a thematic approach as outlined in Section 5.3.8.2. The subsequent sections will explore the themes associated with offshore workers' experiences of health promotion interventions/programmes within offshore environments in relation to: benefits of participating in health promotion interventions/programmes offshore, and the perceived appropriateness of health promotion interventions/programmes offshore.

5.4.6.1 Perceived benefits of participating in health promotion interventions/programmes offshore

Interviewees reported a number of benefits that they believed were attributable to their participation in health promotion interventions/programmes whilst they were offshore. The analysis highlighted the social, health and motivational benefits their participation. Each will be discussed in greater detail in the proceeding sections.

Social benefits

An overarching theme of responses related to the positive effect that participating in health promotion interventions/programmes activities, particularly in those that were team focussed and involved competition between groups, had on increasing camaraderie within the workforce. Interviewees further reported that the programmes often strengthened social cohesion and by their very nature, promoted socialisation amongst work colleagues.

"…it created quite a lot of competitiveness between all the different teams and things, so that was really, it sort of created a bit of banter within the workplace and stuff and seemed to push a lot of people who maybe weren't so active to get out and get active cause they didn't want to let their team down" P1, male, aged 29 years

The effect of implementation of health promotion interventions/programmes on increasing and widening participation within the workforce was also noted. Interviewees highlighted that the team activities often encouraged those who would not typically participate to engage.

"*… actually to be fair some of the guys weren't normal gym goers and they went and walked 5k on the treadmill instead, which was still quite significant for them*" P13, male, aged 42 years

Health benefits

It was also reported that health promotion interventions/programmes often increased offshore workers' ability to maintain and manage health. For example, interviewees highlighted that the programmes had equipped them with the skills and knowledge which enabled them to better manage their health. This was in the context of techniques which enabled maintenance of musculoskeletal health and increasing knowledge on healthy diets.

"*…just advice on em techniques to I guess maintain my body in terms of good stretching and good post-exercise protection and prevention issues I guess*" P9, male, aged 51 years

Further, one interviewee described that the health checks he undertook as part of a health promotion interventions/programmes programme offshore permitted him to monitor his health and aided in reassuring that the steps he had undertaken to maintain health were leading to improvements.

"*…fortunately getting access to getting your blood pressure checked and various other things, it is just good to know that things are working and you don't have any health problems at that time*" P2, male, aged 28 years

Increased motivation to engage in behaviour change

Interviewees felt that health promotion interventions/programmes were motivating and further encouraged them to set goals and, meet their health targets. For example, one interviewee highlighted that due to the nature of the intervention, which involved setting a broad target to increase in engagement in physical activity, he felt more motivated to attend the gym. He further stressed the motivating influence that others had on his willingness to exercise.

"*…I found that just letting people know that you were using the gym eh it gave you something, you obviously had to go in and do the work-out, there was no, you decided what your work-out was going to be, nobody was saying you had to do so many hours on a treadmill or anything like that, I thought it just it gave a little bit of camaraderie when you see the other guys that were using the gym*" P5, male, aged 46 years

One interviewee also noted that health promotion interventions/programmes provided a means to keep offshore workers busy and stimulated whilst they were offshore.

"*…people with something to do in the evenings, people not so bored*" P7, male, aged 32 years

5.4.6.3 Perceived appropriateness of health promotion interventions/programmes offshore

Interviewees discussed the appropriateness of health promotion interventions/programmes that were delivered whilst they were offshore and highlighted one theme which related to how the credibility of those delivering the programmes affects acceptability.

The credibility of those delivering programmes affects acceptability

The lack of understanding of the issues facing offshore workers and their unique working environment, and lifestyle was noted. It was highlighted that the development of health promotion interventions/programmes for offshore workers was often the responsibility of onshore based staff who had limited experience of offshore environments. It was emphasised that this lack of understanding often meant that health promotion interventions/programmes was poorly received within the workforce.

"…*well I mean there is always posters up about healthy eating, and that is what annoys me cause we don't have any choice, you know they bang on about this and all these initiatives they come from shore based you know people in the office onshore and they really don't have a clue what it is like*" P12, male, aged 39 years

Relatedly, interviewees described the importance of the credibility of those implementing health promotion interventions/programmes initiatives and interventions. Credibility was defined in terms of personal experience of working in an offshore environment and in having a healthy lifestyle. .

"*the people that present them they look good, you know I am not talking about pretty girls or anything like that, they look physically good, they are healthy people, they are not always young but they always look good, you can see just by looking at the person presenting, that what they are preaching, they do what they preach and eh you know you can see the benefits*" P8, male, aged 50 years

5.4.7 Research question 4: how could engagement in self care be facilitated amongst offshore workers?

Statements pertaining to research question four were analysed using a thematic approach as outlined in Section 5.3.8.2. Facilitating engagement in self care was explored via determining the facilitators of behaviour change, and by identifying those barriers typically affecting uptake. The following will discuss in relation to the broad themes identified.

5.4.7.1 Facilitating heath behaviour change in offshore workers

Interviewees identified ways in which health behaviour change could be facilitated within offshore workers. They highlighted what they considered appropriate mechanisms to promote behaviour change and how the context may be crucial in influencing behaviour change.

Engagement in interventions may be facilitated by using appropriate mechanisms to promote behaviour change

A key mechanism of behaviour change identified included increasing offshore workers' awareness of the effects of negative health and wellbeing. Interviewees discussed the potential for educating offshore workers on negative health consequences. For example,

the health consequents could be highlighted in terms of the impact that engaging with negative health behaviours would have on offshore workers' ability to work. In addition, one interviewee advocated promotion of techniques known to benefit health, for example sleep hygiene strategies.

"*…you would be surprised at how much you do drink and maybe, something like that drink aware app thing, where you asked the workforce, or a select part of the workforce, to take this away and be honest, you know, and maybe something like that where you can actually say, real facts, like say I thought I drank like 14, 15 units a week and I was very nearly double that, and that's me, I do live quite a healthy lifestyle. So if you gave it to somebody who didn't maybe do that and you asked them before and showed them the results after, maybe something like that would be, the actual physical black and white facts*" P12, male, aged 36 years

Further, it was reported that increasing the availability of health resources and promotion activities in offshore environments may be important in facilitating engagement. The recommendations made were in terms of making better use of the space that is available of installations and ensuring that there was greater accessibility with regard to health promotion interventions/programmes.   In addition, it was stressed that ensuring that availability of health promotion interventions/programmes did not coincide with work commitments would be a key consideration.

"*I have always said, that one of the biggest parts of an offshore platform that would be accessible, would be the helideck, now everyone thinks helidecks are dangerous, they are because you can possibly fall into the sea, but if you used a very simple catch-net, like you can get for your trampoline, round the helideck, then you could use that helideck space for five-a-side football, plenty of room, no plant, no safety considerations, you need to do a risk assessment put a gas monitor up there, no problem, but you know you've got a space there that you could play volleyball, you could do whatever, I mean the weather offshore is in the summer, it is sometimes, like today, stunning, you know, and you could be up there, even if you just wanted to go up there and sit around a bit in summer and sunbathe, it would be a nice open area to go and do stuff but you are not allowed*" P7, male, aged 32 years

Engagement in interventions may be facilitated by the context in which they are delivered

Interviewees highlighted that it may be beneficial for the company responsible for health and wellbeing on the installation to promote behaviour change.

"*…so I think they took more of an approach to promoting health eating and healthy living and exercise, and the current company I have got doesn't have anything like a gym or membership with any sort of gym em. And so I would say that it doesn't seem to be so proactive and that approach*" P2, male, aged 28 years

Promotion, it was suggested, could be via the provision of information and advice which enabled offshore workers to make healthier decisions.

"*…if they were given better information to make better choices, surely it has gotta help the health of the population as a whole but it is also making sure those better choices are available and it is appealing, it is not just lettuce on the salad bar*" P13, male, aged 32 years

However, it was advised that health promotion interventions/programmes should not be authoritarian or overbearing.

"*…if you stopped giving people the food they wanted obviously you would have major problems but I think if there was some sort of programme to come up with that wasn't eh overbearing, you know you don't want anybody sitting pointing at anyone in the mess room saying you shouldn't be eating that or did you go the gym last night*" P5, male, aged 46 years

Rather, the emphasis should be on educating offshore workers to take ownership over healthy decisions.

"*I think to make them understand why it is better than others, it is everything in moderation, you are not ever going to, I have been on a rig where they took chips of the menu and that wasn't a popular move*" P13, male, aged 32

Interviewees further cautioned that companies needed to ensure that the resources available correspond with health promotion interventions/programmes messages. For

example, the provision of unhealthy foods was highlighted as being counterintuitive when the aim of health promotion interventions/programmes was to reduce intake.

"*…they should consider how they feed their employees out there, if you put that amount of temptation in front of everybody, don't keep coming back and saying you're too fat now, you are part of the problem, accept that you are part of the problem and deal with it, but they don't*" P7, male, aged 32 years

5.4.7.2 Perceived barriers affecting engagement with health behaviour change interventions/programmes amongst offshore workers

Interviewees discussed the barriers that the felt may affect the implementation of health behaviour change interventions/programmes within the workforce. Three themes were identified from the analysis and will be discussed in the proceeding sections. They included social, motivational and logistical factors.

Social factors

The offshore mentality and strong masculine social identity, often referred to as the "North Sea Tiger', may serve as a barrier to engagement. One interviewee highlighted that offshore workers' social identity and the corresponding social expectations may mean that some are not receptive to change. The interviewee emphasised that this lack of receptivity may be further compounded by the individual delivering the intervention and the manner in which they delivered advice.

"*…I don't think it would be, I don't know if it is still that mentality the North Sea Tigers kind of thing, you get of the chopper, take off your survival suit and go down to [name of pub] and get drunk, it is just what you do, I don't know it is maybe that kind of, what you call it, that kind of hard man attitude there or what, I don't know. It would be more like, what are they trying to tell us, why are they trying to tell us what to do, how to live sort of thing, I don't know*" P12, male, aged 36 years

Age was also discussed as being a barrier to engagement and perhaps related to social identity. Interviewees reported that they thought that the lack of desire to engage may be due to generational factors.

"*I think there would be a lot of resistance [laughter], I mean the younger guys you definitely find the sort of, the majority of the younger offshore population are definitely a bit more health aware and health conscious. I think the guys that have been out there for a number of years em I think have got quite set in their ways and I think that a lot of the older platforms that, you know that they have been going for the last 15-20 years, or whatever, then I think there would be quite a lot of resistance to any change*" P1, male, aged 29 years

Motivational factors

An additional theme relating to lack of motivation to engage in behaviour change was identified. Discussions around this theme centred on the proposition that despite the means to engage in behaviour change being made available, it is only those who are truly motivated to make adaptations who will participate.

"*I suppose, you can lead a horse to water but you can't make them drink, you can educate them*" P13, male, aged 42 years

"*I eh think, that is you are probably are aware, it is only people that want to do these things that do, yeah, so you could present all you want but the guy in there is more interested in getting dinner than he is than eating healthily, he will just carry on*" P8, male, aged 50 years

Logistical factors

Interviewees highlighted the influence of logistics on engagement. One stressed the influence of timings on engagement and noted that the scheduling for delivery of interventions would be critical in ensuring adequate uptake. Another, reported on his experience of working in multiple environments highlighting that this meant it was difficult to participate in company health promotion initiatives since they tended to be location-specific.

"*…the environment where I used to work like ships, people are often not as regular as on like platforms or installations so like when it is, when you are not regular in the place it is kind of difficult to see the fit of that onto people because someone might just come for four weeks and then disappear so I, I don't know, yeah maybe I would learn something from*

that programme but then I would go to another ship where the environment just doesn't allow very much to maintain that" P10, male, aged 32 years

5.5 Discussion

This section will outline the key findings of phase 2, discuss the interpretation of the findings, highlight the strengths and limitations of the study, outline the principal conclusions and emphasise the implications that the findings have on phase 3 of the research.

5.5.1 Key findings of Phase 2

This qualitative study aimed to explore, in-depth, the self care behaviours of offshore workers.   Research findings were analysed in accordance with each of the research questions specified in Section 5.2.2. Interviewees identified seven different behaviours that they perceived as requiring behaviour change. Data were analysed in accordance with the TDF and associated determinants were identified. Healthy eating and increasing engagement in physical activity were identified as key areas of self care warranting concern.

Nine TDF domains were identified as being associated with both offshore workers' healthy eating and engagement in physical activity.   The TDF domains common to both behaviours included beliefs about capabilities, beliefs about consequences, intentions, goals, memory, attention and decision processes, environmental context and resources, social influences, emotion and behavioural regulation. In addition to the domains outlined, knowledge and reinforcement were also associated with healthy eating, and skills with physical activity.

Offshore workers experiences of health promotion interventions/programmes within the offshore environment were discussed.   The benefits of participation in health promotion interventions/programmes were also described and included: social; health; and motivational benefits.   Interviewees also described the appropriateness of programmes and suggested that the credibility of those delivering the programmes affected how well they were accepted.

Interviewees also discussed how engagement in self care could be facilitated amongst offshore workers.   Interviewees identified key mechanisms that they felt would be

influential in promoting behaviour change and highlighted the most appropriate context for delivery. They also explored the barriers within the interviews and stressed the potential negative influence of social, motivational and logistical factors on engagement with health promotion.

5.5.2 Strengths and weaknesses of Phase 2

The qualitative study has further addressed the paucity of literature seeking to explore the health and self care behaviour of offshore workers. The novel approach employed ensures that the contribution is unique; providing an in-depth exploration of offshore workers health and self care behaviours. In addition, the theoretical foundations utilised enhanced the existing evidence base and will provide the knowledge required to move forward with intervention development.

The interview schedule was developed in accordance with the TDF. The use of theory to inform data collection ensured that the research was conducted in accordance with the guidance issued by the Medical Research Council (Chapter 3 Section 3.8.1) on developing and evaluating complex interventions. Use of the TDF enables researchers to determine key determinants of behaviour. Identification of mechanisms driving behaviour is important in the context of intervention development since the analysis of such enables interventions to be targeted in accordance. It is anticipated that development of an intervention in relation to evidenced behavioural determinants will enhance effectiveness and sustainability of behaviour change within target populations.

The lengthy recruitment procedure that was undertaken could have limited participation. Interviewees, in order to be eligible for interview, had to have completed and submitted a questionnaire. Survey respondents may have already devoted a large amount of time to the research and may have perceived the interviews as an additional burden. Thus, the response rate for the interviews may have been impacted by the perceived burden of participation. Although the interviews were semi-structured and guided by the interview schedule, they were flexible in the sense that interviewees identified the behaviour which they wished to change. This ensured that interviews were person-centred and that the behaviours identified as requiring behavioural modification were perceived by the interviewee as important.   Hence, the behavioural content of the interviews was truly representative of those areas that interviewees themselves wanted to change.

The data saturation approach used in the analytical process is an additional strength of the research. Data saturation is often determined using subjective methods, based on assumptions by the researchers analysing the data. However, the 10+3 approach utilised within this study was transparent. The benefit of such is that the methods are easily replicated and that saturation is visible to the readership. Although the analysis was underpinned by a recognised theoretical approach that has been widely utilised within the field of implementation and behaviour change research, there are weaknesses associated with utilising deductive methods to analyse data.

For example, coding may be restrictive and as encountered within this study, there is considerable overlap between some of the domains in the TDF. In addition, individual domains may be perceived differently by coders. However, in an effort to ensure that domains were perceived similarly and promote consistent coding, the coders independently coded two transcripts prior to meeting up to discuss a final coding framework. Development of a coding framework promoted mutual understanding and interpretation of domains, and aided in ensuring that coders utilised a consistent approach to the analysis.

As outlined in Section 5.3.9, research trustworthiness was assured via a number of strategies. Measures were undertaken to promote credibility, transferability, dependability and confirmability. Strategies included: utilising methods with a favourable evidence base and deemed fit for purpose; the past interview experience of the student researcher; provision of detailed and accurate reporting and recording of research procedures, and the student researcher developing an awareness of the effect that personal beliefs may have on interpretation of the data.

5.5.3 Interpretation of Phase 2 findings

5.5.3.1 Determinants of behaviour

Offshore workers in this study identified diet as being a key behaviour which they perceived warranted concern. This finding reflects the conclusions of a recent study whereby diet was identified as an area negatively affecting offshore workers health (178). Further, the factors affecting behaviour were similar across each study. For example, the comparator study highlighted the negative influence of accessibility to unhealthy food in offshore environments and also stressed, that meals offshore were viewed as an opportunity to socialise. Within this study, both environmental context and resources and social

influences domains, as reflected by the TDF, were perceived to be key determinants of offshore workers behaviour with regard to healthy eating. The outcomes of this study and the comparator stress the influence of both the offshore environment and socialisation on offshore workers' diet.

Increasing engagement in physical activity was perceived by offshore workers in this study to be a critical to improving their health and wellbeing. The environment was highlighted in this study as being a critical factor in facilitating engagement in physical activity. Offshore workers in this study discussed how the environment offshore often restricted engagement due to the lack of available gym facilities. This finding reflected what has been previously reported in a study of offshore seafarers, whereby pleasant gym environments on board offshore installations was identified as a factor which motivated engagement (191). Further, a previous publication on physical activity within the offshore workforce reported that tiredness was frequently identified as a barrier to engagement (79). The results from this study are also reflective of this: interviewees discussed the impact of tiredness which pertained to the memory, attention and decision processes domain of the TDF.

A proportion of offshore workers in this study reported that they would like to reduce their alcohol intake. The environmental context and resources domain of the TDF was identified as a key mechanism driving behaviour. Within the domain offshore workers highlighted the effect of working in a restrictive environment where there is no alcohol available on their subsequent behaviours when they returned onshore. They suggested that the restrictions often lead to them binge drinking. These findings are reflective of those conclusions reported in a previous qualitative interview study whereby it was concluded that heavy onshore alcohol use was often used as a release, and a method of expressing freedom (5).

Smoking has been discussed both in this study and in a previous publication (178). Environmental context and resources was identified as a behavioural determinant in this study whereby offshore workers highlighted how elements of the offshore environment, such as the sale of duty free cigarettes, increased smoking. Offshore workers in the comparator study also made reference to aspects of the environment, with some advocating a ban on smoking whilst offshore. However, this was contentious and offshore workers who opposed a ban were unhappy with this suggestion. The findings from both studies highlight the influence of the offshore environment on smoking.

Improved sleep management was believed to be an area of health which offshore workers felt important to address. Although a number of TDF domains were identified as being associated with sleep management, the finding which implicated environmental context and resources as a key mechanism of behaviour, echoes the outcomes of a recent study. Offshore workers in this study reported that elements of the offshore environment had a negative effect on sleep quality. These were similar in content to the themes reported in a study on health in the Dutch offshore workforce where the impact of environmental stressors was highlighted as a key factor affecting sleep (178). Both studies allude to the influence of the offshore environment on sleep, thereby highlighting the relative importance.

The factors identified within this study that were associated with stress management represented previous work on occupational stress amongst offshore workers. For example, in this study the effect of the environment on stress was identified as being a key factor. It was reported that maintaining contact with family whilst offshore aided stress management. Similarly, previous work has suggested that occupational stress was often related to the interface between job and family or social life (67). Although work-life balance was discussed in this study, there is a relative lack of publications which detail the factors associated with the behaviour within the offshore workforce. However, the domains identified within this study were similar to those that were reported for other behaviours. For example, poor sleep quality was often associated with work strain and thus it may be that maintaining an appropriate work-life balance, to better manage strain, would aid in improving sleep.

5.5.3.2 Promoting health and self care in the offshore workforce

There is a paucity of literature on offshore workers' experiences and perceptions of health promotion within the offshore environment. Hence, the findings of this study add depth to existing evidence and broaden understanding of how health may be most appropriately promoted within the offshore workforce.

Offshore workers noted that previous programmes often lacked appropriateness since programme developers often lacked the understanding of offshore workers and the working environment. Further, offshore workers reported that the credibility of those delivering programmes often impacted on acceptability within the workforce. For example, appropriate role models were considered important factors in influencing credibility. The influence of role models on behaviour change was also reported in a recent study on

healthy ageing within the offshore workforce. Offshore workers in the study reported that role models may positively affect engagement (178).

It was reported that increasing awareness of the effects of negative health and wellbeing, ensuring that health promotion interventions/programmes was company-backed and that programmes focused on increasing the availability of health resources and activities were all critical to increasing uptake within the workforce.   Conversely, offshore workers strong social identity, individuals' lack of motivation to change, increased age and logistical factors may all serve as barriers.   Both individual motivation and company initiatives were reported in a previous study as being important to behaviour change within the offshore workforce (178).

5.5.4   Conclusions

The evidence from this in-depth study suggests that offshore workers' engagement in self care is influenced by a number of factors and is complex in nature. The findings further suggest that offshore workers' behaviour may be improved across healthy eating and physical activity domains. Accordingly, the workforce may benefit from implementation of a self care intervention targeting both healthy eating and physical activity. The theoretical domains identified as key determinants of behaviour may be embedded within the evidence-base in which to inform the development of future interventions.   Offshore workers outlined key barriers and facilitators that may affect their engagement in health interventions.   Facilitators included ensuring that: health promotion programmes are company-backed, and offshore workers perceive that they programme is delivered by someone regarded as credible. Typically barriers referred to: social; motivational; and logistical factors.

5.5.5 Implications for Phase 3 of the research

The in-depth qualitative study has identified areas of health and self care which offshore workers perceived as requiring behaviour change within the offshore workforce.   The theory-driven nature of the study has enabled determinants of health and self care behaviour to be identified and explored. The findings have also highlighted how self care may be promoted within the offshore workforce.   The behaviours and key themes identified within this phase were used to inform the data generation in phase 3 of the research (Chapter 6: Qualitative study with remote healthcare practitioners).

Phase 3

Exploring the self care behaviour of the offshore workforce: the remote healthcare practitioners' perspective

6. 1 Chapter introduction

This chapter explores the determinants of self care behaviour within the offshore workforce from the perspective of remote healthcare practitioners. Behaviour was explored using qualitative semi-structured telephone interviews. Development of interview schedules and analysis was based on the Theoretical Domains Framework (TDF).

6.2 Research aims and objectives

6.2.1 Aim

The aim of this qualitative study was to explore offshore workers' self care behaviours from the perspectives of remote healthcare practitioners.

6.2.2 Research questions

(i)   Which aspects of offshore workers' health and self care do remote healthcare practitioners' perceive to be areas which required behavioural modification?
(ii)   What are the determinants of offshore workers' self care behaviour?
(iii)   What are remote healthcare practitioners' experiences of health promotion interventions/programmes within the offshore environment?
(iv)   How could engagement in self care be facilitated amongst offshore workers?

6.3 Method

6.3.1 Design

Phase 3 was underpinned by a qualitative research design since the nature of the aim, and subsequent research questions, necessitated collection of data which was rich and meaningful. Further, the research was grounded in constructivism and utilised a phenomenological approach (95). Semi-structured telephone interviews (Chapter 3 Section 3.5.4.1 outlines approaches to interviewing) were administered to a sample of remote healthcare practitioners (Chapter 1 Section 1.3.3). The perspectives of remote healthcare practitioners were perceived to be important to the research since they play a key role in providing healthcare and promoting health within the offshore workforce. It was anticipated that developing an understanding of both the perspectives of offshore workers

and remote healthcare practitioners would enable findings to be triangulated and corroborated (Chapter 3 Section 3.4.3.1).

6.3.2 Interview schedule

A semi-structured interview schedule (Appendix 6.1) was developed and consisted of four sections relating to each of the research questions. Section (i) centred on identifying any changes that remote healthcare practitioners perceived that would be important for offshore workers to make with regard to their health and self care behaviour. Section (ii) aimed to identify the determinants of a single health behaviour that interviewees perceived would be important for offshore workers' to change and contained a number of questions which were structured in accordance with the TDF (Chapter 3 Section 3.8.2 discusses the TDF).

Table 6.1 outlines the domains and the related items within the interview schedule. TDF items, and corresponding probes, were adapted for remote healthcare practitioners from those used in the interview schedule from phase 2 e.g. items were structured to determine how remote healthcare practitioners perceived offshore workers' behaviour. Section (iii) was developed to explore remote healthcare practitioners' experiences of health promotion interventions/programmes administered within the offshore environment. Section (iv) aimed to explore how self care may be facilitated in offshore populations and how implementation of a self care intervention may be perceived by offshore workers.

Table 6. 1 TDF domains and related interview schedule items

Domain	Related interview items
Knowledge	How important do you think changing this behaviour would be to offshore workers?
Skills	What steps do you think offshore workers would need to take to help make these changes?
Social/professional role and identity	Do you feel that there may be an expectation of offshore workers to [insert behaviour]?
Beliefs about capabilities	How confident are you that offshore workers would be able to make this change?
Optimism	How do you think these changes would affect offshore worker's lives?
Beliefs about consequences	How do you think these changes would affect offshore worker's lives?
Reinforcement	In what ways do you think [insert behaviour] may help offshore workers?
Intentions	Do you think that offshore workers may have tried to make this change before?
Goals	How important would changing this behaviour be to offshore workers?
Memory, attention and decision processes	Are there certain situations where you think that offshore workers are more likely or are less likely to [insert behaviour]?
Environmental context and resources	How do you think things at home might affect offshore workers' ability to make these changes? How do you think things at work might affect offshore workers' ability to make these changes?
Social influences	Do you feel that there may be an expectation of offshore workers to [insert behaviour]? How do you think that the people close to offshore workers might help them make these changes? How do you think that the people close to offshore workers might make it difficult to make these changes?
Emotion	In what ways do you think [insert behaviour] might help offshore workers?
Behavioural regulation	What steps do you think offshore workers would need to take to help make these changes?

* [insert behaviour] refers to the behaviour which interviewees identified as a behaviour requiring modification

6.3.3 Pre-testing and piloting

6.3.3.1 Expert Panel

An Expert Panel review of the interview schedule was undertaken in an effort to enhance the credibility of the research (Chapter 3 Section 3.7.3 outlines trustworthiness principles). Three experts from diverse backgrounds including health services research and offshore health were invited, via email, to review the interview schedule. All three panel members had previously participated in the review of the interview schedule from phase 2 of the research (Chapter 5 Section 5.3.3.1). The two health psychologists who participated in the in the previous review were not asked to participate in this expert panel since the

content of the TDF sections of the interview schedule remained similar to that which was used in phase 2. Accordingly, members of the expert panel included:

vi)   Professor Graham Furnace: *Medical Advisor, Oil and Gas UK*

vii)   Professor James Ferguson: *Clinical Lead, Centre for Scottish Telehealth and Telecare*

viii)   Dr Katie MacLure: *Senior Research Fellow, School of Pharmacy and Life Sciences, Robert Gordon University*

All expert panel members who were asked to participate in the review provided feedback. The feedback received included recommendations to modify the wording of some questions to enhance clarity (see Appendix 6.2 for an example). All modifications were discussed within the research team prior to making any final changes.

6.3.3.2 Piloting

The interview schedule was piloted with one remote healthcare practitioner, who had been recruited using the method outlined in section 6.3.5 and was randomly selected using SPSS, to determine the length of the interview and usability of the interview schedule. The interviewee was asked to complete and return a consent form, and provide details of their availability (Appendix 6.3).   The interview was conducted over the telephone.   No significant changes to the schedule were made. Hence, the pilot study was included in the final data analysis.

6.3.4 Data saturation and sample size

As in phase 2 (Chapter 5 Section 5.3.4) due to the nature of the study and subsequent broad aims of the phase, data saturation principles were applied to the overarching thematic content of the behavioural component of the interview.   The interviews endeavoured to determine the behaviours which remote healthcare practitioners' perceived were areas of health and wellbeing which were important for offshore workers to change.   The behaviours identified as requiring change were used to determine the point of saturation.   In an effort to determine saturation and ensure consistency in approaches, the Francis et al (129) method, as applied in phase 2, was integrated into the study design (Chapter 5 Section 5.3.4). Figure 6.1 illustrates how the 10+3 approach was integrated into this study.

Figure 6. 1 Data saturation process using the 10+3 method

6.3.5 Participants and recruitment

The inclusion criteria were outlined prior to commencing data collection and negotiating access to a sample, and specified that remote healthcare practitioners:

i.   prior experience of delivering healthcare to the offshore workforce or assessing the health of offshore workers.

It was perceived that the most appropriate method of recruitment would be via a third party organisation that had the means to contact professionals with the relevant expertise. Hence, the Institute of Remote Healthcare (IRHC) was identified as a potential organisation who may facilitate the recruitment of remote healthcare practitioners. The IRHC is an independent academic organisation who holds a voluntary register of healthcare professionals working in remote and rural environments throughout the world. Further, remote healthcare practitioners with experience in offshore health comprise a large body of the membership.

Professor Susan Klein, as a member of the IRHC, facilitated access to the sample. The IRHC approved the proposed recruitment strategy at a committee meeting. Due to data protection issues, it was suggested that the IRHC Membership Secretary send a recruitment email, on behalf of the student researcher, to IRHC members.   The use of a third party recruitment method ensured that members' details were not passed onto the research team to facilitate recruitment.

6.3.6 Interview procedure

The IRHC Membership Secretary sent out an email (Appendix 6.4) to all Associate and Affiliate members of the IRHC 20th July 2015. A total of 651 emails were sent out; however, importantly, the recruitment email was sent to all members regardless of their speciality. Hence, members who did not have expertise in offshore health may have also received the email. It was not possible to purposefully select members based on their expertise since this information was not recorded on the IRHC database.

Emails contained a link to an online recruitment questionnaire (Appendix 6.3) which contained a participant information sheet, consent form and demographic section. The demographic section required respondents who were interested in being interviewed to

provide their: name; email address; telephone number; age; employer; gender, and occupational background.

Remote healthcare practitioners who returned a consent form (n = 32) were selected for interview at random using SPSS. Selection was conducted in accordance with the 10+3 procedure aforementioned (Figure 6.1). Initially 10 remote healthcare practitioners (initial sample) were selected from the total sample and contacted by email to arrange an interview. Once remote healthcare practitioners had been contacted with an invitation to interview, their corresponding case number was deleted from the total sample prior to using SPSS to randomly select further cohorts.

Four remote healthcare practitioners did not reply to the interview invitation, within a four-week time period, and thus, a further four were randomly selected to ensure that the initial sample fulfilled the predetermined initial sample of 10. An interview time and date was arranged with all remote healthcare practitioners who replied to the interview invitation. Each was contacted by telephone on the relevant day and time to conduct the interview. All interviews were recorded using an electronic recording device.

Once the initial sample were interviewed, transcribed and analysed, an additional three (+3 stopping criterion) remote healthcare practitioners were randomly sampled from the total sample. As prior, two did not respond, and a further two were sampled at random from the total sample. Further, only one responded and thus, one other was sampled to ensure that the +3 criterion was attained.   The data, upon completion of the three interviews, was analysed to determine if data saturation had been achieved. Data saturation was assumed to have occurred at this level.
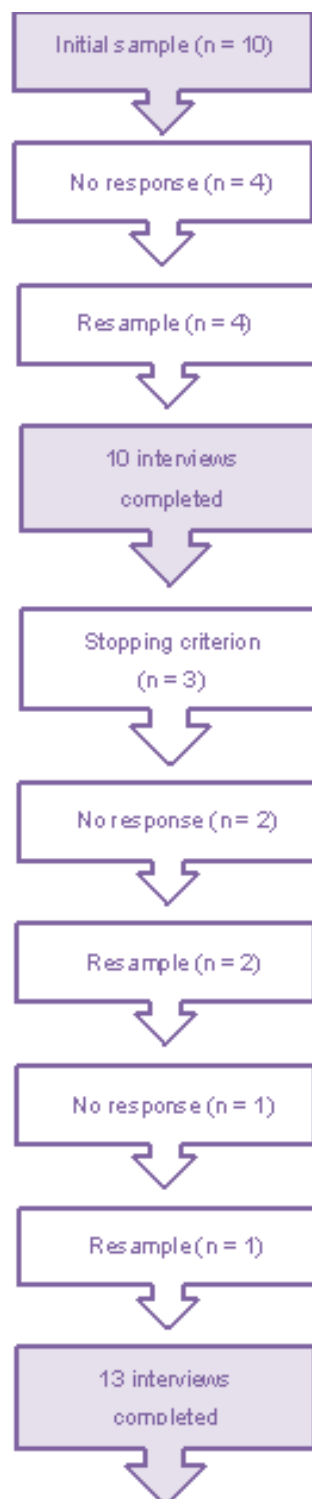
Figure 6. 2 Recruitment process

6.3.7 Conduct of the interview

Members of the IRHC who returned a completed recruitment questionnaire and consent form were added to an interview database. All interviews were conducted via telephone. Speakerphone was used to enable audio recording of the calls. Each interview was recorded using an electronic recording device. Interviews were scheduled for around 30 to 45 minutes, although in practice ranged from 25 to 75 minutes due to interviewees' enthusiasm and willingness to continue over the allocated time. Member checking, (whereby interviewees are sent a copy of the transcripts or are presented with the overarching themes attained from the analysis to check that the content is an accurate reflection of their narrative), was not considered appropriate for this research due to the time constraints of the study.

6.3.8 Analysis

All interview content was transcribed verbatim by the student researcher using a pragmatic approach (as outlined in Chapter 3 Section 3.3.4) which permits researchers to omit key linguistic features where appropriate, such as pauses or breaks, whilst still retaining depth in terms of verbatim data . Two transcripts were checked by the principal supervisor for accuracy. Very minor typological errors were identified in the first transcript, no errors were identified by the principal supervisor when reviewing the second transcript. Both framework and thematic analysis approaches (Chapter 3 Sections3.5.3.3.1 and 3.5.3.3.2) were utilised to analyse the interview data.

6.3.8.1 Framework analysis

The framework approach, using the TDF as the main theoretical underpinning, was utilised to identify the behaviour determinants relating to research question two. The approach applied in phase 2 (Chapter 5 Section 5.3.8.1) was used to analyse phase 3 data.

6.3.8.2 Thematic analysis

The thematic approach was utilised for all data pertaining to the first, third and fourth research questions. The six step approach applied in phase 2 was used to analyse phase 3 data. Please refer to Chapter 5 Section 5.3.8.2 for details of how interview data were analysed using the thematic approach.

6.3.9 Promoting quality in research

Trustworthiness was assured throughout the research process and the principles incorporated into phase 3 are identical to those described in Chapter 5 Section 5.3.9.

6.3.10 Research governance

The Research Ethics: Research Student and Supervisor Assessment (RESSA) form (Appendix 4.9) was completed and submitted, alongside an ethics protocol document, which outlined all the research procedures and safeguards, to the Ethical Review Panel of the School of Pharmacy and Life Sciences, Robert Gordon University. Ethical approval for the study was granted on 17th May 2014. Verbal approval to access the sample was granted by the committee at IRHC on the 21st February 2014. Ethical approval was not required from the IRHC to access interviewees.

Procedures to preserve confidentiality, anonymity and harm to interviewees were integrated into the research design. Interviewees' contact information, obtained from the recruitment questionnaire, was stored on a password protected database, accessible only by the student researcher. Interviews were recorded on an electronic recording device and, prior to deletion from the device, uploaded to a password protected computer system. All conversations were transcribed verbatim to preserve the authenticity of the interviews.

6.4 Results

6.4.1 Recruitment

A total of 32 remote healthcare practitioners completed the recruitment questionnaire. Although the number of invitations sent out was recorded, the true response rate could not be calculated as it was not known how many of the total sample met the initial inclusion criteria.

6.4.2 Sample

Thirteen interviewees were selected randomly from the total sample (n = 32) for the study. Interviewees were aged between 33 and 62 years of age. The majority were male (n = 9). Table 6.2 outlines the demographics of interviewees who were interviewed.

Table 6. 2 Demographic characteristics of interviewees

ID	Age	Gender
1	33	Male
2	50	Female
3	56	Male
4	35	Female
5	NA	Male
6	62	Male
7	43	Male
8	49	Female
9	37	Male
10	54	Male
11	52	Male
12	36	Male
13	54	Female

6.4.3 Saturation

As described previously, the 10+3 data saturation principles were applied to the data from phase 3. It was concluded, after completion of data analysis and discussion of the results within the research team, that there were no new themes emerging after the stopping criterion had been applied for the first time and thus, further recruitment was stopped.

Table 6. 3 Applying the 10+3 method to interview data

Interview	Behaviour identified as requiring change
1	Physical activity
2	Healthy eating
3	Healthy eating
4	Healthy eating
5	Physical activity
6	Healthy eating
7	Smoking
8	Alcohol
9	Mental health
10	Healthy eating
11	Alcohol
12	Alcohol
13	Healthy eating

6.4.4 Research question 1: which aspects of offshore workers' health and self care do remote healthcare practitioners perceive to be areas which required behavioural modification?

Remote healthcare practitioners were asked to consider a health behaviour that they felt would be important for offshore workers to change and discuss the determinants of this behaviour.   Each of the behaviours identified pertained to aspects of health and self care (Table 6.3) and included: healthy eating (n = 6); reducing alcohol intake (n = 3); increasing engagement in physical activity (n = 2); smoking (n = 1), and improving mental health (n = 1).

Although improving offshore workers' mental health was highlighted by one interviewee, after discussion with the health psychologist regarding coding, it was decided that this would be eliminated from the analysis.   This exclusion was on the basis that mental health is not regarded as a health behaviour, rather is a state of health and wellbeing.   Hence it was not possible to code for behavioural determinants.   The interview and content pertaining to mental health is outlined in Section 6.4.6.

Further, while the principal focus of the interviews was centred on the specific behaviour that the interviewee wished to change, the majority of interviewees described a number of additional self care behaviours.   Consequently, these descriptions were included in the analysis of behavioural determinants.

6.4.5 Research question 2: what are the determinants of offshore workers' self care behaviour?

As aforementioned, offshore workers identified five health and self care behaviours that they wished to change, although improving mental health will be excluded from further analysis for the reasons aforementioned.   While the principal focus of the interviews was centred on the specific behaviour that the interviewee wished to change, the majority of interviewees described a number of additional self care behaviours. Consequently, these descriptions were included in the analysis of behavioural determinants.

The following section will review the determinants of self care behaviour with regard to each of the behaviours discussed.   All statements relating to behavioural determinants were analysed using a framework analysis approach as outlined in Chapter 5 Section 5.3.8.1.   Behaviours will be presented in accordance with associated TDF domains,

themes and sub-themes. Eating healthily and reducing alcohol intake were predominant behaviours as illustrated by the number of interviewees choosing to discuss these behaviours during the interviews. Data pertaining to these behaviours will be presented in detail in this chapter.

6.4.5.1 Determinants of healthy eating

Twelve interviewees discussed healthy eating within their interviews. The following sections will discuss the TDF domains that were associated with healthy eating. Eight TDF domains were identified as potential determinants of healthy eating amongst offshore workers (Table 6.4).

Table 6. 4 TDF domains associated with healthy eating

TDF domain (n = count of interviewees identifying TDF domains as determinant)	Themes	Sub-themes	Count (number of interviewees who discussed determinant out of total)
Knowledge (n = 2)	Influence of nutritional knowledge on healthy eating	Having knowledge of nutrition is associated with eating healthily	2/2
Optimism (n = 1)	Influence of being optimistic about the effect of unhealthy eating habits on dietary choices	Optimistic about effects of unhealthy eating	1/1
Intentions (n = 4)	Influence of motivation on eating healthily	Motivation is required to eat healthily	4/4
Memory, attention and decision processes (n = 4)	Taking ownership of decision to eat healthily	Making a deliberate effort to eat healthily	3/4
	Eating unhealthily is an automatic process e.g. no conscious awareness	Eating unhealthily is automatic	1/4
	Effect of boredom on healthy eating	Boredom is associated with eating unhealthily	1/4
Environmental context and resources (n = 9)	Influence of food provisions offshore on healthy eating	Influence of the availability of healthy/unhealthy foods offshore on healthy eating	9/9
	Influence of environmental stressors on healthy eating	Nature of lifestyle facilitates eating out when onshore	1/9
		Environmental stressors offshore increase likelihood of eating unhealthily	4/9
Social influences (n = 6)	Effect of others on healthy eating	Negative effect of others on healthy eating	2/6
		Positive effect of others on promoting healthy eating	3/6
		The effect of social/cultural factors on healthy eating	3/6
Emotion (n = 4)	Influence of emotional state on healthy eating	Eating reduces stress offshore	4/4
Behavioural regulation (n = 2)	Influence of willpower on healthy eating	Resisting temptation to eat unhealthily	2/2

The following sections will explore TDF domains associated with healthy eating in relation to each theme identified from the analysis and their representative sub-themes (Table 6.4).

Knowledge

One sub-theme (Table 6.4) pertained to one theme and described the influence of nutritional knowledge on healthy eating.

Theme 1. Influence of nutritional knowledge on healthy eating

Interviewees stressed that having knowledge of nutrition was associated with eating healthily. They noted that education as a means to increase knowledge may facilitate positive behaviour change. For example, on interviewee highlighted the potential positive effect of increasing offshore workers' knowledge of the foods that were healthy on their eating behaviour.

