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REVIEW OF 3 AND 3 ROTATION IN OPERATION

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Report prepared for The Offshore Contractors Association,
Recognised Trade Unions and ACAS

2018

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Foreword from Paul Atkinson, Chief Executive, Offshore Contractors' Association.

This report outlines the results of the largest study amongst the offshore workforce for many years. In considering the impact of different rota patterns on health, safety and work-life balance it has sought to balance perception with reality.

As the oil and gas industry evolved over the last few years, the OCA and its member companies committed to investing in an effective workforce engagement programme that would assess the impact of those changes on their staff. Working in partnership with ACAS and three trade unions - GMB, Unite and RMT – we commissioned a team at Robert Gordon University to undertake some independent analysis.

In planning this project we all placed particular importance on ensuring that individual results remained absolutely confidential. Our objective has always been to encourage as many people as possible to participate. I am really pleased to report that 2,438 people responded to the survey representing around 40% of the OCA members' workforce. I would like to thank them all for their individual contributions.

We all recognise that the North Sea is, and will always remain, a challenging place to work. The report includes many encouraging observations. It points out that many people in the industry consider offshore work in a positive light. Importantly, it says that the work undertaken and stress factors present are not problematic for most of the workforce.

It is clear that many respondents feel positively about their relationship with their immediate teams, colleagues, managers and clients. There also appears to be very little dissatisfaction about how they are managed on a day to day basis.

At a time when the influence of social media companies has become an increasingly prominent issue, this report makes some interesting observations about its impact of social media on offshore communities. The suggestion that, although it brings many benefits to individuals but may be detrimental to team cohesiveness, reflects some of the wider challenges in our society.

However the report also presents a mixed picture on other issues, including work life balance, with significant differences of opinion between people of different generations and rota patterns. It is interesting to note that almost 50% of those who took part in the survey have worked in the industry for over 15 years. Their observations offer an important insight into the changing environment.

I would particularly like to thank Anne Stevenson, David Gibbons-Wood and the research team at Robert Gordon University for their professional support throughout this project. I would stress that this report is their own independent analysis.

Our member companies will always prioritise the health, safety and welfare of their workforce above everything else. We will now take some time to consider the results of this study together with all our industry partners.

This report should be considered in the context of the offshore oil and gas industry, which provides employment opportunities for employees with many different skill sets. However, the workforce operate in an environment characterised by shift work, remote working, gender imbalance, travel distance and physical activity. Given these challenges, responses with regard to work life balance might reasonably be expected to differ from those reported for a more 'typical' job.

The study attracted a response rate of 40% and the responses by company are generally proportional to the numbers employed. Two companies had a higher than expected response rate; one had generally positive results, whilst the other was more negative. This indicates that employees with both negative and positive views took time to respond, thus helping provide a balanced view.

Responses from female workers are so low that representative analysis of the female workforce is impossible. The industry may wish to consider how it might change to offer a work life balance and working environment that better accounts for the needs of 49% of the typical working population.

Forty percent of the workforce now travel over 200 miles to their usual point of travel offshore. This presents both opportunities and challenges to the workforce; the opportunity to live where they choose but with the disadvantage of rising travel costs and disruption. This is a personal choice for employees and overall has only a limited impact with regard to work-life balance.

The average age of the OCA workforce is above the UK average and there is still evidence of a mid-career gap. Given that this gap has been prevalent for three decades, consideration needs to be given that it may represent a failure of the industry to retain this age category.

Views of the 3/3 rota are associated with the challenges of working with a reduced headcount. Sixty-two percent disagreed or disagreed strongly that the changes had "no impact on the number of staff working in my area".

The 3/3 rota pattern is now worked by 56% of the workforce, compared to 17% of the workforce working three weeks offshore in 2007 (MacGillivray, 2007). The three main rota patterns reported were 2/3, and two equal time rotations, 2/2 and 3/3.

In terms of work life balance 26% are satisfied but a much larger proportion (52%) are dissatisfied. Typical jobs in the UK usually see this pattern reversed. A large proportion of those dissatisfied with their work life balance work the 3/3 rota. Similar dissatisfaction with work life balance relates to those with the longest tenure, those employed by certain companies and those with the role of technician.

Work has a more negative impact upon family life than family life has on work; statements concerning to work-family conflict received a high level of agreement. Limited evidence was found that employees are reporting that levels of fatigue offshore are hindering activities and output for their employer.

Statements describing the recent changes offshore receive the highest levels of agreement when related to the disadvantages of working offshore. The statement with the highest level of strong agreement was "I find it more difficult to recover from a trip offshore" (45%). This indicates that work-life balance for those who work offshore is not just an issue of working remotely; the recovery periods also impact upon their return to the family.

Since 2015 rota changes have made the negative aspects of working offshore more of a problem. There are some potentially positive aspects to the changes e.g. Ease of taking holidays; enhancement of these may mitigate against the remote location and nature of the work.

Notwithstanding the extreme physical environment of offshore work, some employers have been successful in making the remote work environment palatable, suggesting that further enhancement is possible. In relation to positive statements regarding their actual work, relationship with manager and colleagues, and the ability to manage their own workload, levels of combined agreement were above 60%. Respondents appear to be content with the current offshore working environment, although a small percentage are very dissatisfied. However, only 24% of respondents believe they have the right balance in their personal life and work-life and 34% of respondents disagreed or strongly disagreed that they are treated well by their OCA employer.

Views on actual work undertaken remain reasonably positive. There is little employee dissatisfaction with how they are managed on a day to day basis. The respondents seem to know what their role is, what is expected in their role and they consider they have the resources necessary to complete their work. The highest level of strong dissatisfaction relates to the rota worked; over 40% were strongly dissatisfied.

Two-thirds consider their lifestyle to be more important than the money they earn. However, 61% were dissatisfied with their pay and benefits.

The OCA workforce believe that work affects their health in a greater proportion than the national average for the UK. The perceived impact of work on health increases with the length of rota. Those on the 2/2 rota report a response pattern more like the UK average, where work does not impact upon health for most. Those on 3/3 rotas and those who work externally on the installation are more likely to report that their symptoms were caused, or made worse, by work.

The aggregated mean fatigue score for all respondents is consistent with a level of normal fatigue. The mean for those on a 3/3 rota rises to a level indicating substantial fatigue. The perceived impact of fatigue relates to declining concentration and possibility of increased errors in the workplace.

Workers are spending longer offshore and 57% of respondents reported that the sleeping environment has deteriorated. This will compound the effects of longer rotas. Reasons for this may include the reported increase in sharing a sleeping cabin, noted by 67% and the disagreement by 46% that noise exposure in the cabin has improved.

Over four fifths of the workforce work either day shift only or night shift only. Figures from this survey reveal very moderately lower level of fatigue for those that don't work swing shifts.

The level of provision and use of employer-provided health and wellbeing benefits exceed or are comparable to UK norms in all cases. Some companies seem to offer better support packages.

The impact of social media offshore is complex, with further investigation needed. The use of social media is a personal choice and whilst this may bring benefits such as helping to keep in touch with family, it might also limit team cohesiveness offshore and eat into sleep periods at the expense of recovery.

The Mental Health Assessments Tool (MHAT) data suggest that the psychological wellbeing is no worse than it was 26 years ago (Parkes, 1992), and is within expected ranges. However, reporting of psychological distress in the 3/3 rota was greater than those on the other rotas.

The Warwick-Edinburgh Mental Well Being Scale (WEMWBS) data clearly suggests that the state of wellbeing among the current workforce is lower than the national average. The proportion of participants reporting low scores and working on the 3/3 rota is almost double the proportion of participants reporting the same level but working other rotas.