"*...then educating the guys, offshore workers on the best foods to eat and what they should be cutting back on, and I think if they had that kind of knowledge then they may*" P10, male, aged 54 years

Optimism

One sub-theme (Table 6.4) pertained to one theme and described the influence of being optimistic about the effect of unhealthy eating habits on dietary choices.

Theme 1. Influence of being optimistic about the effect of unhealthy eating habits on dietary choices

One interviewee noted that if offshore workers were optimistic about the effects of unhealthy eating this would decrease the likelihood of eating healthy. This effect was in part attributed to the lack of exposure to healthy eating adverts whilst offshore decreased healthy eating.

"*…there's no television most of the time so you're not being bombarded with ads for healthy eating or things like that, em and so there's nothing in your mind to tell you anything else and it's almost like you're invincible for those five weeks*" P13, female, aged 54 years

Intentions

One sub-theme (Table 6.4) pertained to one theme and described the influence of motivation on eating healthily.

Theme 1. Influence of motivation on eating healthily

The effect of motivation on behaviour was highlighted. Interviewees suggested that motivation would be required to make positive behaviour change with regard to diet. It was noted that offshore workers needed to take ownership of the decision and that they needed to have a desire to change.

"*…if they wanted to and they had the impetus to do it they could do it, but it does come from themselves I think*" P2, female, aged 50 years

Memory, attention and decision processes

Three sub-themes (Table 6.4) corresponded with three themes which described the effect of taking ownership of the decision to eat healthily, that eating unhealthily is an automatic process and the influence of boredom on healthy eating.

Theme 1. Taking ownership of the decision to eat healthily

Interviewees described the importance of offshore workers making a deliberate effort to eat healthily to achieving behaviour change. Exercising restraint was highlighted as key to successful change. Similarly, interviewees noted that offshore workers needed to have a personal desire to pay attention to health promotion and make changes accordingly.

"*…all you can do is provide as much information as you can and many of the canteens offshore and onshore they do have calorie counts etcetera, so they do provide the information and, but it is down to the individual to want to pay attention to it and address the diet*" P6, male, aged 62 years

Theme 2. Eating unhealthily is an automatic process

The effect of automatic processes was also described. One interviewee reported that unhealthy eating behaviours was automatic and often beyond conscious awareness.

"*…then you're just there watching your video, you know, on your own, and anybody knows, themselves, sometimes you open a pack of biscuits, the next thing you look down and they're gone, you don't even know that you're eating them all. I think that's a problem*" P13, female, aged 54 years

Theme 3. Influence of boredom on healthy eating

Boredom was regarded as a key mechanism influencing unhealthy eating. One interviewee stated that boredom was often experienced by offshore workers, particularly after they came off shift, and this lead to unhealthy eating.

"*…the second one is boredom, because once the shift is over, unless you've got a very, em, interested crew in doing things together, or somebody who organises that, you pretty much shut your cabin door and then you don't see anybody until 12 hours later, em, and so it's, it's boredom, I think*" P13, female, aged 54 years

Environmental context and resources

Two themes were identified and pertained to each of the two sub-themes represented by the environmental context and resources domain (Table 6.4). The two themes highlighted the influence of: offshore environmental stressors on healthy eating; and food provisions offshore in healthy eating.

Theme 1. The influence of environmental stressors on healthy eating

It was specified that offshore environmental stressors increased the likelihood of unhealthy eating. For example, stressors inherent to the offshore environment, such as extreme cold temperatures and long working hours, increased the likelihood of eating unhealthily,

"*…certainly the cold, you know in the middle of winter you know maybe people want to get something high fat, high calorific, that is probably more the times when they would be eating all the kind of rubbish*" P4, female, aged 35 years

In addition, one interviewee emphasised the effect of cyclical weather changes in general, and suggested that this may be regarded as a facilitator of healthy eating in the summer months but may also serve as a barrier in the winter months.

"*I think it is also cyclic within the year cause when it comes to the dark months as you well know, people tend to have far too many sweets, you know treats to keep them you know just to keep them happy and as it heads towards the summer months and people wear less clothes they seem to think oh I want to look like an Adonis or a Greek Goddess for the beach, so it is cyclic within the year*" P7, male, aged 43 years

Theme 2. The influence of food provisions offshore on healthy eating

Interviewees highlighted the influence of the availability of healthy/unhealthy foods offshore on healthy eating. It was suggested that the abundance of unhealthy food offshore, ease of access to unhealthy food and large portion sizes contribute to unhealthy eating within the workforce.

"*…24 hours a day, there are biscuits, and cracker, and crisps available, and fizzy drinks and I'm sure that a lot of these people don't eat like this at home but when it's just there in front of you and you're away from your family it's easy just to get sucked into it*" P13, female, aged 54 years

The effect of free food on overeating was also noted, with interviewees highlighting that since companies provided food at no cost, offshore workers often overindulged.

"*…if you were going out for a meal, you would pay for it, it is kind of that level of good food, so you can see why they eat it, there is no restraint*" P1, female aged 50 years

Social influences

Three themes were identified and pertained to each of the three sub-themes represented by the social influences domain (Table 6.4). The three themes highlighted the influence of the effect of others on healthy eating.

The negative effect of others on eating healthily was highlighted; one interviewee stated that there was peer pressure to eat unhealthily illustrating that offshore workers' were unlikely to select healthy options amongst their peer groups for fear of how it may be perceived.

"…*I would probably say yes, it is a type, peer pressure, type thing you know sitting with their mates and thinking oh I can't be seen to be having a salad or you know to eat healthily, so I would say you know that there is peer pressure*" P4, female, aged 35 years

The positive effect of others on eating healthily was also noted. It was reported that having social support from family, friends and colleagues would increase the likelihood of successfully initiating behaviour change.

"…*it has to be holistic so everyone else around you needs to be willing to change or willing to support you, and we need to make these hard decisions and that is the difficult stuff, you don't need to make it much harder*" P1, male, aged 33 years

The effect of social/cultural factors on healthy eating was also noted.   Interviewees discussed how social and cultural groupings may affect dietary choices, particularly in the context of eating unhealthily.

"…*I find that em different countries tend to eat more of the junky food um and em maybe it is a cultural thing as well possibly yeah*" P10, male, aged 10 years

Emotion

One sub-theme (Table 6.4) pertained to one theme and described the influence of emotional state on healthy eating.

Theme 1. Influence of emotional state on healthy eating

Interviewees discussed how offshore workers might eat unhealthily to reduce stress. The behaviour was connected with increasing relaxation and used a means to cope whilst working offshore.

"*…they use food as a crutch, I guess it is the only crutch they have got offshore*" P1, male, aged 33 years

Behavioural regulation

One sub-theme (Table 6.4) pertained to one theme and described the influence of willpower on healthy eating.

Theme 1. Influence of willpower on healthy eating

It was highlighted by interviewees that resisting the temptation to eat unhealthily was critical to ensuring behaviour change was achieved. In particular, it was noted that offshore workers would need to make efforts to eat the unhealthy foods that were plentiful offshore.

"*…but the difficult part is to try cut back on those temptations to eat those cakes and sweets* " P10, male, aged 54 years

6.4.5.2 Determinants of reducing alcohol intake

Seven interviewees discussed the importance of offshore workers' reducing their alcohol intake within the interviews. The following sections will discuss the TDF domains that were associated with reducing alcohol intake. Five TDF domains were identified as potential determinants of reducing alcohol intake in offshore workers (Table 6.4).

Table 6. 5 TDF domains associated with reducing alcohol intake

TDF domain (n = count of interviewees identifying TDF domains as determinant)	Themes	Sub-themes	Count (number of interviewees who discussed determinant out of total)
Knowledge (n = 1)	The importance of developing knowledge/awareness of risks of hazardous use on reducing alcohol intake	Having knowledge of the effects of alcohol use may promote behaviour change	1/1
Environmental context and resources (n = 5)	Effect of restriction-release environment on alcohol use	Restriction-release effect of working offshore increases hazardous alcohol use	5/5
	Environment restricts alcohol use	External factors may act as barrier to alcohol use	1/5
Social influences (n = 4)	Influence of others on alcohol use	Pressure to consume alcohol	4/4
		Positive effect of others on reducing alcohol intake	2/4
Emotion (n = 2)	Influence of emotion on alcohol use	Stress increases likelihood of alcohol use	2/2
		Alcohol use is associated with positive outcomes	1/1
Behavioural regulation (n = 1)	Influence of habits on alcohol use	Breaking habit of alcohol use	1/1

The following sections will explore TDF domains associated with reducing alcohol intake in relation to each theme identified from the analysis and their representative sub-themes (Table 6.5).

Knowledge

One sub-theme (Table 6.5) pertained to one theme and described the importance of developing knowledge and awareness of the risks associated with hazardous alcohol use on reducing subsequent intake.

Theme 1. The importance of developing knowledge and awareness of the risks associated with hazardous alcohol use on reducing intake

The importance of developing knowledge and awareness of the risks associated with hazardous alcohol use was perceived to perhaps be influential factors in helping offshore workers reduce their alcohol intake. One interviewee stressed that being unaware of the risks would reduce the likelihood of behaviour change.

"*…unless you are aware you are not going to change anything*" P11, male, aged 52 years

Environmental context and resources

Two sub-themes (Table 6.5) pertained to one theme which described the effect of the restriction-release environment, e.g. long periods offshore where alcohol is not available, on alcohol use.

Theme 1. Restriction-release effect of working offshore increases hazardous alcohol use

Interviewees discussed how the restriction-release environment experienced by many offshore workers increased the temptation to consume alcohol. The restriction-release environment is characterised by the long periods offshore workers spend away from home. Interviewees described how the lengthy periods that offshore workers abstained from using alcohol whilst they were offshore increased the temptation and appeal of consuming alcohol upon their return onshore.

"…they get that two, three weeks that they can go away on holiday, they can, as I say consume whatever alcohol that they like um so that is a positive thing but then on the downside of that, you know, when is enough, enough and they tend to go over the top and that certainly can be a real risk factor" P8, female, aged 49 years

The ease of access to alcohol was also believed to increase the likelihood of alcohol use. For example, one interviewee described how when offshore workers returned back onshore from an offshore trip they could access alcohol immediately either in the airport or back at a hotel.

"…cause it is easily available, you get off the rig, go to a hotel or whatever, the airport and it is right there" P12, male, aged 36 years

Social influences

Four sub-themes (Table 6.5) pertained to one theme which described the influence of others on alcohol use.

Theme 1. Influence of others on alcohol use

Some interviewees reported that offshore workers may feel pressure from peers to consume alcohol, particularly from fellow offshore workers and friends onshore. They described that having a drink together was perceived as being social and ritualistic amongst the workforce.

"…I think, it is a place where people have really gotta fit in, sharing meals and whatever, you have to, so I think the peer pressure is enormous, so I think from the leaders, supervisors yeah" P12, male, aged 36 years

The positive effect of others on reducing alcohol intake was also described. Interviewees reported that those close to offshore workers, such as family and friends, and their company superiors, may aid in helping reduce their alcohol intake.

"…well it is down to their you know, the people that they socialise with or their families or their partners, you know, they might be able to have an impact on them, make them realise that you know, that if they are drinking too much it is going to have an impact on their

health, you know their long term, ability to be able to perhaps em function or whatever it happens to be" P8, female, aged 49 years

Emotion

Two sub-themes (Table 6.5) pertained to one theme which described the influence of emotion on alcohol use.

Theme 1. Influence of emotion on alcohol use

Interviewees reported that stress increased the likelihood of consuming alcohol, describing that it was often used as a means to cope with relationship and social issues and job insecurity, particularly in periods of downturn within the industry.

"*…the uncertainty of the job, when oil prices are 110 dollars a barrel I don't think drink nearly as much, obviously now that they are 45, 44 dollars a barrel, and jobs are you know being cut and uh production being cut down and so forth so on, that increases a stressor, that stress and that stress induces people to drink more, it is the instability of the job*" P11, male, aged 52 years

It was perceived that associating alcohol consumption with a positive outcome lead to increased consumption, for example, if alcohol were viewed as a means to relax.

"*…it allows them to let off steam, it allows them to relax*" P8, female, aged 49 years

Behavioural regulation

One sub-theme (Table 6.5) pertaining to one theme which described the influence of habits on alcohol use.

Theme 1. Influence of habits on alcohol use

The effect of breaking bad habits on alcohol use was highlighted. One interviewee noted that drinking had become a habit for many offshore workers and that breaking the cycle may enable them to reduce their intake successfully.

"*…oh well pretty much the same as most people trying to give up an old habit, um and that is it pretty much, I don't think it would be specific to offshore workers because they manage to give it up for two weeks, three weeks that they are out here, so just the usual, you know breaking old habits*" P7, male, aged 43 years

6.4.5.2 Determinants of engaging in physical activity

Four interviewees discussed determinants of engaging in physical activity within their interviews. The following sections will discuss the TDF domains that were broadly associated with engaging in physical activity. Eight TDF domains were identified as potential mechanisms of behaviour. Table 6.6 outlines each TDF domain in relation to illustrative quotes, relevant themes and sub-themes. The intentions, environmental context and resources, social influences, emotion and behavioural regulation domains were identified most frequently.

The influence of motivation on engaging in physical activity was highlighted whereby a strong will was perceived to be required to successfully change behaviour. The offshore environment, which was often lacking in resources and equipment, was perceived to restrict engagement in physical activity. The difficulty in transitioning physical activity routines from onshore to offshore environments was also noted and believed to serve as a barrier.

Engagement may either be positively or negatively influenced by others, for example if offshore workers had a lack of support they may be less inclined to make changes to their behaviour, conversely, social support may facilitate physical activity. It was noted that stress and lack of routine may negatively impact on engagement.

Table 6. 6 TDF domains associated with engagement in physical activity

TDF domain (n = count of interviewees identifying TDF domains as determinant)	Themes	Sub-themes	Illustrative quote	Count (number of interviewees who discussed determinant out of total)
Beliefs about consequences (n = 1)	Engagement in physical activity is associated with positive outcomes	Physical activity associated with positive outcomes	"*all that's associated you know a bit of stress relief as well cause it is directly linked to reduced stress levels, there is a range of benefits going on there, all of which increases productivity, decreases lost time you know um and makes financial sense*" P1	1/1
Intentions (n = 2)	Influence of motivation on engaging in physical activity	Motivation is required to engage with physical activity	"*but the biggest factor in that is probably motivation*" P4	2/2
Goals (n = 1)	The importance of prioritising goals to engage in physical activity	Prioritising goals to engage with physical activity	"*having to change the way they go about their life at home and at work and being able to like, well they might have to miss out on something once in a while, they will just take, their health will take preference over it*" P1	1/1
Memory, attention and decision process (n = 1)	Engagement in physical activity affected by inattention	Boredom/tiredness is associated with decreased physical activity	"*then they are wrecked so they can't, they are not going to go to, they can't go to the gym afterwards and then when they are on three weeks off or two weeks off or whatever their rotation is, they are not in the mood to go and crack out some runs or do exercise*" P1	1/1
Environmental context and resources (n = 3)	Environment restricts engagement in physical activity	Offshore environment restricts engagement in physical activity	"*it is difficult to predict um, to schedule time off to do exercise and offshore certainly cuts into you know their sleep and cuts into their working time, the managers also might not be that flexible*" P4	3/3

	Issues with transitioning physical activity from one environment to another	Difficulty in transitioning physical activity routine from one environment to another	"*if anything it might be easier I think to change the offshore guys with their time offshore, you know because the gym is there and we've got the time, I think the problem is trying to make it more of a holistic change, you know, keep it on both sides of the coin*" P1	1/3
Social influences (n = 2)	Influence of others on engagement in physical activity	Negative influence of others on engaging in physical activity	"*again if you're trying to make a change and your spouse still wants, doesn't want to exercise, doesn't want to make a change, then it is very hard for you, you know it could be something you do together*" P1	2/2
		Positive influence of others on engaging in physical activity	"*also there is no one else there, say if it is, you get to them and their families want to change, and their wives, girlfriends and family around at home, if there are other people doing it as well and they have that support network, whereas at work they are by themselves and there isn't that support network, they have to be much stronger and make their own decisions in their own way, so it depends where the support is strongest which is why there needs to be support across the board*" P1	2/2
Emotion (n = 2)	Influence of emotional state on engagement in physical activity	Stress reduces likelihood of engaging in physical activity	"*often we find, people who are going through major life events, changing house, changing jobs etcetera, they are under a lot of stress and they let go of their diet and exercise as well, you know*" P4	2/2
Behavioural regulation (n = 2)	Influence of habits on engagement in physical activity	Importance of maintenance of engaging in physical activity	"*I know most people tend to including myself when they get home they kind of get carried away with dong stuff and exercise falls by the wayside but it is really important to keep up exercise once you get home as well*" P9	2/2

6.4.5.3 Determinants of smoking and cessation

Five interviewees discussed determinants of smoking and cessation within their interviews. The following sections will discuss the TDF domains that were broadly associated with smoking and cessation. Five TDF domains were identified as potential mechanisms of behaviour. Table 6.7 outlines each TDF domain in relation to illustrative quotes, relevant themes and sub-themes. Both environmental context and resources, and social influences were frequently discussed.

Interviewees reported that there were aspects of the offshore environment which increased the opportunity to smoke, for example the sale of duty free cigarettes and long spells of downtime, although one suggested that it smoking offshore was more difficult due to certain restrictions. It was also highlighted that there may be issues maintaining cessation across both on and offshore environments since they are inherently different. Smoking was believed to be a means of socialising amongst offshore workers. However, it was noted that others may have a positive effect on promoting and supporting cessation.

Table 6. 7 TDF domains associated with smoking and cessation

TDF domain (n = count of interviewees identifying TDF domains as determinant)	Themes	Sub-themes	Illustrative quote	Count (number of interviewees who discussed determinant out of total)
Beliefs about consequences (n = 1)	Influence of associated outcomes on smoking cessation	Smoking cessation associated with negative outcomes	"*people then are aware of the stats, the stats, the average person that stops smoking puts on a half stone in weight*" P6	1/1
Intentions (n = 1)	A strong will is required to stop smoking	Motivation is required to stop smoking	"*the person themselves must have a strong desire em to cease smoking before they are going to stop*" P6	1/1
Environmental context and resources (n = 4)	Avoidance of specific environments would decrease smoking/promote cessation	Restricted opportunity to smoke offshore promotes cessation	"*it is a big effort to smoke so there is a lot of guys trying, trying to quit*" P1	1/4
	Offshore environment triggers smoking	Stopping provision of cigarettes offshore promotes cessation	"*the simplest thing for me with offshore workers is no cigarettes sold offshore and as I say there are companies who have been doing that for ten years and more, if not fifteen years offshore*" P6	2/4
		Provision of duty free cigarettes offshore increases smoking	"*they possibly smoke more because it is cheaper, I couldn't tell you what the price of cigarettes is but it is pennies offshore, it is a duty free prices offshore, so there is an incentive there because it is cheaper*" P6	1/4
		Increased downtime offshore increases smoking	"*I notice that the people that do smoke, smoke more offshore than they do at home, due to their down time and um you know*" P10	1/4
	Issues with transitioning smoking cessation from one environment to another	Issues with maintaining cessation across both onshore and offshore environments	"*they want to get healthy this week, this trip, you know, and they use it as a new year's, every hitch is a new year's resolution, I am going to start to quit smoking this hitch, you*	1/4

			know cause there life is much more full of very linear divisions, which isn't the case for a normal person and so that is the main chance you get to try and get them to traverse that and make it an actual life change and lead the two lives the same" P1	
Social influences (n = 2)	Influence of others on alcohol use	Smoking used as a means of socialising	"*if you are working with, you are now a group of three or four men and you decide you want to stop smoking and the other three are going to continue smoking, you are having to alienate yourself from your smoking colleagues cause they are going to be working, when it comes to tea break, they are going to go down to the smoking tea shack and you go to the non smoking tea shack*" P6	2/2
		Positive influence of others on promoting smoking cessation	"*the people that don't smoke would support the smokers*" P6	1/2
Emotion (n = 1)	Influence of emotion on alcohol use	Smoking is associated with positive outcomes	"*it is comfort factor because part of the work offshore is boring, tedious and repetitive and doesn't give anybody any satisfaction*" P6	1/1

6.4.6 Mental health in the offshore workforce

One interviewee discussed the mental health of offshore workers as an important aspect of health requiring improvement. Whilst, as aforementioned, mental health was not perceived to be a behaviour, it was identified as a key concept and thus, deserving of further exploration. The interviewee highlighted that equipping offshore workers with better coping skills, means to manage isolation and methods of interacting with others may be beneficial to improving mental health within the workforce.   Further, the interviewee discussed the potential for yoga and meditation practice to be implemented, discussing how such practice may promote wellbeing. Increasing awareness of mental health issues and breaking barriers were perceived to be critical in facilitating engagement.

"…*well firstly making them aware, more aware of health issues and mental health, so that might make, might make them recognise issues within themselves, I think it is a really hard shell to crack to start with cause there is this huge macho image with a lot of them, once you have cracked through that you might be able to you know through education and training and awareness, then get some of them to want to change and develop, develop themselves better, my opinion is some of them don't actually think enough or deep enough about life, they just seem to live it*" P9, male, aged 37

6.4.7 Research question 3: what are remote healthcare practitioners' experiences of health promotion interventions/programmes within the offshore environment?

Interviewees discussed broadly the delivery of health promotion in offshore environments. Interviewees described the role of the medic in delivering health promotion offshore, highlighting how influential they were in ensuring the health of the workforce.   Medics were responsible for delivering much of the health promotion offshore. It was reported that medics demonstrated a high degree of autonomy in terms of how, when and what was delivered with regard to health promotion.

The programmes that medics were responsible for implementing were primarily focussed on increasing awareness on health via education. Health education was primarily delivered via presentation, posters or distribution of information packs. A wide variety of topics focussed on raising awareness were covered. Interviewees also described company-driven health promotion interventions and programmes. Schemes such as government initiatives, competitive challenges between installations and employee wide programmes were described. In addition, medics provided one-to-one consultations on

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health with offshore workers, where required.   However, it was reported that offshore workers were often reluctant to approach medics for advice on their health although were comfortable visiting with medical ailments and injuries.

Interviewees' statements pertaining to the third research question were analysed using a thematic approach as outlined in Chapter 5 Section 5.3.8.2. The subsequent sections will explore the themes associated with remote healthcare practitioners' experiences of health promotion interventions/programmes within offshore environments in relation to: evaluating the effectiveness of health promotion offshore, and uptake of health promotion offshore.

6.4.7.1 Evaluating the effectiveness of health promotion offshore

The effectiveness of health promotion programmes and interventions in offshore environments was discussed. Two themes were identified: current evaluation of health promotion programmes/interventions, and difficulty evaluating health promotion programmes/interventions.

Current evaluation of health promotion programmes/interventions offshore

Interviewees described current evaluation of health promotion programmes/interventions offshore.   Some highlighted that health promotion programmes/interventions were evaluated, noting that they regularly audited to establish if they were effective in generating health improvement within the target population.

"*I think they constantly evaluate it by internal auditors em and also within the department as well, to establish their effectiveness, um also the data is compiled to look at, for example, um to publish some studies on what they have done as well* " P4, male, aged 35 years

However, more commonly, interviewees stated that evaluation of effectiveness was not undertaken. Although, interviewees recognised a need to perform evaluations and suggested that they would be beneficial from both a company and individual perspective.

"*…no but if I could do it [intervention] again what I would do with people is I would get their weight and so on, their baseline for their fitness every time they come offshore so they were to have like, it is a bit like these iPhone apps, they tell you, you lost so much weight*

whatever, you get some sort of reward, I would have something like that where they look back and say oh I am much better off now" P12, male, aged 36 years

Difficulty evaluating health promotion programmes/interventions offshore

Interviewees, although highlighting the need for evaluation of health promotion, suggested that it was often difficult to undertake such evaluation. The perceived difficulties related to organisational change and the transitional nature of the offshore workforce. For example, one interviewee highlighted that evaluation commanded time, which he often had little of.

"…*it actually requires a lot of effort from your workforce and it is quite difficult sometimes for rotating staff and people are working shifts and the doctors and medical staff, so it takes a tremendous amount of good organising em so I have not succeeded in that department yet unfortunately*" P9, male, aged 37years

6.4.7.2 Uptake of health promotion programmes

Interviewees reported that uptake of health promotion programmes offshore was generally good. It was suggested that the reasonable uptake may be since the activities are provided at no cost to offshore workers and due to the timings, some interviewees noted that they delivered presentations during meetings where attendance was mandatory.

"…*you know because there isn't a huge amount to do out here um these meetings are generally very well attended um because they are only once a week and um you know it would give them a chance to have a sit down after their tea and watch somebody give a presentation basically*" P8, female, aged 49 years

Although some interviewees expressed concern over whether health promotion programmes would be welcomed by offshore workers, most of the interviewees suggested that programmes, in their experience, were generally received well.

"…*yeah it is and in my experience people I have spoken to, it is definitely welcomed and people do appreciated it generally, some people see it as an intrusion, some people see it as impractical and irrelevant but the vast majority uh there is a favourable response and uptake to it*" P4, female, aged 35 years

Interviewees, however, cautioned that health promotion programmes may only be appealing to those who expressed a willingness to change and not to those who were not currently motivated to do so.

"*I think you are going to get people who are never going to be interested and people who are not, I am not sure it is particular to the offshore industry, there will always be people who want to better their health and other people who don't care less*" P13, female, aged 54 years

6.4.8 Research question 4: how could engagement in self care be facilitated amongst offshore workers?

Statements pertaining to research question four were analysed using a thematic approach as outlined in Section 5.3.8.2. Facilitating engagement in self care was explored via determining the facilitators of behaviour change; and by identifying those barriers typically affecting uptake. The following will discuss in relation to the broad themes identified.

6.4.8.1 Facilitating behaviour change in offshore workers

Interviewees identified ways in which health behaviour change could be facilitated within offshore workers. They highlighted what they considered appropriate mechanisms to promote behaviour change within the workforce and how the context may be crucial in influencing behaviour change.

Engagement in interventions may be facilitated by using appropriate mechanisms to promote behaviour change

A number of mechanisms which could be utilised to promote behaviour change were identified and discussed. Increasing awareness of health and wellbeing within the offshore workforce was perceived to be a key factor in promoting changes in behaviour. Interviewees highlighted how advising on strategies which may assist in promoting health behaviour change may help in facilitating measurable change. Examples included outlining how to set targets, ways in which health may be changed and how to monitor health.

"*…giving them ideas on how they can squeeze in exercise to their daily routine in their everyday activities*" P4, male, aged 35 years

Using methods to increase appeal and subsequent engagement were also advocated. For example, using visual aids, goal setting and self-monitoring strategies, which would enable offshore workers to monitor their progress.

"*…generally they enjoy the sort of health related issues you know around testicular cancer, that always goes down well, people like seeing photographs, you know pictures of various things*" P5, male, age unknown

Incorporating incentives into health promotion programmes was also deemed as a method which may facilitate engagement. The methods outlined included rewards systems, vouchers, prizes or apparel.

"*I always think prizes, and initiatives work really well and unfortunately the guys offshore, if they are doing something they like to see a little gift or vouchers, something like that*" P4, female aged 35 years

It was also suggested that promoting competitiveness within the workforce may facilitate engagement in health promotion and any subsequent behaviour change. Interviewees highlighted that this may be achieved by setting individual or team competitions, for example, to reach a set target within a specified time frame.

"*I think if you can make it a group thing, where they are a team and so on and then you see the different departments and they go into the mess room where everyone is having their meals, then you see different workers from different departments eating together so they identify with each other and you can make it about that uh friendly competition, doing something together, then it works well*" P12, male, aged 36 years

Engagement in interventions may be facilitated by the context in which they are delivered

Interviewees discussed how the context of promoting health could be particularly influential in facilitating engagement. The importance of having company backing for health

promotion was stressed. Company backing included ensuring that there was support for health promotion activities from the organisation, installation medic and offshore installation manager.

"*…the institutional you know be that from the medic if he's into it, part of his job spec requires, the OIM, is he into it, the safety guys you know as part of their duty or right up to the corporate level of you know what, are they going to support it, how are they going to support it, and will it be any use*" P1, male, aged 33 years

The role of the medic in facilitating behaviour change was further explored.   Interviewees highlighted that the medic may be instrumental in promoting health via the advice which they give and provision of information. It was highlighted that medic enthusiasm and having up-to-date training in health promotion were critical to success.

"*…the medic is critical to this because they are the health representatives offshore, so they are the people that are trying to promote, not just health, health and safety because everything they do promotes people working in a safe way as well, the medic is there to provide information, the medic is there to provide a confidential ear for people offshore when they have personal problems or even if they have been to the doctor onshore and they have had some treatment or they are worried about the condition, and then the medic is there to provide that support em where necessary*" P5, male, age unknown

It was also advocated that health promotion was inclusive of all, e.g. for those who are less able or older in age and interactive, such as presentations which involve discussion.

"*…you have to offer, you can't just keep going for the hard option, because you won't get enough people, and you, em, it's the same with the training, we'll run a slightly simpler one for somebody who has been out of shape for a while, who's looking to get back into shape, and then we'll run something harder for people who are, who are, naturally are athletic, they will go to the gym regardless of whether you do something, you have to know your audience*" P13, female, aged 54 years

In an effort to maximise uptake and facilitate widespread engagement, interviewees suggested that delivery of health promotion should be tailored to the needs of the population. This included ensuring that the scheduling was suitable, timings of activities were appropriate for both night and day shift offshore workers, there was a degree of

personalisation and that methods of delivery which may make it easier to maintain engagement were considered e.g. use of digital strategies.

"*…targeting the correct people…so it is targeting, does it really make sense?*" P1, male, aged 33 years

6.4.8.2 Barriers affecting implementation of health behaviour change interventions/programmes amongst offshore workers

Interviewees discussed the barriers that the felt may affect the implementation of health behaviour change interventions/programmes within the workforce. Three themes were identified from the analysis and will be discussed in the proceeding sections. They included social, motivational, installation medic, logistical, organisational and environmental factors.

Social factors

It was suggested that reluctance to engage in behaviour change may be a generational factor in that those in older age groups may be less likely to want to change.

"*…you think well why am I repeating programmes that I have run five years ago to the same people and I know what the outcome is going to be, so there is a certain degree of cynicism, perhaps if you were having um perhaps I am one of the, I am slightly cynical when it comes to the programmes because I have been in the industry for quite some time and um in our field, you have got quite an older workforce as well, who are not the most amenable to change*" P12, male, aged 36 years

Motivational factors

Interviewees discussed how the capture of health promotion may serve as a barrier to implementation and subsequent, behaviour change. For example, it was highlighted that health promotion programmes typically appeal to those who already lead a healthy lifestyle and wish to improve, or those who are willing to change. Interviewees explained that they felt there were some offshore workers who would not be interested in participating since they were not ready to make changes. Hence the challenge was identified as being lack of motivation to change.

"*…my rather jaded view is that we preach to the converted offshore, it is lashing down again, and it is the same old faces that turn up for all these programmes and walk off with the pens, bags, the alcohol glasses, etcetera*" P7, male, aged 43 years

Installation medic factors

The demands on the medic's time were perceived to be a factor which may serve as a barrier to implementation of health promotion. Interviewees described the varied responsibilities of the medic offshore and suggested that the development and implementation of programmes may be time consuming.

"*…now the way these health programmes work offshore they can be quite time consuming quite often, and quite often when other jobs these days are no longer just medics sitting in the health centre, depending on the amount of personnel on board, as I say I can start at 6.30 in the morning and depending on what programme we are running workwise, you can finish work at 8, 9, 10 o'clock at night* " P7, male, aged 43 years

The interviewees also highlighted that both the training of the medic, if they were not up-to-date with health education and their credibility may negatively impact on implementation. For example, one interviewee described how a medic who was not perceived to lead a healthy lifestyle may not be viewed as credible.

"*…if you can demonstrate it, like if you, you, there are some medics who are quite, they are a problem in their own right, they have a bit of a harder time, spoken to people, let's say they are trying to give a healthy eating demonstration or healthy eating presentation and they, they're BMI of 40, it doesn't follow through so eh yeah demonstrating it*" P1, male, aged 33 years

Logistical factors

Logistical factors such as timings of delivery of health promotion and the time constraints experienced by offshore workers. For example, one interviewee stressed that delivery of health promotion extended offshore workers' shifts and that may present as a challenge to implementation.

"*…basically the problem with them as well, is trying to find a space, there is two teams working twelve hour shifts, if you, if I am going to do a lecture to somebody, I am extending*

their shifts by half an hour, so you have got to really, so normally shift change is 12 o'clock, we will do a you know, 1130 for one and 12 for the other, so the other guys are having to get up early and the next guys are having to stay longer, so you've got to be, what is better for them, the extra half hours sleep or relaxation, or your lecture, so you have to balance between it um, you normally have to, you don't have access to everybody all the time" P1, male, aged 33 years

It was highlighted that offshore workers employed as contractors may not experience consistent health promotion as they are typically employed across multiple installations. The transient nature of contractors' role meant that it was often difficult to include them in any long term health promotion.

"...*to what extent the contracting companies do it as employers, that is a different thing because clearly if you are offshore, as far as an operator is concerned the wellness programme is aimed at everybody, everybody can participate, but clearly contractors of a different size, may or may not have the same sort of activity onshore and support it themselves*" P6, male, aged 62 years

Organisational factors

Organisational factors were perceived to serve as barriers to implementation of health promotion offshore. For example, financial constraints experienced during industry downturn may negatively impact on the money that is typically spent on health promotion.

"…*obviously companies look to trim wherever they can and health promotion and health awareness and those activities that may involve what is an insignificant amount of money in real terms, quite often it is seen as a soft underbelly although we don't really need that but we do need something else and therefore organisations will choose to cut the easy things because they don't see the return on investment*" P5, male, age unknown

Relatedly, it was suggested that during periods of industry downturn, that the timings of implementation of health promotion activities were carefully considered. For example, a stress management programme may be perceived with cynicism if it were to be rolled out around the same time as redundancies were being made.

"…*when you are doing these things, inevitably it is about timing, you know if you want to you know promote stress awareness, it is nice to do it in advance, you then suddenly*

decide you are going to promote it when there are redundancies and everything going on, everyone becomes a bit cynical about your motives" P5, male, age unknown

In addition, one interview remarked on how provisions in offshore environments and the intentions of a health promotion programme may send conflicting messages. For example, selling duty free cigarettes at the same time as smoking cessation was being promoted.

"*…you then ask yourself why am I dishing out free patches when I am on a platform that sells cigarettes*" P7, male, aged 43 years

Environmental factors

Environmental factors, such as transitioning behaviour change from one environment to another were perceived as potential barriers. Interviewees suggested that offshore workers may experience difficulty in transitioning a healthy behaviour or lifestyle from the offshore environment to onshore, or vice versa.

"*…so encourage them to carry on with that kind of eating and lifestyle going home as well and carrying on the em with being healthy and keeping fit, I think that is really what it is all about, getting them to understand that concept*" P11, male, aged 52 years

6.5 Discussion

This section will outline the key findings of phase 3, discuss the interpretation of the findings, highlight the strengths and limitations of the study, and outline the principal conclusions.

6.6.1 Key findings of Phase 3

This qualitative study aimed to explore, in-depth, the self care behaviours of offshore workers from the perspective of remote healthcare practitioners. Research findings were analysed in accordance with each of the research questions specified in Section 6.2.2. Interviewees identified four different behaviours that they perceived as requiring behaviour change. Data were analysed in accordance with the TDF and associated determinants were identified. Healthy eating and reducing alcohol intake were identified as key areas of self care warranting concern.

Five TDF domains were identified as being associated with both offshore workers' healthy eating and alcohol intake. The TDF domains common to both behaviours included: knowledge; environmental context and resources; social influences; emotion, and behavioural regulation. In addition to the domains outlined, memory, attention and decision processes, optimism and intention were also associated with healthy eating.

Remote healthcare practitioners discussed their experiences of health promotion programmes/intervention within the offshore environment. The evaluation of the effectiveness of health promotion offshore was also explored. Both the current status of evaluation of effectiveness and the difficulties encountered in evaluating effectiveness of health promotion were highlighted. Practitioners also discussed their experiences of delivering health promotion particularly in relation to uptake.

The interviews also explored how engagement in self care may be facilitated amongst offshore workers. Facilitation was explored via the key mechanisms perceived most appropriate in promoting behaviour change and the most suitable contexts. Barriers affecting implementation of health behaviour change interventions and programmes were also explored. Key barriers included: social; motivational; installation medic; logistical; organisational, and environmental factors.

6.6.2 Strengths and limitations of Phase 3

The qualitative study has further addressed the paucity of literature seeking to explore the health and self care behaviour of offshore workers. The novel approach employed ensures that the contribution is unique; providing an in-depth exploration of offshore workers health and self care behaviours from the perspective of remote healthcare practitioners. In addition, the theoretical foundations utilised enhanced the existing evidence base and will provide the knowledge required to move forward with intervention development.

The qualitative interview study contained a number of key strengths and weaknesses. Key strengths related to: the theoretical underpinnings of interview development and analysis; the integration of evidence-based principles to determine data saturation; the promotion of a person-centred interview approach; and the methods used to assure trustworthiness. A key weakness related to the deductive approach used to analyse data. The strengths

and weaknesses aforementioned were common to both phase 2 and 3 of the research, and have been described in greater detail in Chapter 5 Section 5.6.2.

The recruitment procedure utilised in phase 3 was specific to this study and differed from the approach used in phase 2.   The unknown response rate could be regarded as a limitation of the study, particularly when considering the representativeness of the sample. Further, seven potential interviewees did not respond to the email to arrange a convenient time for interview.   The reasons for their non-response are unknown although may be attribute to their offshore schedule.   Due to time constraints of the research, non-responders to the email were not followed up.

6.6.3 Interpretation of Phase 3 findings

6.6.3.1 Determinants of behaviour

Remote healthcare practitioners identified both offshore workers' diet and alcohol intake as key behaviours which required behaviour change.   To a lesser degree, smoking and physical activity were perceived to also warrant attention.   The findings correspond with a previous study whereby offshore installation medics reported that offshore workers' lifestyle choices were considered risk factors to health (14).   After consultation with the extant literature on offshore health from the remote healthcare practitioners' perspective, it appears that this may be one of the first studies to use medical personnel to identify determinants of offshore workers' health and self care behaviour.   Hence, there is not a suitable comparator with which to discuss the results.

However, and as described in Chapter 5 Section 5.6.3.1, the findings from this study corresponded with the extant literature on key determinants of behaviour which offshore workers' have identified themselves.   For example, the extant literature on offshore workers perceptions of behavioural determinants refers to the influence of their environment on healthy eating, alcohol, physical activity and smoking behaviours. These findings were replicated in this phase of the research whereby remote healthcare practitioners identified offshore workers' environmental context and resources as a mechanism driving behaviour (5,79,178). Similarly, both in this study and within the extant literature, social influences and memory, attention and decision processes were identified as drivers of healthy eating (178) and physical activity (79) respectively.

6.6.3.2 Promoting health and self care in the offshore workforce

To date, there is limited literature which seeks to explore remote healthcare practitioners' experience of health promotion within the offshore environment. The results from this study proffer a unique contribution to the evidence on implementing health behaviour change amongst offshore workers. For example, previous studies on the perspectives of remote healthcare practitioners working in offshore environments have largely utilised quantitative methodologies (14,192). Hence, the exploration of experiences using a qualitative methodology appears to be novel in terms of the extant literature.

Remote healthcare practitioners discussed how health promotion programmes and interventions were often poorly evaluated. Further highlighting that although there was a recognised need to evaluate, there were unique challenges inherent to the offshore environment which made it difficult to perform evaluations. The findings echo those reported in a survey study of offshore medical personnel whereby it was highlighted that there were often no plans to evaluate health promotion programmes that were delivered to the offshore workforce (192). The uptake and acceptability of health promotion programmes offshore was perceived, by remote healthcare practitioners in this study, to be reasonable. Offshore medics from a previous sample reported a similar phenomenon, with the majority disclosing that the felt offshore workers were receptive to implementation of health programmes (192).

Remote healthcare practitioners noted that behaviour change may be facilitated in the workforce by increasing offshore workers' awareness of their health and wellbeing and encouraging them to take responsibility for their own health. They further highlighted that engagement may be facilitated by ensuring that there was adequate organisational support for health promotion, that programmes were inclusive of all and tailored to the needs of the population. A questionnaire study on offshore workers' health, as perceived by offshore medics and offshore workers themselves, also identified the importance of organisational support to facilitating engagement. The authors suggested that although management of health was a personal responsibility, offshore workers may benefit from having the support of the offshore medic and operating company (14).

Older offshore workers, individuals' lack of motivation to change, demands on the medic in terms of their time, training and credibility of the medic, logistical and organisational factors, and difficulty in transitioning behaviours from one environment to another, were all perceived to serve as barriers to engagement. The role of the medic, particularly with

regard to the training they received and time that can be devoted to development of activities has been considered previously as a factor affecting implementation of health promotion. For example, in a questionnaire study of offshore medics experiences of health promotion, it was identified that the majority perform tasks out with their role e.g. administration or health and safety duties (14).