Reduced wellbeing is also linked to dissatisfaction with work-life balance and a range of safety features including sleeping environment and noise exposure. It may be that changes to some of these factors would enhance the perceived wellbeing of workers on the 3/3 rota, however that is outside the scope of the present study.

1.1 Purpose

This survey was commissioned by the Offshore Contractors Association (OCA), working in conjunction with the recognised Trade Unions and ACAS. These together form the Joint Working Party (JWP) which provided guidance during the research process. The remit was to provide clear evidence for the ongoing discussion surrounding the three and three (3/3) equal time rotation between the OCA, Unions and ACAS. The commissioning of this report shows a commitment to detailed consideration of the impact of the 3/3 rotation on the workforce from both employers and unions. The survey focus was an analysis of workforce perceptions with regard to health, safety, wellbeing and work-life balance. This impartial research is designed to support ongoing work of the JWP.

1.2 Background

The oil and gas industry is of central importance to the economy of Scotland and the employment prospects of thousands of people across the UK. Within the sector there are many companies which together make the UK oil and gas contracting industry. The Offshore Contractors' Association represents many of these companies, for the purposes of influencing and addressing the challenges facing both member companies and their workforce. The companies represented by the OCA are some of the biggest names in the oil and gas industry and their contribution is significant for the successful, safe and profitable operation of the oil and gas industry.

The OCA member companies jointly employ a large workforce of over 6,500 staff, illustrating the importance of human resources to the industry. Previous studies have highlighted that the biggest challenges facing the oil and gas industry relate to employment issues; specifically attracting appropriately skilled staff and controlling labour costs. To remain competitive, all companies in the UK oil and gas sector have to balance the need to be profitable with working practices and a retention and reward package that reflects the challenging working conditions in what can be regarded as an extreme workplace.

The contraction in the oil price had serious implications for business and employees across the sector, resulting in numerous changes to operating patterns and methods. One of the arguably most contentious changes, was the shift to new working rotas for offshore workers.

The new rota was introduced in June 2015 in the form of the 3/3 equal time rotation (3/3). Speculation as to the possible impacts of this had occurred, but there was a recognition that only empirical evidence, collected and analysed after the equal time rotation had been operating, would provide an accurate evaluation of the impact.

As part of the negotiations facilitated by ACAS, agreement was reached between the OCA, Unite and GMB to enable an independent organisation to undertake this research. Robert Gordon University was recognised as having the necessary expertise and impartiality to undertake this work. Consequently, RGU was contracted to carry out this survey as an independent expert, to provide a clear evidence base with regard to the views and experience of workers in the offshore environment, in areas relating to health, safety and work-life balance. The survey was issued in January 2018. The project was overseen by a Joint Working Party consisting of OCA, the Trade Unions and ACAS.

1.3 Aim and Objectives

The following aim and objectives were agreed by the JWP in 2017:

AIM

An analysis of the impact of the operation of the 3/3 equal time rotation on the workforce with regard to health, safety and work-life balance.

KEY OBJECTIVES

1. Conduct a statistical analysis of existing data from the periods July to December 2014 and July to December 2016 relating to agreed, appropriate and available demographic and health and safety metrics
2. Gather objective, impartial and reliable data on employee attitudes, opinions, behaviours and experiences surrounding the adoption of 3/3 rotas. These will centre on the issues of work-life balance, health and safety
3. Provide an opportunity for all workers' views with regard to the changing offshore environment to be heard and recorded, via a secure survey
4. Produce a clear evidence report and present results to the Offshore Contractors' Association, recognised Trade Unions and ACAS.

It should be noted that recommendations for the future are outwith the scope of this report, at the express wish of the JWP.

A two phase methodology was used in this study. Phase 1 was statistical analysis of existing secondary data, provided by the OCA member companies, with regard to employee health and safety over two specific time periods; one pre-dating and one concurrent with the equal time rotation. Phase 2 was quantitative research based upon an employee survey of OCA employees, to ascertain their views of issues central to employee health, safety and work-life balance.

2.1 Phase 1: Statistical Analysis of Existing Data

RGU undertook a statistical analysis of relevant existing data provided by OCA member companies. The aim of the analysis was to compare and contrast the data for the time periods July to December 2014 with that for July to December 2016. These time periods allow for a before and after review of the impacts of the introduction of the 3/3 equal time rotation.

The analysis focused on the areas of:

- Safety: Type, frequency and occasion of incidents
- Health: Type, frequency and occasion of absence or lost time data
- Other data agreed with the JWP as relevant: e.g. demographics

The data was provided in a number of different formats which made analysis difficult, therefore the level of detail in the statistical analysis of the data could be considered a limitation. Furthermore, in considering the difference between 2014 and 2016, changes in the price of oil will have impacted on levels of activity, making a true like for like comparison of the two time periods difficult.

2.2 Phase 2: Survey Data Collection

At the request of the JWP, RGU organised an online survey of employees using the software tool, **SNAP** as a secure analytical tool.

Prior to the survey's launch, RGU hosted a series of focus group opportunities with volunteer employees agreed by the JWP. Regrettably, only two of the employees who volunteered could actually attend the focus group meetings. Those who did participate were extremely helpful and provided useful contextual advice, supporting the design of the questionnaire. The survey was piloted with members of the focus group and the steering group.

The finalised survey was distributed by RGU to all individuals who were employees of OCA member companies and who did not opt-out (see section 2.3) of the survey. It was available for completion during a four week period in January/February 2018. To encourage responses, reminder emails were issued through SNAP.

2.2.1 Content of Survey

The survey covered four main areas:

- Workforce Characteristics: This provided clear details of the composition of the offshore workforce and allowed for comparison in the analysis of people with different personal and work circumstances, and employment practices.
- Work-life balance: perceptions of work-life balance were measured and details sought on where possible conflicts may arise.

- Safety: Perceptions were measured with regard to safety of employees.
- Health and Wellbeing: Wellbeing was measured using a well-established method, the Warwick-Edinburgh Mental Well-being Scale (“WEMWBS”). This was supplemented by questions regarding perceptions relating to personal behaviours and health which required a bespoke Mental Health Assessment Tool to be designed, which additionally provides a baseline for future study.

Taken collectively, the analysis of statistical data and the survey, provided evidence of recorded differences gathered by the OCA. This, plus the perceptions of the workforce, allowed a holistic picture to emerge of the actual impact of the 3/3 rotation.

2.3 Sample and Response Rate

Prior to the survey release, 6,674 employees from OCA companies were contacted by email and given the opportunity to “opt out” of the survey, effectively choosing not to participate. Once this was complete, RGU was provided with a database of names and a link to the survey was sent to 6,138 (92% of the population) employees. Of these, there were 27 email addresses which were not valid, therefore the total distributed was 6,111. Ultimately, there were 2,438 completed questionnaires giving a response rate of 39.89% (40%). A further 37 started the questionnaire, but did not complete it.

Comparison with other similar studies suggest this is an excellent response rate for a questionnaire distributed by a third party. A similar study gained a response rate of 32% from a sample of 2,300 in 2007. (MacGillivray 2007)

2.4 Analysis

The framework used for analysis was based upon a review of pertinent literature on the issues of health, safety, wellbeing and work-life balance. Where possible, literature related to the offshore working environment; failing this, suitable comparators were identified and used. The analysis was undertaken utilising expertise of RGU staff from the Aberdeen Business School (ABS), the School of Nursing and Midwifery (SoNW) and the School of Health Science (SHS).

The data was coded and entered in to Statistical Package for the Social Sciences (SPSS), which allowed descriptive statistics to be generated with regard to health and safety, work-life balance and wellbeing.

These three general areas were further analysed by cross-tabulating results with the variables collected in the workforce characteristics section. These included Installation; Company/Employer; Regular/ad hoc rota pattern; Length of Service; Time in industry; Age; Job classification; Shift pattern; Timing within rota; Working extended trip. Generally, only those correlations which evidenced statistical significance are reported.

2.5 Sample in Perspective

The core offshore workforce in the United Kingdom Continental Shelf (UKCS) in 2016 was 22,739 (OKOG 2017), a decrease of 18% since 2014. Of this core offshore workforce, OCA employees accounted for approximately 29% (6,679 (OCA, 2018)). Whilst this survey does not cover the whole UKCS workforce, it does represent the views of a substantial proportion of these workers, albeit those who work for specific employers.

2.6 Structure of the Report

All questions asked in the survey are covered in the report. The remainder of the report is composed of four sections: Workforce Characteristics; Work-life balance; Health and safety; Wellbeing, thus reporting on the main sections covered by the questionnaire.

3.0 Workforce Characteristics

3.1 Overview

This section covers the composition and characteristics of the respondents.

3.2 Gender of OCA Workforce

Respondents were asked to identify their gender; 98.4% of respondents were male, with just under one per cent female. In terms of frequency of response 2,422 were male, 22 female and 11 preferred not to say. Given this pattern within the sample it was only possible to conduct detailed analysis of male employees' responses. Conducting an analysis of female employees' responses would not be statistically significant and could potentially lead to an individual's responses compromising the anonymity of respondents, thus gender is not used as a variable for analysis. Further review is necessary to understand the change necessary to offer a work life balance and working environment that would better meet the needs of female workers.

This current level of gender imbalance in the OCA workforce is broadly consistent with previous studies, although with a greater difference noted; MacGillivray (2007) found that 97% of study participants were male and Oil and Gas UK (2017) indicated that of the people who worked offshore, 3.42% were female.

With regard to occupations classed as Science, Technology, Engineering and Mathematics (including health occupations), 13% of all those working are women (WISE).

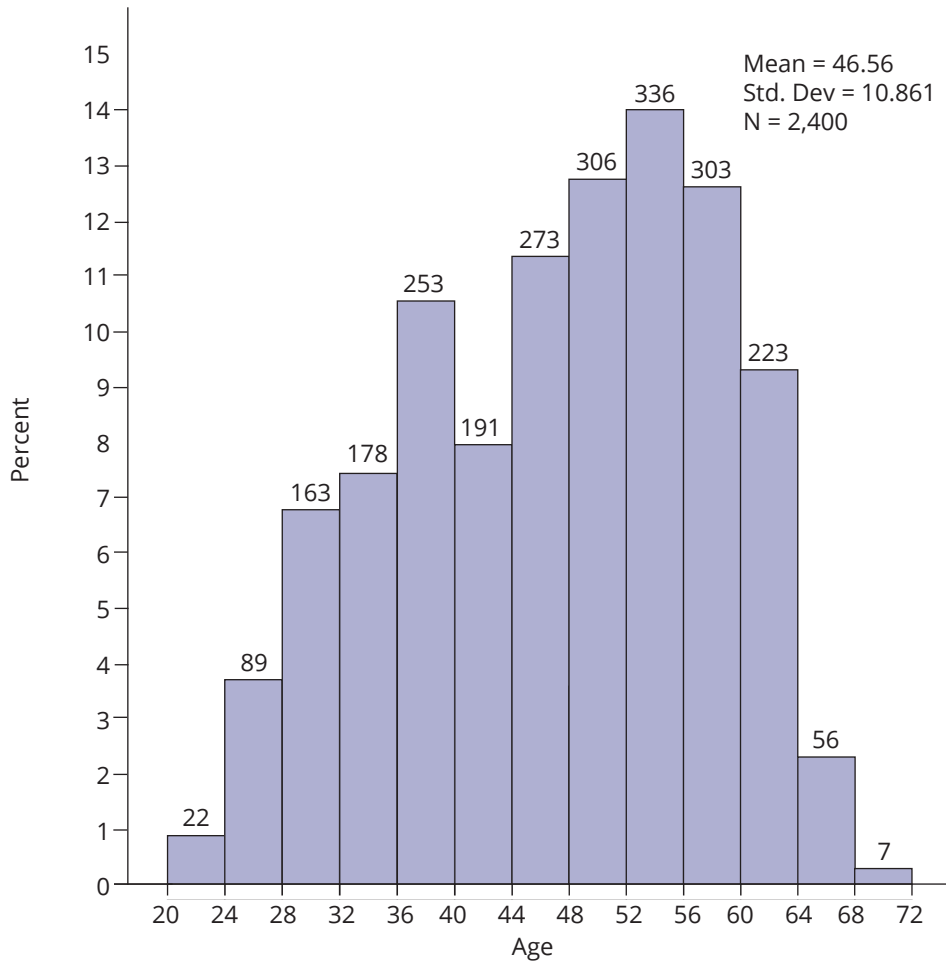
3.3 Age of OCA Workforce

Respondents indicated their age at their last birthday and the age profile of the OCA workforce is shown in Figure 2. The age range is 20 to 71.

Older age groups are better represented than the young. This is to be expected given the age profile of the UK, but there is clear evidence of a mid-career gap amongst those aged 40-44. This under-representation of "40 something" workers in the industry was present in research undertaken in the 90s and continues to be demonstrated in the OCA workforce. This pattern is indicative of two separate working populations both showing low number of workers in their early 40s, perhaps reflecting a working environment not consistent with that age group's requirement for flexible working.

The mean age of the OCA workforce is 46.56. This is above the average age of 42.7 for all offshore workers as reported in the OGUK 2017 workforce report.

Figure 1: Age of Respondents



For the purposes of this report, analysis of the response to individual questions was based on a series of well recognised generational cohorts (Mullins, 2016). Specifically;

- Baby Boomers born 1946 – 1963; age range 72 – 55, 28% of respondents
- Gen X born 1964 – 1979; age range 54 – 39, representing 45% of respondents
- Gen Y born 1980 – 1995; age range 38 – 23, representing 27% of respondents.

These effectively cover the age range of the sample and clearly breakdown the workforce into three distinct categories of approximately equal age ranges. The biggest generational group represented is Generation X, aged 39 – 54 years.

3.4 Partners, Children and Care Responsibilities

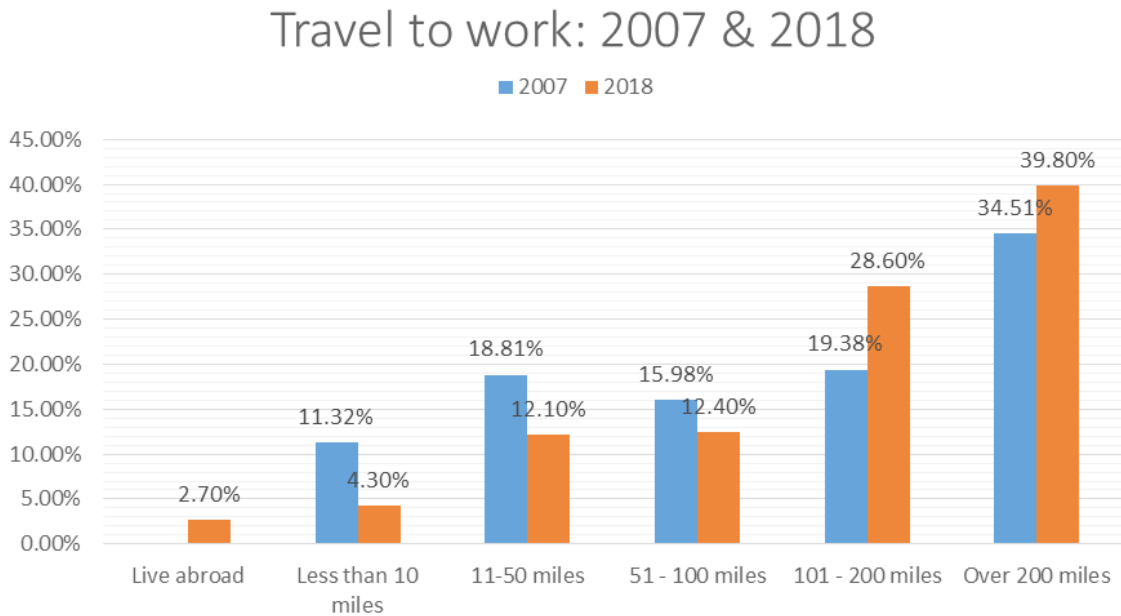
We asked respondents to indicate their household situation with regards to relationships with partner/spouse; dependent children; or caring responsibilities for elderly relatives/disabled dependents. This question was asked to allow analysis of the impact that domestic life may have on the issue of work-life balance and to assess factors that may or may not contribute to individual well-being.