6.6.5 Implications for the future

The in-depth qualitative study has identified areas of health and self care which remote healthcare practitioners perceived as requiring behaviour change within the offshore workforce. The theory-driven nature of the study has enabled determinants of health and self care behaviour to be identified and explored. The findings have also highlighted how self care may be promoted within the offshore workforce. The findings from this phase will be discussed in relation to those attained in phases 1 and 2 in the next chapter (Chapter 7: Discussion).

7

Discussion

7.1 Chapter introduction

This chapter will restate the overall aims of the research, highlight the key findings associated with each phase, the originality of the research and will triangulate the findings. Finally, future research and the impact of the current research will also be explored prior to outlining the main conclusions.

7.2 Review of the thesis

7.2.1 Overall aims of the research

The overall aim of the doctoral research programme was to assess the perceived health and self care status of offshore workers, and to identify behavioural determinants associated with engagement in self care. The research comprised three individual phases, each making a standalone contribution whilst also enhancing the evidence base on health and self care within the workforce. The findings from the narrative review reported in Chapter 2 highlighted key areas of health and wellbeing which warranted concern within the workforce and where there was a paucity of literature. Hence, the outcomes of the narrative review formed the basis of the research and emphasised the importance of conducting additional exploratory work using a mixed methods approach.

7.2.1.1 Phase 1 (cross-sectional survey of health, quality of life, mental wellbeing and self care)

Phase 1 aimed to assess offshore workers' health, quality of life, mental wellbeing and self care status. A quantitative approach was adopted and a questionnaire administered to a large sample of offshore workers to determine aspects of health, quality of life, mental wellbeing and self care.

7.2.1.2 Phase 2 (qualitative interviews exploring offshore workers' self care behaviour from the perspectives of offshore workers)

Phase 2 aimed to explore offshore workers' self care behaviours from their own perspective. A qualitative approach was utilised and theory-based interviews were conducted with a sample of offshore workers to explore determinants of self care behaviour.

7.2.1.3 Phase 3 (qualitative interviews exploring offshore workers' self care behaviour from the perspectives of remote healthcare practitioners)

Phase 3 aimed to explore offshore workers' self care behaviours from the perspective of remote healthcare practitioners with experience of working in offshore health. A qualitative approach was utilised and theory-based interviews were conducted with a sample of remote healthcare practitioners to explore determinants of self care behaviour.

7.2.2 Key findings

The key findings of the doctoral research will be highlighted in the proceeding sections and will be discussed in relation to each of the three phases.

7.2.2.1 Phase 1 findings

The findings from the quantitative study furthered understanding on aspects of offshore workers' quality of life, wellbeing, health and self care. The findings were discussed in relation to the current literature on offshore health and key areas of concern were highlighted, they included: overweight/obesity; inability to travel offshore; medical evacuation; lack of adherence to 5-a-day fruit and vegetable guidelines; physical activity; smoking; hazardous/harmful alcohol use, and insomnia (Figure 7.1).

Areas of concern were identified from quantitative analysis whereby median scores were used as a cut-off and after scores were appraised by the researchers in the context of the extant literature on offshore health. Further, the majority of offshore workers scored negatively across more than one self care domain. Hence, suggesting that negative health across multiple self care domains may be an issue within the workforce.

Overall scores attained from the study suggested that offshore workers demonstrated positive health and self care across a number of domains including: quality of life; mental wellbeing; drug use; self care agency and mindfulness. Positive scores were identified from quantitative analysis whereby median scores were used as a cut-off and after scores were appraised by the researchers in the context of the extant literature on offshore health.

A number of significant associations between self care variables, quality of life and mental wellbeing were observed. For example, poorer mental wellbeing was associated with hazardous alcohol use, insomnia, decreased mindfulness and low self care agency.

Similarly, decreased mindfulness, insomnia and low self care agency were associated with poorer physical quality of life. Moreover, decreased mental quality of life was associated with hazardous alcohol use, drug use, insomnia, decreased mindfulness and self care agency.

The findings also demonstrated significant associations between offshore workers' health status and self care scores, illustrating the complex interplay of factors. The associations included: unhealthy BMI and failure to achieve five-a-day fruit and vegetable guidelines; smoking and incidence of medical evacuation; prevalence of a long term health condition and non-hazardous alcohol use, and absenteeism and decreased mindfulness.

7.2.2.2 Phase 2 findings

The findings from the qualitative study suggested that offshore workers' perceived that their behaviour may be improved across healthy eating, physical activity, smoking, hazardous/harmful alcohol use, sleep management, stress management and maintaining work life balance domains (Figure 7.1). Healthy eating and physical activity were the behaviours most frequently discussed by offshore workers and subsequently, were identified by the researcher as areas requiring behaviour change.

Analysis of the qualitative data was performed using a Framework Approach and the TDF. Nine domains were identified by the analysis and perceived to be associated with both offshore workers' healthy eating and engagement in physical activity.   The TDF domains which pertained to both healthy eating and engagement in physical activity included beliefs about capabilities, beliefs about consequences, intentions, goals, memory, attention and decision processes, environmental context and resources, social influences, emotion and behavioural regulation. In addition to the domains outlined, knowledge and reinforcement were also associated with healthy eating, and skills with physical activity.

7.2.2.3 Phase 3 findings

The findings from the qualitative study suggested that remote healthcare practitioners' perceived that offshore workers' behaviour may be improved across healthy eating, hazardous/harmful alcohol use, physical activity and smoking (Figure 7.1). Further, the topic of mental health was discussed by one interviewee who perceived it an important area which may warrant addressing. Healthy eating and harmful/hazardous alcohol use were the behaviours most frequently discussed by remote healthcare practitioners and

subsequently, were perceived by the researcher to be key areas requiring behaviour change within the offshore workforce.

Framework analysis, using the TDF as a framework to code, identified five domains associated with both offshore workers' healthy eating and alcohol intake. The TDF domains which pertained to both healthy eating and alcohol intake included knowledge, environmental context and resources, social influences, emotion and behavioural regulation. In addition to the domains outlined, memory, attention and decision processes, optimism and intention were also associated with healthy eating.
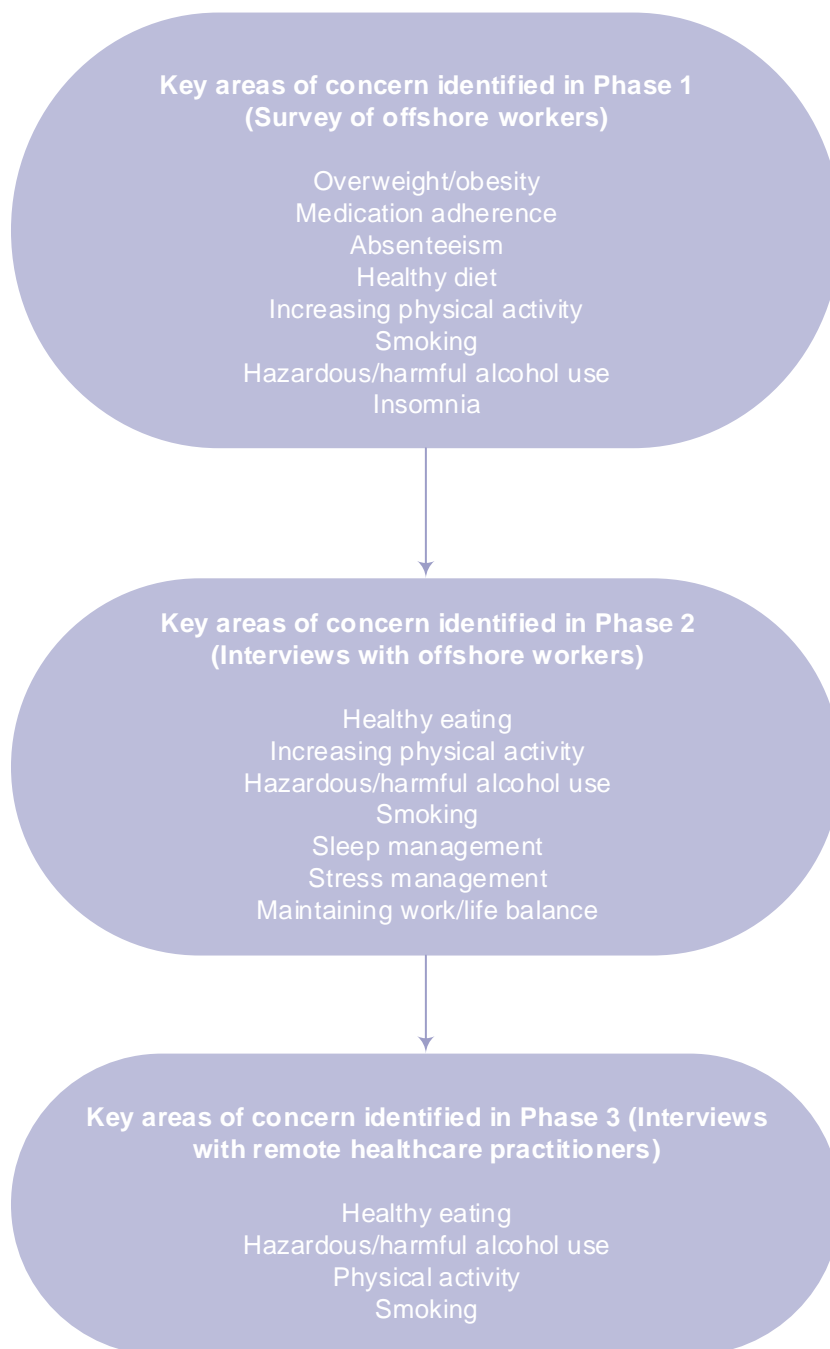
**Key areas of concern identified in Phase 1
(Survey of offshore workers)**

Overweight/obesity
Medication adherence
Absenteeism
Healthy diet
Increasing physical activity
Smoking
Hazardous/harmful alcohol use
Insomnia

**Key areas of concern identified in Phase 2
(Interviews with offshore workers)**

Healthy eating
Increasing physical activity
Hazardous/harmful alcohol use
Smoking
Sleep management
Stress management
Maintaining work/life balance

**Key areas of concern identified in Phase 3 (Interviews
with remote healthcare practitioners)**

Healthy eating
Hazardous/harmful alcohol use
Physical activity
Smoking

Figure 7.1 Key behaviours which may require behaviour change from Phases 1-3

7.2.3 Triangulation of the research findings

The doctoral research utilised two methods of triangulation whereby both methodological and data typologies were employed (Chapter 3 Section 3.4.3.1). The first phase utilised a quantitative cross-sectional survey to identify broad trends, and the remaining phases, employed qualitative interviews to explore the behaviours that were initially identified from phase 1 in greater detail. The data from all three phases were converged in an effort to corroborate findings and enhance the trustworthiness of the research.

A number of behaviours were identified over the course of the research and are outlined in Figure 7.1. Whilst the findings from phase 1 suggested that absenteeism were key areas which may warrant concern within the workforce; these behaviours were not discussed in the remaining phases of the research. This may be since offshore workers and remote healthcare practitioners were only permitted to identify a single behaviour which they felt warranted behaviour change.

Similarly, although offshore workers themselves perceived that stress management, sleep management and maintaining a good work/life balance were behaviours which they perceived required behaviour change; these were not identified by remote healthcare practitioners. Again, this may be attributed to the nature of the interviews whereby only a single behaviour was discussed or since remote healthcare practitioners perceive offshore workers' health and self care behaviours differently from how the workforce themselves do.

The different outcomes across the three phases highlight the importance of supplementing more objective measures, e.g. questionnaire measurement data, with subjective feedback, e.g. offshore workers' and remote healthcare practitioners' beliefs about what they perceive as important. Hence, supplementation of objective measures with subjective approaches will aid researchers in corroborating findings. For example, the findings from the three phases did corroborate across three key behaviours, including: healthy eating; physical activity, and alcohol.

This outcome is reflective of previous and current trends in the literature which have identified healthy eating, physical activity and alcohol use as key areas warranting concern. For example, a recent study on healthy ageing in the offshore workforce reported that healthy eating was of critical concern and identified as a behaviour which may benefit from intervention (178). Similarly, there has been concern over the increasing BMI of

offshore workers (78). The increasing BMI of the workforce may suggest that offshore workers could benefit from interventions targeting healthy eating and increasing physical activity (193,194).

The findings, when triangulated from the three phases (Section 7.2.3), suggest that offshore workers may benefit from implementation of a self care intervention which targets healthy eating, physical activity and alcohol intake. They further highlight that there are multiple behaviours whereby concern is warranted and which may be regarded as unhealthy.

Research suggests that engagement in multiple unhealthy behaviours may combine to increase the risk of negative health outcomes. For example, eating unhealthily and a sedentary lifestyle together increase the risk of obesity (186,195). Hence, due to the increased risk of engagement in multiple unhealthy behaviours, offshore workers may benefit from implementation of a multiple health behaviour change intervention.

Multiple health behaviour change interventions refer to a type of programme whereby numerous behaviours are targeted. It is anticipated that targeting multiple behaviours within one intervention may be effective in reducing engagement in unhealthy behaviours since these behaviours tend to cluster together (186,195). For example, smoking has been found to cluster with alcohol misuse and unhealthy eating (186,195).

Further, whilst offshore workers' mental wellbeing in this study was considered relatively positive, the behaviours identified as warranting concern may all have a negative impact on overall mental wellbeing. For example, research has demonstrated the positive effect of physical activity (196) and healthy diet (196,197) on mental wellbeing. Moreover, whilst moderate alcohol consumption has been associated with greater wellbeing (196), alcohol has been identified as a risk factor for depression in males (198), thereby highlighting the importance of ensuring sensible alcohol use.

The concept of mental wellbeing and the interaction with the aforementioned behaviours may be particularly important in the context of the offshore workforce. For example, males are at a higher risk of suicide, particularly those aged 30-59 (199), and given the average age of the offshore workforce falls within this range (3), promotion of mental wellbeing may be of particular significance to this population. Moreover, offshore industry experts have recently expressed concern over offshore workers' mental wellbeing. They ascertain that the current economic climate has created widespread uncertainty with regard to job

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security and thus, may increase the prevalence of poor mental health within the workforce (200).

Hence, an intervention which targets diet, physical activity and alcohol behaviours may further assist in promotion mental wellbeing within the workforce. Further, although the majority of offshore workers scored positively with regard to mindfulness, it may perhaps be beneficial to integrate as a component of an intervention targeting offshore workers in the future. For example, a work-based mindfulness intervention has demonstrated effectiveness in promoting positive mental wellbeing and reducing stress within workforces (201,202). Accordingly, integration of mindfulness into intervention content may assist in promoting offshore workers' mental wellbeing and ability to manage stress.

7.2.4 Strengths and limitations

The strengths and limitations of each phase of the doctoral research were discussed in the corresponding chapters.   However, in terms of the overall research programme there are additional strengths and limitations which are worth considering. A key strength of the overall research programme was grounded in its originality. Edwards, in a paper on exploring what originality means in the context of research, outlines a number of concepts which relate to originality (203).

Multiple concepts of the aforementioned criteria for originality relate to this research (Figure 7.2). For example, the research produced represented an 'original synthesis' and 'provided knowledge in a new way', as well as 'researching unexplored areas in a discipline'. Relatedly, phase 1 was developed in response to the outcomes of the narrative review (Chapter 2), which highlighted the lack of up-to-date research on health and wellbeing within the offshore workforce.

This ensured that the outcomes of the phase were both relevant and furthered understanding of health, quality of life, mental wellbeing and self care within the offshore workforce.   Phases 2 and 3 were developed to add depth in terms of exploring the determinants of offshore workers' self care behaviours. Such a contribution was novel in the context of the current literature on offshore health and as evidenced in the narrative review, there has been limited qualitative research conducted with the offshore population.
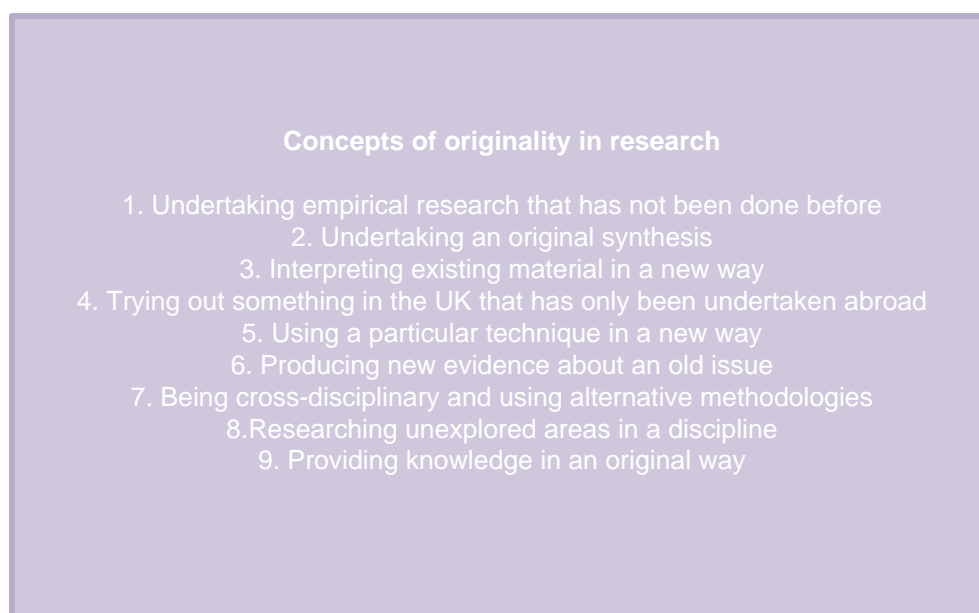
Concepts of originality in research

1. Undertaking empirical research that has not been done before
2. Undertaking an original synthesis
3. Interpreting existing material in a new way
4. Trying out something in the UK that has only been undertaken abroad
5. Using a particular technique in a new way
6. Producing new evidence about an old issue
7. Being cross-disciplinary and using alternative methodologies
8. Researching unexplored areas in a discipline
9. Providing knowledge in an original way

Figure 7. 2 Nine concepts of originality in research (203)

The current research also demonstrated originality in 'using a particular technique in a new way' and by 'being cross-disciplinary and using alternative methodologies' (203). The use of the TDF within research on offshore workers' health and wellbeing is novel and has been previously been unexplored. In a broader sense, the use of theory remains relatively absent from the extant literature on offshore health. The cross-disciplinary nature of the research team, study advisors and expert panel further promoted the originality as it ensured perspectives from pharmacy, health services research, health psychology and offshore medicine were taken into account and represented throughout the research.

The process of triangulating the research from all three phases is an additional strength of the study. Both data and methodological triangulation methods (Chapter 3 Section 3.4.3.1) were undertaken in this research. For example, the findings from all three phases were triangulated, and different methodological approaches were utilised across the research programme. Further, processes of triangulation are perceived to be beneficial in terms of increasing the certainty of research findings particularly if outcomes corroborate across difference sources. For example, the experiences of remote healthcare practitioners reported in this study were perceived to be valuable in corroborating the findings from phase 2 and in offering an alternative perspective.

Integration of the remote healthcare practitioners' perspective, whilst perceived to be valuable in terms of corroborating findings, was also believed to beneficial to enhancing the depth of the data attained. Remote healthcare practitioners play a key role in

influencing offshore workers health and have a unique understanding of health in the workforce. Further, many have direct experience of implementing health promotion in offshore environments, hence are aware of the challenges which may affect delivery and those which contribute to increasing uptake within the workforce.

Although perhaps not a limitation of the research, the shift in outlook within the oil and gas industry is worth considering in the context of the research findings. The oil and gas industry in the UKCS has experienced widespread economic downturn, resulting in companies making compulsory redundancies, since the point at which data collection started. Hence, it is anticipated that data collected before, during and after periods of economic uncertainty may vary in accordance with these fluctuations and may influence findings.

7.2.5 Reflexivity

Reflexivity refers to an awareness by the researcher of how their previous experiences, own values and biases may have contributed to the research in terms of both data collection and any subsequent analysis (94,100). Reflexivity encompasses two components: communicating previous experiences in relation to the research phenomenon, and outlining how previous experiences may influence understanding and interpretation of the phenomenon (100).

In terms of prior experience, the student researcher had a background in social sciences and health services research, and has previously conducted research using quantitative and qualitative approaches, including surveys and telephone interviews. Further, the student researcher had experience of utilising theoretical frameworks in the past to underpin research. Throughout the research, a pragmatist philosophical paradigm was adopted, drawing on both post positivist and constructivist theoretical perspectives. This stance ensured that the research was solution focussed and not restricted to a single philosophy (98,103).

The background of the research may have influenced understanding and interpretation by way of the selection of theory; however, the TDF was selected in an effort to ensure that a broad range of theory was incorporated into the research and to maintain objectivity in terms of selection. Interpretation may have been further influenced by the student researchers' academic experience with regard to analysis of qualitative data. In an effort to minimise the influence of bias, the TDF components of the qualitative data were

independently coded by a health psychologist alongside the student researcher. This secondary analysis ensured that the interviewee voice was authentic and representative.

7.2.6. Using theory to inform the development of an intervention

As outlined in Chapter 3 Section 3.8.1, guidance from the Medical Research Council (MRC), a regulatory body operating in the United Kingdom, on developing complex interventions has highlighted the importance of using behaviour change theory to underpin intervention development. The framework suggests that integration of theory is critical in ensuring robustness in research since it permits determinants of behaviour to be reliably mapped, and intervention content to be tailored accordingly (53). Although the MRC advocates integration of theory into intervention developments, they do not illustrate how this may accomplished.

Michie, Atkins and West (139) propose a theoretically-driven approach to guide intervention design which may assist in overcoming the issues aforementioned. The method incorporates a number of phases and utilises the TDF, COM-B model and the Behaviour Change Taxonomy version 1 (BCT v1) to assist intervention designers in formulation. Adoption of the approach, it is proposed, ensures that interventions are based on a systematic selection process. The following sections will outline each step in the method and describe how the approach may be applied to the current research. Understanding will be discussed in relation to identifying target behaviour(s) and exploring the determinants of behaviour(s).

7.2.6.1 Understand the target behaviour

The first stage of the intervention design approach requires developers to define the problem in behavioural terms. This stage typically involves giving adequate consideration to the population of interest and the target behaviour(s). It is advised that target behaviour(s) should be selected on the basis that they are measurable, tangible and specific. When selecting the target behaviour, developers should be mindful that behaviours frequently occur within a system and thus, any analysis of target intervention behaviours should endeavour to consider relationships between behaviours (139,204).

Step three of the preliminary stage in the intervention design process involves specifying the behaviour targeted for change. The authors suggest that the following aspects are

considered: who needs to perform the behaviour?; what does the person need to do differently to achieve the desired change?; when will they do it?; where will they do it?; how often will they do it?; with whom will they do it? Finally, the analysis should identify what needs to change in both the individual and the environmental context. The TDF (Chapter 3 Section 3.8.2) may be used to enhance understanding of behaviour change in relation to key targets (139,204).

Alternatively, each of the 14 domains of the TDF may be mapped to components of a COM-B model. The COM-B model, comprising the first layer of the Behaviour Change Wheel, identifies capability, opportunity and motivation as being critical, inter-related theoretical components which facilitate enactment of behaviours.   Accordingly, both the COM-B and TDF may be used to assist developers in collecting data to determine the theoretical underpinnings of factors influencing behaviour change (139,204).

7.2.6.2 Understand the target behaviour: the current research

The target behaviour(s)

A number of behaviours were objectively identified as requiring behaviour change within phase 1 of the research and could consequently be considered as potential intervention targets. Phases 2 and 3 also identified key behaviours which offshore workers and remote healthcare practitioners perceived themselves to be critical areas requiring behaviour change.   Three behaviours were identified from the results of each of the three phases as potential intervention targets, and included: increasing healthy eating; increasing physical activity; and reducing hazardous/harmful alcohol use. As evidenced, the findings of the doctoral research suggest that there are multiple behaviours within the offshore workforce which require behaviour change.

Identifying determinants of behaviours and what needs to change

Behavioural determinants for the three behaviours aforementioned were obtained from the analysis of data from phases 2 and 3. Determinants were categorised in accordance with the TDF in an effort to determine a theoretical basis of factors influencing behaviour change across the three self care behaviours. The following will highlight the key determinants and discuss how TDF domains might be applied to the development of a self

care intervention to promote behaviour change with regard to healthy eating, physical activity and alcohol behaviours.

i. Knowledge (healthy eating and alcohol use): strategies may be utilised to increase offshore workers knowledge and awareness of the risks associated with engagement with unhealthy behaviours. For example, increasing offshore workers' awareness of the risks of hazardous alcohol use may reduce their intake.

ii. Skills (physical activity): offshore workers may be encouraged to better manage their time in an effort to equip them with the necessary skills to effectively schedule and plan behaviour change. For example, developing time management skills may enable offshore workers to schedule a gym session whilst they were at work.

iii. Social/professional role and identity (alcohol use): interventions may focus on using strategies which enable offshore workers to overcome masculine stereotypes and identities in an effort to promote behaviour change. For example, strategies which tackle the role of the offshore worker as a "North Sea Tiger" may be addressed and accordingly, alcohol intake may be reduced.

iv. Beliefs about capabilities (healthy eating, physical activity and alcohol use): offshore workers should be supported in a manner which increases their confidence in their own ability to initiate and maintain behaviour change. For example, offshore workers who are confident that they are able to eat healthily at times when they are less motivated will be more likely to engage in behaviour change.

v. Optimism (healthy eating): interventions may focus on reducing the optimism associated with unhealthy behaviours in an effort to facilitate healthier choices. For example, it may be helpful to highlight the risks associated with unhealthy eating in an effort to reduce the optimism associated with engaging with the behaviour.

vi. Beliefs about consequences (healthy eating, physical activity and alcohol use): the positive outcomes associated with engagement with healthy behaviours, and the negative consequences of enacting unhealthy behaviours may also be highlighted. For example, the positive outcomes, e.g. benefits to quality of life, of healthy eating may be emphasised.

vii.   Reinforcement (healthy eating and alcohol use): strategies which counter the positive rewards and outcomes often associated with engaging with an unhealthy behaviour may be incorporated in an effort to reduce engagement. For example, strategies which mitigate the association that offshore workers have between alcohol intake and feeling relaxed may be integrated.

viii. Intentions (healthy eating, physical activity and alcohol use): the stability of offshore workers intentions, e.g. having instable intentions leads to reduced likelihood of engaging with healthy behaviour, should be addressed. Similarly, strategies which promote motivation and resolve should be promoted. For example, methods which motivate offshore workers to engage with physical activity may be employed.

ix.   Goals (healthy eating, physical activity and alcohol use): goal and target-setting strategies may aid offshore workers in facilitating and maintaining behaviour change. For example, offshore works may be encouraged to set goals and targets to increase their physical activity.

x.   Memory, attention and decision processes (healthy eating, physical activity and alcohol use): strategies to support healthy decision making, taking ownership of health and increase willpower may be helpful in facilitating behaviour change. In addition, interventions may wish to tackle the effect of boredom and tiredness on engagement with unhealthy behaviours. For example, offshore workers strategies which reduce tiredness and promote healthy eating may be employed.

xi.   Environmental context and resources (healthy eating, physical activity and alcohol use): aspects of offshore workers' work and home environments may promote behaviour change and intervention may wish to focus on increasing resources to facilitate engagement. Further, aspects of offshore workers' environments may serve as barriers and it may be helpful to address any perceived challenges. For example, gym facilities may be improved to better facilitate offshore workers' engagement with physical activity.

xii.   Social influences (healthy eating, physical activity and alcohol use): strategies may be utilised to reduce the influence of others on engagement with unhealthy behaviours and to increase support from others, e.g. friends, family and colleagues, for behaviour change. For example, offshore workers' family may be involved in supporting offshore workers' healthy eating efforts.

xiii.	Emotion (healthy eating, physical activity and alcohol use): offshore workers may benefit from using techniques to manage their emotions and reduce likelihood of engaging with unhealthy behaviours. For example, offshore workers may be taught strategies to better manage their emotions and reduce alcohol intake.

xiv.	Behavioural regulation (healthy eating, physical activity and alcohol use): strategies may be adopted which assist offshore workers in breaking bad habits and developing action plans to facilitate behaviour change. For example, offshore workers may be encouraged to break their unhealthy eating habits.

7.2.6.3 Identifying intervention content and implementation options

The next phase of the intervention development approach requires identification of the most appropriate behaviour change techniques (BCTs) and mode of delivery.   BCTs are regarded as the active ingredients of interventions and are used to instigate change or facilitate engagement in behaviour.   The BCT v1 is a consultative tool which has synthesised 93 behaviour change techniques into 16 categories, and may be used by intervention developers to assist implementation. For example, it can be used to match domains, identified via a TDF analysis, with the most appropriate BCTs (Table 7.1) (139,205).

In addition, the most appropriate mode of delivery for the intervention should be identified. For example, posters or a mobile phone application may be regarded as a mode of delivery. Selection of BCTs and most appropriate mode of delivery should be based on APEASE criteria.   APEASE criteria refers to affordability (appropriateness of cost), practicability (how practicable the BCT or mode is), effectiveness and cost-effectiveness (evidence-based where appropriate), acceptability (acceptable to those delivering and receiving), side-effects/safety (unintentional outcomes) and equity (in terms of the reach of the intervention) (139).

Table 7.1 TDF domains and corresponding Behaviour Change Techniques (139,205)

TDF domain	BCT
Knowledge	Health consequences
	Biofeedback
	Antecedents
	Feedback on behaviour
Skills	Graded tasks
	Behavioural rehearsal/practice
	Habit reversal
	Body changes
	Habit formation
Beliefs about capabilities	Verbal persuasion to boost self-efficacy
	Focus on past success
Optimism	Verbal persuasion to boost self-efficacy
Beliefs about consequences	Emotional consequences
	Salience of consequences
	Covert sensitisation
	Anticipated regret
	Social and environmental consequences
	Comparative imagining of future outcomes
	Vicarious reinforcement
	Threat
	Pros and cons
	Covert conditioning
Reinforcement	Threat
	Self-reward
	Differential reinforcement
	Incentive
	Thinning
	Negative reinforcement
	Shaping
	Counter conditioning
	Discrimination training
	Material reward
	Social reward
	Non-specific reward
	Response cost
	Anticipation of future rewards or removal of punishment
	Punishment
	Extinction
	Classical conditioning
Intentions	Commitment
	Behavioural contract
Goals	Goal setting (outcome)
	Goal setting (behaviour)
	Review of outcome goal(s)
	Review behaviour goals
	Action planning (including implementation intentions)
Environmental context and resources	Restructuring the physical environment
	Discriminative (learned) cure
	Prompts/cues
	Restructuring the social environment
	Avoidance/changing exposure to cues for the behaviour
Social influences	Social comparison

	Social support or encouragement (general)
	Information about others' approval
	Social support (emotional)
	Social support (practical)
	Vicarious reinforcement
	Restructuring the social environment
	Modelling or demonstrating the behaviour
	Identification of self as role model
	Social reward
Emotion	Reduce negative emotions
	Emotional consequences
	Self-assessment of affective consequences
	Social support (emotional)
Behavioural regulation	Self-monitoring of behaviour

7.2.6.4 Identifying intervention content and implementation options: the current research

Whilst the preliminary stages have identified three behaviours which require behaviour change and explored the behavioural determinants associated with each, further work would be required to develop a broader understanding of the factors affecting offshore workers healthy eating, physical activity and alcohol behaviours. It is anticipated that future work would seek to understand the determinants of offshore workers behaviour on a larger scale. A large scale analysis would ensure that the findings were generalisable to the wider offshore workforce.

As such, the current research did not specify the BCTs that could be used to deliver an intervention. Rather, the domains identified provide an illustration as to potential determinants and may be used as the basis for further exploratory work. Similarly, the most appropriate method of delivery cannot be determined as this stage since the specific BCTs to be included in the intervention are unknown. However, whilst neither BCTs nor the mode of delivery has been decided, there are a number of key considerations which may serve to inform developments in the future.

Firstly, offshore installations and vessels are typically located in remote geographical areas and space on-board is limited. This poses restrictions in terms of both the content of interventions and mode of delivery. For example, traditional methods focusing on face-to-face delivery of behaviour change may prove difficult to implement in a remote environment and may not be helpful in reducing the stigma associated with seeking assistance for health-related issues amongst certain social and occupational groups.

In addition, the transient nature of offshore work often requires personnel to travel to multiple installations or vessels over the course of a year. These sites may be owned by different operating companies and thus, there will be great variation in terms of access to facilities and provisions. Hence, interventions which are either company or location-specific may be limited in terms of their reach, and may fail to adequately capture the target population.

7.3 Future research

The findings of the research suggest that the offshore workforce may benefit from implementation of a self care intervention. Three self care behaviours were identified which were perceived by offshore workers and remote healthcare practitioners to require behaviour change. Whilst the doctoral research has furthered understanding on the determinants of these behaviours, as aforementioned, further work would be required prior to implementing an intervention. The following will outline future work in relation to exploring determinants of offshore workers healthy eating, physical activity and alcohol behaviours; and developing a self care behaviour change intervention in the offshore workforce

7.3.1 Exploring determinants of offshore workers healthy eating, physical activity and alcohol behaviours

The '*understand the target behaviour*' stage (Section 7.5.1) of the intervention development approach outlined prior should be incorporated into a study which seeks to explore determinants of offshore workers self care behaviour in relation to healthy eating, physical activity and alcohol domains. The key associations observed between self care variables and health outcomes in this study should also be used to inform further developments since they highlight the complex interplay between factors. In addition, determinants of behaviour should, in accordance with the '*identifying intervention content and implementation options*' stage (Section 7.5.2), be matched to relevant BCTs and the most appropriate mode of delivery determined.

7.3.1.1 Research question(s)

What are the determinants of offshore workers' self care behaviour in relation to healthy eating, physical activity and alcohol domains?

7.3.1.2 Research philosophy, methodology and methods

A pragmatic approach which utilises a sequential mixed methods methodology (Chapter 3 Section 3.4.3) is recommended. A quantitative cross-sectional survey and qualitative interview should seek to utilise the TDF to facilitate exploration of offshore workers self care behaviour in relation to healthy eating, physical activity and alcohol use.

7.3.2 Developing a self care behaviour change intervention in the offshore workforce

The outcomes of the research aforementioned may be used to enable the development of a self care behaviour change intervention for offshore workers. The intervention should endeavour to target key behavioural determinants, integrate the most appropriate BCTs to facilitate behaviour change with regard to the determinants identified, and utilise the most appropriate mode of delivery. It is likely that the intervention will be complex in nature since it would target multiple behaviours, and thus should be developed in accordance with the guidance issued by the Medical Research Council (Chapter 1 Section 1.6).

Further, prior guidance on developing complex interventions has highlighted the importance of evaluation in determining intervention effectiveness; however, there were no explicit recommendations made on how best to do so. The 'Process evaluation of complex interventions: MRC guidance' document by Moore et al (206) has since outlined a framework to assist in performing a process evaluation. The framework is underpinned by a range of evaluation frameworks and theories, such as realistic evaluation, diffusion of innovations and theory-based evaluation, and seeks to evaluate interventions in terms of (a) implementation, (b) mechanisms of impact, and (c) context.

Implementation is primarily concerned with intervention content and how the intervention is delivered, and is evaluated in terms of fidelity (in terms of the quality of intervention content), dose (in terms of how frequently the intervention is delivered) and reach (in terms of how many individuals from the target population that the intervention reaches). The 'mechanisms of impact' relates to how the intervention works and facilitates change, and the 'context' to any factors which may act as barriers or facilitators to implementation (206). The intervention stage of the research should endeavour to evaluate effectiveness in relation to implementation, mechanisms of impact and context.

7.3.2.1 Research question(s)

Does a self care intervention achieve positive behaviour change in offshore workers?

7.3.2.2 Research philosophy, methodology and methods

A post-positivist approach which utilises an experimental/quasi-experimental methodology (Chapter 3 Section 3.5.1) is recommended. A randomised controlled trial/non-randomised controlled trial/before and after study may be developed in accordance with previous research and administered to a large sample of offshore workers.

7.4 Impact of the research

The Research Councils UK (RCUK) suggests that research impact is the tangible influence that quality research has on society and the economy. Maximising impact may be facilitated by the research process, context and content. Process refers to the utilisation of existing social networks and research contacts to inform policy and practice, and iterative cycle of policy and practice guiding further research (207).

The context refers to the point in time at which research is undertaken. Research conducted at critical points in time and which is informed by current practice and policy will have greater leverage. Content refers to the degree to which the specifics of the research match the context. The impact of the content may be ensured by maintaining connections throughout the research process (207). Impact will be discussed in relation to an impact: key findings and pathways to impact.

7.4.1 Impact: key findings

The impact in relation to key findings has been structured in accordance with what the Economic and Social Research Council recommend for researchers who are reporting on the impact of completed research. Impact is evaluated in terms of: discoveries and developments; original objectives; taking findings forward; and sectors who may potentially be interested (208).

7.4.1.1 Discoveries and developments

The doctoral research generated significant new knowledge on the health of offshore workers. As demonstrated in the narrative review (Chapter 2), understanding of health and wellbeing in the offshore workforce was, at the time of review, outdated, omitted key health concepts and was methodologically restrictive. The doctoral research was developed in light of the findings of this review and was structured to overcome the issues reported.

The research student developed skills in terms of conducting research a large scale project using various methods and in accordance with a theoretical framework. New research networks were made with both external bodies and individuals internal to the university. The networks established ensured that the research was developed with a range of professionals with varying expertise. Further, the research has culminated in the development of a prize winning essay on developing digital self care interventions for remote communities, and to the publication of several other research outputs. The research outputs have included abstracts presented at a range of health conferences in both oral and poster formats.

7.4.1.2 Original objectives

The principal aim of the research, which was to assess the perceived health and self care status of offshore workers, and to identify behavioural determinants associated with engagement in self care, and all of the original objectives pertaining to this were met.

7.4.1.3 Taking findings forward

The research outcomes have enabled the development of an evidence-base on offshore workers' health and self care, and may be taken forward in the manner outlined in Section 7.3. Specifically, the outcomes may be used to inform future exploratory work on self care behaviour in the offshore workforce and the development of an intervention to promote self care amongst offshore workers.

7.4.1.4 Sectors who may potentially be interested

The doctoral research may be of interest to public health, occupational health, implementation science and health psychology sectors.

7.4.2 Pathways to impact

Pathways to impact, a framework used to inform the impact of research, specifies two main pathways. The RCUK advise that researchers consider both the academic and economic and societal impact of their research (207). The doctoral research evidenced academic, economic and societal impact in that it:

i. enhanced the knowledge economy via provision of new knowledge on offshore workers health and self care
ii. used innovative methodologies, equipment, techniques, technologies and cross-disciplinary approaches
iii. contributed towards the health of academic disciplines as evidenced by dissemination of the research via outputs
iv. may lead to the improved health and wellbeing of offshore workers
v. may change organisational culture and practices
vi. may enhance cultural enrichment and quality of life within the offshore workforce
vii. may enhance the effectiveness and sustainability of offshore organisations
viii. increased public engagement with research and related societal issues via research outputs

7.5 Conclusion

The doctoral research has created new knowledge on the health and self care of the offshore workforce by means of a mixed methods approach comprising quantitative survey methods and phenomenological interview methods. The methods generated novel data which may be used to underpin future work in the area. Specifically, the findings have created an evidence-base which may be used to inform additional exploratory work within the offshore workforce and regarding their self care behaviour, eventually, leading to the development of an intervention to promote engagement.

Offshore workers demonstrated positive health and self care across a number of key areas, however, multiple domains were regarded as negative, including:

overweight/obesity; inability to travel offshore; medical evacuation; lack of adherence to five-a-day fruit and vegetable guidelines; physical activity; smoking; hazardous/harmful alcohol use, and insomnia. Further, in-depth exploratory research conducted with offshore workers and remote healthcare practitioners identified a number of additional behaviours. However, the principal focus concerned three behaviours which were perceived important for offshore workers to change.   The behaviours included: healthy eating; physical activity; and alcohol use.

Determinants of the behaviours identified in the penultimate and final phases of the research were analysed using the Theoretical Domains Framework (TDF). A number of domains were identified as determinants of behaviour and thus, have furthered understanding of those factors affecting offshore workers self care behaviours. Further, use of the TDF enables key domains identified to be mapped to behaviour change techniques or active ingredients of interventions. The use of the TDF was perceived to enhance both the depth and value of the research.

Hence, maintaining and improving the health of employees working in remote and hostile offshore environments may be a crucial component in maximizing economic opportunity, ensuring the longevity of the workforce and reducing the occurrence of critical medical incidents. The findings from this research demonstrate that the offshore workforce may benefit from implementation of a self care intervention targeting multiple behaviors. It is advised that intervention development is underpinned by behavior change theory to ensure effectiveness.

8

References

(1) Oil and Gas UK. About the industry: operations. 2016; Available at: http://oilandgasuk.co.uk/knowledgecentre/operations.cfm. Accessed 05/01, 2016.