Ninety percent have a partner, spouse or significant other. Forty-seven percent have dependent children. Ten percent have caring responsibilities for elderly relatives/disabled dependents. Of all respondents, 5% had none of the above.

3.5 Distance Travelled

Respondents were asked “How far do you have to travel from home to your usual point of travel offshore?” The answer which appears most frequently is a travel distance of over 200 miles (40%). The responses reveal that in aggregate, 71% travel more than one hundred miles to work (including those who live abroad). Only 4.3% of the sample travel less than 10 miles to their point of travel offshore. Figure 2 reveals how this has changed since 2007 (MacGillivray, 2007), with the offshore workforce then recording shorter travel distances with greater regularity.

Figure 2: Travel to work



Source: OCA study (2018) and MacGillivray (2007)

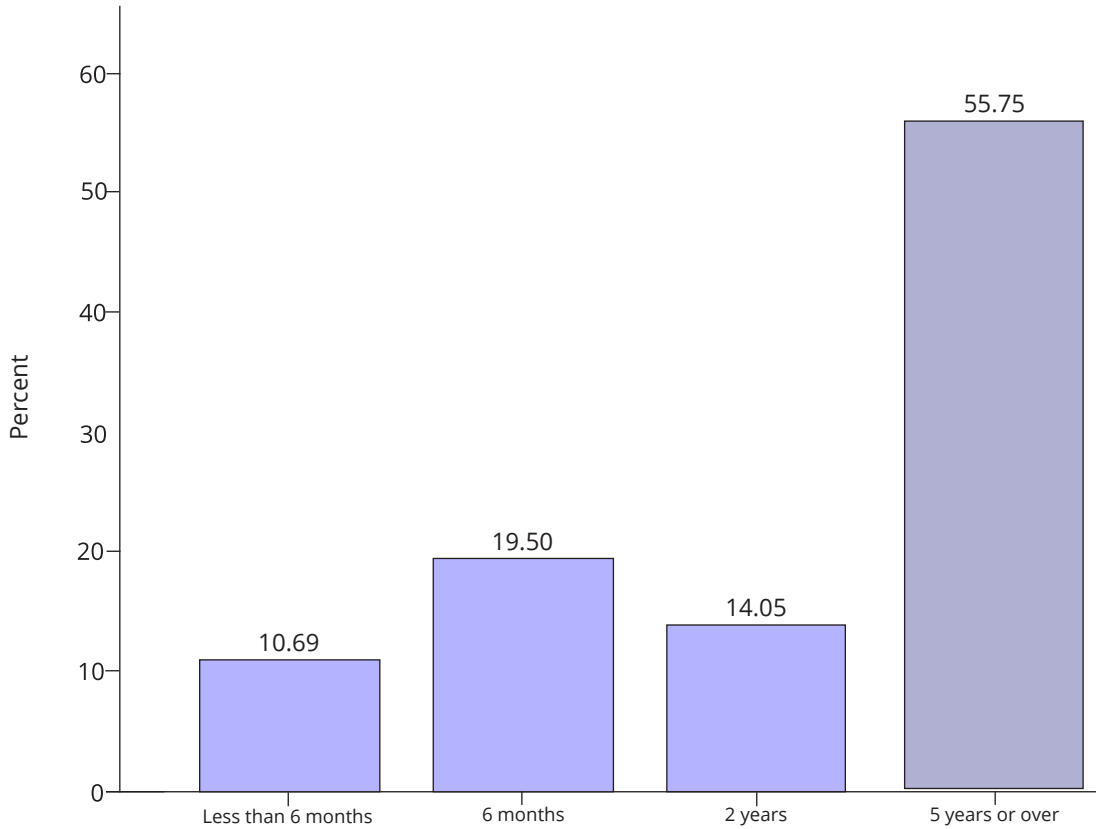
Previous research has established that travel to work has an impact on work-life balance (Wheatley, 2012). These distances travelled by the OCA workforce could be regarded as extreme. However, it is important to qualify this as typical travel data relates to workers who travel to work daily. In the case of offshore workers, travel to and from work occurs once every two or three weeks. Consequently, conclusions from other studies will not be applicable, however offshore working may facilitate individuals living in an area of their choice, rather than being restricted to the travel to work area of a typical daily commuter.

3.6 Installation & Employer Details

The survey sought to examine patterns of work-life balance which may appear on specific installations. Respondents had the opportunity to name their own work location, but this caused difficulty in analysis as different spellings and ways of describing the installations means that the analysis is generally meaningless. Over 24% either gave no answer or stated “ad hoc”. Furthermore, the frequencies for the named installations was too low to provide meaningful analysis. As a result, the data is only analysed against installation in specific, relevant cases, which will be discussed at the appropriate point in the report.

Data regarding the length of time respondents worked on a particular installation can be seen in Figure 3. Fifty-six percent of respondents have spent more than 5 years based on just one installation, thus over half of the OCA workforce has stability in work location. However, a considerable number of workers indicated that their tenure on a particular installation is more irregular.

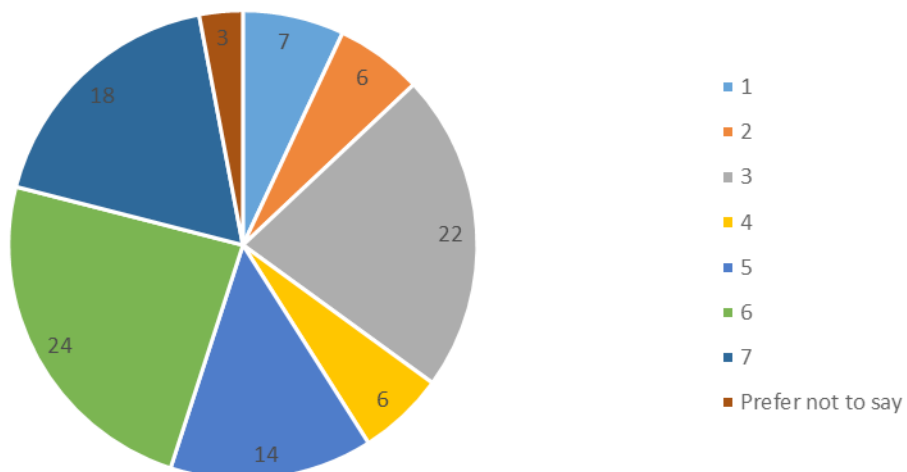
Figure 3: Tenure on Installation



Respondents were also asked their employer and the percentage of respondents from each OCA company was recorded and compared with the actual percentage of OCA employees currently employed by that employer. The response rates were generally representative of the workforce. However, two companies had a higher than expected response rate. This required further analysis to find out why this may be the case and the commentary reflects this where needed. The breakdown of response by company can be seen in Figure 4. Two companies had either no responses or response rates which were so low (2 respondents) that they are excluded from the figure below. Companies are numbered, rather than named, in this report to maintain confidentiality.