(2) Oil and Gas Authority. Oil and gas: infrastructure. 2016; Available at: https://www.gov.uk/guidance/oil-and-gas-infrastructure. Accessed 05/05, 2016.

(3) Oil and Gas UK. UK Continental Shelf Offshore Workforce Demographics Report London: Oil and Gas UK; 2015. .

(4) Deacon T, Amyotte P, Khan F. Human error risk analysis in offshore emergencies. Safety Science 2010;48(6):803-818.

(5) Collinson DL. "Shift-ing Lives": Work-Home Pressures in the North Sea Oil Industry. Canadian Review of Sociology/Revue Canadienne de Sociologie 1998; 35(3):301-324.

(6) Parkes K. Offshore working time in relation to performance, health and safety. A review of current practice and evidence. HSE:London; 2010.

(7) Oil and Gas UK. Medical aspects of fitness for work offshore:guidance for examining physicians. 2008.

(8) Ponsonby W, Mika F, Irons G. Offshore industry: medical emergency response in the offshore oil and gas industry. Occupational Medicine 2009; 59(5):298-303.

(9) National Health Service. Healthcare for overseas visitors. 2015; Available at: http://www.nhsinform.co.uk/rights/usingnhs/access/overseas-visitors/overseasworkers/. Accessed 01/01, 2016.

(10) Health and Safety Executive. Health care and first aid on offshore installations and pipeline works. HSE: London; 2016.

(11) Doig M. Offshore workers. In: Palmer KT, Cox RA, Brown I, editors. Fitness for work: the medical aspects Oxford: Oxford University Press; 2007. p. 649-659.

(12) International Association of Oil and Gas Producers. Fitness to work: Guidance for company and contractor health, HSE and HR professionals. London: IPIECA; 2011.

(13) Energy Institute. A Recommended Fitness Standard for the Oil and Gas Industry. SPE European HSE Conference and Exhibition-Health, Safety, Environment and Social Responsibility in the Oil &Gas Exploration; 2013.

(14) Mearns K, Hope L. Health and well-being in the offshore environment: The management of personal health. London: Health and Safety Executive; 2005.

(15) Faculty of Public Health. Organisational options for delivering improved public health. London: OPM; 2004.

(16) Griffiths S, Jewell T, Donnelly P. Public health in practice: The three domains of public health. Public Health 2005; 119(10):907-913.

(17) Department of Health. Choosing health through pharmacy. London: Department of Health; 2005.

(18) The UK Faculty of Public Health. What is public health? 2010; Available at: http://www.fph.org.uk/what_is_public_health Accessed 16/2016, 2016.

(19) The King's Fund. Broader determinants of health. 2016; Available at: http://www.kingsfund.org.uk/time-to-think-differently/trends/broader-determinants-health. Accessed 05/05, 2016.

(20) Marmot M. Social determinants of health inequalities. The Lancet 2005;365(9464):1099-1104.

(21) World Health Organisation. Glossary of terms used. 2016; Available at: http://www.who.int/hia/about/glos/en/index1.html. Accessed 05/05, 2016.

(22) World Health Organisation. Noncommunicable disease. 2015; Available at: http://www.who.int/mediacentre/factsheets/fs355/en/. Accessed 05/05, 2016.

(23) Coulter A. Engaging Patients in Healthcare. Oxford: Picker Institute Europe; 2006.

(24) Wanless D. Securing good health for the whole population. London: HM Treasury 2004;4:2003-2004.

(25) World Health Organization. Self-care in the context of primary health care: report of the regional consultation, Bangkok, Thailand. New Delhi: World Health Organization– Regional Office for South East Asia 2009.

(26) Barlow J. Self-care. International Encyclopaedia of Rehabilitation. Buffalo, NY: Centre for International Rehabilitation Research Information and Exchange (CIRRIE); 2010.

(27) Webber, D., Guo, Z., Mann, S. Self-care in health: we can define it, but should we also measure it? Self Care 2013;4(5):101.

(28) Levin LS, Idler EL. Self-care in health. Annual Review of Public Health 1983;4(1):181-201.

(29) Barofsky I. Compliance, adherence and the therapeutic alliance: steps in the development of self-care. Social Science & Medicine. Part A: Medical Psychology & Medical Sociology 1978;12:369-376.

(30) Segall.A., Goldstein. J. Exploring the correlates of self-provided healthcare behaviour. In: Coburn D, D'Arcy C, Torrance GM. Health and Canadian society: Sociological perspectives. University of Toronto Press; 1998.

(31) Kirk S, Beatty S, Callery P, Milnes L, Pryjmachuk S. Evaluating self-care support for children and young people with long-term conditions. Southampton: NIHR ;2010.

(32) Blenkinsopp A, Holmes J, Mitra G, Pringle M. Joining Up Self-Care: evaluation of a PCT-wide programme of support for self-care. Primary Health Care Research & Development 2009; 10(2):83.

(33) Department of Health. Self-care - a real choice: Self-care - a practical option. London; Department of Health: 2005.

(34) Haly T. Support for self-care in Scotland: how can paramedics advocate the self-care agenda? Journal of Paramedic Practice 2012;4(1):22-27.

(35) Martyn D. The Rethink Self management Project - Summary of Initial Report. UK; Mental Health Foundation:2002.

(36) World Health Organization. The role of the pharmacist in self-care and self-medication. Report of the 4th WHO Consultative Group on the role of the pharmacist. Geneva: World Health Organization 1998.

(37) World Health Organization. Health education in self-care: Possibilities and limitations. Geneva: World Health Organization; 1984.

(38) Naylor C, et al. Transforming our healthcare system. London: The King's Fund 2015.

(39) Halligan A, Cullen R, Squire S, Hill P. The expert patients programme. Clinical Governance: An International Journal 2006; 11(1):17-21.

(40) Department of Work and Pensions. Improving health and work: changing lives. London: Department of Work and Pensions; 2008.

(41) National Institute for Health and Care Excellence. Promoting physical activity in the workplace: full guidance. London: NICE; 2008.

(42) National Institute for Health and Care Excellence. Workplace interventions to promote smoking cessation: guidance. London: NICE; 2007.

(43) National Institute for Health and Care Excellence. Workplace interventions: alcohol and diet. London: NICE; 2004.

(44) National Institute for Health and Care Excellence. Promoting mental wellbeing at work. London: NICE; 2009.

(45) Anderson LM, Quinn TA, Glanz K, Ramirez G, Kahwati LC, Johnson DB, et al. The effectiveness of worksite nutrition and physical activity interventions for controlling employee overweight and obesity: a systematic review. American Journal of Preventive Medicine 2009;37(4):340-357.

(46) van Dongen JM, Proper KI, van Wier MF, van der Beek, Allard J, Bongers PM, van Mechelen W, et al. A systematic review of the cost-effectiveness of worksite physical activity and/or nutrition programs. Scandinavian Journal of Work and Environmental Health 2012;38(5):393-408.

(47) Malik SH, Blake H, Suggs LS. A systematic review of workplace health promotion interventions for increasing physical activity. British Journal of Health Psychology 2014; 19(1):149-180.

(48) Maes L, Van Cauwenberghe E, Van Lippevelde W, Spittaels H, De Pauw E, Oppert J, et al. Effectiveness of workplace interventions in Europe promoting healthy eating: a systematic review. The European Journal of Public Health 2012; 22(5):677-683.

(49) Chau JY, van der Ploeg, Hidde P, Van Uffelen JG, Wong J, Riphagen I, Healy GN, et al. Are workplace interventions to reduce sitting effective? A systematic review. Preventive Medicine 2010; 51(5):352-356.

(50) Tveito TH, Hysing M, Eriksen HR. Low back pain interventions at the workplace: a systematic literature review. Occupational Medicine (London) 2004 Jan;54(1):3-13.

(51) Martin A, Sanderson K, Cocker F. Meta-analysis of the effects of health promotion intervention in the workplace on depression and anxiety symptoms. Scandinavian Journal of Work and Environmental Health 2009:7-18.

(52) Weisberg HI, Hayden VC, Pontes VP. Selection criteria and generalizability within the counterfactual framework: explaining the paradox of antidepressant-induced suicidality? Clinical Trials 2009 Apr;6(2):109-118.

(53) Craig P, Dieppe P, Macintyre S, Michie S, Nazareth I, Petticrew M. Developing and evaluating complex interventions: the new Medical Research Council guidance. British Medical Journal 2008;337.

(54) Collins JA, Fauser BC. Balancing the strengths of systematic and narrative reviews. Human Reproduction Update 2005 Mar-Apr;11(2):103-104.

(55) Uman LS. Systematic reviews and meta-analyses. Journal of the Canadian Academy ofChild and Adolescent Psychiatry 2011 Feb;20(1):57-59.

(56) MacLure K, Paudyal V, Stewart D. Reviewing the literature, how systematic is systematic? International Journal of Clinical Pharmacy 2016:1-10.

(57) Green BN, Johnson CD, Adams A. Writing narrative literature reviews for peer-reviewed journals: secrets of the trade. Journal of Chiropractic Medicine 2006;5(3):101-117.

(58) Rother ET. Systematic literature review X narrative review. Acta Paulista de Enfermagem 2007;20(2):v-vi.

(59) Health and Safety Executive. What is stress? 2012; Available at: http://www.hse.gov.uk/stress/furtheradvice/whatisstress.htm. Accessed 10/01, 2015.

(60) World Health Organisation. Mental health: a state of wellbeing. 2014; Available at: http://www.who.int/features/factfiles/mental_health/en/. Accessed 10/01, 2015.

(61) World Health Organisation. Obesity and overweight. 2015; Available at: http://www.who.int/mediacentre/factsheets/fs311/en/. Accessed 02/20, 2015.

(62) World Health Organisation. DIet. 2015; Available at: http://www.who.int/topics/diet/en/. Accessed 02/20, 2015.

(63) World Health Organisation. Physical activity. 2015; Available at: http://www.who.int/topics/physical_activity/en/. Accessed 02/20, 2015.

(64) World Health Organisation. Musculoskeletal disorder. 2015; Available at: http://www.hse.gov.uk/msd/. Accessed 02/20, 2015.

(65) Vyas MV, Garg AX, Iansavichus AV, Costella J, Donner A, Laugsand LE, et al. Shift work and vascular events: systematic review and meta-analysis. British Medical Journal 2012 Jul 26;345:e4800.

(66) Bjerkan AM. Work and health: A comparison between Norwegian onshore and offshore employees. Work 2011;40(2):125-142.

(67) Wong TW, Chen WQ, Yu TS, Lin YZ, Cooper CL. Perceived sources of occupational stress among Chinese off-shore oil installation workers. Stress Health 2002 2002;18(5):217-226.

(68) Chen WQ, Wong TW, Yu TS, Lin YZ, Cooper CL. Determinants of perceived occupational stress among Chinese offshore oil workers. Work Stress 2003 2003;17(4):287-305.

(69) Chen WQ, Yu IT, Wong TW. Impact of occupational stress and other psychosocial factors on musculoskeletal pain among Chinese offshore oil installation workers. Occupational and Environmental Medicine 2005 04;62(4):251-256.

(70) Chen W, Wong TW, Yu IT. Association of occupational stress and social support with health-related behaviors among Chinese offshore oil workers. Journal of Occupationa lHealth 2008;50(3):262-269.

(71) Chen W, Wong T, Yu T. Direct and Interactive Effects of Occupational Stress and Coping on Ulcer-Like Symptoms Among Chinese Male off-Shore Oil Workers. American Journal of Industrial Medicine 2009;52(6):500-508.

(72) Rundmo T. Perceived risk, safety status, and job stress among injured and noninjured employees on offshore petroleum installations. Journal of Safety Research 1995;26(2):87-97.

(73) Nielsen MB, Mearns K, Matthiesen SB, Eid J. Using the job demands–resources model to investigate risk perception, safety climate and job satisfaction in safety critical organizations. Scandinavian Journal of Psychology 2011;52(5):465-475.

(74) Ulleberg P, Rundmo T. Job stress, social support, job satisfaction and absenteeism among offshore oil personnel. Work Stress 1997;11(3):215-228.

(75) Ljoså CH, Tyssen R, Lau B. Mental distress among shift workers in Norwegian offshore petroleum industry—relative influence of individual and psychosocial work factors. Scandinavian Journal of Work and Environmental Health 2011:551-555.

(76) Nielsen MB, Tvedt SD, Matthiesen SB. Prevalence and occupational predictors of psychological distress in the offshore petroleum industry: a prospective study. International Archives of Occupational and Environmental Health 2013 11;86(8):875-885.

(77) Civil Aviation Authority. CAP 789 Requirements and guidance material for operators. London: CAA;2011;2.

(78) Parkes KR. Demographic and lifestyle predictors of body mass index among offshore oil industry workers: cross-sectional and longitudinal findings. Occupational Medicine-Oxford 2003;53(3):213-221.

(79) Mearns, K., Hope, L., Reader, K. Health and well-being in the offshore environment: The role of organisational support. London: HSE; 2006;RR376.

(80) Horsley, H., MacKenzie, I. Lifestyle survey amongst north sea oil workers. 1996.

(81) Bell JA, Hamer M, Batty GD, Singh-Manoux A, Sabia S, Kivimaki M. Combined effect of physical activity and leisure time sitting on long-term risk of incident obesity and metabolic risk factor clustering. Diabetologia 2014;57(10):2048-2056.

(82) Health and Safety Executive. Back pain and musculoskeletal disorders. 2014; Available at: http://www.hse.gov.uk/cleaning/backpain.htm. Accessed 13/12, 2014.

(83) Norman JN. A comparison of the patterns of illness and injury occurring on offshore structures in the northern North Sea and the stations of the British Antarctic Survey. Arctic Medical Research 1991;Suppl:719-721.

(84) Morken T, Mehlum IS, Moen BE. Work-related musculoskeletal disorders in Norway's offshore petroleum industry. Occuaptional Medicine (London) 2007 ;57(2):112-117.

(85) World Health Organisation. WHO report on the global tobacco epidemic. 2013(December).

(86) Parkes KR. Shift schedules on North Sea oil/gas installations: A systematic review of their impact on performance, safety and health. Safety Science 2012 8;50(7):1636-1651.

(87) Fossum IN, Bjorvatn B, Waage S, Pallesen S. Effects of Shift and Night Work in the Offshore Petroleum Industry: A Systematic Review. Industrial Health 2013;51(5):530-544.

(88) Waage S, Moen BE, Pallesen S, Eriksen HR, Ursin H, Akerstedt T, et al. Shift work disorder among oil rig workers in the North Sea. Sleep 2009;32(4):558-565.

(89) Waage S, Harris A, Pallesen S, Saksvik IB, Moen BE, Bjorvatn B. Subjective and objective sleepiness among oil rig workers during three different shift schedules. Sleep Medicine 2012 01;13(1):64-72.

(90) Waage S, Pallesen S, Moen BE, Bjorvatn B. Sleep and Health in Oil Rig Workers-Before and After a Two Week Work Period Offshore. Industrial Health 2013;51(2):172-179.

(91) Bowling A. Research methods in health: investigating health and health services.UK : McGraw-Hill Education; 2014.

(92) Department of Health. Reducing Harmful Drinking. London: Department of Health; 2013.

(93) Bryman A. Social research methods. Oxford: Oxford University Press; 2012.

(94) Creswell J, Research Design: qualitative, quantitative and mixed methods approaches. 4th ed. London: SAGE; 2014.

(95) Plano Clark V, Creswell J. Designing and conducting mixed methods research. London: SAGE; 2011.

(96) Dures E, Rumsey N, Morris M, Gleeson K. Mixed methods in health psychology: theoretical and practical considerations of the third paradigm. Journal of Health Psychology 2011;16(2):332-341.

(97) Johnson RB, Onwuegbuzie AJ. Mixed methods research: A research paradigm whose time has come. Educational Researcher 2004;33(7):14-26.

(98) Teddlie C, Tashakkori A. Foundations of mixed methods research: Integrating quantitative and qualitative approaches in the social and behavioral sciences. : Sage Publications Inc; 2009.

(99) Johnson RB, Onwuegbuzie AJ, Turner LA. Toward a definition of mixed methods research. Journal of mixed methods research 2007;1(2):112-133.

(100) Creswell JW. Qualitative inquiry and research design: Choosing among five approaches. London: Sage; 2012.

(101) Alvesson M, Sköldberg K. Reflexive methodology: New vistas for qualitative research. London: Sage; 2009.

(102) Hesse-Biber SN, Leavy P. The practice of qualitative research. London: Sage; 2010.

(103) Feilzer MY. Doing mixed methods research pragmatically: Implications for the rediscovery of pragmatism as a research paradigm. Journal of mixed methods research 2010;4(1):6-16.

(104) Bishop FL. Using mixed methods research designs in health psychology: An illustrated discussion from a pragmatist perspective. British journal of health psychology 2015;20(1):5-20.

(105) Denzin NK. The research act: A theoretical introduction to research methods. New York: McGraw-Hill;1978.

(106) Bowling A, Ebrahim S. Handbook of health research methods: investigation, measurement and analysis. New York: McGraw-Hill International; 2005.

(107) Sánchez-Fernández J, Muñoz-Leiva F, Montoro-Ríos FJ. Improving retention rate and response quality in Web-based surveys. Computers in Human Behaviour2012;28(2):507-514.

(108) Sills SJ, Song C. Innovations in survey research an application of web-based surveys. Social Science Computer Review 2002;20(1):22-30.

(109) Nicolaas G, Calderwood L, Lynn P, Roberts C. Web Surveys for the General Population: How, why and when? London: National Centre for Research Methods; 2014.

(110) van Gelder MM, Bretveld RW, Roeleveld N. Web-based questionnaires: the future in epidemiology? American Journal of Epidemiology 2010 1;172(11):1292-1298.

111) Booth-Kewley S, Larson GE, Miyoshi DK. Social desirability effects on computerized and paper-and-pencil questionnaires. Computers in Human Behaviour 2007;23(1):463-477.

(112) Kvale S. Dominance through interviews and dialogues. Qualitative inquiry 2006;12(3):480-500.

(113) Breakwell G, Hammond S, Fife-Schaw C, Smith J. Research methods in psychology. London: SAGE; 2006.

(114) Gilbert N. Researching social life. London: Sage; 2008.

(115) Novick G. Is there a bias against telephone interviews in qualitative research? Research in Nursing and Health 2008;31(4):391-398.

(116) Sturges JE, Hanrahan KJ. Comparing telephone and face-to-face qualitative interviewing: a research note. Qualitative Research 2004;4(1):107-118.

(117) Silverman D. Interpreting qualitative data: A guide to the principles of qualitative research. Los Angeles, CA: Sage; 2011.

(118) Lapadat JC. Problematizing transcription: Purpose, paradigm and quality. International Journal of Social Research Methodology 2000;3(3):203-219.

(119) From the past into the future. How technological developments change our ways of data collection, transcription and analysis. Forum Qualitative Sozialforschung/Forum: Qualitative Social Research; 2011.

(120) Heyvaert M, Maes B, Onghena P. Mixed methods research synthesis: definition, framework, and potential. Quality & Quantity 2013;47(2):659-676.

(121) Ritchie J, Lewis J, Nicholls CM, Ormston R. Qualitative research practice: A guide for social science students and researchers. London: Sage; 2013.

(122) Gale NK, Heath G, Cameron E, Rashid S, Redwood S. Using the framework method for the analysis of qualitative data in multi-disciplinary health research. BMC medical research methodology 2013;13(1):117.

(123) Smith J, Firth J. Qualitative data analysis: the framework approach. Nurse Researcher 2011;18(2):52-62.

(124) Tashakkori A, Teddlie C. Handbook of mixed methods in social & behavioral research. London: Sage; 2003.

(125) Coolican H. Research methods and statistics in psychology. London: Psychology Press; 2014.

(126) Howitt D, Cramer D. Introduction to research methods in psychology. London: Pearson Education; 2007.

(127) Charmaz K. Constructing grounded theory: A practical guide through qualitative analysis (Introducing Qualitative Methods Series). London: Sage; 2006.

(128) Guest G, Bunce A, Johnson L. How many interviews are enough? An experiment with data saturation and variability. Field methods 2006;18(1):59-82.

(129) Francis JJ, Johnston M, Robertson C, Glidewell L, Entwistle V, Eccles MP, et al. What is an adequate sample size? Operationalising data saturation for theory-based interview studies. Psychology and Health 2010;25(10):1229-1245.

(130) Field A. Discovering statistics using SPSS. London: Sage; 2009.

(131) Shenton AK. Strategies for ensuring trustworthiness in qualitative research projects. Education and Information Technologies 2004;22(2):63-75.

(132) Guba EG, Lincoln YS. Naturalistic and rationalistic enquiry. Educational research, methodology and measurement: An international handbook 1988:81-85.

(133) Krefting L. Rigor in qualitative research: The assessment of trustworthiness. American journal of occupational therapy 1991;45(3):214-222.

(134) Stewart D, Klein S. The use of theory in research. International journal of clinical pharmacy 2015:1-5.

(135) Francis JJ, O'Connor D, Curran J. Theories of behaviour change synthesised into a set of theoretical groupings: introducing a thematic series on the theoretical domains framework. Implementation Science 2012 04/24;7:35-35.

(136) Cane J, O'Connor D, Michie S. Validation of the theoretical domains framework for use in behaviour change and implementation research. Implementation Science 2012 04/24; 2014/05/22;7(1).

(137) Michie S, Johnston M, Abraham C, Lawton R, Parker D, Walker A, et al. Making psychological theory useful for implementing evidence based practice: a consensus approach. BMJ Quality and Safety 2005 Feb;14(1):26-33.

(138) Little EA, Presseau J, Eccles MP. Understanding effects in reviews of implementation interventions using the Theoretical Domains Framework. Implementation Science 2015 Jun 17;10:90-015-0280-7.

(139) Michie S, Atkins L, West R. The Behaviour Change Wheel: A Guide To Designing Interventions. 2014. Great Britain: Silverback Publishing 2015.

(140) Tennant R, Hiller L, Fishwick R, Platt S, Joseph S, Weich S, et al. The Warwick-Edinburgh Mental Well-being Scale (WEMWBS): development and UK validation. Health and Quality of Life Outcomes 2007;5:63.

(141) The Scottish Government. Scottish Index of Multiple Deprivation. 2012. Available at: http://www.gov.scot/Topics/Statistics/SIMD/GuidanceAnal. Accessed 12/13, 2013

(142) Low L, Law JP, Hodson J, McAlpine R, O'Colmain U, MacEwen C. Impact of socioeconomic deprivation on the development of diabetic retinopathy: a population-based, cross-sectional and longitudinal study over 12 years. British Medical Journal Open 2015 Apr 15;5(4):e007290-2014-007290.

(143) Ware J, Kosinski M, Dewey J, Gandek B. A manual for users of the SF-8 Health Survey. Lincoln, RI: Quality Metric Incorporated 2001:4-19.

(144) Macdiarmid J. I, et al. What factors impact health related quality of life in professional divers and offshore workers? The Elithi Diving Study. European Underwater and Baromedical Society Adjaccio, Corsica; 2004.

(145) The Scottish Government. The Scottish Health Survey. Edinburgh: The Scottish Government; 2014.

(146) Centers for Disease Control and Prevention. Division of Nutrition, Physical Activity and Obesity. 2015; Available at: http://www.cdc.gov/healthyweight/assessing/bmi/adult_bmi/. Accessed 01/01, 2015.

(147) Department of Health. Public Attitudes to Self Care Baseline Survey. London: Department of Health. 2005.

(148) Sousa VD, Zauszniewski JA, Bergquist-Beringer S, Musil CM, Neese JB, Jaber AF. Reliability, validity and factor structure of the Appraisal of Self-Care Agency Scale–Revised (ASAS-R). Journal of Evaluation in Clinical Practice 2010;16(6):1031-1040.

(149) Hodgson R, Alwyn T, John B, Thom B, Smith A. The FAST Alcohol Screening Test. Alcohol 2002;37(1):61-66.

(150) Fitzgerald N, McCaig DJ, Watson H, Thomson D, Stewart DC. Development, implementation and evaluation of a pilot project to deliver interventions on alcohol issues in community pharmacies. International Journal of Pharmacy Practice 2008;16(1):17-22.

(151) Richardson D, Cavill N, Ells L, Roberts K. Measuring diet and physical activity in weight management interventions: a briefing paper. National Obesity Observatory 2011.

(152) Roberts K, et al. A review and needs assessment of local level diet and nutrition data. East Midlands: East Midlands Public Health Observatory; 2008.

(153) Ashfield-Watt P, Welch A, Godward S, Bingham S. Effect of a pilot community intervention on fruit and vegetable intakes: use of FACET (Five-a-day Community Evaluation Tool). Public Health and Nutrition 2007;10(07):671-680.

(154) National Health Service. 5 A Day: what counts? 2013; Available at: http://www.nhs.uk/Livewell/5ADAY/Pages/Whatcounts.aspx. Accessed 01/05, 2015.

(155) World Health Organization, Centers for Disease Control. Tobacco questions for surveys: a subset of key questions from the Global Adult Tobacco Survey (GATS): global tobacco surveillance system. 2011.

(156) Palipudi KM, Morton J, Hsia J, Andes L, Asma S, Talley B, et al. Methodology of the Global Adult Tobacco Survey -- 2008-2010. Global Health Promotion 2013.

(157) Booth ML, Ainsworth BE, Pratt M, Ekelund U, Yngve A, Sallis JF, et al. International physical activity questionnaire: 12-country reliability and validity. Medicine and Science in Sports and Exercise2003;195(9131/03):3508-1381.

(158) NHS. Physical activity guidelines for adults. 2015; Available at: http://www.nhs.uk/Livewell/fitness/Pages/physical-activity-guidelines-for-adults.aspx. Accessed 06/01, 2015.

(159) Silsbury Z, Goldsmith R, Rushton A. Systematic review of the measurement properties of self-report physical activity questionnaires in healthy adult populations. British Medial Journal Open 2015;5(9):e008430.

(160) Meriwether RA, McMahon PM, Islam N, Steinmann WC. Physical activity assessment: validation of a clinical assessment tool. American Journal of Preventive Medicine 2006;31(6):484-491.

(161) Brown KW, Ryan RM. The benefits of being present: mindfulness and its role in psychological well-being. Journal of Personality and Social Psychology 2003;84(4):822.

(162) The 2-item and 20-item versions of the Pittsburgh Insomnia Rating Scale (PIRS): Design, methods and initial modelling. Annual Meeting of the World Psychiatric Association; 2009.

(163) Smith PC, Schmidt SM, Allensworth-Davies D, Saitz R. A single-question screening test for drug use in primary care. Arch Intern Med 2010;170(13):1155-1160.

(164) Bowling A. Research methods in health. : Open University Press Maidenhead; 2009.

(165) Darker CD, French DP. What sense do people make of a theory of planned behaviour questionnaire?: a think-aloud study. Journal of Health Psychol ogy2009 Oct;14(7):861-871.

(166) Van Oort L, Schröder C, French D. What do people think about when they answer the Brief Illness Perception Questionnaire? A 'think-aloud'study. British journal of health psychology 2011;16(2):231-245.

(167) French DP, Cooke R, McLean N, Williams M, Sutton S. What do people think about when they answer theory of planned behaviour questionnaires? A 'think aloud' study. Journal of Health Psychol ogy2007;12(4):672-687.

(168) Wood E, Nosko A, Desmarais S, Ross C, Irvine C. Online and traditional paper-and-pencil survey administration: Examining experimenter presence, sensitive material and long surveys. The Canadian Journal of Human Sexuality 2006;15.

(169) Edwards PJ, Roberts I, Clarke MJ, DiGuiseppi C, Wentz R, Kwan I, et al. Methods to increase response to postal and electronic questionnaires. The Cochrane Library 2009.

(170) Deutskens E, De Ruyter K, Wetzels M, Oosterveld P. Response rate and response quality of internet-based surveys: An experimental study. Mark Lett 2004;15(1):21-36.

(171) Cook C, Heath F, Thompson RL. A meta-analysis of response rates in web-or internet-based surveys. Educational and psychological measurement 2000;60(6):821-836.

(172) Cohen J. A power primer. Psychology Bulletin 1992;112(1):155.

(173) Allison PD. Multiple imputation for missing data: A cautionary tale Sociological Methods and Research 1999 28(3): 301-309.

(174) Roth PL. Missing data: A conceptual review for applied psychologists. Person Psychol 1994;47(3):537-560.

(175) Parliament B. Data protection act of 1998 1998.

(176) De Vaus D. Surveys in social research. : Routledge; 2013.
(177) Shih T, Fan X. Comparing response rates from web and mail surveys: A meta-analysis. Field methods 2008;20(3):249-271.

(178) Riethmeister V, Brouwer S, van der Klink J, Bültmann U. Work, eat and sleep: towards a healthy ageing at work program offshore. BMC Public Health 2016;16(1):1.

(179) Department of Health. Long term conditions compendium of information. London: Department of Health; 2012.

(180) Joshi AV, Madhavan SS, Ambegaonkar A, Smith M, Scott V, Dedhia H. Association of medication adherence with workplace productivity and health-related quality of life in patients with asthma. Journal of Asthma 2006;43(7):521-526.

(181) Thibodaux DP, Bourgeois RM, Loeppke RR, Konicki DL, Hymel PA, Dreger M. Medical evacuations from oil rigs off the Gulf Coast of the United States from 2008 to 2012: reasons and cost implications. Journal of Occupational and Environmental Medicine 2014 l;56(7):681-685.

(182) Norman J, Ballantine B, Brebner J, Brown B, Gauld S, Mawdsley J, et al. Medical evacuations from offshore structures. Br J Ind Med 1988;45(9):619-623.

(183) Lauvsnes AD. Safety, Reliability and Risk Analysis Beyond the Horizon. USA: CRC Press; 2013.

(184) Sneddon A, Mearns K, Flin R. Stress, fatigue, situation awareness and safety in offshore drilling crews. Safety Science 2013;56:80-88.

(185) Buck D, Frosini F. Clustering of unhealthy behaviours over time. London: The King's Fund; 2012.

(186) King K, Meader N, Wright K, Graham H, Power C, Petticrew M, et al. Characteristics of interventions targeting multiple lifestyle risk behaviours in adult populations: a systematic scoping review. PloS one 2015;10(1):e0117015.

(187) Shain M, Kramer DM. Health promotion in the workplace: framing the concept; reviewing the evidence. Occupational and Environmental Medicine 2004;61(7):643-8, 585.

(188) Francis JJ, Tinmouth A, Stanworth SJ, Grimshaw JM, Johnston M, Hyde C, et al. Using theories of behaviour to understand transfusion prescribing in three clinical contexts in two countries: development work for an implementation trial. Implementation Science 2009 10/24;4:70-70.

(189) Bussières AE, Al Zoubi F, Quon JA, Ahmed S, Thomas A, Stuber K, et al. Fast tracking the design of theory-based KT interventions through a consensus process. Implementation Science 2015;10:18.

(190) Louise Barriball K, While A. Collecting Data using a semi-structured interview: a discussion paper. Journal of Advanced Nursing, 1994;19(2):328-335.

(191) Geving IH, Jørgensen KU, Thi MSL, Sandsund M. Physical activity levels among offshore fleet seafarers. International Maritime Health 2007;58(1-4):103-114.

(192) Mearns K, Fenn C. Diet, Health and the Offshore Worker: A Pilot Study. London: HSE Books; 1994.

(193) Lukasiewicz E, Mennen LI, Bertrais S, Arnault N, Preziosi P, Galan P, et al. Alcohol intake in relation to body mass index and waist-to-hip ratio: the importance of type of alcoholic beverage. Public Health and Nutrition 2005;8(3):315.

(194) NHS Choices. Obesity. 2014; Available at: http://www.nhs.uk/conditions/Obesity/Pages/Introduction.aspx. Accessed 05/05, 2016.

(195) Prochaska JJ, Prochaska JO. A review of multiple health behavior change interventions for primary prevention. American journal of lifestyle medicine 2011;5(3):208-221.

(196) Dale H, Brassington L, King K. The impact of healthy lifestyle interventions on mental health and wellbeing: a systematic review. Mental Health Review Journal 2014;19(1):1-26.

(197) Stranges S, Samaraweera PC, Taggart F, Kandala NB, Stewart-Brown S. Major health-related behaviours and mental well-being in the general population: the Health Survey for England. BMJ Open 2014 Sep 19;4(9):e005878-2014-005878.

(198) Jane-Llopis E, Jané-Llopis E, Matytsina I, Jané-Llopis E, Matytsina I. Mental health and alcohol, drugs and tobacco: a review of the comorbidity between mental disorders and the use of alcohol, tobacco and illicit drugs. Drug Alcohol Review. 2006;25(6):515-536.

(1999) Office for National Statistics. Suicides in the United Kingdom: 2014 registrations.

(200) 2016. British Broadcasting Corporation. Oil workers urged to seek help over mental health amid downturn. 2016; Available at: http://www.bbc.co.uk/news/uk-scotland-north-east-orkney-shetland-35311277. Accessed 02/02, 2016.

(201) Shapiro SL, Astin JA, Bishop SR, Cordova M. Mindfulness-based stress reduction for health care professionals: results from a randomized trial. International Journal of Stress Management 2005;12(2):164.

(202) Aikens KA, Astin J, Pelletier KR, Levanovich K, Baase CM, Park YY, et al. Mindfulness goes to work: impact of an online workplace intervention. Jouranl of Occupational and Environmental Med icine. 2011;56(7):721-731.

(203) Edwards M. What does originality in research mean? A student's perspective. Nurse researcher 2014;21(6):8-11.

(204) Atkins L, Michie S. Changing eating behaviour: what can we learn from behavioural science? Nutrition Bulletin 2013;38(1):30-35.

(205) Cane J, Richardson M, Johnston M, Ladha R, Michie S. From lists of behaviour change techniques (BCTs) to structured hierarchies: Comparison of two methods of developing a hierarchy of BCTs. British Journal of Health Psychology 2014 05/01.

(206) Moore GF, Audrey S, Barker M, Bond L, Bonell C, Hardeman W, et al. Process evaluation of complex interventions: Medical Research Council guidance. BMJ 2015;350:h1258.

(207) Research Councils United Kingdom. Pathways to Impact. 2016; Available at: http://www.rcuk.ac.uk/innovation/impacts/. Accessed 05/05, 2016.

(211) Economic and Social Research Council. Reporting guidance. 2016; Available at: http://www.esrc.ac.uk/funding/guidance-for-grant-holders/reporting-guidance/. Accessed 05/05, 2016.

9

Appendices

List of Appendices

Chapter 4 Appendices

Appendix 4.1

Questionnaire

A STUDY ON THE HEALTH AND LIFESTYLE OF OFFSHORE WORKERS

You are being invited to take part in a research study. It is important that you understand the purpose of the research and what it will involve. Please take the time to read through the following information carefully before you make a decision. Feel free to ask any questions or request further information (*k.l.gibson@rgu.ac.uk* or *01224 263105*). If you wish, please talk to others about the study.

What is the purpose of this study? The aim of this study is to understand the health and lifestyle choices of offshore workers.

Why have I been selected? We will be approaching offshore workers who are in attendance at a number of Petrofac training course and who have recently stayed, and worked on an offshore installation.

What will happen to me if I take part? If you do decide to take part, we will send a link to the email address you provided and will ask you to complete an online questionnaire about your health and lifestyle. The questionnaire is estimated to take around **20 minutes** to complete. After completing the questionnaire you will be asked if you would like to take part in a telephone interview. If you do wish to receive further information on the interview phase of the research please complete the section at the end of the questionnaire.

Will my taking part in this study be kept confidential? Yes, all information collected about you will be made anonymous before it is analysed. You will not be named in any reports or publications associated with the study. Your information will not be passed on to your employer or training provider. Your name and email address will be stored temporarily on a database used to send you an email containing a link to the questionnaire. Your contact information will be destroyed after we send you a reminder email. We will only require you to leave your name if you choose to participate in the prize draw or interview.

Do I have to take part? No, it is up to you whether you take part or not. If you choose to take part, you will be asked to keep this information sheet and complete a short online questionnaire. You are free to withdraw from this study at any point and do not need to give us a reason for your decision. Your participation will not affect your employment or your relationship with your employer.

What are the possible benefits of you taking part? There is no direct benefit to you from taking part in the research. The research might help us understand the health needs of offshore workers.

Who is organising and funding the research? The study is funded by the Institute of Health and Wellbeing at Robert Gordon University.

Who has reviewed the study? This study has been approved by the Ethical Review panel of the School of Pharmacy and Life Sciences at Robert Gordon University.

<u>**RESEARCH TEAM**</u>

Research Student: Katie Gibson (*k.l.gibson@rgu.ac.uk*)
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GENERAL INFORMATION

This section of the questionnaire will ask you some general questions about you. All responses will remain confidential.

Where are you completing this questionnaire?

--Click Here-- ▼
Onshore
Offshore

What is your age in years?

[   ]

Are you?

--Click Here-- ▼
Male
Female

What is your height?

[   ]

Is this in metres or feet and inches

--Click Here-- ▼
Metres
Feet and inches

What is your weight?

[   ]

Is this in kg or stones and pounds?

--Click Here-- ▼
Kg
Stones and pounds

What is your home postcode?

[   ]

Are you currently?

--Click Here-- ▼

Single
Married/In a Civil Partnership
Divorced
Widowed

When onshore, do you live alone?

--Click Here-- ▼

Yes
No

What is your highest level of education?

--Click Here-- ▼

University
College
Secondary School
Other (please state below)

If you selected other, please provide details of your highest level of education.

What is your ethnic group?

--Click Here-- ▼

White
Asian
Black
Other ethnic group

If you selected other, please provide details of your ethnic group?

What is your nationality?

--Click Here--

Afghanistan
Albania
Algeria
Andorra
Angola
Antigua and Barbuda
Argentina
Armenia
Aruba
Australia
Austria
Azerbaijan
Bahamas, The
Bahrain
Bangladesh
Barbados
Belarus
Belgium
Belize
Benin
Bhutan
Bolivia
Bosnia and Herzegovina
Botswana
Brazil
Brunei
Bulgaria
Burkina Faso
Burma
Burundi
Cambodia
Cameroon
Canada
Cape Verde
Central African Republic
Chad
Chile
China
Colombia
Comoros
Congo, Democratic Republic of
Congo, Republic of
Costa Rica
Cote d'Ivoire
Croatia
Cuba
Curacao
Cyprus
Czech Republic
Denmark
Djibouti
Dominica
Dominican Republic
East Timor
Ecuador
Egypt

What is your nationality?

El Salvador
Equatorial Guinea
Eritrea
Estonia
Ethiopia
Fiji
Finland
France
Gabon
Gambia, The
Georgia
Germany
Ghana
Greece
Grenada
Guatemala
Guinea
Guinea-Bissau
Guyana
Haiti
Holy See
Honduras
Hong Kong
Hungary
Iceland
India
Indonesia
Iran
Iraq
Ireland
Israel
Italy
Jamaica
Japan
Jordan
Kazakhstan
Kenya
Kiribati
Korea, North
Korea, South
Kosovo
Kuwait
Kyrgystan
Laos
Latvia
Lebanon
Lesotho
Liberia
Libya
Liechtenstein
Luthuania
Luxembourg
Macau
Macedonia
Madagascar

What is your nationality?

Malawi
Malaysia
Maldives
Mali
Malta
Marshall Islands
Mauritania
Mauritius
Mexico
Micronesia
Moldova
Monaco
Mongolia
Montenegro
Morroco
Mozambique
Namibia
Nauru
Nepal
Netherlands
Netherlands Antilles
New Zealand
Nicaragua
Niger
Nigeria
North Korea
Norway
Oman
Pakistan
Palau
Palestinian Territories
Panama
Papua New Guinea
Paraguay
Peru
Phillipines
Poland
Portugal
Qatar
Romania
Russia
Rwanda
Saint Kitts and Nevis
Saint Lucia
Saint Vincent and the Grenadines
Samoa
San Marino
Sao Tome and Principe
Saudi Arabia
Senegal
Serbia
Seychelles
Sierra Leone
Singapore
Sint Martin

What is your nationality?

Slovakia
Slovenia
Solomon Islands
Somalia
South Africa
South Korea
South Sudan
Spain
Sri Lanka
Sudan
Suriname
Swaziland
Sweden
Switzerland
Syria
Taiwan
Tajikstan
Tanzania
Thailand
Timor-Leste
Togo
Tonga
Trinidad and Tobego
Tunisia
Turkey
Turkmenistan
Tuvalu
Uganda
Ukraine
United Arab Emirates
United Kingdom
United States of America
Uruguay
Uzbekistan
Vanuatu
Venezuela
Vietnam
Yemen
Zambia
Zimbabwe

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EMPLOYMENT OFFSHORE

This section of the questionnaire will ask you some general questions about your employment offshore. All responses will remain confidential.

In total, how many years have you worked offshore?

--Click Here--

Less than 1 year
1 to 5 years
6 to 10 years
11 to 15 years
16 to 20 years
More than 20 years

What is your current job title?

What is the name of the platform you work on?

Are you?

--Click Here--

An employee of a contracting company
An employee of an operating company
Self-employed working for a contracting company
Self-employed working for an operating company

How long have you been employed by this company?

--Click Here--

Less than 1 year
1 to 5 years
6 to 10 years
11 to 15 years
16 to 20 years
More than 20 years

What is your typical offshore/onshore work rotation?

--Click Here--

2 weeks on/2 weeks off
2 weeks on/3 weeks off
No specific pattern
Other (please state)

If you selected other, please provide details of your offshore/onshore work rotation.

Do you spend the majority of your time working?

--Click Here--

Days
Nights
Swing shift (for example: 7 days followed by 7 nights on the same rotation)
Both (one rotation of day shifts followed by another of night)
Other (please state)

If you selected other, please provide details of your working pattern.

GENERAL HEALTH

Below are some statements about your general health. Please select the response that best describes your experience.

Overall, how would you rate your health in the past 4 weeks?

--Click Here-- ▼
Excellent
Very good
Good
Fair
Poor
Very poor

During the past 4 weeks, how much did physical health problems limit your usual physical activities (such as walking or climbing stairs)?

--Click Here-- ▼
Not at all
Very little
Somewhat
Quite a lot
Could not do physical activities

During the past 4 weeks, how much difficulty did you have doing your daily work, both inside and outside the home, because of your physical health?

--Click Here-- ▼
None at all
A little bit
Some
Quite a lot
Could not do daily work

How much bodily pain have you had in the past 4 weeks?

--Click Here-- ▼
None
Very mild
Mild
Moderate
Severe
Very severe

During the past 4 weeks, how much energy did you have?

--Click Here-- ▼
Very much
Quite a lot
Some
A little
None

During the <u>past 4 weeks</u>, how much did your physical health or emotional problems limit your usual social activities with family or friends?

--Click Here--

Not at all
Very little
Somewhat
Quite a lot
Could not do social activities

During the <u>past 4 weeks</u>, how much have you been bothered by emotional problems (such as feeling anxious, depressed or irritable)?

--Click Here--

Not at all
Slightly
Moderately
Quite a lot
Extremely

During the <u>past 4 weeks</u>, how much did personal or emotional problems keep you from doing your usual work, studies or other daily activities?

--Click Here--

Not at all
Very little
Somewhat
Quite a lot
Could not do daily activities

Below are some statements about how you take care of your health. Please select the response that best describes your experience.

	Strongly disagree	Disagree	Neither disagree or agree	Agree	Strongly agree
As circumstances change, I make the needed adjustments to stay healthy	○	○	○	○	○
If my mobility is decreased, I make the needed adjustments	○	○	○	○	○
When needed, I set new priorities in the measures that I take to stay healthy	○	○	○	○	○
I often lack the energy to care for myself in the way that I know I should	○	○	○	○	○
I look for better ways to care for myself	○	○	○	○	○
When needed, I manage to take time to care for myself	○	○	○	○	○
If I take a new medication, I obtain information about the side effects to better care for myself	○	○	○	○	○
In the past I have changed some of my old habits in order to improve my health	○	○	○	○	○
I routinely take measures to ensure the safety of myself and my family	○	○	○	○	○
I regularly evaluate the effectiveness of things that I do to stay healthy	○	○	○	○	○
In my daily activities I seldom take time to care for myself	○	○	○	○	○
I am able to get the information I need, when my health is threatened	○	○	○	○	○
I seek help when unable to take care of myself	○	○	○	○	○
I seldom have time for myself	○	○	○	○	○
I am not always able to care for myself in a way I would like	○	○	○	○	○

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HEALTH CONDITIONS

Below are some questions about any health conditions that you may have. Please select the response that best describes your experience.

How often do you take an active role in treating yourself for minor ailments (such as coughs or stomach aches) when you get them (for example, rather than going to your doctor)?

--Click Here-- ▼
All the time
Most of the time
Quite often
Sometimes
Hardly ever
Never
Don't know

Do you have a long term health condition? *For example, diabetes, asthma, etc.*

--Click Here-- ▼
Yes
No

Do you take medication for your long term health condition(s)?

--Click Here-- ▼
Yes
No

MEDICATION FOR LONG TERM HEALTH CONDITION(S)

You indicated that you are taking medication for your long term health condition(s). Individuals have identified several issues regarding their medication-taking behaviour and we are interested in your experiences. There is no right or wrong answer. Please answer each question based on your personal experience with your medication.

	Yes	No
Do you sometimes forget to take your pills?	○	○
People sometimes miss taking their medications for reasons other than forgetting. Thinking over the <u>past two weeks</u>, were there any days when you did not take your medicine?	○	○
Have you ever cut back or stopped taking your medication without telling your doctor, because you felt worse when you took it?	○	○
When you travel or leave home, do you sometimes forget to bring along your medication?	○	○
Did you take all of your medicine yesterday?	○	○
When you feel like your symptoms are under control, do you sometimes stop taking your medicine?	○	○
Taking medication everyday is a real inconvenience for some people. Do you ever feel hassled about sticking to your treatment plan?	○	○

How often do you have difficulty remembering to take all your medications?

--Click Here-- ▼
Never/Rarely
Once in a while
Sometimes
Usually
All the time

Where do you normally obtain information on taking medication for your long term health condition? *You may select more than one option.*

☐ Rig medic
☐ NHS 24
☐ GP
☐ Practice Nurse
☐ Pharmacist/chemist

What is the name of long term health condition (1)?

How often do you take an active role in caring for long-term health condition (1) yourself? *For example, this may include following your doctor's advice and taking your medicines as advised.*

--Click Here--
All the time
Most of the time
Quite often
Sometimes
Hardly ever
Never
Don't know

How many medications do you take for long term health condition (1)?

--Click Here--
0
1
2
3
4
5
6
7
8
9
10+

Do you have another long term condition?

--Click Here--
Yes
No

What is the name of long term health condition (2)?

How often do you take an active role in caring for long-term health condition (2) yourself? *For example, this may include following your doctor's advice and taking your medicines as advised.*

--Click Here-- ▼
All the time
Most of the time
Quite often
Sometimes
Hardly ever
Never
Don't know

How many medications do you take for long term health condition (2)?

--Click Here-- ▼
0
1
2
3
4
5
6
7
8
9
10+

Do you have another long term health condition?

--Click Here-- ▼
Yes
No

310

What is the name of long term health condition (3)?

How often do you take an active role in caring for long-term health condition (3) yourself? *For example, this may include following your doctor's advice and taking your medicines as advised.*

--Click Here--

All the time
Most of the time
Quite often
Sometimes
Hardly ever
Never
Don't know

How many medications do you take for long term health condition (3)?

--Click Here--

0
1
2
3
4
5
6
7
8
9
10+

Do you have another long term health condition?

--Click Here--

Yes
No

What is the name of long term health condition (4)?

[ ]

How often do you take an active role in caring for long-term health condition (4) yourself? *For example, this may include following your doctor's advice and taking your medicines as advised.*

--Click Here-- ▼
All the time
Most of the time
Quite often
Sometimes
Hardly ever
Never
Don't know

How many medications do you take for long term condition (4)?

--Click Here-- ▼
0
1
2
3
4
5
6
7
8
9
10+

Do you have another long term condition

--Click Here-- ▼
Yes
No

What is the name of long term health condition (5)?

How often do you take an active role in caring for long-term health condition (5) yourself? *For example, this may include following your doctor's advice and taking your medicines as advised.*

--Click Here-- ▼
All the time
Most of the time
Quite often
Sometimes
Hardly ever
Never
Don't know

How many medications do you take for long term health condition (5)?

--Click Here-- ▼
0
1
2
3
4
5
6
7
8
9
10+

Do you have another long term condition?

--Click Here-- ▼
Yes
No

What is the name of long term health condition (6)?

How often do you take an active role in caring for long-term health condition (6) yourself? *For example, this may include following your doctor's advice and taking your medicines as advised.*

--Click Here--
All the time
Most of the time
Quite often
Sometimes
Hardly ever
Never
Don't know

How many medications do you take for long-term health condition (6)?

--Click Here--
0
1
2
3
4
5
6
7
8
9
10+

Do you have another long-term health condition?

--Click Here--
Yes
No

What is the name of long term health condition (7)?

How often do you take an active role in caring for long-term health condition (7) yourself? *For example, this may include following your doctor's advice and taking your medicines as advised.*

--Click Here--

All the time
Most of the time
Quite often
Sometimes
Hardly ever
Never
Don't know

How many medications do you take for long term health condition (7)?

--Click Here--

0
1
2
3
4
5
6
7
8
9
10+

Do you have another long term condition?

--Click Here--

Yes
No

What is the name of long term health condition (8)?

How often do you take an active role in caring for long-term health condition (8) yourself? *For example, this may include following your doctor's advice and taking your medicines as advised.*

--Click Here-- ▼

All the time
Most of the time
Quite often
Sometimes
Hardly ever
Never
Don't know

How many medications do you take for long term health condition (8)

--Click Here-- ▼

0
1
2
3
4
5
6
7
8
9
10+

Do you have another long term condition?

--Click Here-- ▼

Yes
No

316

What is the name of long term health condition (9)?

How often do you take an active role in caring for long-term health condition (9) yourself? *For example, this may include following your doctor's advice and taking your medicines as advised.*

--Click Here-- ▼
All the time
Most of the time
Quite often
Sometimes
Hardly ever
Never
Don't know

How many medications do you take for long term health condition (9)?

--Click Here-- ▼
0
1
2
3
4
5
6
7
8
9
10+

Do you have another long term condition?

--Click Here-- ▼
Yes
No

What is the name of long term health condition (10)?

How often do you take an active role in caring for long-term health condition (10) yourself? *For example, this may include following your doctor's advice and taking your medicines as advised.*

--Click Here--

| All the time |
| Most of the time |
| Quite often |
| Sometimes |
| Hardly ever |
| Never |
| Don't know |

How many medications do you take for long term health condition (10)?

--Click Here--

| 0 |
| 1 |
| 2 |
| 3 |
| 4 |
| 5 |
| 6 |
| 7 |
| 8 |
| 9 |
| 10+ |

When did you last seek health advice for any health issues?

--Click Here--

Never
Within the last week
Within the last month
Within the last 6 months
Within the last year
Over a year ago

From whom did you seek this health advice? *You may select more than one option.*

☐ Rig medic
☐ GP
☐ NHS 24
☐ Pharmacist/chemist
☐ Nurse
☐ Other

If you selected other, please provide details of who you sought health advice from.

What was the nature of the advice you were seeking from the rig medic? *You may select more than one option.*

☐ A short term illness
☐ A long term illness
☐ A personal or emotional problem
☐ An injury
☐ A dental issue
☐ Other (please state)

If you selected other, please provide details of the health issue/s you sought advice for.

What was the nature of the advice you were seeking from your GP? *You may select more than one option.*

- [ ] A short term illness
- [ ] A long term illness
- [ ] A personal or emotional problem
- [ ] An injury
- [ ] A dental issue
- [ ] Other (please state)

If you selected other, please provide details of the health issue/s you sought advice for.

```

```

What was the nature of the advice you were seeking from NHS 24? *You may select more than one option.*

- [ ] A short term illness
- [ ] A long term illness
- [ ] A personal or emotional problem
- [ ] An injury
- [ ] A dental issue
- [ ] Other (please state)

If you selected other, please provide details of the health issue/s you sought advice for.

```

```

What was the nature of the advice you were seeking from the pharmacist/chemist? *You may select more than one option.*

- [ ] A short term illness
- [ ] A long term illness
- [ ] A personal or emotional problem
- [ ] An injury
- [ ] A dental issue
- [ ] Other (please state)

If you selected other, please provide details of the health issue/s you sought advice for.

```

```

What was the nature of the advice you were seeking from the nurse? *You may select more than one option.*

- [ ] A short term illness
- [ ] A long term illness
- [ ] A personal or emotional problem
- [ ] An injury
- [ ] A dental issue
- [ ] Other (please state)

If you selected other, please provide details of the health issue/s you sought advice for.

What was the nature of the advice you were seeking from other? *You may select more than one option.*

- [ ] A short term illness
- [ ] A long term illness
- [ ] A personal or emotional problem
- [ ] An injury
- [ ] A dental issue
- [ ] Other (please state)

If you selected other, please provide details of the health issue/s you sought advice for.

Have you, at any point, been unable to travel offshore due to your health?

--Click Here--
Yes
No

If yes, were you unable to travel due to? *You may select more than one option.*

- [ ] A short-term illness
- [ ] A long-term illness
- [ ] A personal or emotional problem
- [ ] An injury
- [ ] A dental issue
- [ ] Other (please state)

If you selected other, please provide details of the reason/s you were unable to travel.

Have you ever required medical evacuation from a platform?

--Click Here--
Yes
No

Did you require an emergency evacuation? *That is, a flight was chartered specifically for you.*

--Click Here--
Yes
No

Over the course of you offshore career, how many times have you required medical evacuation?

--Click Here-- ▼
1
2
3
4
5
6
7
8
9
10 or more

Have you been evacuated as a result of? *You may select more than one option.*

☐ A short-term illness
☐ A long-term illness
☐ A personal or emotional problem
☐ An injury
☐ A dental issue
☐ Other

If you selected other, please provide details of the health issue/s you were evacuated for.

PHYSICAL ACTIVITY

The questions below are about the time you have spent being physically active in the last 7 days . They include questions about activities you do at work, as part of your house and gardening work, to get from place to place, and in your spare time for recreation, exercise or sport. Please answer each question even if you do not consider yourself to be an active person.

Vigorous physical activities refer to activities that take hard physical effort and make you breathe much harder than normal.

During the last 7 days, on how many days did you do vigorous physical activities like heavy lifting, fast running, or fast cycling? *Think about only those physical activites that you did for at least 10 minutes at a time.*

--Click Here-- ▼
0 days
1 day
2 days
3 days
4 days
5 days
6 days
7 days

How much time in total did you usually spend on one of those days doing vigorous physical activities?

Hours

--Click Here-- ▼

0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24

Minutes

--Click Here-- ▼

00
05
10
15
20
25
30
35
40
45
50
55

Moderate activities refer to activities that take moderate physical effort and make you breathe somewhat harder than normal.

Again, think only about those physical activities that you did for at least 10 minutes at a time. During the last 7 days, on how many days did you do moderate physical activities like carrying light loads, cycling at a regular pace, or exercising on the cross-trainer? *Do not include walking.*

--Click Here-- ▼

0 days
1 days
2 days
3 days
4 days
5 days
6 days
7 days

How much time in total did you usually spend on one of those days doing moderate physical activities?

Hours

--Click Here--
0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24

Minutes

--Click Here--
00
05
10
15
20
25
30
35
40
45
50
55

> **Walking includes walking at work and at home, walking to travel from place to place, and any other walking that you did solely for recreation, sport, exercise or leisure.**

During the last 7 days, on how many days did you walk for at least 10 minutes at a time? This includes walking at work and at home, walking to travel from place to place, and any other walking that you did solely for recreation, sport, exercise or leisure.

--Click Here-- ▼

0 days
1 day
2 days
3 days
4 days
5 days
6 days
7 days

How much time in total did you usually spend walking on one of those days?

Hours

| --Click Here-- ▼ |
| 1 |
| 2 |
| 3 |
| 4 |
| 5 |
| 6 |
| 7 |
| 8 |
| 9 |
| 10 |
| 11 |
| 12 |
| 13 |
| 14 |
| 15 |
| 16 |
| 17 |
| 18 |
| 19 |
| 20 |
| 21 |
| 22 |
| 23 |
| 24 |

Minutes

| --Click Here-- ▼ |
| 00 |
| 05 |
| 10 |
| 15 |
| 20 |
| 25 |
| 30 |
| 35 |
| 40 |
| 45 |
| 50 |
| 55 |

Sitting includes time spent sitting at a desk, visiting friends, reading travelling on a bus or sitting or lying down to watch television.

During the last 7 days, how much time in total do you usually spend sitting on a weekday? This includes time spent sitting at a desk, visiting friends, reading travelling on a bus or sitting or lying down to watch television.

Hours

--Click Here-- ▼
0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24

Minutes

--Click Here-- ▼
00
05
10
15
20
25
30
35
40
45
50
55

329

This question is about your overall physical activity in relation to your work pattern.

Please select the most appropriate response with regard to your physical activity.

--Click Here--

I am a lot more physically active when I am onshore
I am a little more physically active when I am onshore
There is no real difference in my physical activity on or offshore
I am a little more physically active when I am offshore
I am a lot more physically active when I am offshore

DIET

Below are some questions about your diet. Have you eaten any of the following foods in the last 24 hours? Please select the number of portions of food for each row.

	0	1	2	3	4+
Breakfast cereal	○	○	○	○	○
Fruit for breakfast, e.g. on cereal	○	○	○	○	○
Crisps	○	○	○	○	○
Fruit as a between meal snack	○	○	○	○	○
A glass of pure unsweetened fruit juice (not squashes or fruit drink)	○	○	○	○	○
Fruit as a starter to a meal	○	○	○	○	○
A baked potato	○	○	○	○	○
A bowlful of homemade style vegetable soup	○	○	○	○	○
Portions of vegetables with main meals (inlcude baked beans and pulses as vegetables but not potatos)	○	○	○	○	○
Any type of meat	○	○	○	○	○
A vegetable based meal	○	○	○	○	○
Any type of fish	○	○	○	○	○
A bowlful of salad	○	○	○	○	○
Fruit as a dessert	○	○	○	○	○

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This question is about your diet in relation to your work pattern.

Please select the most appropriate response with regard to your diet.

--Click Here-- ▼
I eat a lot more healthily when I am onshore
I eat a little more healthily when I am onshore
There is no real difference in my diet on or offshore
I eat a little more healthily when I am offshore
I eat a lot more healthily when I am offshore

Below are some questions relating to your smoking habits. Please select the response that best describes your experience.

Do you currently smoke tobacco on a daily basis, less than daily, or not at all?

--Click Here--
Daily
Less than daily
Not at all
Don't know

Have you smoked daily in the past?

--Click Here--
Yes
No

In the past, have you smoked tobacco on a daily basis, less than daily, or not at all?

--Click Here--
Daily
Less than daily
Not at all
Don't know

This question is about your smoking in relation to your work pattern.

Please select the most appropriate response with regard to your smoking.

--Click Here--
I smoke a lot more frequently when I am onshore
I smoke a little more frequently when I am onshore
The amount of cigarettes I smoke is the same both on and offshore
I smoke a little more frequently when I am offshore
I smoke a lot more frequently when I am offshore

How often do you have 8 or more units (men) or 6 (women) or more units on one occasion?

--Click Here-- ▼
Never
Less than monthly
Monthly
Weekly
Daily or almost daily

1.5 units — Small glass of wine 125ml, ABV 12%

2.1 units — Standard glass of wine 175ml, ABV 12%

3 units — Large glass of wine 250ml, ABV 12%

1.7 units — Bottle of lager/beer/cider 330ml, ABV 5%

2 units — Pint of lager/beer/cider ABV 3.6%

3 units — Pint of strong lager/beer/cider ABV 5.2%

2 units — Can of lager/beer/cider 440ml, ABV 4.5%

1.5 units — Alcopop 275ml, ABV 4.5%

1 units — Single shot of spirit 25ml, ABV 40%

How often during the last year have you been unable to remember what happened the night before because you had been drinking?

--Click Here-- ▼
Never
Less than monthly
Monthly
Weekly
Daily or almost daily

How often during the past year have you failed to do what was normally expected of you because you had been drinking?

--Click Here-- ▼
Never
Less than monthly
Monthly
Weekly
Daily or almost daily

In the last year, has a relative, friend, doctor or other health worker been concerned about your drinking or suggested that you cut down?

--Click Here-- ▼
No
Yes, on one occasion
Yes, on more than one occasion

DRUG USE

Below is a question about your drug use. Please select the response that best describes your experience. All answers will remain confidential.

How many times in the last year have you used an illegal drug or used prescription medication for non-medical reasons?

--Click Here-- ▼

| 0 |
| 1-5 |
| 6-10 |
| 10+ |

OVERALL HEALTH

Below is a question about your general health. Please select the response that best describes your experience.

How often do you take an active role in leading a healthy lifestyle? *Such as doing exercise regularly, healthy eating, not smoking, drinking within the recommended limits.*

--Click Here-- ▾
All the time
Most of the time
Quite often
Sometimes
Hardly ever
Never
Don't know

FEELINGS AND THOUGHTS

Below are some statements about feelings and thoughts. Please select the response that best describes your experience <u>over the last 2 weeks</u>.

	None of the time	Rarely	Some of the time	Often	All of the time
I've been feeling optimistic about the future	○	○	○	○	○
I've been feeling useful	○	○	○	○	○
I've been feeling relaxed	○	○	○	○	○
I've been feeling interested in other people	○	○	○	○	○
I've had energy to spare	○	○	○	○	○
I've been dealing with problems well	○	○	○	○	○
I've been thinking clearly	○	○	○	○	○
I've been feeling good about myself	○	○	○	○	○
I've been feeling close to other people	○	○	○	○	○
I've been feeling confident	○	○	○	○	○
I've been able to make up my own mind about things	○	○	○	○	○
I've been feeling loved	○	○	○	○	○
I've been feeling interested in new things	○	○	○	○	○
I've been feeling cheerful	○	○	○	○	○

THINKING AND FEELING

Below is a collection of statements about your everyday experience. Using the scale below, please indicate how frequently or infrequently you currently have each experience. Please answer according to what <u>really reflects</u> your experience rather than what you think your experience should be. Please treat each item seperately from evey other item.

	Almost always	Very frequently	Somewhat frequently	Somewhat infrequently	Very infrequently	Almost never
I could be experiencing some emotion and not be conscious of it until sometime later	○	○	○	○	○	○
I break or spill things because of carelessness, not paying attention, or thinking of something else	○	○	○	○	○	○
I find it difficult to stay focused on what's happening in the present	○	○	○	○	○	○
I tend to walk quickly to get where I'm going without paying attention to what I experience along the way	○	○	○	○	○	○
I tend not to notice feelings of physical tension or discomfort until they really grab my attention	○	○	○	○	○	○
I forget a person's name almost as soon as I've been told it for the first time	○	○	○	○	○	○
It seems I am "running on automatic" without much awareness of what I'm doing	○	○	○	○	○	○
I rush through activities without being really attentive to them	○	○	○	○	○	○
I get so focused on the goal I want to achieve that I lose touch with what I'm doing right now to get there	○	○	○	○	○	○
I do jobs or tasks automatically, without being aware of what I'm doing	○	○	○	○	○	○
I find myself listening to someone with one ear, doing something else at the same time	○	○	○	○	○	○
I drive places on "automatic pilot" and then wonder why I went there	○	○	○	○	○	○
I find myself preoccupied with the future or the past	○	○	○	○	○	○
I find myself doing things without paying attention	○	○	○	○	○	○
I snack without being aware that I'm eating	○	○	○	○	○	○

SLEEP

Below are some statements about your sleep. Please select the response that best describes your experience.

In the past week, how much were you bothered by:

	Not at all bothered	Slightly bothered	Moderately bothered	Severely bothered
Lack of energy because of poor sleep	○	○	○	○

Over the past week, how would you rate:

	Excellent	Good	Fair	Poor
Your satisfaction with your sleep	○	○	○	○

This question is about sleep in relation to your work pattern.

Please select the most appropriate response with regard to your sleeping.

--Click Here-- ▼

My sleep quality is a lot better when I am onshore
My sleep quality is a little better when I am onshore
My sleep quality is the same both on and offshore
My sleep quality is a little better when I am offshore
My sleep quality is a lot better when I am offshore

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THANK YOU FOR COMPLETING THIS QUESTIONNAIRE

Much of this questionnaire has had to be fairly general, and we have had to be selective in the items included in the questionnaire to keep it to a manageable length. However, in order to provide as detailed a picture as possible, a trained investigator, Katie Gibson, will interview a sample of the offshore workforce. These telephone interviews will provide an opportunity to explore your health beliefs.

What you say in the telephone interviews will be strictly confidential, and no personally identifying information from these interviews will be recorded or used. We recognise that this makes further demands upon your time, but if you would be willing to participate then this would be very much appreciated. It is anticipated that this should not take more than 30 minutes of your time.

If you would like to receive further information on the interview stage of the research, please select the box below. Please note at this stage you are not consenting to take part, you are just requesting further information.

I would like to receive further information on the interview phase of the study.

--Click Here-- ▼
Yes
No

PRIZE DRAW

Please select the box below if you would like to be entered into a prize draw to win a £50 Amazon voucher. Please note, you do need to provide contact information, however, unless you selected that you wish to receive further information on the interview phase of the study, we will only contact you if you are the winner.

I would like to be entered into the prize draw.

--Click Here-- ▼
Yes
No

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YOUR CONTACT DETAILS FOR THE FURTHER INFORMATION ON THE INTERVIEW PHASE OF THE STUDY

Name

Email address

Postal address

Postcode

What is your preferred method of contact?

--Click Here-- ▼

Email
Postal address

YOUR CONTACT DETAILS FOR ENTRY INTO THE PRIZE DRAW

Name

Email address

PLEASE BE SURE TO SELECT THE SUBMIT BUTTON BELOW

Thank you for completing the questionnaire

Thank you for completing the questionnaire

Appendix 4.2.

Expert Panel Information

Pack

Promoting and implementing self care: a mixed methods study of offshore workers and remote healthcare practitioners

PhD Student

Kathrine Gibson
Research Hub
Institute of Health and Wellbeing
Riverside East
Garthdee

Principal Supervisor

Dr Vibhu Paudyal
Pharmacy and Life Sciences
Institute of Health and Wellbeing
Riverside East
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Second Supervisors

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Pharmacy and Life Sciences
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Professor Susan Klein
Aberdeen Centre for Trauma

Institute of Health and Wellbeing
Faculty of Health and Social Care
Garthdee

Advisory team

Professor James Ferguson
Clinical Lead
Centre for Scottish Telehealth and Telecare

Professor Graham Furnace
Medical Advisor Oil and Gas UK
Aberdeen

Instructions

1. Please read the <u>Aims</u> document overleaf prior to evaluating the questionnaire

2. Please read through the <u>Questionnaire</u> and <u>Questionnaire Measures</u> documents

3. Please complete the <u>comments</u> section of the <u>Questionnaire Measures</u> document. We would appreciate feedback on each measure and are particularly interested in your opinion with regard to the health status and self care measures.

4. Please provide comments on the <u>Participant Information</u> documents

Thank you in advance.

Aims

Principal aim: to determine the extent to which offshore workers engage in self care behaviour.

- Research question 1: What is the perceived health status of offshore workers?
- Research question 2: Do offshore workers engage in self care behaviours?
- Research question 3: Which aspects of self care do offshore workers engage in?
- Research question 4: Are there areas of self care which workers neglect to engage in?

Measures: The questionnaire will comprise two sections: (i) demographics of offshore workers; (ii) health status and current self care behaviour of offshore workers.

(i)   Demographics:all questions which pertain to participant demographics will be positioned at the beginning of the questionnaire.   The placement is believed to be an influential factor in eliciting demographic information and whilst there is a divergence in opinion as to which, beginning or end, is best practice, a large experimental study by Teclaw, Price and Osatuke (2012) suggests that participants are more likely to complete if the questions are asked at the outset.

(ii)   Health status and current self care behaviour: the questions formulated in this section will enable; the health status of the sample to be determined; the overall level of engagement in self care behaviour to be discerned; identification of those aspects of self care with which offshore workers engage or neglect. Accordingly, questions will be grouped according to their relevance to either a) health status or b) self care.

   a) Health status:evaluated by a range of individual measures, which are to include: height and weight (to enable participant's body mass index to be calculated); stress; physical and psychological wellbeing; presence of long-term health condition/s; health offshore; smoking status; alcohol intake/risk; physical activity; diet; presence of long-term conditions; use of medical facilities offshore.

   b) Self care: A self care measure has been developed to gauge the extent to which individuals engage in self care, and is based on the offshore literature and seven domains of self care, as outlined by Webber et al (2013). Each measure maps to either the extant literature on offshore health or pertains to one of the domains outlined by the self care framework (Table 1).

Table 1. Self Care Measures

Domain of Self Care	Practices and Behaviours
Capability to self care	*Appraisal of Self-Care Agency Scale (Sousa et al 2013)*
Self-awareness of physical andmental condition (Webber et al 2013)	*Mindful Attention Awareness Scale (Brown and Ryan, 2003)*
Physical activity (Webber et al 2013)	*Modified International Physical Activity Questionnaire (Craig et al 2003)*
Healthy eating (Webber et al, 2013)	*Nutrition measure (adapted from Mearns, Reader and Hope 2006)*
Risk avoidance or mitigation (Webber et al 2013)	*Alcohol: AUDIT-C (Bush et al 1998)* *Smoking status*

Scoring

a) <u>Health status profiles of offshore workers</u>: the health status of offshore workers will be determined with respect to their: BMI; engagement in risky behaviours (smoking and alcohol); diet; physical activity levels; wellbeing scores. Descriptive statistics will be obtained for each individual component (selection dependent on data distribution: mean; median; confidence intervals; standard deviation; inter-quartile).

b) <u>Evaluating engagement in self care behaviour</u>: individual domain scores will be totalled to provide a self care composite score, which will indicate the extent to which each individual engages in self care behaviour. Descriptive statistics (selection dependent on data distribution: mean; median; confidence intervals; standard deviation; inter-quartile) will be obtained for each and scores will be subject to inferential analysis (selection dependent on data distribution: ANOVA; median; confidence intervals; standard deviation; inter-quartile) range to determine relationships with demography and health status. In addition, descriptive (selection dependent on data distribution: mean; median; confidence intervals; standard deviation; inter-quartile) and inferential (selection dependent on data distribution: ANOVA; median; confidence intervals; standard deviation; inter-quartile) sub-analyses will be performed on data sets to determine the level engagement with individual components of self care.

Questionnaire

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INSTITUTE FOR HEALTH AND WELLBEING RESEARCH

Where are you completing this questionnaire?

| --Click Here-- ▼ |
| Onshore |
| Offshore |

What is your age in years?

Are you?

| --Click Here-- ▼ |
| Male |
| Female |

What is your height?

Is this in metres or feet and inches

| --Click Here-- ▼ |
| Metres |
| Feet and inches |

What is your weight?

[ ]

Is this in kg or stones and pounds?

--Click Here-- ▼
Kg
Stones and pounds

What is your home postcode?

[ ]

Are you currently?

--Click Here-- ▼
Never married and never registered a same-sex civil partnership
Married
Seperated, but still legally married
Divorced
Widowed
In a registered same-sex civil partnership
Seperated, but still legally in a same-sex civil partnership
Formerly in a same-sex civil partnership which is now legally disolved
Surviving partner from a same-sex civil partnership

When onshore, do you live alone?

--Click Here-- ▼
Yes
No

What is your highest level of education?

--Click Here-- ▼
Higher University Degree (MSc/PhD)
University Degree (BSc/BA/MA)
G SVQ Foundation or Intermediate, SVQ Level 1 or 2, SCOTVEC Module, City and Guild Craft or equivalent
G SVQ Advanced, SVQ level 3, ONC, OND, SCOTVEC National Diploma, City and Guilds Advanced Craft or equivalent
Left school with A-level/Higher or equivalent
Left school with GSCE/CSE/O-Level/Standard Grade or equivalent
Left school before age 16 (no formal qualifications)
Other (please state below)

If you selected other, please provide details of your highest level of education.

[ ]

What is your ethnic group?

--Click Here--

White
Mixed or multiple ethnic groups
Asian, Asian Scottish or Asian British
African, Carribean or Black
Other ethnic group

What is your ethnicity?

--Click Here--

Scottish
English
Welsh
Northern Irish
British
Irish
Gypsy/Traveller
Polish
Any other White background (please state)

If you selected any other White background, please provide details of your ethnicity.

If you selected Mixed background, please provide details of your ethnicity.

What is your ethnicity?

--Click Here--

Pakistani, Pakistani Scottish or Pakistani British
Indian, Indian Scottish or Indian British
Bangladeshi, Bangladeshi Scottish or Bangladeshi British
Chinese, Chinese Scottish or Chinese British
Any other Asian background (please state)

If you selected any other Asian background, please provide details of your ethnicity.

What is your ethnicity?

--Click Here--

African, African Scottish or African British
Caribbean, Caribbean Scottish or Caribbean British
Black, Black Scottish or Black British
Any other Black background (please state)

If you selected other Black background, please provide details of your ethnicity.

What is your ethnicity?

--Click Here-- ▼

Arab
Other ethnic background (please state)

If you selected Other ethnic background, please provide details of your ethnicity.

ROBERT GORDON UNIVERSITY ABERDEEN

In total, how many years have you worked offshore?

--Click Here--
Less than 1 year
1 to 5 years
6 to 10 years
11 to 15 years
16 to 20 years
More than 20 years

What is your current job title?

Are you employed by?

--Click Here--
A contracting company
An operating company

How long have you been employed by this company?

--Click Here--
Less than 1 year
1 to 5 years
6 to 10 years
11 to 15 years
16 to 20 years
More than 20 years

What is your typical offshore/onshore work rotation?

--Click Here--
2 weeks on/2 weeks off
2 weeks on/3 weeks off
No specific pattern
Other (please state)

If you selected other, please provide details of your offshore/onshore work rotation.

Do you spend the majority of your time working?

--Click Here--

Days
Nights
Swing shift (for example: 7 days followed by 7 nights on the same rotation)
Both (one rotation of day shifts followed by another of night)
Other (please state)

If you selected other, please provide details of your working pattern.

Taking everything into consideration, how do you feel about your job as a whole?

--Click Here--

1 (Extremely dissatisfied)
2
3
4
5
6
7 (Extremely satisfied)

In your own opinion, how much pressure do your feel yourself to be under at work?

--Click Here--

1 (No pressure)
2
3
4
5
6
7 (Extreme pressure)

How able do you feel to cope with the pressures you experience at work?

--Click Here--

1 (Generally very well)
2
3
4
5
6
7 (Generally not well at all)

SECTION 3: YOUR HEALTH AND LIFESTYLE

Please consider the following questions in relation to your lifestlye. Please remember that all responses are confidential and there are no right or wrong answers.

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SECTION 3.1

Below are some statements about your general health. Please select the option that best describes your experience.

Overall, how would you rate your health in the <u>past 4 weeks</u>?

--Click Here-- ▼

Excellent
Very good
Good
Fair
Poor
Very poor

During the <u>past 4 weeks</u>, how much did physical health problems limit your usual physical activities (such as walking or climbing stairs)?

--Click Here-- ▼

Not at all
Very little
Somewhat
Quite a lot
Could not do physical activities

During the <u>past 4 weeks</u>, how much difficulty did you have doing your daily work, both inside and outside the home, because of your physical health?

--Click Here-- ▼

None at all
A little bit
Some
Quite a lot
Could not do daily work

How much bodily pain have you had in the <u>past 4 weeks</u>?

--Click Here-- ▼

None
Very mild
Mild
Moderate
Severe
Very severe

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During the past 4 weeks, how much energy did you have?

--Click Here--

Very much
Quite a lot
Some
A little
None

During the past 4 weeks, how much did your physical health or emotional problems limit your usual social activities with family or friends?

--Click Here--

Not at all
Very little
Somewhat
Quite a lot
Could not do social activities

During the past 4 weeks, how much have you been bothered by emotional problems (such as feeling anxious, depressed or irritable)?

--Click Here--

Not at all
Slightly
Moderately
Quite a lot
Extremely

During the past 4 weeks, how much did personal or emotional problems keep you from doing your usual work, studies or other daily activities?

--Click Here--

Not at all
Very little
Somewhat
Quite a lot
Could not do daily activities

SECTION 3.2

Below are some statements about your feelings about your health. Please select the box that best describes your experience.

	Strongly disagree	Disagree	Agree	Strongly agree	Not applicable
As circumstances change, I make the needed adjustments to stay healthy	○	○	○	○	○
If my mobility is decreased, I make the needed adjustments	○	○	○	○	○
When needed, I set new priorities in the measures that I take to stay healthy	○	○	○	○	○
I often lack the energy to care for myself in the way that I know I should	○	○	○	○	○
I look for better ways to care for myself	○	○	○	○	○
When needed, I manage to take time to care for myself	○	○	○	○	○
If I take a new medication, I obtain information about the side effects to better care for myself	○	○	○	○	○
In the past I have changed some of my old habits in order to improve my health	○	○	○	○	○
I routinely take measures to ensure the safety of myself and my family	○	○	○	○	○
I regularly evaluate the effectiveness of things that I do to stay healthy	○	○	○	○	○
In my daily activities I seldom take time to care for myself	○	○	○	○	○
I am able to get the information I need, when my health is threatened	○	○	○	○	○
I seek help when unable to take care of myself	○	○	○	○	○
I seldom have time for myself	○	○	○	○	○
I am not always able to care for myself in a way I would like	○	○	○	○	○

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Below are some questions about any health conditions that you may have. Please answer the following in relation to your experience.

How often do you take an active role in treating yourself for minor ailments (such as coughs or stomach aches) when you get them (for example, rather than going to your doctor)?

--Click Here-- ▼

All the time
Most of the time
Quite often
Sometimes
Hardly ever
Never
Don't know

Do you have a long-term health condition (for example, diabetes, asthmas, etc.)?

--Click Here-- ▼

Yes
No

Please name any long-term health conditions that you suffer from.

How often do you take an active role in caring for your long-term health condition yourself?
Checking how I am getting on and taking any medication.

--Click Here-- ▼

All the time
Most of the time
Quite often
Sometimes
Hardly ever
Never
Don't know

Do you take medication for your long term health condition

--Click Here-- ▼

Yes
No

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If yes, how many medications do you take for your long-term health condition/s?

SECTION 3.4

Below are some questions which relate to your use of medical services when on-board the installation and the use of medical evacuation facilities. Please answer the following in relation to your experience.

Have you ever sought advice from the rig medic for any health issues?

--Click Here-- ▼
Yes
No

If yes, did you seek advice for? *You can select more than one option.*

☐ A short-term illness

☐ A long-term illness

☐ A personal or emotional problem

☐ An injury

☐ Other (please state)

If you selected other, please provide details of the health issue/s you sought advice for.

Have you, at any point, been unable to travel offshore due to your health?

--Click Here-- ▼
Yes
No

If yes, were you unable to travel due to? *You can select more than one option.*

☐ A short-term illness

☐ A long-term illness

☐ A personal or emotional problem

☐ An injury

☐ Other (please state)

Have you ever required medical evacuation from an installation?

--Click Here-- ▼
Yes
No

If yes, were you evacuated as a result of? *You can select more than one option.*

- [ ] A short-term illness
- [ ] A long-term illness
- [ ] A personal or emotional problem
- [ ] An injury
- [ ] Other

If you selected other, please provide details of the health issue/s you were evacuated for.

Over the course of you offshore career, how many times have you required medical evacuation?

![Robert Gordon University Aberdeen logo]

SECTION 3.5

Below are some questions on the physical activities that you do as part of your everyday life. The questions will ask you about the time you spent being physically active during your last 7 day period onshore and your last 7 day period offshore . Please answer each question even if you do not consider yourself to be an active person. Please think about the activities you do at work, as part of your house and gardening work, to get from place to place, and in your spare time for recreation, exercise or sport.

These questions are about vigorous physical activity. Vigorous physical activities refer to activities that take hard physical effort and make you breathe much harder than normal.

During the last 7 days onshore, on how many days did you do vigorous physical activities like heavy lifting, fast running, or fast cycling? *Think about only those physical activites that you did for at least 10 minutes at a time.*

--Click Here-- ▼
0 days
1 day
2 days
3 days
4 days
5 days
6 days
7 days

How much time in total did you usually spend on one of those days onshore doing vigorous physical activities? *Please record your answer in hours and minutes.*

[   ]

During the last 7 days offshore, on how many days did you do vigorous physical activities like heavy lifting, fast running, or fast cycling? *Think about only those physical activites that you did for at least 10 minutes at a time.*

--Click Here-- ▼
0 days
1 day
2 days
3 days
4 days
5 days
6 days
7 days

How much time in total did you usually spend on one of those days offshore doing vigorous physical activities? *Please record your answer in hours and minutes.*

> These questions are about moderate physical activity. Moderate activities refer to activities that take moderate physical effort and make you breathe somewhat harder than normal.

Again, think only about those physical activities that you did for at least 10 minutes at a time. During the last 7 days onshore, on how many days did you do moderate physical activities like carrying light loads, cycling at a regular pace, or exercising on the cross-trainer? *Do not include walking.*

--Click Here-- ▾
| 0 days |
| 1 days |
| 2 days |
| 3 days |
| 4 days |
| 5 days |
| 6 days |
| 7 days |

How much time in total did you usually spend on one of those days onshore doing moderate physical activities? *Please record your answer in hours and minutes.*

Again, think only about those physical activities that you did for at least 10 minutes at a time. During the last 7 days offshore, on how many days did you do moderate physical activities like carrying light loads, bicycling at a regular pace, or exercising on the cross-trainer? *Do not include walking.*

--Click Here-- ▾
| 0 days |
| 1 day |
| 2 days |
| 3 days |
| 4 days |
| 5 days |
| 6 days |
| 7 days |

How much time in total did you usually spend on one of those days offshore doing moderate physical activities? *Please record your answer in hours and minutes.*

> These questions are about walking. This inlcudes walking at work and at home, walking to travel from place to place, and any other walking that you did solely for recreation, sport, exercise or leisure.