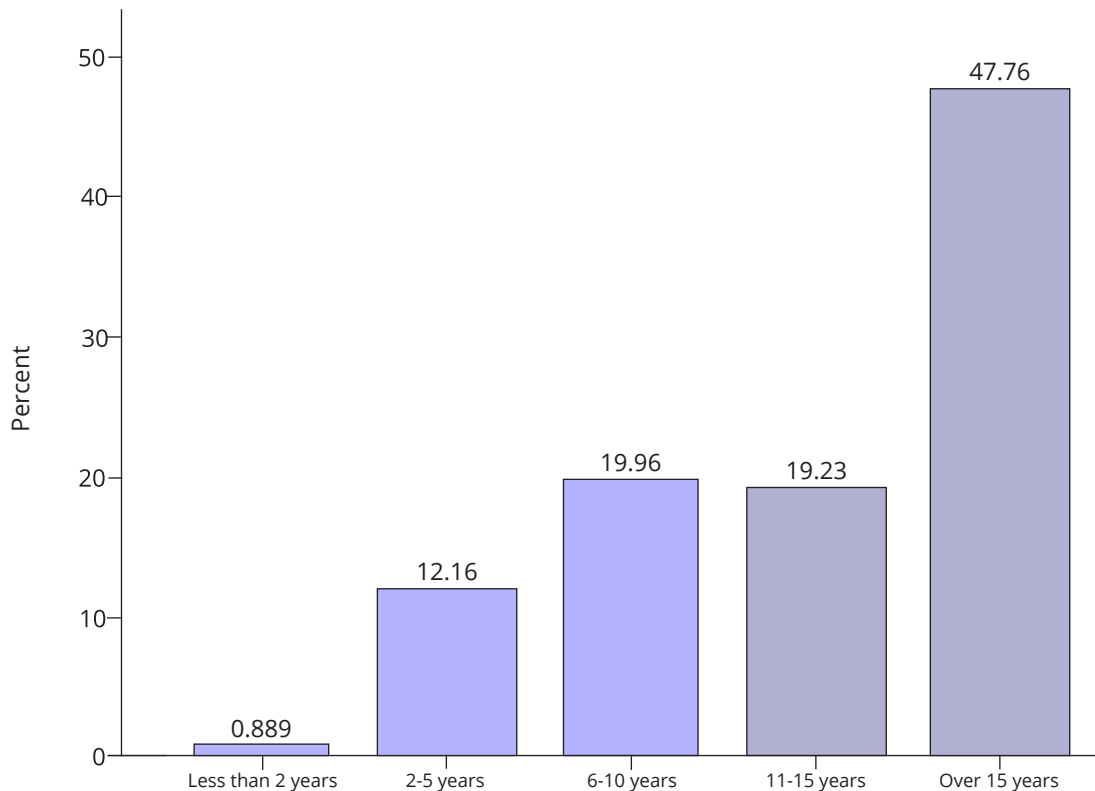
Figure 4: Percentage Respondents per OCA Company

Percentage Respondents per OCA Company



Almost half (48%) of the sample had worked in the Oil and Gas industry for over 15 years. A further 19% had 11 – 15 years' service and 20% had between 6 -10 years. Twelve percent had 2-5 years' service and the remaining 1% had less than two years. This pattern of tenure indicates that the vast majority of respondents would have experienced the industry prior to the introduction of the 3/3 rota change, thus allowing them to comment meaningfully on the change.

Figure 5: Tenure in the industry



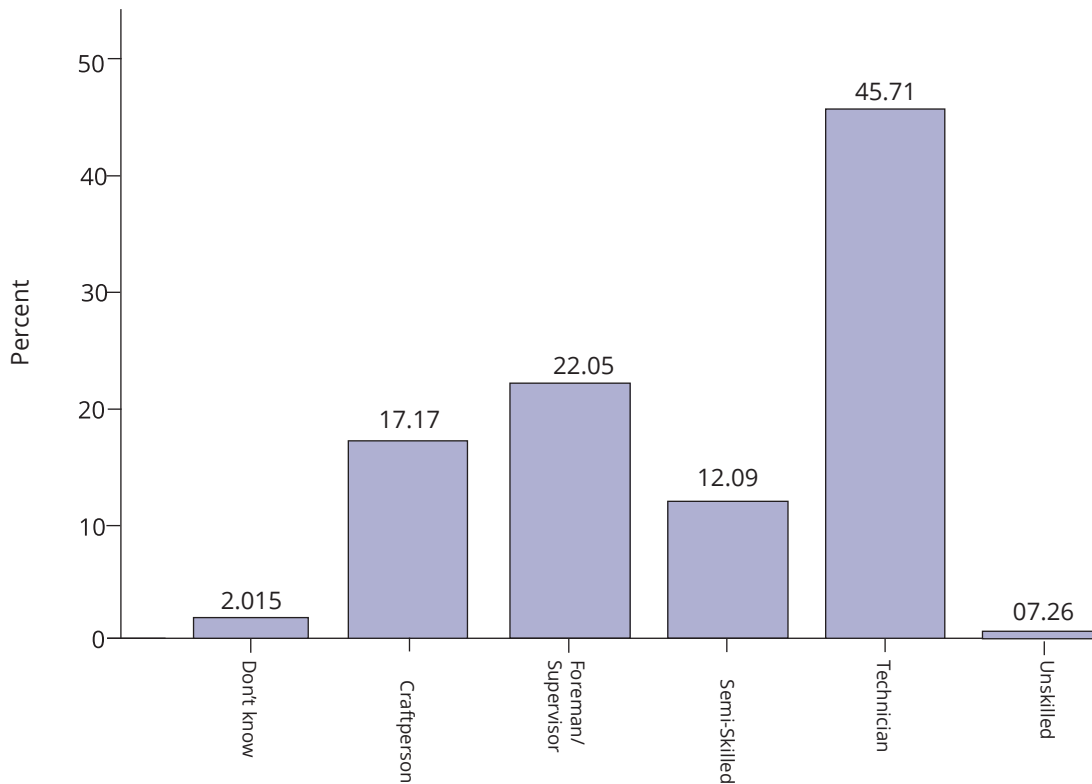
Analysis by generation showed that for Baby Boomers and Generation X, over 15 years is the most frequently chosen option, while for Generation Y, it is 6 – 10 years.

Analysis by rota showed that for all three groups, the most frequently selected industry tenure is over 15 years; however, the numbers on a 2/2 rota with over 15 years' experience are disproportionately lower when compared with 2/3 and 3/3. Overall there is a mild rota effect in the distribution of industry experience. The modal tenure for all three rota groups is over 15 years. All of the above ties in with MacGillivray (2007) who highlighted the mean tenure was 16.23 years.

3.8 Job Description

Respondents were asked to identify their job type. As shown in Figure 6, technicians accounted for 46% of respondents; 22% were foreman/supervisors; 17% craftsperson; 12% semi-skilled. The remainder either didn't know (2%) or were unskilled (1%). These figures allow for analysis against job type where appropriate.

Figure 6: Job Description



3.9 Location on Installation

Respondents were asked to indicate the normal location of their work whilst on the installation. Seventy-five percent work externally on the installation and 24% internally (2% "don't know"). Categorisation of workforce by work location will allow for exploration of the impact which inside or outside work has on safety, fatigue and wellbeing.