During the last 7 days onshore, on how many days did you walk for at least 10 minutes at a time? This includes walking at work and at home, walking to travel from place to place, and any other walking that you did solely for recreation, sport, exercise or leisure.

--Click Here-- ▼
0 days
1 day
2 days
3 days
4 days
5 days
6 days
7 days

How much time in total did you usually spend walking onshore on one of those days? *Please record your answer in hours and minutes.*

During the last 7 days offshore, on how many days did you walk for at least 10 minutes at a time? This includes walking at work and at home, walking to travel from place to place, and any other walking that you did solely for recreation, sport, exercise or leisure.

--Click Here-- ▼
0 days
1 day
2 days
3 days
4 days
5 days
6 days
7 days

How much time in total did you usually spend walking offshore on one of those days? *Please record your answer in hours and minutes.*

These questions is about the time you spent sitting on weekdays while at work, at home, while doing course work and during leisure time. This includes time spent sitting at a desk, visiting friends, reading travelling on a bus or sitting or lying down to watch television.

During the last 7 days onshore, how much time in total do you usually spend sitting? This includes time spent sitting at a desk, visiting friends, reading travelling on a bus or sitting or lying down to watch television. *Please record your answer in hours and minutes.*

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During the last 7 days offshore, how much time in total do you usually spend sitting? This includes time spent sitting at a desk, visiting friends, reading travelling on a bus or sitting or lying down to watch television. *Please record your answer in hours and minutes.*

[ ]

This question is about your overall physical activity in relation to your work pattern.

Please select the most appropriate response with regard to your physical activity.

--Click Here--   ▼

I am a lot more physically active when I am onshore
I am a little more physically active when I am onshore
There is no real difference in my physical activity on or offshore
I am a little more physically active when I am offshore
I am a lot more physically active when I am offshore

ROBERT GORDON UNIVERSITY ABERDEEN

SECTION 3.6

Below are some questions about your diet at work and at home. In terms of your eating habits, how often do you consume the following when you are?

OFFSHORE

	Never	Rarely	A few times a week	Once a day	At every meal
Fresh fruit	○	○	○	○	○
Fresh vegetables and salad	○	○	○	○	○
Salt	○	○	○	○	○
Food containing fibre (for example: brown bread, oats, cereals, etc.)	○	○	○	○	○
Fried/deep fried foods	○	○	○	○	○
Puddings and desserts	○	○	○	○	○
Sugary or fizzy drinks	○	○	○	○	○

ONSHORE

	Never	Rarely	A few times a week	Once a day	At every meal
Fresh fruit	○	○	○	○	○
Fresh vegetables and salad	○	○	○	○	○
Salt	○	○	○	○	○
Food containing fibre (for example: brown bread, oats, cereals, etc.)	○	○	○	○	○
Fried/deep fried foods	○	○	○	○	○
Puddings and desserts	○	○	○	○	○
Sugary or fizzy drinks	○	○	○	○	○

This question is about your diet in relation to your work pattern.

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Please select the most appropriate response with regard to your diet.

--Click Here--

I eat a lot more healthily when I am onshore
I eat a little more healthily when I am onshore
There is no real difference in my diet on or offshore
I eat a little more healthily when I am offshore
I eat a lot more healthily when I am offshore

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SECTION 3.7

Below are some questions relating to your smoking habits, please select the response which best describes your smoking behaviour. Please select the box that best describes your experience.

Are you?

--Click Here--

A regular smoker (you smoke at least one cigarette per day)
An occasional smoker (smoking on average less than one cigarette per day)
An ex-smoker
A never smoker

This question is about your smoking in relation to your work pattern.

Please select the most appropriate response with regard to your smoking.

--Click Here--

I smoke a lot more frequently when I am onshore
I smoke a little more frequently when I am onshore
The amount of cigarettes I smoke is the same both on and offshore
I smoke a little more frequently when I am offshore
I smoke a lot more frequently when I am offshore

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SECTION 3.8

Below are some questions which relate to your drinking habits, please select the response which best describes your drinking behaviour. Remember all answers are confidential and will only be seen by the research team.

How often do you have a drink containing alcohol?

--Click Here-- ▼
Never
Monthly or less
2-4 times per month
2-3 times per week
4+ times per week

1.5 units

Small glass of wine
125ml, ABV 12%

2.1 units

Standard glass of wine
175ml, ABV 12%

3 units

Large glass of wine
250ml, ABV 12%

1.7 units

Bottle of lager/beer/cider
330ml, ABV 5%

2 units

Pint of lager/beer/cider
ABV 3.6%

3 units

Pint of strong lager/beer/cider
ABV 5.2%

2 units

Can of lager/beer/cider
440ml, ABV 4.5%

1.5 units

Alcopop
275ml, ABV 4.5%

1 units

Single shot of spirit
25ml, ABV 40%

How many units of alcohol do you drink on a typical day when you are drinking?

--Click Here--

1-2
3-4
4-5
5-6
7-9
10+

How often have you had 6 or more units if female, or 8 or more if male, on a single occassion in the last year?

--Click Here--

Never
Less than monthly
Monthly
Weekly
Daily or almost daily

![ROBERT GORDON UNIVERSITY ABERDEEN](RGU logo)

How often do you take an active role in leading a healthy lifestyle? *Such as doing exercise regularly, healthy eating, not smoking, drinking within the recommended limits.*

--Click Here-- ▼

All the time
Most of the time
Quite often
Sometimes
Hardly ever
Never
Don't know

SECTION 4

Below are some questions which relate to your general wellbeing, please select the response which best describes your beliefs. Please remember that all responses are confidential and will only be seen by the research team.

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Below are some statements about feelings and thoughts. Please tick the box that best describes your experience of each over the last 2 weeks.

	None of the time	Rarely	Some of the time	Often	All of the time
I've been feeling optimistic about the future	○	○	○	○	○
I've been feeling useful	○	○	○	○	○
I've been feeling relaxed	○	○	○	○	○
I've been feeling interested in other people	○	○	○	○	○
I've had energy to spare	○	○	○	○	○
I've been dealing with problems well	○	○	○	○	○
I've been thinking clearly	○	○	○	○	○
I've been feeling good about myself	○	○	○	○	○
I've been feeling close to other people	○	○	○	○	○
I've been feeling confident	○	○	○	○	○
I've been able to make up my own mind about things	○	○	○	○	○
I've been feeling loved	○	○	○	○	○
I've been feeling interested in new things	○	○	○	○	○
I've been feeling cheerful	○	○	○	○	○

SECTION 4.2

Below are some statements about the way that you think and feel. Please tick the box that best describes your experience of each over the last 2 weeks.

	Almost always	Very frequently	Somewhat frequently	Somewhat infrequently	Very infrequently	Almost never
I could be experiencing some emotion and not be conscious of it until sometime later	○	○	○	○	○	○
I break or spill things because of carelessness, not paying attention, or thinking of something else	○	○	○	○	○	○
I find it difficult to stay focused on what's happening in the present	○	○	○	○	○	○
I tend to walk quickly to get where I'm going without paying attention to what I experience along the way	○	○	○	○	○	○
I tend not to notice feelings of physical tension or discomfort until they really grab my attention	○	○	○	○	○	○
I forget a person's name almost as soon as I've been told it for the first time	○	○	○	○	○	○
It seems I am "running on automatic" without much awareness of what I'm doing	○	○	○	○	○	○
I rush through activities without being really attentive to them	○	○	○	○	○	○
I get so focused on the goal I want to achieve that I lose touch with what I'm doing right now to get there	○	○	○	○	○	○
I do jobs or tasks automatically, without being aware of what I'm doing	○	○	○	○	○	○
I find myself listening to someone with one ear, doing something else at the same time	○	○	○	○	○	○
I drive places on "automatic pilot" and then wonder why I went there	○	○	○	○	○	○
I find myself preoccupied with the future or the past	○	○	○	○	○	○
I find myself doing things without paying attention	○	○	○	○	○	○
I snack without being aware that I'm eating	○	○	○	○	○	○

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SECTION 4.3

Below are some statements about your sleep. Please tick the box that best describes your experience.

In the last 7 day period onshore, how much were you bothered by:

	Not at all bothered	Slightly bothered	Moderately bothered	Severely bothered
Lack of energy because of poor sleep	○	○	○	○

In the last 7 day period offshore, how much were you bothered by:

	Not at all bothered	Slightly bothered	Moderately bothered	Severely bothered
Lack of energy because of poor sleep	○	○	○	○

Over the past 7 day period onshore, how would you rate:

	Excellent	Good	Fair	Poor
Your satisfaction with your sleep	○	○	○	○

Over the past 7 day period offshore, how would you rate:

	Excellent	Good	Fair	Poor
Your satisfaction with your sleep	○	○	○	○

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Would you like to recieve further information on the interview phase of the study?

--Click Here--
Yes
No

INFORMATION ON THE INTERVIEW PHASE

Please complete the fields below if you would like to receive further correspondence from us on the interview phase of the study.

By submitting your contact information you are under no obligation to take part in the interview, you are only requesting further information.

Name

Email address

Postal address

Postcode

What is your preferred method of contact?

--Click Here--

Email
Postal address

Questionnaire Measures

Section 1

This section of the questionnaire will aim to build a profile of the offshore workforce and to establish correlates to enhance further analysis.

Question	Use	Targeting	Your comments
Location of completion	*Scores on wellbeing measures may be affected by the location of completion, thus, analyses may need to be adjusted accordingly.*	*All participants*	
Age	*Correlate*	*All participants*	
Gender	*Correlate*	*All participants*	
Height and weight	*BMI to be used as a correlate*	*All participants*	
Home postcode	*To be used alongside the Scottish Index of Multiple Deprivation and as a correlate*	*All participants*	
Marital status (Scottish Census 2011)	*Correlate*	*All participants*	
Living situation	*Correlate*	*All participants*	
Education	*Correlate*	*All participants*	
Ethnicity (Scottish Census 2011)	*Correlate*	*All participants*	

Section 2

The measures obtained from the work section of the questionnaire will be used as correlates to determine associations between variables.

Question	Use	Targeting	Your comments
Length of service offshore	*Correlate*	*All participants*	
Job title	*Correlate*	*All participants*	
Employment status	*Correlate*	*All participants*	
Length of employment	*Correlate*	*All participants*	
Rotation	*Correlate*	*All participants*	
Shift pattern	*Correlate*	*All participants*	

Job satisfaction (Dolbier et al 2004)	*Correlate*	*All participants*	
Stress measure 1	*Correlate and summative stress score*	*All participants*	
Stress measure 2	*Correlate and summative stress score*	*All participants*	

Section 3			

The measures obtained from the general health section will be used to determine the extent of engagement in self care and as stand alone measures to evaluate the health status of workers.

Question	**Use**	**Targeting**	**Your comments**
Section 3.1			
SF-8 (Ware 2001)	*Health-related quality of life which produces summary scores for both physical and mental status*	*All participants*	
Section 3.2			
Appraisal of Self-Care Agency Scale – Revised (Sousa et al 2010)*	*Capability to self-care*	*All participants*	
Section 3.3			
Minor ailments (Department of Health 2005)	*Question pertaining to self-care summative score (1/3: treating minor ailments)*	*All participants*	
Long-term condition screening question	*Presence or absence of long-term condition*	*All participants*	
Further information on long-term conditions	*nature of condition; if medication is used; number of medications being used*	*Completed only by those who have indicated they have a long term condition*	
Caring for long-term health conditions (Department of Health 2005)	*question pertaining to self-care summative score (2/3: active role in*	*Completed only by those who have indicated they have a*	

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	caring for long-term condition)	*long term condition*
Number medicines	*Correlate*	*Completed only by those who have indicated they take a medicine for a long term condition*

Advice from rig medic	*Correlate*	*All participants*
Nature of advice	*Correlate*	*Completed only by those who indicated they have sought advice from the rig medic*
Unable to travel due to reasons pertaining to ill-health	*Correlate*	*All participants*
Nature of condition	*Correlate*	*Completed only by those who indicated they have been unable to travel due to ill-health*
Medical evacuation	*Correlate*	*All participants*
Nature of evacuation	*Correlate*	*Completed only by those who indicated they have been*

Number of evacuations	*Correlate*	*evacuated from the installation Completed only by those who indicated they have been evacuated from the installation*
International Physical Activity Questionnaire (validated but has been modified for use in the offshore industry)* (Craig et al 2003)	*To determine the level of physical activity and sedentary lifestyles*	*All participants*
Onshore/offshore physical activity	*To identify if there are any differences in physical activity on or offshore*	*All participants*
Nutrition (not-validated)* (adapted from Mearns, Reader and Hope 2006)	*To evaluate the eating habits of offshore workers*	*All participants*
Onshore/offshore nutrition	*To identify if there are any differences in physical activity on or offshore*	*All participants*
Smoking*	*To evaluate the smoking habits of offshore workers*	*All participants*
Onshore/offshore smoking	*To identify if there are any differences in*	*Only those who have indicated that they*

	smoking on or offshore	are a current smoker	
Section 3.8			
AUDIT-C (Bush et al1998)*	*To identify the prevalence of problem drinking in offshore workers*	*All participants*	
Section 3.9			
Leading a healthy lifestyle	*question pertaining to self-care summative score (3/3: active role in leading a healthy lifestyle)*	*All participants*	

Section 4			

The measures obtained from the wellbeing section of the questionnaire will be used as standalone measures of psychological wellbeing.

Question	Use	Targeting	Your comments
Section 4.1			
Warwick-Edinburgh wellbeing scale (Tennant et al, 2007)	*To determine individual wellbeing from both a eudaimonic and hedonic perspective*	*All participants*	
Mindful Attention Awareness Scale (Brown and Ryan 2003)*	*To determine degree of mindfulness (as a component of self care)*	*All participants*	

Participant Information Documents

Participant Information: Pilot Questionnaire

A study on the health and lifestyle choices of offshore workers

You are being invited to take part in a research study. It is important that you understand the purpose of the research and what it will involve. Please take the time to read through the following information carefully before you make a decision. Feel free to ask any questions or request further information (k.l.gibson@rgu.ac.uk or 01224 263105). If you wish, talk to others about the study.

What is the purpose of this study? The aim of this study is to understand the health and lifestyle choices of offshore workers.

Why have I been selected? We will be approaching a large number of offshore workers, by email, who have recently stayed and worked on an offshore installation.

Will my taking part in this study be kept confidential? Yes, all information collected about you will be made anonymous before it is stored. You will not be named in any reports or publications associated with the study. Your information will not be passed on your employer. Your name will not be recorded on our database; it will only be used to contact you if you choose to receive further information on the interview stage.

Do I have to take part? No, it is up to you whether you take part or not. If you choose to take part, you will be asked to keep this information sheet and complete a short online questionnaire. You are free to withdraw from this study at any point and do not need to give us a reason for your decision. Your participation will not affect your employment or your relationship with your employer.

What will happen to me if I take part? If you do decide to take part, we will ask you to complete a short online questionnaire about your health and lifestyle. The questionnaire is estimated to take around **15 minutes** to complete.

What are the possible benefits of you taking part? There is no direct benefit to you from taking part in the research. The research might help us understand the health needs of offshore workers.

Who is organising and funding the research? The study is funded by the Institute of Health and Wellbeing at Robert Gordon University.

Who has reviewed the study? This study has been approved by the Ethical Review panel of the School of Pharmacy and Life Sciences at Robert Gordon University.

Research Team

Research Student: *Katie Gibson* (k.l.gibson@rgu.ac.uk)
Principal Supervisor: *Dr Vibhu Paudyal* (v.paudyal1@rgu.ac.uk)

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Second Supervisor: *Professor Derek Stewart* (d.stewart@rgu.ac.uk)
Second Supervisor: *Professor Susan Klein* (s.klein@rgu.ac.uk)

Participant Information: Questionnaire

A study on the health and lifestyle choices of offshore workers

You are being invited to take part in a research study. It is important that you understand the purpose of the research and what it will involve. Please take the time to read through the following information carefully before you make a decision. Feel free to ask any questions or request further information (k.l.gibson@rgu.ac.uk or 01224 263105).If you wish, talk to others about the study.

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Will my taking part in this study be kept confidential? Yes, all information collected about you will be made anonymous before it is stored. You will not be named in any reports or publications associated with the study. Your information will not be passed on your employer. Your name will not be recorded on our database; it will only be used to contact you if you choose to receive further information on the interview stage.

Do I have to take part? No, it is up to you whether you take part or not. If you choose to take part, you will be asked to keep this information sheet and complete a short online questionnaire. You are free to withdraw from this study at any point and do not need to give us a reason for your decision. Your participation will not affect your employment or your relationship with your employer.

What will happen to me if I take part? If you do decide to take part, we will ask you to complete a short online questionnaire about your health and lifestyle. The questionnaire is estimated to take around **15 minutes** to complete.After completing the questionnaire you will be asked if you would like to take part in a telephone interview. If you do wish to receive further information on the interview stage of the research we ask you to complete the section at the end of the questionnaire.

What are the possible benefits of you taking part? There is no direct benefit to you from taking part in the research. The research might help us understand the health needs of offshore workers.

Who is organising and funding the research? The study is funded by the Institute of Health and Wellbeing at Robert Gordon University.

Who has reviewed the study? This study has been approved by the Ethical Review panel of the School of Pharmacy and Life Sciences at Robert Gordon University.

<u>**Research Team**</u>

Research Student: *Katie Gibson* (k.l.gibson@rgu.ac.uk)
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Second Supervisor: *Professor Derek Stewart* (d.stewart@rgu.ac.uk)
Second Supervisor: *Professor Susan Klein* (s.klein@rgu.ac.uk)

Appendix 4.3.
Expert Panel Review
Exemplar

- Good coverage of topics relating to self-care covering general physical & mental health, dietary & sleep habits & disturbances, coping strategies & self-care behaviours.
- Section 1: Questions on ethnic group / ethnicity a little confusing: what is the difference between ethnic group / ethnicity? Have attached 2 alternative ways of recording this info which may be possible alternatives
- Section 2: employment offshore – question on "how do you feel about your job as a whole?" is somewhat vague as so many variables can affect their satisfaction in their job & thus their responses (pay & conditions, interpersonal relationships at work, degree of security, level of control exercised on how work is done, external factors etc). The question is a good one if you are looking for a qualitative response but a quantitative response on a scale of "extremely dissatisfied to extremely satisfied" may not yield data that is meaningful enough.
- Section 2: employment offshore- a supplementary question following how much pressure they feel themselves to be under at work could be: "where is this pressure predominantly coming from? 1. Nature of work 2. Shift pattern 3. Work colleagues 4. Company environment 5. Physical health 6. mental health 7. External factors.
- In a questionnaire asking respondents to rate themselves on particular variables over a TIME PERIOD (4 weeks in this case) it's difficult to capture variations of those variables over the time period. For example, respondents may have experienced severe pain at the start of the 4 weeks but by the time they fill the questionnaire the pain may be very mild or not at all which makes it difficult for them to know how to respond. Also, there are various questions asking "how much" which ask respondents to assess the variable in question. Given this assessment is necessarily subjective it will be difficult to make meaningful comparisons especially with what is actually the norm for the individual. For example, the question on "During the past 4 weeks, how much energy did you have?" the individual is being asked to rate : very much, quite a lot, some, a little, or none. One person's "quite a lot" energy may be very different from another's. It may be worth asking "how often" was the variable in question different from usual or what is normal for the individual to pick up on variations or disturbances. In this case, frequency adverbs (not at all, rarely, sometimes, all the time etc) could be used.
- May be worth numbering the question in each section so when there is a yes/no question & the response is "no", the respondent can be directed to the next relevant question / section.
- Questions about physical activity (section 3.5) are a bit unwieldy in trying to get respondents to recall the proportion of time spent doing vigorous & moderate activity & walking both onshore & offshore. Perhaps too much fine information is being sought which may be an unrealistic goal from a questionnaire format?

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- I like the sections on dietary & sleep habits as they're very important indicators of a person's physical & mental health. I wondered if they should have been included in section 3.1 on "general health". On the section on diet, perhaps need to clarify the reference to "salt" that this refers to additional salt (over & above what is already in the food). Perhaps also include a reference to snacks (chocolates, crisps). May also be worth looking at dietary disturbances with changes in the respondent's normal dietary pattern. Typical question might be "during the past 4 weeks, how often has there been a change in your normal dietary pattern such as eating too much, too little or changing what you typically eat?... Similar supplementary question on sleep: "during the past 4 weeks, how often have you had difficulty getting to sleep or staying asleep? Never, rarely, occasionally, sometimes, often, all the time". Clinicians use this question to assess for anxiety &/or depression.
- Comment on the questionnaire structure / labelling of sections: please add all questions on particular categories together (section 3.1 & section 3.9). I imagine the "general health" category is likely to include present state of health, diet, sleep, food intake, physical activity with questions about how problems may be limiting functioning. Section 3.2 is labelled "feelings about your health" although it's about self-care behaviours. Sections 4.1 & 4.2 are interesting & useful. The latter seems to be about the degree of automaticity, preoccupation & present-focus. I have attached 2 forms of another format (clinical outcomes in routine evaluation – CORE) for info in case this may provide further ideas.
- Good to see questions on alcohol & smoking & particularly on clarifying the alcohol units. There's nothing on drug use. Is this deliberate?
- Quality of respondent responses will be influenced by how "safe" they feel in sharing them. Confidentiality is mentioned repeatedly but will the sampling process give confidence to the respondents that their responses will remain anonymous?
- Lastly, questionnaire seems long

Measure	Nature of change
Marital status	Same-sex reference removed since it was perceived to be unnecessary
Employment status	Self-employed categories were added
Ethnicity	Extended to include nationality
Long term health conditions	Extended to enable participants to provide further details of individual health conditions
Seeking health advice	Question, which had previously only asked about consultations with the rig medic, was extended to include a range of professionals
Nature of health issues	Expanded to include dental issues since the presence of such is a pertinent issue within the offshore workforce
Medical evacuation from an installation	Distinguishes between routine and emergency medical evacuations
Physical activity	Content reduced to elicit an overall physical score, as opposed to evaluating offshore and onshore activity
Nutrition	Replaced by an overall fruit and vegetable consumption measure
Sleep quality	Content reduced to elicit overall sleep quality score rather than a distinction between sleep on and offshore
Drug use	A single-item measure of recreational drug use was included since it was perceived as relevant to assessing overall self care
Job satisfaction	The job satisfaction measure was removed as a single-item measure was not considered to be a comprehensive assessment, nor, in consultation with the theoretical basis which formed the framework for inclusion of measures, was it directly relevant to self care

Appendix 4.4.
Think Aloud Protocol

'Think Aloud' Method Protocol

Researcher transcript

We will shortly be undertaking a research study on the health and lifestyle of offshore workers. For this study, we have developed a questionnaire to understand aspects of health and lifestyle of offshore workers. We want to make sure that our potential participants, i.e. offshore workers understand the questions without any ambiguity.

To help us check that whether our questions are clear, I am going to ask you to 'think aloud' as you complete each question. What I mean by think aloud is that I want you to tell me every thing you are thinking as you read each question and decide how to answer it. I would like you to talk constantly. I don't want you to plan out what you say or try to explain to me what you are saying. Just act as if you are alone in the room speaking to yourself. If you are silent for any long period of time, I will ask you to 'keep talking'. Please try to speak as clearly as possible, as I will be making notes as you speak. Do you have any questions before we start with some warm up exercises?

Exercises

Try to visualise the place where you live, and think about how many windows there are in that place. As you count up the windows, tell me what you are seeing and thinking about.

What is your favourite food?

Where is your favourite place?

What is your favourite sport?

Appendix 4.5.
Recruitment Script

Hi my name is Katie and I am a doctoral research student at Robert Gordon University working on a three year PhD project, sponsored by the Institute of Health and Wellbeing. The aim of the study is to understand the health and lifestyle of offshore workers. In order to do this, I would like to recruit a large sample who have recently stayed and worked on an installation, and who are attending courses here at Petrofac.I am here today to invite you to take part in a brief online questionnaire survey. If you think you may like to help out, it would be great if you could complete one of the contact forms I have handed out. For those who decide to leave their contact details, I will send you an invitation to complete the questionnaire, via email, in the next few days. The questionnaire should take about 20 minutes to complete. Although your name and address will be recorded on a database, this will only be on a temporary basis, and all contact details will be destroyed after I have sent you a final reminder email. As this is a non-commercial, university funded study, you can be assured that I won't pass your email to any other party.

After you have completed the main body of the questionnaire, you will be asked if you would like to be entered into a prize draw for a £50 Amazon voucher, or be contacted with further information on the telephone interview phase of the research. Please note that you do not have to leave your contact details, you can choose to submit your questionnaire completely anonymously. For those who may be interested in participating in the interview phase, we hope to further explore health behaviours in the offshore workforce by interviewing workers over the phone. The interview will be conducted by myself and should last around 30 minutes. It will be scheduled for the next few weeks at a time which is most convenient for you. If you would like to contribute to this phase of the research, please complete the section at then end of the questionnaire. If you choose to leave your contact details, please note that you are not, at this point, committing to an interview, you are only expressing a willingness to participate.

All responses, in both the questionnaire and interview phases, will be made anonymous before they are analysed, and you will not be named in any reports or publications associated with the study. Neither your employer nor training provider will know that you have participated in this study. We are not in receipt of funding from any external body, and all procedures have received clearance by our ethics committee.Please also note that there is no obligation at any stage, you may withdraw anytime from the research and you don't have to explain the reason why. We hope that the research might help us further our understanding the health needs of offshore workers, and support future work within the area. I look forward to receiving your contributions. Does anyone have any questions they would like to ask?

Appendix 4.6.

Recruitment Contact Form

A study on the health and lifestyle of offshore workers

I am a PhD student at Robert Gordon University working on a research project which aims to explore the health and wellbeing of offshore workers. As part of this project, I have developed a health and lifestyle questionnaire for offshore workers. I would be grateful if you would be willing to take **20 minutes**of your time to complete the online questionnaire. **All your responses are confidential**and I would like to assure you that **no personal information will be passed onto your employer, training provider or medical examiner**. If you would like to be emailed a link to the questionnaire, I would appreciate if you could complete the contact information form overleaf. All questionnaire responses will remain anonymous and you will not be identified in any reports.

Please note that all your **personal information will be kept confidential**and only used to send you a link to the questionnaire. All contact details will be destroyed thereafter. If you have any questions please feel free to contact me using the details below.

Thank you in anticipation,
Katie Gibson

Institute of Health and Wellbeing
Robert Gordon University
Garthdee Road
Aberdeen
AB10 7GJ
01224 263105
k.l.gibson@rgu.ac.uk

Research Team

Dr Vibhu Paudyal: v.paudyal1@rgu.ac.uk
Professor Derek Stewart: d.stewart@rgu.ac.uk
Professor Susan Klein: s.klein@rgu.ac.uk

Contact Details

Please note all personal data will be treated as confidential. <u>No details will be passed onto your employing organisation, training provider or medical examiner</u>. The contact details you provide here will only be used to email you a link to a questionnaire on your health and lifestyle. I will be in contact over the next week, via email, with a link to the questionnaire and very much look forward to hearing from you.

Name:

Email address:

Appendix 4.7.
Invitation Email

Dear [insert name],

Thank you for providing me with your contact details at Petrofac yesterday and for staying behind after a long day. Please find the link to the questionnaire below, it should take around 20 minutes to complete and will ask a series of questions on your health and lifestyle.

All your responses are confidential and I would like to assure you once again, that no information will be passed onto your employer, training provider or medical examiner. If you would like to be entered into a prize draw for a £50 Amazon voucher, or if you are willing to participate in the interview phase of the research, please complete the section at the end of the questionnaire.

I would be most grateful if you could complete the questionnaire by [insert date, 2 weeks ahead] and look forward to hearing from you.   Thank you again for your time.

http://www2.rgu.ac.uk/pharmacy/survey/offshoreworkers/

Kindest regards,
Katie Gibson

Appendix 4.8. Reminder Email

Dear [insert name],

This is a gentle reminder to my earlier invitation to take part in a questionnaire study aiming to explore the health and lifestyle of offshore workers. If you have already submitted a response to the invitation I sent you a few weeks ago please accept my apologies for sending a reminder and thank you for your time.

If you haven't managed to respond yet, I would be really grateful if you could spare around 20 minutes of your time to complete the questionnaire. Please remember that all your responses are confidential and I would like to assure you that no information will be passed onto your employer, training provider or medical examiner.

If you would like to be entered into a prize draw for a £50 Amazon voucher, or if you are willing to participate in the interview phase of the research, please complete the section at the end of the questionnaire. I look forward to hearing from you and thank you again for your time.

http://www2.rgu.ac.uk/pharmacy/survey/offshoreworkers/

Kindest regards,
Katie Gibson

Appendix 4.9.
Research Ethics: Research Student and Supervisor Assessment

The aim of the University's *Research Ethics Policy* is to establish and promote good ethical practice in the conduct of academic research. This *self assessment* is intended to enable researchers to undertake an initial self-assessment of ethical issues in their research.

Ethical conduct is not primarily a matter of following fixed rules; it depends on researchers developing a considered, flexible and thoughtful practice.

This *self assessment* aims to engage researchers discursively with the ethical dimensions of their work and potential ethical issues, and the main focus of any subsequent review is not to 'approve' or 'disapprove' of a project but to make sure that this process has taken place.

The *Research Ethics Policy* is available at www.rgu.ac.uk/research-ethics-policy

Research Student Name	Kathrine Gibson
Principal Supervisor	Dr Vibhu Paudyal
Graduate School	IHW/PALS
Research Project Title	Promoting and implementing self care: a mixed methods study of offshore workers and remote healthcare practitioners

LAY SUMMARY
Please describe the project in plain English (i.e. non-scientific terms)

Background:

Health interventions, as a means to promote behaviour change and engagement in positive health behaviours, are regarded as critical opportunities to reduce the burden of poor health status within occupational workforces. Research on the offshore workforce is suggestive that the health of personnel may be a real cause for concern, with the evidence indicating that a relatively high number smoke, drink heavily, have a poor diet, report experiencing stressed and lead a sedentary lifestyle. These factors, coupled with the arduous working pattern of offshore workers, may have ominous consequences for individuals and their employing organisations. Consequently, implementation of a self care intervention which encourages offshore workers to be proactive in taking responsibility for their own health may be of particular benefit to individual health status and the economy of the oil and gas industry. ⊞

PART 1: DESCRIPTIVE QUESTIONS

1.	Does the research involve, or does information in the research relate to: *[see Guidance Note 1]*	Yes	No
	(a) individual human subjects	✓	
	(b) groups (e.g. families, communities, crowds)	✓	
	(c) organisations	✓	
	(d) animals?		✓
	(e) genetically-modified organisms www.rgu.ac.uk/hr/healthsafety/page.cfm?pge=26027#122628		✓

Please provide further details:

a) Individual human subjects will be required to fulfill the requirements of both phases 1 (survey) and 2 (interview).
b) This research will require participation from groups of offshore workers and remote healthcare practitioners.
c) Offshore installations are managed by oil and gas organisations, and medical provisions are often sub-contracted to healthcare organisations. The sampling in phase 1 will be inclusive of offshore workers who employed by an operating or contracting company. Phase 2 criteria stipulates that the research team have access to both offshore workers, employed ⊞

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		Yes	No
2.	Will the research deal with information which is private or confidential? *[see Guidance Note 2]*	☑	☐

Please provide further details:
Individual names and email addresses of those willing to be sent a copy of the questionnaire will be collected. Information will be gathered by the primary researcher and stored on an electronic password protected database prior to all hard copies being destroyed. These details will not enable questionnaire responses to be matched to individuals since the questionnaire will be emailed as a hyperlink and tracking consequently, disabled. Information regarded as private or confidential such as perceived health status, employment or personal beliefs will be collected as part of the research. ➕

PART 2: THE IMPACT OF THE RESEARCH

		Yes	No
3.	In the process of doing the research, is there any potential for harm to be done to, or costs to be imposed on: *[see Guidance Note 3(i)]*		
	(a) research participants?	☐	☑
	(b) research subjects? *[see Guidance Note 3(ii)]*	☐	☑
	(c) you, as the researcher?	☐	☑
	(d) third parties? *[see Guidance Note 3(iii)]*	☐	☑

Please state what you believe are the implications of the research:
Not applicable.

		Yes	No
4.	When the research is complete, could negative consequences follow:		
	(a) for research subjects	☐	☑
	(b) or elsewhere? *[see Guidance Note 4]*	☐	☑

Please state what you believe are the consequences of the research:
Not applicable.

PART 3: ETHICAL PROCEDURES

		Yes	No
5.	Does the research require informed consent or approval from: *[see Guidance Note 5(i)]*		
	(a) research participants?	☑	☐
	(b) research subjects? *[see Guidance Note 5(ii)]*	☑	☐
	(c) external bodies? *[see Guidance Note 5(iii)]*	☑	☐

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If you answered yes to any of the above, please explain your answer:
Phase 1 (survey): consent will be required from all offshore personnel who complete a questionnaire and it will be assumed that by completing, participants are self-consenting.
Phase 2 (interviews): Consent to participate in the interview will be sought prior to arranging the interview and after the participant has received, and had time to read, an information sheet.

		Yes	No
6.	Are there reasons why research subjects may need safeguards or protection? *[see Guidance Note 6]*	☐	☑
	If you answered yes to the above, please state the reasons and indicate the measures to be taken to address them:		

		Yes	No
7.	Does the research involve any "regulated work with children" and/or "regulated work with protected adults", therefore requiring membership of the *Protecting Vulnerable Groups (PVG) Scheme*? *[see Guidance Note 7]*	☐	☑
	[Please note: if the research potentially involves "regulated work", this MUST be raised with your HR Business Partner immediately. In this instance, the Human Resources Department will conduct a detailed assessment and will confirm whether or not PVG Membership is required.]		
	(a) PVG membership is not required.	☑	☐
	(b) PVG membership may be required for working with children.	☐	☑
	(c) PVG membership may be required for working with protected adults.	☐	☑
	(d) PVG membership may be required for working with both children and protected adults.	☐	☑
	If you answered yes to (b), (c) or (d) above, please give further information about the work you will be required to undertake and the nature of the contact with these groups. Please provide as much detail as possible:		
	Not applicable.		

		Yes	No
	Are you already a PVG member?	☐	☐
	If yes, please provide your PVG Scheme number:		

		Yes	No
8.	Are specified procedures or safeguards required for recording, management, or storage of data? *[see Guidance Note 8]*	☑	☐
	If you answered yes to the above, please give details:		
	Phase 1 (survey): Attendees of Petrofac training who express willingness to participate in the study will be requested their names and email addresses in a paper based form. This information will be collected, and all details will be uploaded to a password protected database prior to the destroying of hard copies. Participants will be assigned a unique identifier and data will be stored on an electronic password protected system. Any hard copies will be uploaded to the same computer system and promptly destroyed.		

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PART 4: THE RESEARCH RELATIONSHIP

		Yes	No
9.	Does the research require the researcher to give or make undertakings to research participants or subjects about the use of data? *[see Guidance Note 9]*	✓	

If you answered yes to the above, please outline the likely undertakings:

Participants will be made aware of their right to confidentiality throughout each phase of the research process, and will be assured that no information which pertains to either their individual health status or views will be communicated to their employers, training organisation or medical examiners.

		Yes	No
10.	Is the research likely to be affected by the relationship with a sponsor, funder or employer? *[see Guidance Note 10]*		✓

If you answered yes to the above, please identify how the research may be affected:

PART 5: OTHER ISSUES

		Yes	No
11.	Are there any other ethical issues not covered by this form which you believe you should raise?		✓

If you answered yes to the above, please give details:

STATEMENT BY RESEARCH STUDENT

I believe that the information I have given in this form is correct, and that I have addressed the ethical issues as fully as possible at this stage.

Signed:	Kathrine Gibson	Date:	24 March 2015

If any ethical issues arise during the course of the research, students should complete a further *RESSA* form. The *Research Ethics Policy* is available at www.rgu.ac.uk/research-ethics-policy

PART 6: TO BE COMPLETED BY THE PRINCIPAL SUPERVISOR

		Yes	No
12.	Does the research have potentially negative implications for the University? *[see Guidance Note 11]*	☐	☑
	If you answered yes to the above, please explain your answer:		

		Yes	No
13.	Are any potential conflicts of interest likely to arise in the course of the research? *[see Guidance Note 12]*	☐	☑
	If you answered yes to the above, please identify the potential conflicts:		

		Yes	No
14.	Are you satisfied that the student has engaged adequately with the ethical implications of the work? *[see Guidance Note 13]*	☑	☐
	If you answered no to the above, please identify the potential issues:		

		Yes	No
15.	Has the *RESSA* been considered and/or approved by an internal forum, e.g. a School Ethics Review Panel (SERP) or equivalent? If yes, please provide details.	☐	☑

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16.	Please select one of the following:	
	i. The research project should proceed in its present form – no further action is required	☑
	ii. The research project requires ethical review by the University's Research Ethics Sub-Committee (RESC)	☐
	iii. The research project requires ethical review by an external body (N.B. Question 5 above). If this applies, please give these details:	☐
	Title of external body providing ethical review	
	Address of external body	
	Anticipated date when external body may consider project	

AFFIRMATION BY PRINCIPAL SUPERVISOR

I have read the research student's responses and have discussed ethical issues arising with the research student. I can confirm that, to the best of my understanding, the information presented by the research student is correct and appropriate to allow an informed judgement on whether further ethical approval is required.

Signed:	Dr Vibhu Paudyal	Date:	22 August 2014

If any ethical issues arise during the course of the research, a further *RESSA* should be completed.

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Appendix 4.10.
Ethics Protocol

Promoting and implementing self care: a mixed methods study of offshore workers and remote healthcare practitioners

PhD Student

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Advisory team

Professor Graham Furnace
Medical Advisor Oil and Gas UK
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Professor James Ferguson
Clinical Lead
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Abstract

Background:
Promotion of self care, via implementation of an intervention which seeks to promote engagement in positive health behaviours, has become an increasingly popularised method of reducing the burden of poor health status within target populations. It has been posited that implementation of a self care intervention which encourages offshore workers to be proactive in taking responsibility for their own health may be of particular benefit to individual health status and the economy of the oil and gas industry.

Aim:
The aim of this study is to explore aspects of self care amongst North Sea offshore workforce.

Methods:
The mixed-methods research encompasses two sequential phases. Phase 1, a cross-sectional survey of offshore workers will determine the extent of engagement in self care. The outcomes of phase 1 will be utilised in phase 2 (semi-structured telephone interviews with offshore workers and remote healthcare practitioners operating in the offshore environment), to investigate the self care behaviours of offshore workers.

Results:
The project outputs will guide the development of an intervention designed to promote engagement in self care amongst offshore workers.

1. Background

The oil and gas industry

The UK oil and gas industry is the country's largest industrial investor, a mainstay of the national economy and a key source of employment (1,2). The formidable nature of such contributions is indicative of the importance of the sector to the UK public sphere and in particular, to the future economy (2). Whilst financial forecasts predict the continued significance of the industry to the UK economy, sustenance of oil and gas production is dependent on a core workforce who will commit to an arduous working lifestyle, and will, over the course of a year, spend a minimum of one hundred nights working on an offshore installation (3).

Work on installations can be labour intensive and whilst on-board, workers may be subject to strenuous twelve hour shift work schedules. Typically, offshore personnel will work a two week rotation whereby they commit to fourteen nights offshore (working day shift, night shift or seven days of each) every two or three weeks. Rotation schedules are demanding in terms of physical and psychological burden, and consequently, would necessitate that workers are in good health throughout the course of their career (4). Workers who are not in good physical health pose a significant risk to themselves, their colleagues and employing organisation. Further, in terms of the financial ramifications, an unhealthy workforce will incur high rates of absenteeism and increase the likelihood of emergency evacuation from the installation, which is in itself a costly procedure (5). Improving the health and wellbeing of employees working within the offshore industry could be a critical determinant in ensuring economic opportunities are maximised and the longevity of the workforce (6,7).

Critically, whilst it is frequently assumed that screened workforces, such as those operating within the offshore environment, are in good health (7), anecdotal evidence and previous research are indicative that this may not hold true for those working in the industry (7,8). Horsley (1996), using a large scale lifestyle survey of offshore workers (n = 507, response rate 93%), concluded that there was a high occurrence of risk factors typically associated with cardiovascular disease (family history; diet; physical activity; smoking; alcohol use) and speculated that health may be further worsened by the unique lifestyle of personnel. A lifestyle which the author suggests is frequently overindulgent in terms of diet and engagement in risky behaviours.

Moreover, Mearns and Hope (7) in a large scale multi-installation analysis (n = 1928, response rate: 57%) of health and wellbeing in the offshore environment, commissioned by the Health and Safety Executive, reported high levels of engagement across a range of negative health behaviours, which included: relatively high rates of smoking (32%) and alcohol use (27% who drank more than the recommended amount whilst onshore); over half of the sample had BMIs in the overweight and obese categories (52%) and a further 49%, reported that they found it difficult to eat healthily whilst offshore. In addition, Ross (2009), in a review of the literature on offshore health, described the negative effects of the onshore/offshore leave pattern on aspects of psychological health and wellbeing. The author suggests that the nature of the work could have ominous consequences for workers who struggle to re-adapt to onshore life upon their return, and indicates that this may impact on the workplace when they resume work at the end of their leave period. The evidence is suggestive that the health of offshore workers may be a real cause for concern and duly, both Horsley (8) and Mearns and Hope (7) recommend that the industry implements a health programme which promotes engagement in positive health behaviours.

Health interventions and self care

Health interventions, as a means to promote behaviour change amongst target populations, are regarded as critical opportunities in reducing mortality and increasing life expectancy (9). Consequently, the attainment of national health priorities and a reduction of anticipated prognoses associated with engagement in negative health behaviours necessitate the development of targeted programmes which aim to reduce enactment and promote a healthy lifestyle (10). The workplace, it has been speculated, provides an optimal milieu for implementation due to the large number of hours typically spent in a working environment and subsequent potential for a captive audience (11). Furthermore, NICE, who operate in the UK, have demonstrated their support for implementation of health interventions in the workplace by publishing a series of guidance documents advising employers on best practice within four key areas: increasing physical activity (12); smoking cessation (13); adoption of a healthy diet (14); reducing alcohol intake (14).

As a consequence of a favourable evidence-base and the projected economic benefits for employing organisations, implementation of health and/or lifestyle interventions, which aim to promote widespread engagement across a range of self care behaviours, are growing in popularity (15-20). Moreover, the Department of Health (21) have suggested that promotion of self care, defined by the World Health Organisation (22) as "*the ability of individuals, families and communities to promote health, prevent disease, and maintain health and to cope with illness and disability with or without the support of a health-care provider*", will empower individuals with the requisite skill base to maintain and preserve their physical and psychological state.

The offshore workforce and self care

As previously outlined, the health status of the average offshore worker is proving cause for concern and evidence is suggestive that there is a proportion who are engaging in a range of negative health practices which could pose as a serious threat to their health, and which may threaten to compromise occupational safety. Health researchers working within the field have demonstrated that a number of offshore personnel smoke, engage in heavy alcohol use, have sedentary lifestyles and unhealthy diets (7). Whilst these evaluations have been useful in advancing knowledge on the health of the offshore population, it has been projected that there is a widespread need within the industry for an intervention which promotes engagement in self care, and they do not provide the evidence which is required to move forward with development.

In the absence of such, there remains a need for researchers to determine the current level of engagement in self care behaviours, to identify those underlying mechanisms which enable and hinder engagement, and to ascertain how best to facilitate future engagement. It is hoped that implementation of a self care behaviour change intervention, which promotes taking ownership of health, will have a positive impact on the physical and psychological wellbeing of the workforce, and will aid in maximising economic opportunities within the industry.

Consequently, a project which aims to develop a foundation for the development and implementation of a self care intervention for offshore workers is proposed. The project, in line with recommendations by the Medical Research Council (23) for designing and evaluating complex interventions, will have a strong theoretical underpinning to ensure development around an evidence-base and direct observation, at intervention stage, of functions which facilitate or hinder behaviour change.

2.   Research aims and objectives

2.1 Overall study aim

The aim of this study is to explore aspects of self care amongst an offshore workforce

2.2 Phase aims and research questions

(i)   Phase 1 (Cross-sectional survey): The aim of phase 1 is to determine the extent to which offshore workers engage in self care behaviour.

- Research question 1: What is the perceived health status of offshore workers?
- Research question 2: Do offshore workers engage in self care behaviours?
- Research question 3: Which aspects of self care do offshore workers engage in?
- Research question 4: Are there areas of self care which workers neglect to engage in?

(ii)   Phase 2 (Telephone interviews): The aim of phase 2 is to explore, from the perspective of both offshore personnel and remote healthcare practitioners, the self care behaviours of offshore workers.

- Research question 1: What facilitates offshore workers engagement in self care behaviours?
- Research question 2: What hinders offshore workers engagement in self care behaviours?
- Research question 3: Which aspects of health are perceived to be areas which require behavioural modification?
- Research question 4: How may engagement in self care be facilitated amongst offshore workers?

3   Methods

Mixed methods

The study will utilise a mixed methods research design, amalgamating both quantitative and qualitative approaches, to address the aim. The approach will be underpinned by the doctrines of pragmatism which are unrestrictive in terms of commitment to a single philosophy and thus, will permit selection of multiple research and analytical methods (24,25). Pragmatists discredit the incompatibility thesis, a proposition which posits that qualitative and quantitative methodologies cannot be merged due to incongruent philosophical bases (Table 3), and promote the notion of research as a continuum which opposes a polarised position (26,27). Consequently, those adopting a pragmatic approach are encouraged to integrate a combination of methods into study designs in an effort to comprehensively enhance knowledge and understanding of phenomena (25).

The amalgamation of methods could be beneficial to credibility (the confidence that the findings are truthful), due to a resulting increase in both the validity and certainty of research findings, a benefit which is, in part, owed to a concept of triangulation defined as "*the combination of methodologies in the study of the same phenomena*" (28). Processes of triangulation involve the "*combinations and comparisons of multiple data sources, data collection and analysis procedures, research methods, investigators,*

and/or inferences that occur at the end of a study" (29). The concept may be categorised in accordance with the manner in which methods are applied, for instance a between-methods design will typically be inclusive of both qualitative and quantitative strategies, and a within-methods design, will utilise numerous methods from a single paradigm (25). Further, Jick (30), a supporter of the application of mixed methods research, deems the between-methods design to be preferable to the alternative within-methods approach since it would be considered more advantageous in the context of external validity and subsequently, the impact of findings.

In a broader sense, mixed methods research designs are diverse and there are several typologies (Table 2), as outlined by Creswell and Plano-Clark (31): convergent parallel; explanatory sequential; exploratory sequential; embedded; transformative; multiphase. The current study will utilise a between-methods approach (inclusive of both qualitative and quantitative approaches), a multiphase design and will comprise the four phases outlined previously. This particular phasic order was selected by the research team due to the perceived value in fulfilling the aim of the research programme and criteria set out by the Medical Research Council. Intervention development, according to the guidance by the aforementioned MRC, should create an evidence-base and identify the relevant theory to support subsequent endeavours (23). The structure of the proposed protocol ensures that each phase not only makes a stand alone contribution to research concerning the oil and gas sector, but when evaluated as a whole, creates an in depth evidence-base incorporating a strong theoretical basis which can be mapped onto the development of a self care intervention for offshore workers.

3.1 Phase 1 (Cross-sectional survey)

3.1.1 Design: The survey will utilise a quantitative approach to identify the determinants of self care behaviour in offshore workers operating in the UK Continental Shelf. Utilisation will enable identification of predominating trends, with regard to current self care behaviour. Further, the method is believed to be a suitable research apparatus since it is comparatively low cost and will enable a large sample to be targeted within a relatively short time frame (32,33). Accordingly, a questionnaire seeking to determine the health and self care behaviour of offshore workers, and map behaviour-change constructs will be developed, and will utilise a range of validated measures, where appropriate. The questionnaire will utilise a series of open and closed questions, and it is anticipated, will take around 15-20 minutes to complete.

Acquiescence response bias, the tendency for an individual to answer "yes" despite the content of the question, and social desirability, a propensity to answer in accordance with what is deemed to be socially normative, pose as serious threats to the reliability of research findings (34). Where possible, questions will draw on strategies which have been developed to reduce the effects of social desirability and acquiescence response bias, and will include: granting anonymity to participants who do not opt into the interview phase of the programme; use of measures which are relatively unintelligible when assessing domains deemed to be sensitive in nature (34,35). Further, the length of the questionnaire will be a focal design element and short form measures will be adopted, where appropriate, in an effort to mitigate participant fatigue (36)and increase the response rate (37).

3.1.2 Measures: The questionnaire will comprise two sections: (i) demographics of offshore workers; (ii) health status and current self care behaviour of offshore workers.

(iii)   Demographics: all questions which pertain to participant demographics will be positioned at the beginning of the questionnaire. The placement is believed to be an influential factor in eliciting demographic information and whilst there is a

divergence in opinion as to which, beginning or end, is best practice, a large experimental study by Teclaw, Price and Osatuke (38) suggests that participants are more likely to complete if the questions are asked at the outset.

(iv)   <u>Health status and current self care behaviour:</u> the questions formulated in this section will enable; the health status of the sample to be determined; the overall level of engagement in self care behaviour to be discerned; identification of those aspects of self care with which offshore workers engage or neglect. Accordingly, questions will be grouped according to their relevance to either a) health status or b) self care.

    c)   <u>Health status:</u> evaluated by a range of individual measures, which are to include: height and weight (to enable participant's body mass index to be calculated); smoking status; alcohol intake/risk; physical activity; diet; wellbeing. It is anticipated that alcohol, physical activity, diet and wellbeing measures will be pre-existing tools which are widely used in evidence-based practice and developed for general use. Whilst the aim is to utilise published measures, it may be appropriate in some cases to develop a tool specifically for purpose or to amend those which pre-exist. In the event of such, the face and content validity of newly proposed or amended measures will be assessed by the advisory team (Professors Graham Furnace and James Ferguson), who are experts in the area of offshore health.

    d)   <u>Self care:</u> A self care measure will be developed to gauge the extent to which individuals engage in self care, and will be based on the seven domains of self care, as outlined by Webber, Guo and Mann (39) (Table 2). The (a) health status measures, where appropriate, will map to the "physical activity", "healthy eating" and "risk avoidance or mitigation" domains. The remaining domains (health literacy; self-awareness of physical and mental condition; good hygiene; rational and responsible use of products, services, diagnostics and medicines) will utilise pre- existing evidence-based measures, or in the absence of such, develop new measures which are fit for purpose. In the event that measures are deemed unsuitable for use, the research team, in consultation with both the literature and academics who have expertise in the area will develop measures which map to those domains previously unaccounted for.

Domain of Self Care	Practices and Behaviours
Health literacy	*Ability to access and understand information regarding health to inform health-related decisions*
Self-awareness of physical and mental condition	*Awareness of BMI; CVD risk factors and degree of engagement with appropriate health screening*
Physical activity	*Adherence to recommended guidelines*
Healthy eating	*Adherence to a balanced diet*
Risk avoidance or mitigation	*Smoking, alcohol, drug and safe sex practices*
Good hygiene	*Behaviours which promote hygiene: hand washing; brushing teeth; food sanitation*
Rational and responsible use of products, services, diagnostics and medicines	*Using where appropriate and necessary*

Table 2. The Seven Pillars of Self Care (39)

It is anticipated that all measures which pertain to each of the seven domains of self care, will be totalled to determine an individual self care composite score. Moreover, in order to ensure accuracy in scoring, each individual domain score will need to be standardised in a manner which ensures equal weighting for each component. Whilst it will likely be that the self care composite measure will only encompass those domains which are perceived relevant to the offshore population, a preliminary questionnaire which is inclusive of all seven domains will be developed prior to being reviewed by the advisory team (Table 3). The advisory team will be asked to review the questionnaire in the context of its relevance to the offshore workforce to ensure warranted elimination of self care domains, and to satisfy face and content validity.

Domain of Self Care	Predicted measure
Health literacy	*Evaluation of understanding of health issues*
Self-awareness of physical and mental condition	*Since sickness presenteeism is a current issue within the industry* (40)*, an exploration of comparable offshore and onshore help-seeking behaviours is proposed, particularly in relation to mental health*
Physical activity	*Evaluation of physical activity levels both on and offshore*
Healthy eating	*Adherence to a balanced diet both on and offshore*
Risk avoidance or mitigation	*Assessed via responses to questions on smoking, safe sex practices, drug and alcohol use*
Good hygiene	*Extent to which workers engage in good hygiene practices*
Rational and responsible use of products, series, diagnostics and medicines	*Evaluation of self-presenteeism, whereby workers are present for work despite experiencing poor health or illness, and utilisation of both onshore and offshore medical facilities.*

Table 3. Measuring self care

3.1.2.1 Pre-testing: In an effort to safeguard against non-response to questions, a "Thinking Aloud" approach will be adopted. The method will enable the researcher to assess the clarity of the questions and gauge average comprehension. Any evaluation will inform the nature of the questions and likely lead to revision of wording should questions pose a difficulty or as ambiguous to participants. Such safeguarding will require the recruitment of a small sample of offshore workers.

Each offshore worker will be asked to talk the researcher through the questionnaire and probed on each of their responses. Subsequently, each encounter will be coded in accordance with the cognitive difficulty principles outlined in Table 4. Completion of such will permit the researcher to elucidate as to which cognitive processes are involved in processing each component of the questionnaire and consequently, identify those components which may pose difficult. For example lexical difficulties would arise as a consequence of a participant's inability to understand the contextual meaning of words. In a broader sense, the cognitive interview will enable tailoring of the questionnaire to ensure accuracy in meaning and promotion of optimal comprehension within the target sample (41,42).

Cognitive difficulty	Detail
Lexical	Lack of understanding of singular words or in particular context
Inclusion/exclusion	Knowing whether certain elements are included or excluded from the concept in question
Temporal	Lack of understanding of the time frame in question
Logical	Inability to comprehend the connective words in context e.g. and/or
Computational	Difficulties in processing the question

Table 4. The "Thinking Aloud" approach (41,42)

3.1.3 Participants: A large purposive sample of offshore workers attending the Petrofac Further Offshore Emergency Training course based in Aberdeen will be recruited by the student researcher. Sample size calculations will be performed to ensure there are adequate numbers recruited to perform statistical analyses relevant to the research objectives. It has been stipulated by Cook et al (43) and Shih and Fan (44), in a meta-analysis of email surveys, that researchers who issue questionnaires in this format should anticipate a response rate from 33% (44) 39.6% (43). It has been stipulated by Shih and Fan (44), in a meta-analysis of email surveys, that researchers who issue questionnaires in this format should anticipate a response rate of around 53%.

Consequently, preliminary calculations are indicative that a minimum of 377 offshore workers will need to be included to fulfil the power size calculation and meet the requirements for a 95% confidence interval and 5% margin of error, and to allow for the expected 39.6% response rate to email surveys (43). Exclusion criteria will be limited to those who are not currently working offshore. These criteria have been set due to questionnaire requirements which necessitate that workers have experience of the offshore/onshore rotation.

3.1.4 Materials: Delegates at the Petrofac training site will be issued with a contact form requesting the name and email address of those who are interested in receiving a questionnaire. Participants who have cited their interest will be sent the following by the student researcher: an electronic participant information sheet outlining the nature of the study; a copy of the questionnaire (to cover the aforementioned domains); follow up contact to act as a reminder; a form to request further information on the interview phase of the study. Moreover, the participant information sheet, in an effort to maximise the response rate will be inclusive of the altruistic strategy. Williams, Entwistle, Haddow and Wells (45), in their review on increasing research participation, advocate adoption of strategies which promote involvement as altruistic. Thus, an honest approach, which explicitly states the potential benefits of the project to the offshore workforce, will be utilised within the content of the participant information sheet.

3.1.5 Piloting: The pilot of the survey will seek to gauge the average response rate for the target sample and consequently, will enable the researcher to identify strategies which maximise recruitment and address those which may hinder (46). A sample of offshore workers will be recruited, from the Petrofac offshore training facility, by the primary researcher. Moreover, in accordance with Johansen and Brooks (47) sample size criteria, for pilot studies which aim to test scale development and surveys, a minimum of thirty offshore workers will be recruited.

<u>3.1.6 Procedure</u>: Offshore workers attending the Petrofac Further Offshore Emergency Training course will be issued a contact form, during a scheduled interval from the training course, by the primary researcher. Participants who wish to be sent a copy of the questionnaire will be required to record their name and email address on the contact form. Each individual will be asked, should they wish to participate, to complete the online questionnaire or, in the event that a paper-based approach is adopted, by a pre-stamped envelope. Upon completion, participants will be asked if they would like to receive information on a follow up interview and will be asked to complete a form to request further information. All data, once received, will be stored on an electronic database which is password protected and accessible only by the primary researcher.

In a systematic review on methods of maximising response rate to questionnaires, Edwards et al (2002) concluded that follow up contact with participants and incentivisation increased the likelihood of a response. In accordance, two follow up contacts (for both the initial mail out and follow up questionnaire), initiated by the Offshore Industry Liaison Committee, will be made and each participant will be entered into a prize draw for a fifty pound incentive voucher as a consequence of their participation.

<u>3.1.7 Data analysis</u>: Data will be stored and analysed using the Statistical Package for the Social Sciences (SPSS) Version 21. Data will be analysed in accordance with the research objectives for phase 1:

- <u>Health status profiles of offshore workers</u>: the health status of offshore workers will be determined with respect to their: BMI; engagement in risky behaviours (smoking and alcohol); diet; physical activity levels; wellbeing scores. Descriptive statistics will be obtained for each individual component (selection dependent on data distribution: mean; median; confidence intervals; standard deviation; inter-quartile).

- <u>Evaluating engagement in self care behaviour</u>: individual domain scores which pertain to the seven pillars of self care will be totalled to provide a self care composite score, which will indicate the extent to which each individual engages in self care behaviour. Descriptive statistics (selection dependent on data distribution: mean; median; confidence intervals; standard deviation; inter-quartile) will be obtained for each and scores will be subject to inferential analysis (selection dependent on data distribution: ANOVA; median; confidence intervals; standard deviation; inter-quartile) range to determine relationships with demography and health status. In addition, descriptive (selection dependent on data distribution: mean; median; confidence intervals; standard deviation; inter-quartile) and inferential (selection dependent on data distribution: ANOVA; median; confidence intervals; standard deviation; inter-quartile) sub-analyses will be performed on data sets to determine the level engagement with individual components of self care.

<u>3.1.9 Validity and reliability</u>: The face and content validity of the questionnaire will be assured via review by an expert panel, of healthcare professionals, academics, and offshore workers who have existing links with the research team, who will be encouraged to provide feedback in a structured manner. Moreover, the reliability of each measure will be evaluated prior to inclusion in the questionnaire or, if a newly developed measure, assessed in terms of internal consistency (using Cronbach's alpha statistic) and inter-rater reliability (using Cohen's kappa statistic).

<u>3.1.9 Ethical issues</u>: Delegates who opt-in to the questionnaire mail-out will have provided hard copies of their name and email address. In an effort to ensure

confidentiality, details will be recorded on an electronic password protected database and hard copies destroyed. Whilst personal details will be recorded, it will not be possible to match participants' responses to their name or email address. Although contact details will be recorded the database will only be used as a basis for sending participants a copy of the questionnaire and be deleted upon completion of Phase 1, it will not be used to initiate any further contacts. Moreover, participants who volunteer themselves for interview will be required to provide contact information alongside their questionnaire if they note their interest in receiving further information on the interview stage of the research. Although provision of such information could render participants identifiable, it is believed to be a necessary measure in ensuring criteria for interview are fulfilled. Whilst questionnaire responses will be used to determine eligibility, appropriate measures will be undertaken to preserve anonymity and confidentiality. Participants will be assigned a unique identifier prior to data entry, ensuring concealment of identity to all but the researcher. Further, any hard copy questionnaires will be scanned and uploaded to a password protected computer system prior to being destroyed. Moreover, all procedures will conform to the principles outlined in the Data Protection Act (1998) (48) and approval of the School of Pharmacy and Life Sciences Ethical Review Panel will have been sought.

3.2. Phase 2 (Telephone interviews)

Theoretical basis

Integration of validated theoretical models into intervention design is an explicit recommendation issued by the MRC (23). Whilst there is a plethora of theoretical behaviour change models which have demonstrated reasonable predictability in terms of explaining how changes in behaviour occur, there remains little consensus on which model is best fit for purpose (49,50). This is not to say that theoretical models should be completely disregarded or revaluated, rather selection of a theory to be used in intervention design should be reliably informed and justified. Furthermore, and as a consequence of the large number of models which are applied in endeavours to understand behavioural change and the established variability of applicability, it may be restrictive to employ use of a single theory.

It is posited that theory selection is often poorly justified by researchers working within the field of behaviour change, and consequently, this could limit the validity of findings due to the potential for omission of, what could be, key behavioural constructs which account for a larger percentage of the variance in behaviour (51). Failure to include key behavioural predictors is an issue of contention within the health psychology discipline where exclusivity of theoretical constructs has long been debated (52). Critics ascertain that there is prevalence within theories to make reference to the same or a similar construct under different pseudonyms, and purport that this may confuse interpretation of effects or relationships (53). Thus, it seems that there is a clear need within the discipline for an approach which enables sufficient justification of theoretical inclusion and which best ensures consideration of a range of theoretical constructs.

Theoretical Domains Framework

Subsequently, the presence of conflicting theoretical endeavours and MRC requirements for interventions to be theory-driven, a panel of behaviour change researchers have developed the Theoretical Domains Framework (TDF) (23,53). The framework does not proclaim to be a theory, rather a consultative tool with which to use alongside intervention development and with which to guide theory selection (53).

The TDF specifies 14 domains (Table 1), representing an increase of two domains since the original formulation, including: knowledge; skills; social/professional role and identity; beliefs about capabilities; optimism; beliefs about consequences; reinforcement; intentions; goals; memory, attention and decision processes; environmental context and resources; social influences; emotion; behavioural regulation (53,54). Whilst the domains specified in the TDF are not intended to provide evidence that alludes to the definitive determinants of a particular behaviour or related behavioural components, the framework proves to be a viable tool for preliminary behavioural work which requires deeper exploration of determinants, and in aiding the selection of theory to support future developments (53,54).

Domain	Behavioural Constructs
Knowledge (An awareness of the existence of something)	*Knowledge* *Procedural knowledge* *Knowledge of task environment*
Skills (An ability or proficiency acquired through practice)	*Skills* *Skills development* *Competence* *Ability* *Interpersonal skills* *Practice* *Skill assessment*
Social/professional role and identity (A coherent set of behaviours and displayed personal qualities of an individual in a social or work setting)	*Professional identity* *Professional role* *Social identity* *Identity* *Professional boundaries* *Professional confidence* *Group identity* *Leadership* *Organisational commitment*
Beliefs about capabilities (Acceptance of the truth, reality, or validity about an ability, talent, or facility that a person can put to constructive use)	*Self-confidence* *Perceived competence* *Self-efficacy* *Perceived behavioural control* *Beliefs* *Self-esteem* *Empowerment* *Professional confidence*
Optimism (The confidence that things will happen for the best or that desired goals will be attained)	*Optimism* *Pessimism* *Unrealistic optimism* *Identity*
Beliefs about consequences (Acceptance of the truth, reality, or validity about outcomes of a behaviour in a given situation)	*Beliefs* *Outcome expectancies* *Characteristics of outcome expectancies* *Anticipated regret* *Consequents*

Reinforcement (Increasing the probability of a response by arranging a dependent relationship, or contingency, between the response and a given stimulus)	*Rewards (proximal/distal, valued/not valued, probable/improbable)* *Incentives* *Punishment* *Consequents* *Reinforcement* *Contingencies* *Sanctions*
Intentions (A conscious decision to perform a behaviour or a resolve to act in a certain way)	*Stability of intentions* *Stages of change model* *Transtheoretical model and stages of change*
Goals (Mental representations of outcomes or end states that an individual wants to achieve)	*Goals (distal/proximal)* *Goal priority* *Goal / target setting* *Goals (autonomous / controlled)* *Action planning* *Implementation intention*
Memory, attention and decision processes (The ability to retain information, focus selectively on aspects of the environment and choose between two or more alternatives)	*Memory* *Attention* *Attention control* *Decision making* *Cognitive overload / tiredness*
Environmental context and resources (Any circumstance of a person's situation or environment that discourages or encourages the development of skills and abilities, independence, social competence, and adaptive behaviour)	*Environmental stressors* *Resources / material resources* *Organisational culture /climate* *Salient events / critical incidents* *Person x environment interaction* *Barriers and facilitators*
Social influences (Those interpersonal processes that can cause individuals to change their thoughts, feelings, or behaviours)	*Social pressure* *Social norms* *Group conformity* *Social comparisons* *Group norms* *Social support* *Power* *Intergroup conflict* *Alienation* *Group identity* *Modelling*
Emotion (A complex reaction pattern, involving experiential, behavioural, and physiological elements, by which the individual attempts to deal with a personally significant matter or event)	*Fear* *Anxiety* *Affect* *Stress* *Depression* *Positive / negative affect* *Burn-out*

Behavioural regulation (Anything aimed at managing or changing objectively observed or measured actions)	*Self-monitoring* *Breaking habit* *Action planning*

Table 1. The Theoretical Domains Framework (Adapted from, Cane, O'Connor and Michie 2012)

Further, there is a paucity of existing evidence on facilitating behaviour change in the offshore workforce, via targeted theory-based interventions, and the TDF provides an avenue with which to formulate baseline measurements (55). Although the framework has true potential in application, Francis, O'Connor and Curran (53) caution that "*the depth of meaning of the domains may not be evident to researchers without training or experience in behavioural theory, so there is the potential for the TDF to be poorly or superficially applied. To use the framework effectively, researchers need to "dig deep", beyond a superficial interpretation of the domains".*

3.2.1 Design: The aim of Phase 2 is to investigate the self care behaviours of offshore workers from a dual perspective which incorporates the views of both offshore personnel and remote healthcare practitioners who have experience of working in the offshore industry. The nature of the aim, and subsequent research questions, necessitate collection of data which is rich and meaningful. Use of qualitative research methods will permit exploration of those issues which have been identified in phase 1 as pertinent to the health of the offshore workforce. A semi-structured telephone interview, which is anticipated to be of 45 minutes in duration, will be administered to both (a) offshore workers and (b) remote healthcare practitioners (a dual perspective). The dual perspective approach to interviewing will enable corroboration of findings, enhancing the credibility and transferability of evidence. Further, the telephone medium has been selected for its flexibility, to ensure the safety of the researcher and to minimise travel costs.

In an effort to minimise acquiescence response bias, the topic guide will be developed in a manner which ensures that there is limited opportunity to respond with a yes or no answer. Open ended questions which are value-free will be the preferred style since they tend to extract a greater depth of information, and lend themselves to further probing (34,56). In addition, the guide will have a theoretical basis (incorporating elements of the TDF) to ensure reliable mapping of constructs with self care behaviour.

Whilst each of the 14 TDF domains have been validated for the purpose of addressing issues with the implementation of evidence-based practice amongst healthcare professionals, the developers do advocate its use in a variety of contexts (53). The framework has since been applied to the understanding of the factors which determine engagement in physical activity and a questionnaire developed in accordance with TDF principles. Notably, the authors, Taylor, Lawton and Conner (50), have concluded that elimination of domains may be warranted, in cases where applicability is lacking, since the framework in its original format is not intended to provide a theoretical account of behaviour change.

Consequently, the current study, after consultation with the literature on offshore health and lifestyle, will eliminate domains which are perceived to be irrelevant to self care behaviour and will develop questions in accordance with the remaining domains, and each behavioural construct. Consequently, questions will relate to each of the behavioural constructs specified in the framework and will permit identification of factors which facilitate or hinder engagement in self care. In an effort to ensure the suitability of the TDF measures, in relation to self care behaviour, a panel of health psychology experts (comprising a small number of academics who have experience in application of

health psychology theory) will be asked to review each topic guide and suggest amendments, where necessary.

Interviews

The research team have considered use of both interviews and focus groups, however, the former was deemed more appropriate for use within both samples: remote healthcare practitioners and offshore workers (Table 5). The appropriateness of the interview method was, in part, attributed to the typologies suitability in fulfilling the aim: which states an emphasis on individual beliefs, meaning and behaviours.

	Interview	**Focus Group**
Data	Individual beliefs, meanings and behaviours	Group norms and processes
Nature of data	Social interaction between individual and researcher	Interactions between group members and with the researcher
Participants	Single	Group of up to 8
Social desirability bias	Yes	Yes
Acquiescence response bias	Yes	Yes

Table 5. Interviews and focus groups (33,34,57,58)

Further justification for use of interviews, within both samples, centres on issues surrounding group dynamics and further, exploration of topics which are deemed to be sensitive in nature. Moreover, males comprise the majority of the offshore workforce (3) and when discussing issues surrounding health, may be influenced by other males within the group. Research which has explored the effect of masculinity on health posits a complex range of dynamics which are frequently observed in groups of males, particularly when discussing issues which are perceived to be emasculating, such as health (59-61).

Whilst an observation study of males within the offshore context would prove interesting as a comparator to individual interaction with a female researcher, it is outwith the scope of this study. Thus, in an appraisal of methods it has been concluded that individual interviews would be more appropriate than focus groups since they will provide an avenue with the greatest opportunity to extract information which is not explicitly subject to masculine group dynamics. Although separation of group dynamics from the individual perspective is desirable, to an extent, within the data collection phase, the researcher will need to be mindful of the effects of masculinity on behaviour. The interview will need to be conducted in a manner which explores such and data analysis executed in accordance with known dynamics.

Pragmatically, individual interviews will be easier to coordinate since they can be conducted in accordance with each individual's time commitments and will not be reliant on assuming a suitable time in which to coordinate a focus group. Further, the issue of time within both samples will be restrictive due to their offshore schedule and would both be an arduous task to coordinate, and potentially detrimental in maximising participation. In addition, the interview will enable remote healthcare practitioners to discuss issues pertinent to their installation and individual practice. Focus groups could be viewed as

intimidating in terms of healthcare provision and practitioners may be reluctant to discuss issues for fear that others may criticise their medical practice.

Telephone Interviews

The preferred approach to interviewing within qualitative research is typically the face-to-face format; however, the telephone interview is being increasingly favoured by qualitative researchers who are eager to increase the efficacy, safety and expediency of their research without compromising on reliability. Whilst, critics of the interview method will cite an inability to study the non-verbal cues of participants and consequential falsification of data, there is a lack of evidence which is suggestive of such an occurrence (62).

Further, in an appraisal of the worth of utilising such an approach (Table 6) it has been ascertained that the method may not be particularly valuable to exploration of topics which are deemed sensitive in nature. Whilst it may prove more difficult to extract sensitive information, due to an increase in opportunities for the interviewee to provide a short answer or avert from the question, there is a body of researcher which argues to the contrary and which ascertains, that this is dependent on the interviewers ability to create a comfortable setting in which to communicate (63).

Telephone Interview Advantage	Telephone Interview Disadvantage
Reduction in time incurred per interview (for both researcher and interviewee)	Absence of non-verbal cues which may compromise depth and quality
Reduction in cost incurred per interview (travel; booking of facilities; catering)	May prove difficult to cover sensitive topics
Viewed more favourably by interviewees due to ease of access and time	Responses to questions may be shorter when compared with face-to-face methods
Less intrusive	May not be suitable for less-structured approaches
Elimination of physical bias (dress of interviewer; positioning of chairs; interview environment)	More difficult to prompt interviewees

Table 6. Evaluating telephone interviews (33,57,63)

3.2.2 Participants: (a) A purposive sample of offshore workers working in the UK Continental Shelf will be selected. Further, selection will be based on a deviant case sampling method (purposeful selection of unusual cases). Thus, participants who have expressed interest in follow up, during Phase 1, and who have been identified as having divergent scores, indicating either relatively high or low engagement in self care behaviours, will be invited to the interview stage. (b) A purposive sample of remote healthcare practitioners will be recruited via an advertisement, issued on behalf of the researcher, by the Institute for Remote Healthcare who hold a voluntary register of offshore healthcare practitioners working in the UK Continental Shelf (sampling frame).

In terms of sample size, Francis et al (64), recommend that, when utilising a theory-based approach to interviewing, an initial sample size is specified and stop criteria outlined prior to commencing the study. In accordance, the study will utilise the 10 +3 approach, which stipulates that cohorts of 3 will be sampled if data saturation is not achieved within the initial sample. In the event that interviews are oversubscribed,

participants from sample (a) and (b) will be selected on a first come first serve basis. This selection will ensure that the project runs to the specified timelines.

3.2.4 <u>Materials</u>: (a) Offshore workers will be issued with a participant information sheet and consent form and participants who are not required will be contacted via letter and thanked for their interest. Similarly, (b) Remote healthcare practitioners will be sent a pack including a participation information sheet and consent form and if not required, will be contacted and thanked for their interest. Topic guides will be developed for both (a) offshore workers and (b) healthcare practitioners. Both will be developed in accordance with the TDF and will be refined by the outcomes of phase 1 to ensure adequate coverage of key areas. Furthermore, telephone interviews necessitate that the researcher has access to a private room with a telephone. In addition, use of a telephone recording facility will be sought and use of a speaker phone will be required to back up calls on a dictaphone.

3.2.4 <u>Piloting</u>: A sample, which includes (a) one offshore worker and (b) one remote healthcare practitioner, will be recruited to the pilot. Piloting will ensure that the interview delivery is fit for purpose and will enable the research team to determine if the topic guides require alterations or inclusion of additional prompts. In addition, the pilot will enable the researcher to estimate the average interview time and, if required, to make necessary adaptations to shorten or lengthen prior to the main study. From a personal perspective, the pilot will allow pre-expose the researcher to the research environment which will be useful prior to full immersion within the field (65).

3.2.5 <u>Procedure</u>: (a) Offshore workers will be asked to read the participant information sheet (appendix 4) and return a consent form, which will have been sent out to them after completing the questionnaire and noting their interest in the next phase, to declare their interest. If the participant is eligible for interview, determined by the deviant case sampling method, they will be telephoned to arrange a suitable time. Participants who are not required will be contacted via letter and thanked for their interest.

(b) Remote healthcare practitioners will be sent details of the study in a participation information sheet and will be asked to return a consent form if they are interested in taking part. Those whose participation is not required will be contacted via letter and thanked for their interest. All interviewees will be contacted by telephone to organise a day and time which is most suitable for interview.

An electronic interview diary log will be kept for all participants to ensure tracking of interviews. All interviewees will be contacted and interviewed by the KG, who will have been trained in interviewing, using a landline which is stationed in a private room located on the university premises. Calls will be recorded using both a recording facility and a dictaphone to ensure adequate safeguarding. Participants will be asked to use a telephone line which is both convenient and which optimises privacy: this will likely be within the domiciliary setting. All calls will be on speakerphone, in order to ensure backups are made, and participants will be notified of this in an effort to preserve comfort. Alternative note taking arrangements shall be arranged if participants do not wish to be on speakerphone or recorded. In such cases, a telephone headset will be used and the interviewer will type each response.

3.2.6 <u>Data analysis</u>: All interview data will be stored on the NVivo software package. Each interview will be anonymised, transcribed verbatim and analysed thematically using a framework approach. A random sample of transcripts will be checked for accuracy by a member of the research team who remained independent of the transcription process. Such an approach is widely used within qualitative research and has been successfully applied, using the TDF as a basis, to the investigation of prescribing error by Duncan et

al (66).   It is proposed that a framework approach using the TDF as the main theoretical underpinning will be utilised to determine which factors predicts or hinder self care behaviour in offshore workers, to assess whether these factors can be modified, to ascertain which areas of health require behavioural modification and to identify how engagement in self care may be facilitated in offshore workers.

The systematic approach will firstly require the researcher to familiarise themselves with the interview content, this will involve replaying the recording and reading through any accompanying notes. After the familiarisation phase is completed, each line in the transcript will be coded using inductive ("open codes" will be used to code additional information) and deductive (will pertain to the domains of the TDF) codes. Due to the nature of the analysis, it will be necessary for each transcript to be reviewed by another researcher who has knowledge of the TDF to ensure accuracy. Upon completion of the first few reviews, the researchers should meet to discuss and compare their coding systems, and to finalise a coding system to be used on the remaining transcripts, known as an analytical framework. The next phase will require the data to be charted onto a matrix to summarise the key theoretical ideas and subsequently, the data to be interpreted by the researcher and verified by the research team (67,68).

3.2.7 Data trustworthiness: Measures will be developed in accordance with the trustworthiness principles outlined by Guba (69) which includes (a) credibility, (b) transferability, (c) dependability and (d) confirmability. Credibility will be ensured by using research methods which have a favourable evidence base and which are fit-for-purpose (interviews will be guided by the TDF and conducted via telephone in an effort to mediate sensitivity). In addition, the interviews will include both offshore workers and remote healthcare practitioners and consequently, as Guba attests, credibility will be enhanced via the triangulation of participants' beliefs.   Researcher credibility will be attained by ensuring completion of a relevant training course in the interview method. The researcher, in an effort to promote the transferability of research findings, will ensure that all aspects of the context and environment in which the study is conducted are recorded explicitly, including information on: each participating organisation; participants who have been excluded and the reasons as to why; the number of participants included; all the collection methods which have been utilised; the number of interviews and length of time of each; the timeframe of data collection (70).

Dependability, referring to the stringency of research findings if the method was to be repeated, will be attained by ensuring accuracy in the reporting of data and methods with regard to: the research design and execution; processes of data collection; truthful appraisal of the research methods. Moreover, confirmability, whereby the researcher attempts to minimise the effect of their own beliefs on the research process, will be mediated by the provision of information which enables others to visualise the research and data analysis process. Such provisions will ensure that any conclusions can be clearly mapped from the data (70).

3.2.8 Ethical issues: Interviews will be recorded on a telephone recording system and, prior to deletion from the device, uploaded to an electronic file on a password protected computer system.   All conversations will be transcribed verbatim and participants will be allocated a unique identifier code to protect their anonymity (information which could lead to identification will be concealed and known only to the researcher). Due to the potential for discussion of topics which may be sensitive in nature the interviewer will have undertaken relevant training prior to commencing with the phase.

Whilst the deviant case sampling method will be used to select participants on opposing ends of the spectrum, the interviewer will not be permitted to discuss any health scores will interviewees and will not be asking them any questions which imply judgement on

their health. In addition, the deviant-case sampling method could lead to the inclusion of participants who are not deemed to be on the spectrum of good health. As Mathieson (71)outlines in the paper "*Interviewing the Ill and the Healthy*", interviews with those suffering from poor health or chronic illness will be very different in nature to those considered as healthy. An interview with an individual suffering from a chronic illness is more likely to be in narrative format and the interviewer will be required to permit the individual to explore their thoughts whilst being mindful of the primary aims of the research: a skill which will be developed via training in interview techniques.

4   Risks and contingencies

Phase 1: The questionnaire itself is not anticipated to raise any issues of risk or harm to participants.

Phase 2: Whilst the interview is not intended to be sensitive in nature, the nature of the questions may elicit information which could be regarded as sensitive or which has wider organisational implications. The discussion of topics which may be sensitive to the interviewee could be distressing for the participant and whilst it will be made clear that the interviewer cannot offer any advice on health and wellbeing, there will be a contingency plan to signpost to the relevant organisation or person, likely to be the installation medic or their GP.

Furthermore, a standard operating procedure which details a protocol to be followed in the event that a participant discloses information which may relate to unethical practice or is indicative of a likelihood of causing significant harm to others will be formulated. In the event that such a situation arises it is likely that the project advisers (Professors Graham Furnace and James Ferguson) will be contacted to lend their expertise. In addition, all procedures will conform to the principles outlined in the Data Protection Act (1998) and will have been approved by the School of Pharmacy and Life Sciences Ethical Review Panel.

5   Timeline

Please see overleaf for details on the project timeline which is due to commence June, 2014.