3.10 Nature of Role

Similar to the above, knowledge of whether respondents have sedentary or active roles offshore will allow consideration of their impact on safety, fatigue and wellbeing. Thirteen percent of the sample had a desk based role and 86% had roles which they classed as primarily active. One percent were unable to answer and indicated that they did not know.

3.11 Rota Worked

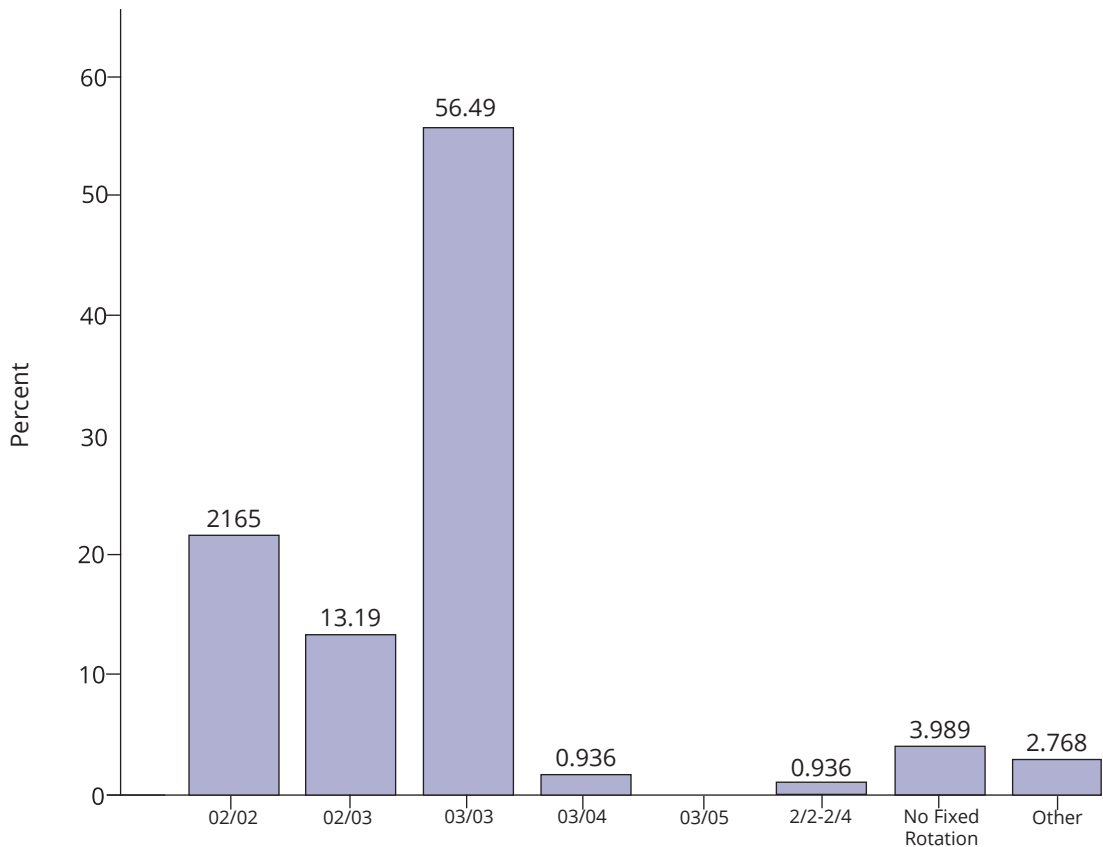
For this study the rota worked is the lead independent variable; this survey centres on the impact which changes in rota pattern have had on the workforce. It is thus critical that current rota patterns are clearly recorded.

Regarding this variable there are a number of objectives:

- To determine the frequency of the differing rota patterns of the offshore workforce
- To determine if length of time on the 3/3 rota impacts upon other variables
- To determine the previous working pattern of those now on the 3/3 rota.

Question 13 asked “Which of the following best describes the rota pattern you work just now?” Responses to the survey indicate that the most widely worked rota pattern is 3/3, now worked by 56% of respondents. Only two other rota patterns were worked by a significant share of the workforce; 22% worked 2/2; 13% worked 2/3. Four percent of the sample worked no fixed rotation. Figures for all rotation patterns, including those which are least worked, are shown in Figure 7.

Figure 7: Rota Pattern Worked



Comparable data is available from MacGillivray (2007). Just over a decade ago, 57% of the study sample worked 2 weeks on 2 weeks off, with a further 13% working 2 weeks on 3 weeks off. Only 2 people indicated working 2 on 4 off. The working pattern of 3/3 is not identified by McGillivray (2007) but approximately 17% worked 3 week shifts offshore in that survey of 2,767 offshore workers.

Respondents were also asked to indicate “Which of these best describe your rota pattern since June 2015?” A majority (66%) identified that they had “always” worked the same rota pattern during this period. A fifth of respondents (20%) “usually” work the same rota pattern and 14% per cent undertake different rota patterns as directed by the employer.

Analysis of those working the same rota pattern and actual rota worked reveals that 56% of respondents work 3/3 as their usual shift.

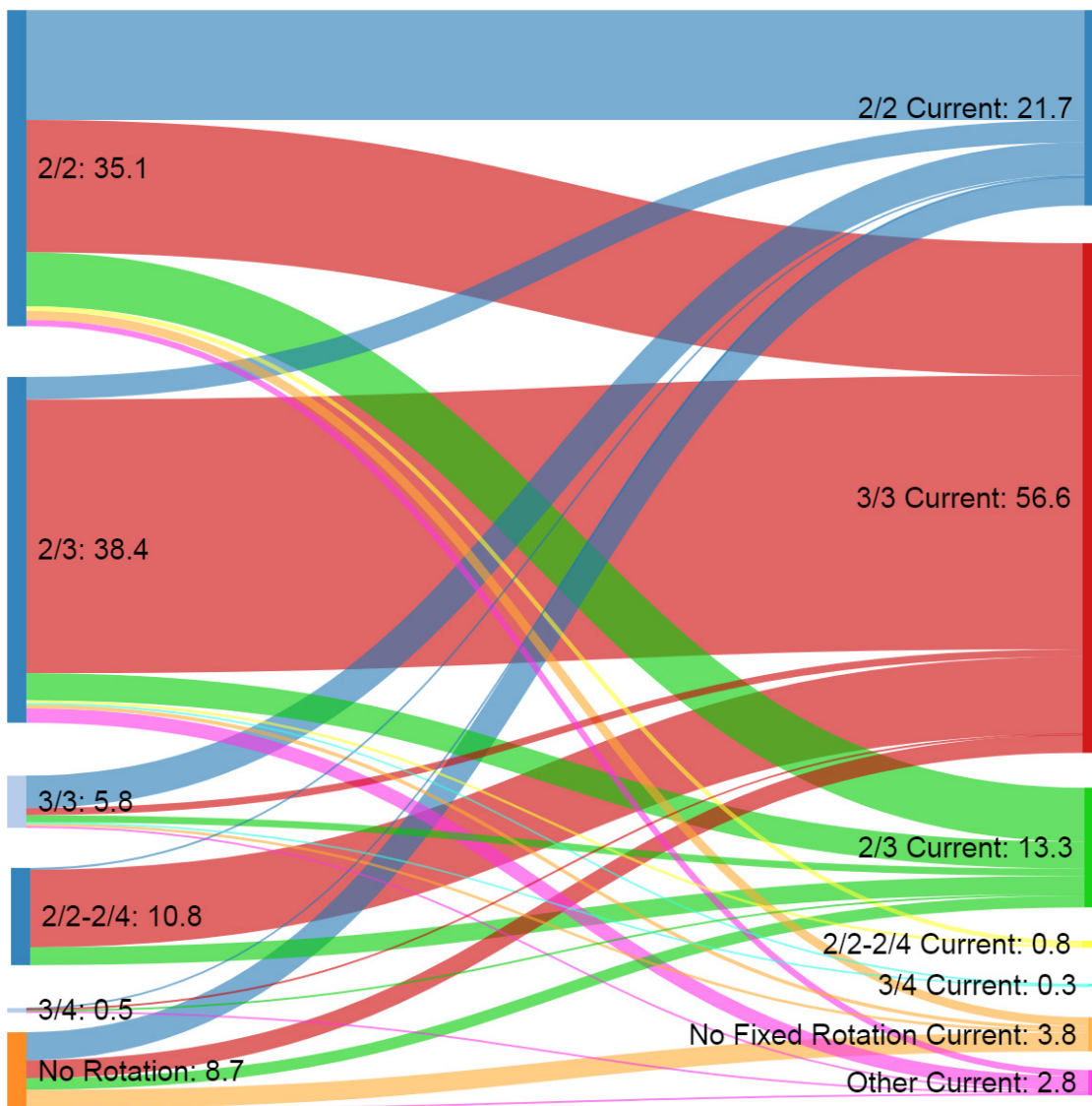
Data from Q14 categorises the periods of time that respondents had worked their current rota pattern. Whilst the changes in the sector have mostly been implemented since 2015, 42% of respondents had been working their current rota for more than 2.5 years, i.e. since before the rota change. Further, 30% of those on the 3/3 rota had worked that pattern for more than 2.5 years.

Table 1: Length of Time on Rota

	Sample	3/3 Rota
Less than 6 months	7%	4%
1 year	12%	11%
Less than 2.5 years	38%	56%
2.5 years or more	42%	30%

To complete the analysis of rota changes, respondents were surveyed with regard to the rota worked prior to their current rota pattern. This data is shown in Figure 8, which tracks the flows between their current and former rota patterns.

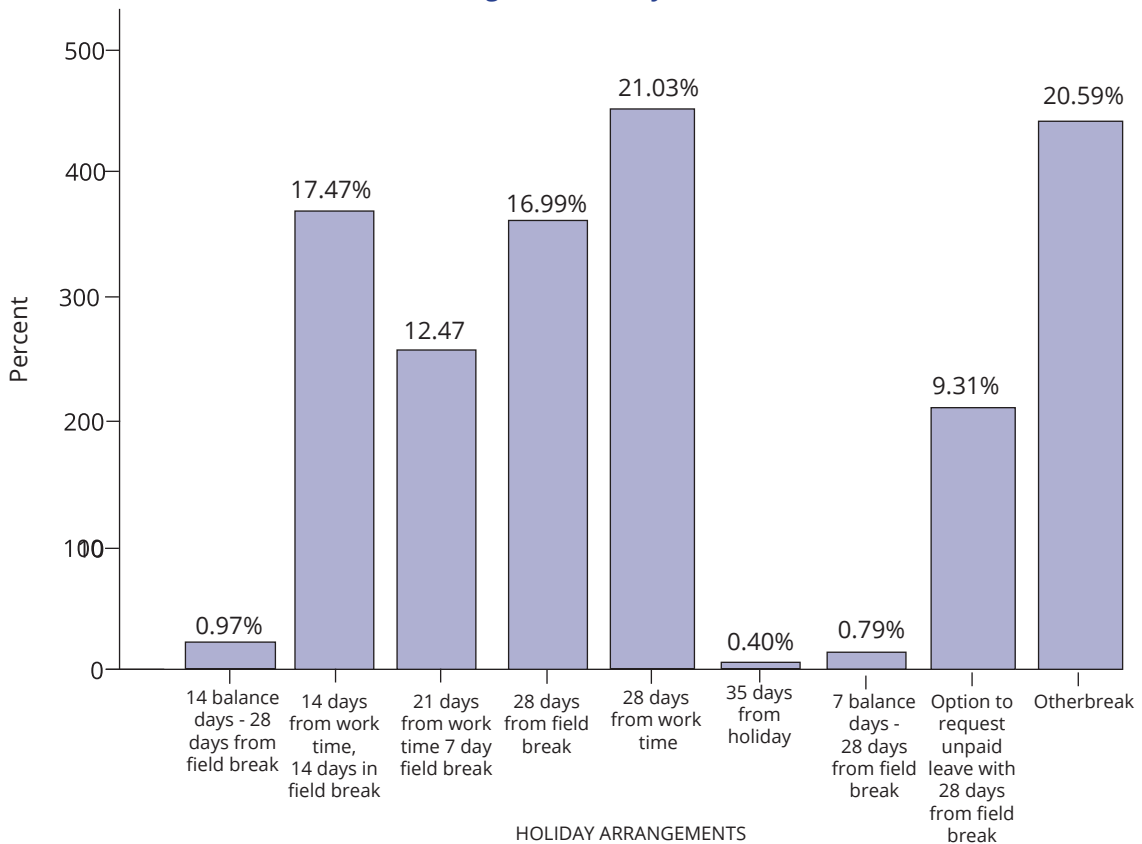
Figure 8: Current and Former Rota Patterns



3.12 Holiday Pattern

Although the rota worked is important, the overall rota pattern worked by employees depends on their holiday arrangements. Respondents were asked to identify their holiday pattern from a list of 8 options provided by the OCA, plus an additional “other” option. The results can be seen in Figure 9.

Figure 9: Holiday Pattern



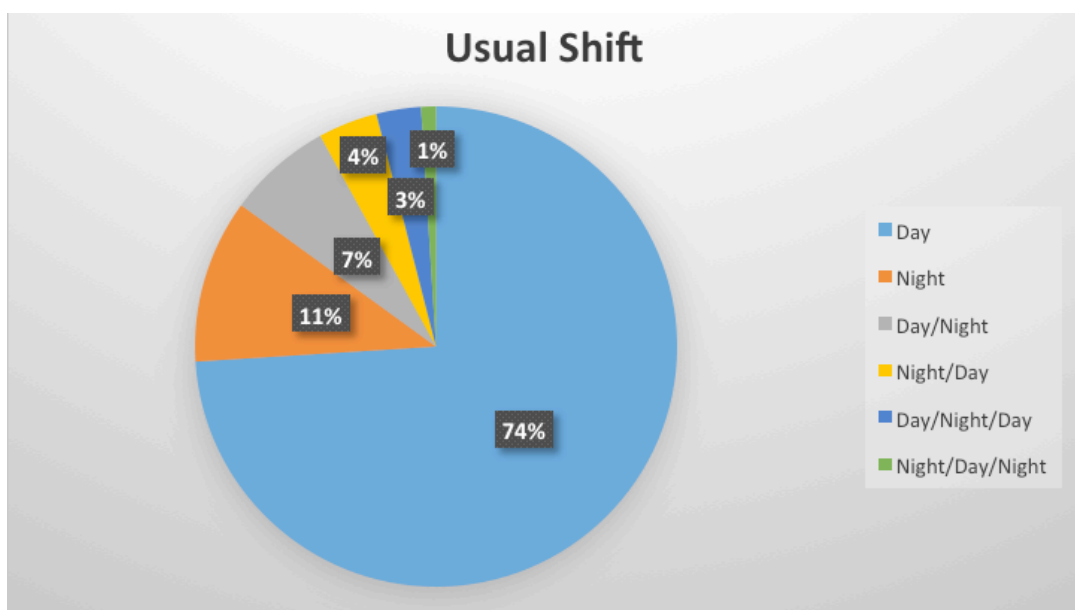
The most frequently chosen option was “28 days from work time” (21%) with “other” a close second (21%).