References

(1) Crown. UK Government Oil and Gas Sector Strategy. 2012.
(2) Crown. UK Oil and Gas: Business and Government Action. 2013.
(3) Oil and Gas UK. Oil and Gas UK Offshore Workforce Demographics Report. 2013.
(4) Oil and Gas UK. Medical aspects of fitness for work offshore:guidance for examining physicians. 2008.
(5) Doig M. Offshore workers. In: Palmer KT, Cox RA, Brown I, editors. Fitness for work: the medical aspects Oxford: Oxford University Press; 2007. p. 649-659.
(6) A Recommended Fitness Standard for the Oil and Gas Industry. SPE European HSE Conference and Exhibition-Health, Safety, Environment and Social Responsibility in the Oil &Gas Exploration; 2013.
(7) Mearns K, Hope L. Health and well-being in the offshore environment: The management of personal health. : Health and Safety Executive; 2005.
(8) Horsley, H., MacKenzie, I.,. Lifestyle survey amongst north sea oil workers. 1996.
(9) England N. Five year forward view 2014.
(10) Murray. C. ea. UK health performance: findings of the Global Burden of Disease Study 2010. The Lancet 2013;381(9871):997.
(11) Department of Work and Pensions. Improving health and work: changing lives. 2008.
(12) National Institute for Health and Care Excellence. Promoting physical activity in the workplace: full guidance. 2008.
(13) National Institute for Health and Care Excellence. Workplace interventions to promote smoking cessation: guidance. 2007.
(14) National Institute for Health and Care Excellence. Workplace interventions: alcohol and diet. 2004.
(15) Anderson LM, Quinn TA, Glanz K, Ramirez G, Kahwati LC, Johnson DB, et al. The effectiveness of worksite nutrition and physical activity interventions for controlling employee overweight and obesity: a systematic review. Am J Prev Med 2009;37(4):340-357.
(16) van Dongen JM, Proper KI, van Wier MF, van der Beek, Allard J, Bongers PM, van Mechelen W, et al. A systematic review of the cost-effectiveness of worksite physical activity and/or nutrition programs. Scand J Work Environ Health 2012;38(5):393-408.
(17) Malik SH, Blake H, Suggs LS. A systematic review of workplace health promotion interventions for increasing physical activity. British journal of health psychology 2014;19(1):149-180.
(18) Maes L, Van Cauwenberghe E, Van Lippevelde W, Spittaels H, De Pauw E, Oppert J, et al. Effectiveness of workplace interventions in Europe promoting healthy eating: a systematic review. The European Journal of Public Health 2012;22(5):677-683.
(19) Martin A, Sanderson K, Cocker F. Meta-analysis of the effects of health promotion intervention in the workplace on depression and anxiety symptoms. Scand J Work Environ Health 2009:7-18.
(20) Mhurchu CN, Aston LM, Jebb SA. Effects of worksite health promotion interventions on employee diets: a systematic review. BMC Public Health 2010;10(1):62.
(21) Department of Health. Self-care - a real choice: Self-care - a practical option. 2005.
(22) World Health Organization. Self-care in the context of primary health care: report of the regional consultation, Bangkok, Thailand. New Delhi: World Health Organization–Regional Office for South East Asia 2009.
(23) Craig P, Dieppe P, Macintyre S, Michie S, Nazareth I, Petticrew M. Developing and evaluating complex interventions: the new Medical Research Council guidance. BMJ: British Medical Journal 2008;337.
(24) Creswell J,. Research Design: qualitative, quantitative and mixed emthods approaches. 4th ed. London: SAGE Publications; 2014.
(25) Johnson RB, Onwuegbuzie AJ, Turner LA. Toward a definition of mixed methods research. Journal of mixed methods research 2007;1(2):112-133.

(26) Feilzer MY. Doing mixed methods research pragmatically: Implications for the rediscovery of pragmatism as a research paradigm. Journal of mixed methods research 2010;4(1):6-16.

(27) Teddlie C, Tashakkori A. Foundations of mixed methods research: Integrating quantitative and qualitative approaches in the social and behavioral sciences. : Sage Publications Inc; 2009.

(28) Denzin NK. The research act: A theoretical introduction to research methods. 1978.

(29) Tashakkori A, Teddlie C. Handbook of mixed methods in social & behavioral research. : Sage; 2003.

(30) Jick TD. Mixing qualitative and quantitative methods: Triangulation in action. Adm Sci Q 1979;24(4):602-611.

(31) Plano Clark V, Creswell J. Designing and conducting mixed methods research. 2011.

(32) Bowling A, Ebrahim S. Handbook of health research methods: investigation, measurement and analysis. : McGraw-Hill International; 2005.

(33) Bowling A. Research methods in health. : Open University Press Maidenhead; 2009.

(34) Breakwell G, Hammond S, Fife-Schaw C, Smith J. Research methods in psychology. Research methods in psychology 2006.

(35) De Vaus D. Surveys in social research. : Routledge; 2013.

(36) Wood E, Nosko A, Desmarais S, Ross C, Irvine C. Online and traditional paper-and-pencil survey administration: Examining experimenter presence, sensitive material and long surveys. Can J Hum Sex 2006;15.

(37) Edwards PJ, Roberts I, Clarke MJ, DiGuiseppi C, Wentz R, Kwan I, et al. Methods to increase response to postal and electronic questionnaires. The Cochrane Library 2009.

(38) Teclaw R, Price MC, Osatuke K. Demographic Question Placement: Effect on Item Response Rates and Means of a Veterans Health Administration Survey. Journal of Business and Psychology 2012;27(3):281-290.

(39) Webber, D., Guo, Z., Mann, S. Self-care in health: we can define it, but should we also measure it? Self Care 2013;4(5):101.

(40) Krohne K, Magnussen LH. Go to work or report sick? A focus group study on decisions of sickness presence among offshore catering section workers. BMC Res Notes 2011 03/18;4:70-70.

(41) Verbal reports are data! A theoretical approach to cognitive interviews. Proceedings of the Federal Committee on Statistical Methodology Research Conference: Tuesday B Sessions; 1999.

(42) From impressions to data: Increasing the objectivity of cognitive interviews. Proceedings of the Section on Survey Research Methods, Annual Meetings of the American Statistical Association; 1996.

(43) Cook C, Heath F, Thompson RL. A meta-analysis of response rates in web-or internet-based surveys. Educational and psychological measurement 2000;60(6):821-836.

(44) Shih T, Fan X. Comparing response rates from web and mail surveys: A meta-analysis. Field methods 2008;20(3):249-271.

(45) Williams B, Entwistle V, Haddow G, Wells M. Promoting research participation: why not advertise altruism? Soc Sci Med 2008;66(7):1451-1456.

(46) Van Teijlingen ER, Rennie A, Hundley V, Graham W. The importance of conducting and reporting pilot studies: the example of the Scottish Births Survey. J Adv Nurs 2001;34(3):289-295.

(47) Johanson GA, Brooks GP. Initial scale development: sample size for pilot studies. Educational and Psychological Measurement 2010;70(3):394-400.

(48) Parliament B. Data protection act of 1998 1998.

(49) Hardeman W, Johnston M, Johnston D, Bonetti D, Wareham N, Kinmonth AL. Application of the theory of planned behaviour in behaviour change interventions: a systematic review. Psychology and health 2002;17(2):123-158.

(50) Taylor N, Lawton R, Conner M. Development and initial validation of the determinants of physical activity questionnaire. Int J Behav Nutr Phys Act 2013 06/11;10:74-74.

(51) Michie S, Johnston M, Abraham C, Lawton R, Parker D, Walker A, et al. Making psychological theory useful for implementing evidence based practice: a consensus approach. Qual Saf Health Care 2005 Feb;14(1):26-33.

(52) Presseau J, Johnston M, Francis JJ, Hrisos S, Stamp E, Steen N, et al. Theory-based predictors of multiple clinician behaviors in the management of diabetes. J Behav Med 2013:1-14.

(53) Francis JJ, O'Connor D, Curran J. Theories of behaviour change synthesised into a set of theoretical groupings: introducing a thematic series on the theoretical domains framework. Implement Sci 2012 04/24;7:35-35.

(54) Cane J, O'Connor D, Michie S. Validation of the theoretical domains framework for use in behaviour change and implementation research. Implement Sci 2012;7(1):37.

(55) Huijg JM, Gebhardt WA, Crone MR, Dusseldorp E, Presseau J. Discriminant content validity of a theoretical domains framework questionnaire for use in implementation research. Implement Sci 2014 01/15;9(1):11-11.

(56) Green J, Thorogood N. Qualitative methods for health research. : Sage; 2013.

(57) Bryman A. Social research methods. : Oxford university press; 2012.

(58) Gilbert N. Researching social life. : Sage; 2008.

(59) Dolan A, Staples V, Summer S, Hundt GL. 'You ain't going to say...I've got a problem down there': workplace-based prostate health promotion with men. Health Educ Res 2005 12;20(6):730-738.

(60) O'Brien R, Hunt K, Hart G. 'The average Scottish man has a cigarette hanging out of his mouth, lying there with a portion of chips': prospects for change in Scottish men's constructions of masculinity and their health-related beliefs and behaviours. Critical Public Health 2009;19(3-4):363-381.

(61) Verdonk P, Seesing H, de Rijk A. Doing masculinity, not doing health? A qualitative study among Dutch male employees about health beliefs and workplace physical activity. BMC Public Health 2010 11/19;10:712-712.

(62) Novick G. Is there a bias against telephone interviews in qualitative research? Res Nurs Health 2008;31(4):391-398.

(63) Smith EM. Telephone interviewing in healthcare research: a summary of the evidence: Increasing numbers of healthcare researchers in the UK are using telephone i. Nurse Researcher 2005;12(3):32-41.

(64) Francis JJ, Johnston M, Robertson C, Glidewell L, Entwistle V, Eccles MP, et al. What is an adequate sample size? Operationalising data saturation for theory-based interview studies. Psychology and Health 2010;25(10):1229-1245.

(65) Sampson H. Navigating the waves: the usefulness of a pilot in qualitative research. Qualitative Research 2004;4(3):383-402.

(66) Duncan EM, Francis JJ, Johnston M, Davey P, Maxwell S, McKay GA, et al. Learning curves, taking instructions, and patient safety: using a theoretical domains framework in an interview study to investigate prescribing errors among trainee doctors. Implement Sci 2012;7(1):86.

(67) Gale NK, Heath G, Cameron E, Rashid S, Redwood S. Using the framework method for the analysis of qualitative data in multi-disciplinary health research. BMC medical research methodology 2013;13(1):117.

(68) Ritchie J, Lewis J. Qualitative research practice: A guide for social science students and researchers. : Sage; 2003.

(69) Guba EG, Lincoln YS. Naturalistic and rationalistic enquiry. Educational research, methodology and measurement: An international handbook 1988:81-85.

(70) Shenton AK. Strategies for ensuring trustworthiness in qualitative research projects. Educ Inf 2004;22(2):63-75.

(71) Murray, M., Chamberlain, K. editor. Qualitative Health Psychology: Theories and Methods. London: Sage; 1999.

Appendix 4.11.
Ethical Approval

**School of Pharmacy and Life Sciences
Research Ethics Committee**

Research Student Name	Katie Gibson
Principal Supervisor	Vibhu Paudyal
Research Project Title	Promoting and implementing self care: a mixed methods study of offshore workers and remote healthcare practitioners

Dear Katie,

We have reviewed your ethics application (Title above).The panel recommends that there are no ethical issues with your project and you are able to proceed with your research and any further ethics applications. We wish you well with your project.

If there are any questions please do not hesitate to get in touch.

Regards

Dr Lesley Diack
Chair of the School Ethics Review Panel

Chapter 5 Appendices

Appendix 5.1.
Offshore Worker Interview
Schedule

INTERVIEW PROTOCOL: OFFSHORE WORKER

PROMOTING AND IMPLEMENTING SELF CARE: A MIXED METHODS STUDY OF OFFSHORE WORKERS AND REMOTE HEALTHCARE PRACTITIONERS			
PARTICIPANT NUMBER:	**OCCUPATION:**	**DATE:**	**START TIME:**
INTRODUCTION: Hi, thank you for agreeing to take part in the interview. Is this time still convenient?	**YES:** Proceed to next stage		
	NO: That is fine; would you be okay to arrange another time?	**DATE:** **TIME:**	
RECORDING: Could I please check that it is okay to record the call?	**YES:** Proceed to next stage		
	NO: That is fine, no problem at all (take notes)		

PREPARATION: Before we start the interview can I remind you that the main purpose of this interview is to explore in more depth some of the answers you helpfully provided when you completed the health and lifestyle questionnaire. I would also like to remind you that you are free to withdraw at any point during the interview and that you are under no obligation to answer my questions. All the information you provide during the course of this interview will remain confidential. The interview should last no longer than 45 minutes.

STARTING: Are you okay for me to start the interview?	
	YES: Proceed to next stage
	NO: That is fine, I will stop the recording. Identify reason.

HEALTH	
How would you describe your health? In terms of....	Your physical wellbeing? Do you do anything that you think is bad for your physical wellbeing?

	Do you do anything that you think is good for your physical wellbeing?
	Your mental wellbeing?
	Do you do anything that you think is bad for your mental wellbeing?
	Do you do anything that you think is good for your mental wellbeing?

Would you like to change anything about your health?	How you feel? What you do?

If I could ask you to consider, in terms of both your health and lifestyle, a single behaviour which you feel may be important to change? *For example, you may be a smoker and wish to stop. This could also be about being able to manage your health and lifestyle when you go offshore.* IF THIS FAILS TO ELICIT A BEHAVIOUR, ASK ABOUT IMPROVING ANY CURRENT BEHAVIOURS. SHOULD THAT ALSO NOT GENERATE A BEHAVIOUR, DISCUSS CURRENT BEHAVIOUR. **I am going to ask you some questions on this behaviour.**

SELF CARE BEHAVIOUR

Why do you think you [insert behaviour]?	Do those close to you also [insert behaviour]?

	Do you feel that there may be an expectation to [insert behaviour]? (who/where from?)
If you were to consider changing [insert behaviour], what do you think might help make these changes?	Why do you think making this change would be useful? Have you ever tried to make this change before? How confident are you that you would be able to make this change? What makes you say that? In what ways do you think it could be made easier to make this change?

	What problems or difficulties do you think you might encounter trying to stick to this change?
	What steps do you think you would need to take to help you make these changes?
What do you think might make it difficult to [insert behaviour]?	How might the views/opinions of others affect your ability to make these changes?
	How do you think that the people close to you might help you make these changes?
	How do you think that the people close to you might make it difficult to make these changes?

	How do you think things at home would affect your ability to make these changes?
	How do you think things at work would affect your ability to make these changes?
	Are there certain situations where you find you are more likely or are less likely to [insert behaviour]?
	What do you think might help you in coping with these situations if you were to [insert behaviour]?
	In what ways does [insert behaviour] help you? [reducing stress/weight management/coping?]

How do you think things would be different if you were to [insert behaviour]?	For you? For others? For work?
Have you been wanting to [insert behaviour] prior to our conversation?	For how long?

	What made you think about [insert behaviour]?
How do you think these changes would affect your life?	You? Those close to you? Work? Do you think that making this change would have a good or bad effect on things?

	How do you feel about making this change? (worried? Concerned?)
	If you were to think about things that are important to you, how important would changing this behaviour be to you?

Have you ever taken part in a workplace programme before?	Has there been anything provided?
	What were your reasons for not taking part?

	Can you describe it to me and also why you took part? Which aspects of it were good? Which aspects of it were bad?
How do you think a workplace health programme could help	If it used a personal approach?

offshore workers to [insert behaviour]?	If it was based on a support group?
	If it were technology based, for example an app or email reminder?
Do you think that the sort of programme you described would be beneficial to or welcomed by offshore workers?	How?
Did taking part in the study prompt you to make any health or lifestyle changes?	Or consider making any changes?

THANK YOU: That is the end of my questions, would you like to add anything or ask me anything? I would like to thank you for giving up your time to take part. Please feel free to contact me using the contact details provided for you on your participant information sheet if you have any subsequent queries.	

Appendix 5.2.

Expert Panel Review

Exemplar

DRAFT INTERVIEW PROTOCOL: OFFSHORE WORKER

PROMOTING AND IMPLEMENTING SELF CARE: A MIXED METHODS STUDY OF OFFSHORE WORKERS AND REMOTE HEALTHCARE PRACTITIONERS			
PARTICIPANT NUMBER:	**OCCUPATION:**	**DATE:**	**START TIME:**

INTRODUCTION: Hi, thank you for agreeing to take part in the interview. Is this time still convenient?	**YES:** Proceed to next stage	
	NO: That is fine; would you be okay to arrange another time?	**DATE:** **TIME:**
RECORDING: Could I please check that it is okay to record the call?	**YES:** Proceed to next stage	
	NO: That is fine, to stop the recording I will need to hang up and call back, is that okay?	

PREPARATION: Before we start the interview I would like to go through a few things with you. The main purpose of this interview is to explore in more depth some of the answers you helpfully provided from the questionnaire that you previously completed on your health and lifestyle. By agreeing to participate in this interview, I would also like to make you aware that you are free to withdraw at any point during the interview and that you are under no obligation to answer any of my questions. All the information you provide during the course of this interview will remain confidential and you will be assigned a unique participant number to conceal your identity. The interview should last no longer than 45 minutes.

STARTING: Are you okay for me to start the interview?	**YES:** Proceed to next stage
	NO: That is fine, I will stop the recording. Identify reason.

HEALTH

How would you describe your health? In terms of....	How you feel physically?
	How you feel psychologically?
	Do you do anything that you think is bad for your health?
	Do you do anything that you think is good for your health?
Would you like to change anything about your health?	How you feel?
	What you do?

Commented [A1]: Need some lay term for this

Commented [A2]: Could be lots of things. How do you plan to tackle this?

Commented [A3]: Are we asking about the change process or the item needing change?

If I could ask you to consider, in terms of both your health and lifestyle, a single behaviour which you feel may be important to change?
For example, you may be a smoker and wish to stop. Alternatively, you may be a smoker but don't feel at this point that it is an important behaviour to change, and may prefer to increase your physical activity levels. **I am going to ask you some questions on this behaviour.**

SELF CARE BEHAVIOUR	
Why do you think you [insert behaviour]?	Do those close to you also [insert behaviour]? (Social influences)

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If you were to consider changing [insert behaviour], what do you think might help make these changes?	Why do you think making this change is important? **(Knowledge)** How confident are you that you would be able to make this change? **(Beliefs about capabilities)** Do you think you would manage to stick to this change? **(Beliefs about capabilities)** How might you prepare yourself for making these changes? **(Behavioural regulation)**
What thing might make it difficult to make these changes? So far until this point, it is not clear that this research is with offshore workers.	How do you think that the people close to you might help you make these changes? **(Social influences)** How do you think that the people close to you might make it difficult to make these changes? **(Social influences)** How do you think things at home would affect these changes? **(Environmental context and resources)** How do you think things at work would affect these changes? **(Environmental context and resources)**
If you were to think about making these changes what things do you think would be different? Not clear, do you mean implications?	For you?

Commented [A4]: Not sure whether the participants would understand this.

Commented [A5]: Perhaps better to say which factors

Commented [A6]: I am not sure whether 'change' is the right term. Should we adapt this as per the behaviours? For example- this question could read 'What factors might mae it difficult for you to stop smoking?

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	For others?
	For work?
Have you been thinking about making any changes to this behaviour prior to our conversation? (Intentions)	For how long?
	What made you think about making a change?
How do you think these changes would aeffect your life?	You?
	Those close to you?
	Work?
	Do you think that making this change would have a good or bad effect on things? (Optimism/Beliefs about consequences)

Commented [A7]: Comments as above

	How do you think you would feel about making this change? **(Emotion)** If you were to think about things that are important to you, how important would changing this behaviour be to you? **(Goals)**
EXPLORING AMENABILITY TO INTERVENTION	
How do you think a workplace health programme could help people like you to make these changes?	Technology? Personal approach?
Do you think that the sort of programme you described would be beneficial to your colleagues?	How? Same as above.
Have you ever taken part in a workplace programme before?	Why? Which aspects of it were good?

Commented [A8]: How does this question apply to those who don't need any change or are healthy and don't smoke for example?

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| | Which aspects of it were bad? |
| | |

THANK YOU: That is the end of my questions, would you like to add anything or ask me anything? I would like to thank you for giving up your time to take part.   Please feel free to contact me using the contact details provided for you on your participant information sheet if you have any subsequent queries.
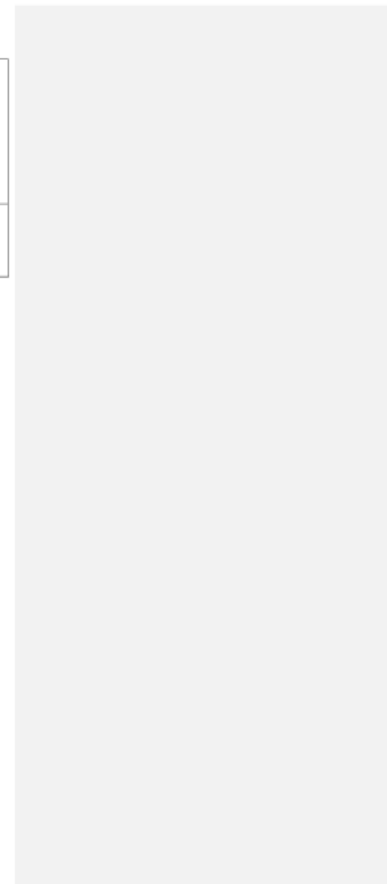
Appendix 5.3 Consent Form

A STUDY ON THE HEALTH AND LIFESTYLE OF OFFSHORE WORKERS: CONSENT FORM

Please initial the following:

(i)   I confirm that I have read and understood the participant information sheet
      (version 1.1) and been provided with adequate opportunity to ask any questions.

(ii) I understand that my participation is voluntary and that I am free to withdraw
      from the study at any time without having to provide a reason.

(iii) I agree to my interviews being audio recorded.

(iv) I understand that the data collected during this study will be used for research
      purposes including publication of anonymised findings. I grant permission to do
      so on the basis that my confidentiality will be protected.

(v)   I agree to take part in this study.

Name:

Telephone number:

We would like to contact you sometime between December (2014) and March (2015) to arrange a time for the interview. To help us schedule the interview, we would be grateful to know the dates you will be offshore during this period. If you do not yet know, or if you would prefer not to share the information with us, please leave the space blank.

During these period what would be the preferred day(s) and time(s) for us to contact you to arrange an interview time (for example: weekday evenings; Wednesday afternoons; 13th November at 5pm):

RGU ROBERT GORDON UNIVERSITY ABERDEEN

INSTITUTE FOR HEALTH AND WELLBEING RESEARCH

Appendix 5.4 Invitation Letter

Dear

Thank you for recently completing a questionnaire on your health and lifestyle, as part of a research project funded by Robert Gordon University. You kindly expressed an interest in participating in the next phase of the study which will involve a telephone interview exploring your health and lifestyle as an offshore worker. We have attached an information sheet and consent form. If you are interested in taking part please complete and return the consent form. You can return the form electronically, or if you prefer, we can send you out a paper copy with a return envelope.

We aim to conduct the interviews early in 2015 and will be in contact with you in due course to arrange a suitable time.   I look forward to hearing from you and would like to thank you for giving up your time to help us with the project. If you would like any further information or to ask any questions, please feel free to contact me by phone (01224 263105) or email (k.l.gibson@rgu.ac.uk).

Kindest regards,

Katie

The project is supervised by:*Dr Vibhu Paudyal* (v.paudyal1@rgu.ac.uk), *Professor Derek Stewart* (d.stewart@rgu.ac.uk) and *Professor Susan Klein* (s.klein@rgu.ac.uk)

_____
__

Kathrine Gibson Smith
N540
Institute of Health and Wellbeing
Riverside East
Robert Gordon University
Garthdee Road
Aberdeen
AB10 7GJ

01224 263105
k.l.gibson@rgu.ac.uk

Appendix 5.5 Participant Information Sheet

A study on the health and lifestyle choices of offshore workers You have been invited to participate in a research study. Before you decide if you would like to take part, it is important that you understand the purpose of the research and what it will involve. Please take the time to read through the following information and feel free to talk to others about the study. If you have any questions or if you would like any further information about the study please feel free to contact me (k.l.gibson@rgu.ac.uk or 01224 263105).

What is the purpose of this study?
The aim of this study is to understand the health and lifestyle choices of offshore workers.

Why have I been selected?
You have been invited because you recently completed a questionnaire on your health and requested further information about participating in a telephone interview.

Do I have to take part?
No, it is up to you whether you take part or not. A decision not to take part will not affect your employment or relationship with Robert Gordon University in any way.

What will happen to me if I take part?
If you do decide to take part, we will organise a telephone interview to ask you some questions on your health and lifestyle. *The interview will last around 30 minutes and we would like to record each interview*.You will be interviewed on a day and time which is most convenient for you. If you agree to the interview being recorded please initial the box in the consent form, if you would prefer that we did not audio record the interview, please leave the box blank. If you decide that you would like to withdraw from the study after you have taken part, please let us know within 14 days of the interview. You can do this by contacting Katie Gibson by telephone (01224 263105) or email (k.l.gibson@rgu.ac.uk). We will destroy all data, audio recording and consent forms. Your relationship with the researcher will not be affected by your decision to withdraw.

What are the possible benefits of you taking part?
There is no direct benefit to you for participating in this study. The research might help us understand the health and lifestyle needs of offshore workers.

Will my taking part in this study be kept confidential?
All information which is collected about you during the course of the interview will be kept completely anonymous. You will not be named in any reports or publications that result from this study. Your employer will not be made aware of your participation.

What will happen to the results of this study?
The results of this study will be used to help us understand the health and lifestyle of offshore workers. The findings will form part of a doctoral thesis and may be published in a healthcare journal. To request a copy of any reports please contact Dr Vibhu Paudyal who is the project supervisor (v.paudyal1@rgu.ac.uk or 01224 262595).

Who is organising and funding the research?
The study is funded by the Institute of Health and Wellbeing at Robert Gordon University.

Who has reviewed the study?
This study has been approved by the Ethical Review panel of the School of Pharmacy and Life Sciences at Robert Gordon University.

What next?
If you decide you would like to participate in a telephone interview, we will contact you via the telephone number you have provided to arrange an interview date and time. We are hoping to conduct the interviews early in 2015 and will be in contact with you during the month of December (2014) or January (2015).

Research Team

Research Student: *Katie Gibson* (k.l.gibson@rgu.ac.uk)
Supervisors:*Dr Vibhu Paudyal* (v.paudyal1@rgu.ac.uk), *Professor Derek Stewart*
(d.stewart@rgu.ac.uk) and *Professor Susan Klein* (s.klein@rgu.ac.uk)

Chapter 6 Appendices

Appendix 6.1.

Remote Healthcare

Practitioner Interview

Schedule

INTERVIEW PROTOCOL: REMOTE HEALTHCARE PRACTITIONERS

<table>
<tr>
<td colspan="3" style="background:purple;color:white">PROMOTING AND IMPLEMENTING SELF CARE: A MIXED METHODS STUDY OF OFFSHORE WORKERS AND REMOTE HEALTHCARE PRACTITIONERS</td>
</tr>
<tr>
<td>PARTICIPANT NUMBER:</td>
<td>DATE:</td>
<td>START TIME:</td>
</tr>
<tr>
<td rowspan="2">INTRODUCTION: Hi, thank you for agreeing to take part in the interview. Is this time still convenient?</td>
<td colspan="2">YES: Proceed to next stage</td>
</tr>
<tr>
<td>NO: That is fine; would you be okay to arrange another time?</td>
<td>DATE:

TIME:</td>
</tr>
<tr>
<td colspan="3">PREPARATION: Before we start the interview can I remind you that the main purpose of this interview is to explore the health and lifestyle behaviours of offshore workers. You are free to withdraw at any point during the interview and that you are under no obligation to answer my questions. All the information you provide during the course of this interview will be anonymised to protect your confidentiality. The interview should last no longer than 45 minutes.</td>
</tr>
<tr>
<td rowspan="2">STARTING: Are you okay for me to start the interview?</td>
<td colspan="2">YES: Proceed to next stage</td>
</tr>
<tr>
<td colspan="2">NO: That is fine, I will stop the recording. Identify reason.</td>
</tr>
<tr>
<td colspan="3" style="background:purple;color:white">HEALTH</td>
</tr>
</table>

How would you describe most offshore workers' health? In terms of....	Their physical wellbeing? Their mental wellbeing?
Do you think offshore workers would like to change anything about their health?	Physical wellbeing? Mental wellbeing? Lifestyle?

If I could ask you to consider, in terms of health and lifestyle, a single behaviour which you feel may be important for offshore workers to change? *For example, smoking cessation or diet. This could also be about being able to manage health and lifestyle offshore* **I am going to ask you some questions on this behaviour.**

SELF CARE BEHAVIOUR

Why do you think offshore workers [insert behaviour]?	Do you feel that there may be an expectation of offshore workers to [insert behaviour]? (who/where from?)

What do you think might help make these changes?	How confident are you that offshore workers would be able to make this change?

What makes you say that?

In what ways do you think it could be made easier for offshore workers to make this change?

What problems or difficulties do you think that offshore workers might encounter trying to stick to this change?

What steps do you think offshore workers would need to take to help make these changes? |
| **What do you think might make it difficult for offshore workers to [insert behaviour]?** | How might the views/opinions of others affect offshore worker's ability to make these changes?

How do you think that the people close to offshore workers might help them to make these changes? [friends/family/colleagues/healthcare professionals]

How do you think that the people close to offshore workers might make it difficult to make these changes? [friends/family/colleagues/healthcare professionals]

How do you think things at home might affect offshore worker's ability to make these changes? [positively/negatively] |

	How do you think things at work might affect offshore worker's ability to make these changes?
	Are there certain situations where you think that offshore workers are more likely or are less likely to [insert behaviour]? [onshore/offshore environments/when on shore leave]
	What do you think might help offshore workers in coping with these situations if they were to [insert behaviour]?
	In what ways do you think [insert behaviour] may help offshore workers? [reducing stress/weight management/coping?]
How do you think these changes would affect offshore worker's lives?	For them?
	Those close to them? [friends/family/colleagues/healthcare professionals]
	Work?

	How important do you think changing this behaviour would be to offshore workers?
HEALTH PROMOTION	
Have you been involved in the delivery of a health programme to offshore workers? [smoking cessation/healthy eating/alcohol advice]	Can you describe it to me?
	How was it delivered?
	Was it welcomed by offshore workers?
	Which aspects of it worked well?
	Which aspects of it do you think required improvement?
	What challenges did you encounter in delivering the programme?

Was the effectiveness of the programme evaluated in any way?	How? How long after the programme ended? Who by?
Are you aware of any other health programmes being provided for offshore workers?	Can you describe them to me?

IMPLEMENTATION OF A WORKPLACE PROGRAMME

Do offshore workers ask you about [insert behaviour]?	Do you initiate discussions on [insert behaviour] with offshore workers? How do you do this? What might make it easier for you to talk to offshore workers about [insert behaviour]? What might make it difficult for you to talk to offshore workers about [insert behaviour]?
How do you think a workplace health programme could help	What are your thoughts on this? Have offshore workers discussed [insert behaviour] with you?

offshore workers to [insert behaviour]?	What advice did you give?
	How do you think it might be made easier to facilitate workers engagement with a health programme to [insert behaviour]?
	What do you think might make it difficult to facilitate workers engagement with a health programme to [insert behaviour]?
Can you identify any barriers which you feel may affect the implementation of a workplace health programme in the offshore environment?	How do you think these might be overcome?
	How do you think it might be made easier to implement?
Do you think that the sort of programme you described would be beneficial to offshore workers?	Do you think that it would be welcomed by offshore workers?
	How?
	How do you think engagement with this type of health programme could be increased?
THANK YOU: That is the end of my questions. Would you like to add anything or ask me anything? I would like to thank you for giving up your time to take part. Please feel free to contact me using the contact details provided for you on your participant information sheet if you have any subsequent queries or suggestions or anything you want to add to your responses.	

Appendix 6.2.

Expert Panel Review

Exemplar

INTERVIEW PROTOCOL: REMOTE HEALTHCARE PRACTITIONERS

PROMOTING AND IMPLEMENTING SELF CARE: A MIXED METHODS STUDY OF OFFSHORE WORKERS AND REMOTE HEALTHCARE PRACTITIONERS		
PARTICIPANT NUMBER:	**DATE:**	**START TIME:**

INTRODUCTION: Hi, thank you for agreeing to take part in the interview. Is this time still convenient?	**YES:** Proceed to next stage	
	NO: That is fine; would you be okay to arrange another time?	**DATE:** **TIME:**

PREPARATION: Before we start the interview can I remind you that the main purpose of this interview is to explore the health and lifestyle behaviours of offshore workers. You are free to withdraw at any point during the interview and that you are under no obligation to answer my questions. All the information you provide during the course of this interview will remain confidential. The interview should last no longer than 45 minutes.

STARTING: Are you okay for me to start the interview?	**YES:** Proceed to next stage
	NO: That is fine, I will stop the recording. Identify reason.

HEALTH of offshore workers in general

How would you describe most offshore workers health? In terms of….	Their physical wellbeing? Their mental wellbeing?

Do you think offshore workers ~~could~~ <u>would like to</u> change anything about their health?	Physical wellbeing? Mental wellbeing? Lifestyle?

If I could ask you to consider, in terms of health and lifestyle, a single behaviour which you feel may be important for offshore workers to change? *For example, smoking cessation <u>or diet</u>. This could also be about being able to manage health and lifestyle offshore* **I am going to ask you some questions on this behaviour.**

<table>
<tr><td colspan="2" style="background:purple;color:white">SELF CARE BEHAVIOUR</td></tr>
<tr><td>Why do you think <s>you</s> offshore workers [insert behaviour]?</td><td>Do you feel that there may be an expectation of offshore workers to [insert behaviour]? (who/where from?)</td></tr>
<tr><td>What do you think might help make these changes?</td><td>How confident are you that <s>you</s> offshore workers would be able to make this change?
What makes you say that?

In what ways do you think it could be made easier for offshore workers to make this change?

What problems or difficulties do you think that offshore workers might encounter trying to stick to this change?

What steps do you think offshore workers would need to take to help make these changes?</td></tr>
</table>

What do you think might make it difficult for offshore workers to [insert behaviour]?	How might the views/opinions of others affect offshore worker's ability to make these changes?
	How do you think that the people close to offshore workers might help them to make these changes? [friends/family/colleagues/healthcare professionals]
	How do you think that the people close to offshore workers might make it difficult to make these changes? [friends/family/colleagues/healthcare professionals]
	How do you think things at home might affect offshore worker's ability to make these changes? [positively/negatively]
	How do you think things at work might affect offshore worker's ability to make these changes?
	Are there certain situations where you think that offshore workers are more likely or are less likely to [insert behaviour]? [onshore/offshore environments/when on shore leave]
	What do you think might help offshore workers in coping with these situations if they were to [insert behaviour]?
	In what ways do you think [insert behaviour] may help offshore workers? [reducing stress/weight management/coping?]

How do you think these changes would affect offshore worker's lives?	For them?
	Those close to them? [friends/family/colleagues/healthcare professionals]
	Work?
	How important do you think changing this behaviour would be??? to offshore workers?

Have you been involved in the delivery of a health programme to offshore workers? [smoking cessation/healthy eating/alcohol advice]	Can you describe it to me?
	How was it delivered?
	Was the programmeit welcomed by offshore workers?
	Which aspects of it worked well?
	Which aspects of it do you think required improvement?

	~~Did you encounter any~~What challenges _did you encounter_ in delivering the programme?
Was the effectiveness of the programme evaluated in any way?	How? How long after the programme ended? Who by?
Are you aware of any other health programmes being provided for offshore workers?	Can you describe ~~it~~them to me?

IMPLEMENTATION OF A WORKPLACE PROGRAMME

Do offshore workers ask you about [insert behaviour]?	Do you initiate discussions on [insert behaviour] with offshore workers? How do you do this? What might make it easier for you to talk to offshore workers about [insert behaviour]? What might make it difficult for you to talk to offshore workers about [insert behaviour]?
How do you think a workplace health programme could help offshore workers to [insert behaviour]?	What are your thoughts on this? Have offshore workers discussed [insert behaviour] with you? What advice did you give?

	How do you think it might be made easier to facilitate workers engagement with a health programme to [insert behaviour]? What do you think might make it difficult to facilitate workers engagement with a health programme to [insert behaviour]?
Can you identify any barriers which you feel may affect the implementation of a workplace health programme in the offshore environment?	How do you think these might be overcome? How do you think it might be made easier to implement?
Do you think that the sort of programme you described would be beneficial to or welcomed by offshore workers?	How? How do you think engagement with this type of health programme could be increased?
THANK YOU: That is the end of my questions. W, would you like to add anything or ask me anything? I would like to thank you for giving up your time to take part. Please feel free to contact me using the contact details provided for you on your participant information sheet if you have any subsequent queries or suggestions or anything you want to add to your responses. Also, can you suggest anyone else who might want to take part in our research?	

Comment [A2]: Two questions, use one then the other as a probe

Appendix 6.3.

Recruitment Questionnaire

Robert Gordon University Aberdeen

INSTITUTE FOR HEALTH AND WELLBEING RESEARCH

Participant Information Version 1.1 (May 2015): A study on offshore workers' health and lifestyle from the perspective of remote healthcare practitioners

You have been invited to participate in a research study. Before you decide if you would like to take part, it is important that you understand the purpose of the research and what it will involve. Please take the time to read through the following information and feel free to talk to others about the study. If you have any questions or if you would like any further information about the study please feel free to contact me (k.l.gibson@rgu.ac.uk or 01224 263105).

What is the purpose of this study?
The aim of this study is to understand the health and lifestyle choices of offshore workers from the perspective of remote healthcare practitioners.

Why have I been selected?
You have been invited because you are registered as a remote healthcare practitioner with the Institute of Remote Healthcare.

Do I have to take part?
No, it is up to you whether you take part or not. A decision not to take part will not affect your employment or relationship with Robert Gordon University in any way.

What will happen to me if I take part?
If you do decide to take part, we will organise a telephone interview to explore your views on the health and lifestyle of offshore workers. The interview will last around 30 minutes and we would like to record each interview. You will be interviewed on a day and time which is most convenient for you. If you agree to the interview being recorded please initial the box in the consent form, if you would prefer that we did not audio record the interview, please leave the box blank. If you decide that you would like to withdraw from the study after you have taken part, please let us know within 14 days of the interview. You can do this by contacting Katie Gibson directly (k.l.gibson@rgu.ac.uk or 01224 263105). We will destroy all data, audio recording and consent forms. Your relationship with the researcher will not be affected by your decision to withdraw.

What are the possible benefits of you taking part?
There is no direct benefit to you for participating in this study. The research might help us understand the health and lifestyle needs of offshore workers.

Will my taking part in this study be kept confidential?
All information which is collected about you during the course of the interview will be kept completely anonymous. You will not be named in any reports or publications that result from this study. Your employer will not be made aware of your participation.

What will happen to the results of this study?
The results of this study will be used to help us understand the health and lifestyle of offshore workers. The findings will form part of a doctoral thesis and may be published in a healthcare journal. To request a copy of any reports please contact either myself (k.l.gibson@rgu.ac.uk or 01224 263105) or Dr Vibhu Paudyal who is the project supervisor (v.paudyal1@rgu.ac.uk or 01224 262595).

Who is organising and funding the research?
The study is funded by the Institute of Health and Wellbeing at Robert Gordon University.

Who has reviewed the study?
This study has been approved by the Ethical Review panel of the School of Pharmacy and Life Sciences at Robert Gordon University.

What next?
We will be selecting interview participants on the basis of key characteristics to ensure that the sample is representative of the offshore remote healthcare practitioner population. This may mean that you may not be selected for interview, however we will endeavour to inform you of the outcome as soon as possible. If you are selected and would still like to participate in a telephone interview we will contact you via the email address you provide to arrange an interview date and time. We are hoping to conduct the interviews in the summer of 2015 and will be in contact with you in the coming months.

Research Student: Katie Gibson (k.l.gibson@rgu.ac.uk)
Supervisors: Dr Vibhu Paudyal (v.paudyal1@rgu.ac.uk), Professor Derek Stewart (d.stewart@rgu.ac.uk) and Professor Susan Klein (s.klein@rgu.ac.uk)

ROBERT GORDON UNIVERSITY ABERDEEN

STITUTE FOR HEALTH
ND WELLBEING RESEARCH

Please initial the following to indicate your consent:

I confirm that I have read and understood the participant information sheet version 1.1 (May 2015) which was on the webpage prior and been provided with adequate opportunity to ask any questions.

I understand that my participation is voluntary and that I am free to withdraw from the study at any time without having to provide a reason.

I agree to my interviews being audio recorded.

I understand that the data collected during this study will be used for research purposes including publication of anonymised findings. I grant permission to do so on the basis that my confidentiality will be protected.

I agree to take part in this study.

ROBERT GORDON
UNIVERSITY ABERDEEN

STITUTE FOR HEALTH
ND WELLBEING RESEARCH

Please complete the following:

Name	
Email address	
Telephone number	
Age	
Employer	

Gender

◯ Female

◯ Male

Occupational background

☐ Doctor

☐ Nurse

☐ Paramedic

☐ Other (please provide details below)

Please provide details of your occupational background	

Thank you very much for completing the interview forms. As outlined prior, we shall be in touch, via email, in the coming months to inform you of the outcome. If we receive consent forms back from a higher number of potential participants than what we require, we will select based on key criteria to ensure that our sample is representative of the remote health practitioner workforce. In which case, we will also inform you.

Appendix 6.4.

Interview Invitation Email

Subject: Invitation to participate in a PhD research project

Dear IRHC member

I am a doctoral research (PhD) student at Robert Gordon University funded by the Institute of Health and Wellbeing. The aim of the study is to understand the health and lifestyle of offshore workers from the perspective of remote healthcare practitioners. In order to do this, I would like to recruit a small sample of remote healthcare practitioners who have **experience of delivering healthcare to the offshore workforce or assessing the health of offshore workers**.

I would like to invite you to take part in a telephone interview, which should last around 30 minutes, at a time of your convenience. If you think you may like to help out please read the participant information sheet and complete a short online consent form, which can be accessed via the link below. We aim to conduct the interviews over the coming months and will be in contact with those who are interested in due course to arrange a suitable time. I look forward to hearing from you. If you would like any further information or to ask any questions, please feel free to contact me by phone (01224 263105) or email (k.l.gibson@rgu.ac.uk).

https://www.snapsurveys.com/wh/s.asp?k=143325221347

Kindest regards,

Katie Gibson Smith

Research Team
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