3.13 Shift Pattern

Respondents were asked “which shift pattern do you usually work during your rota?”

Over four fifths (85%) of the workforce usually work only one shift, either all days or all nights, during their rota. Those on swing shifts accounted for 15% of respondents as can be seen in Figure 10.

Figure 10: Usual Shift Worked



As 85% work one shift only during the rota, this should have a positive impact as HSE (2000) and Parkes (2010) showed that working one shift has positive impacts upon areas such as sleep, performance, health, alertness and fatigue. Research by Parkes (2010 and 2012) found that those on swing shifts were more likely to experience gastric issues, poorer mental health and higher accident and injury rates and fatigue.

There was a significant association between generations and the shift pattern. A significantly higher percentage of Generation Y are found in "Days followed by nights", "Days, nights, days", and "Nights followed by day", whilst a significantly higher percentage of Baby Boomers are doing "Day shift whole trip"; correspondingly, significantly lower proportions are doing "Days followed by nights".

3.14 Extra days

Stewart (2016) suggests that 3 week tours may cause problems because of the extended working period (i.e. 21 x 12 hours shifts). As a result, respondents were asked if they had worked extra days for any of their rotations. Twenty-five percent had never done this; 61% had done so sometimes (once or twice a year); 11% did so regularly (3-5 trips per year); 2% did so often (6-8 trips per year) and 8 people always (i.e. every trip) worked extra days.

4.1 Overview

This section discusses the results pertaining to work-life balance.

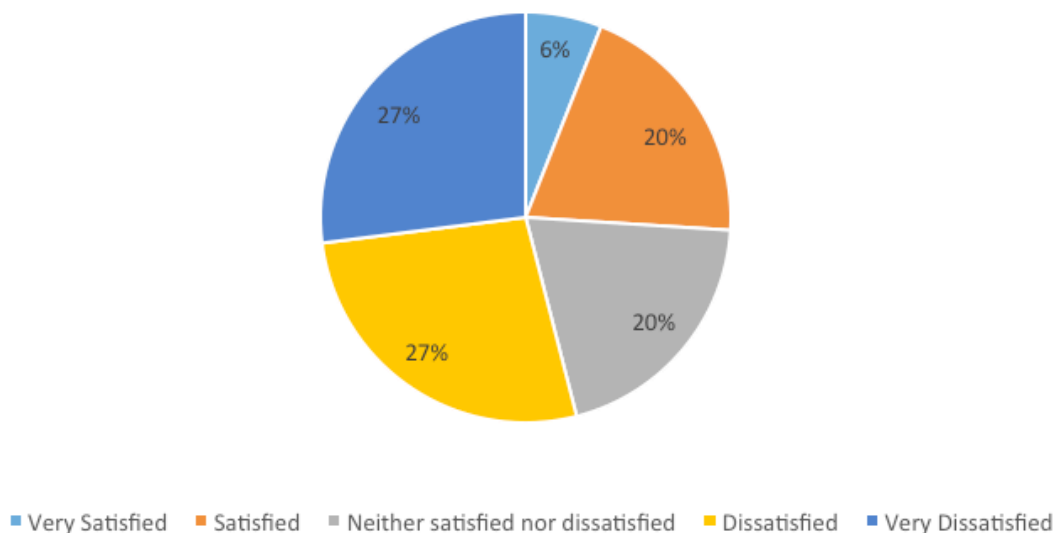
4.2 Perceptions of Work-life Balance

Work-life balance was a key focus in this survey, therefore a number of variables were analysed against respondent perceptions of their own work-life balance. Generally, as seen in Figure 11, over half of the respondents were not satisfied with their work-life balance (dissatisfied (27%) very dissatisfied (27%)). One fifth were ambivalent (20%) neither satisfied nor dissatisfied, and the remainder were satisfied (20%) or very satisfied (6%).

This compares unfavourably with results from the CIPD (2016), where UK respondents noted satisfaction figures almost directly in reverse, i.e. 15% very satisfied, 41% satisfied, 15% dissatisfied, 5% very dissatisfied and 23% neither satisfied nor dissatisfied.

Figure 11: Work-life Balance

Work-life Balance OCA Employees



A number of cross-tabulations were undertaken to discover which factors had an impact upon work-life balance. Those which showed no significant relationships were:

- Tenure in industry. There was one exception in this, with those who had over 15 years' experience in the industry reporting a moderately higher than expected level of being "very dissatisfied".
- The presence or absence of spouse/partner/children, which might reasonably have been expected to have a bearing on the findings.
- Distance travelled to point of departure offshore.
- Whether the job was internal or external on the installation.
- Whether the job was desk-based or active.
- Generation.

Those which did show a significant relationship were as follows:

- In relation to rota worked, analysis showed stark polarisation of opinion with regard to work-life balance. Thus, disproportionately higher numbers on 3/3 are dissatisfied or even very dissatisfied. In contrast, significantly higher numbers of those on 2/2 or 2/3 are satisfied or very satisfied. It can be concluded therefore that those on 3/3 feel the effects of this rota very negatively in terms of work-life balance.
- Work-life balance and tenure on installation. Proportionally, more of those with the longest tenure are the most dissatisfied. Those with 6 months or less tenure are either moderately satisfied or ambivalent, suggesting satisfaction with work-life balance may depend on length of service on the installation.
- Having caring responsibilities for elderly parents or disabled dependents has an association with perceptions of work-life balance as more than expected indicated they were “very dissatisfied” with their work-life balance.
- The employing company showed significant associations. One company had over three-quarters of their sample reporting being “dissatisfied” or “very dissatisfied”. No company could boast of a majority satisfaction with work-life balance, however two had respective figures of 41% and 35% of their staff being “satisfied” or “very satisfied”. Two of these companies had response rates which were higher than expected given their size in relation to their workforce suggesting that both sets of employees, i.e. those who were particularly satisfied or dissatisfied, felt the need to have their voices heard in this survey. It also suggests employers can influence the work-life balance of their employees.
- Job descriptions also displayed significant associations. Technicians appear to be the most dissatisfied proportionally; conversely relatively higher proportions of foremen/supervisors are satisfied with work-life balance.
- Duration of rota pattern indicated that although the majority of those who “always” work the same rota pattern are “dissatisfied”, with significant over-representation in the “very dissatisfied” category, a moderately high proportion also are “very satisfied”. Those who “usually” work the same rota or “no fixed rota” patterns are characterised by ambivalence, although there is some satisfaction within the former group. This highlights clearly that what suits one group or individual will not always suit everyone.
- Length of time on rota shows there are significantly higher than expected proportions in those who worked the rota for “Less than 2.5 years”, who are “dissatisfied” or “very dissatisfied”. There is better than expected expression of satisfaction amongst those who have 2.5 years or more experience of the rota. Those with one year or less experience are either moderately satisfied or ambivalent. The above raises the possibility that some employees may become used to a particular way of working as time goes on.
- With regard to extra days on shift, proportionately higher numbers of those who “never” do extra days are “very dissatisfied”. On the other hand there is moderate display of satisfaction amongst those who do extra days “sometimes”, again clearly illustrating that each individual will have their own preferred way of working and balancing work and life.

Looking at this holistically, it illustrates that perceptions of work-life balance are complex and affected by a number of different factors.

4.3 Work Experiences

To further develop the understanding of the attitudes surrounding work-life balance since the rota changes, question 20 presented a series of descriptions of recent experiences to which respondents could agree or disagree on a 5 point scale as illustrated in Figure 12.

Four of the statements related to potential benefits and 4 related to potential disadvantages of working an offshore rota. The final two statements probed time spent on social media and the balance between lifestyle and earnings.

Figure 12: Experiences of Rota Changes

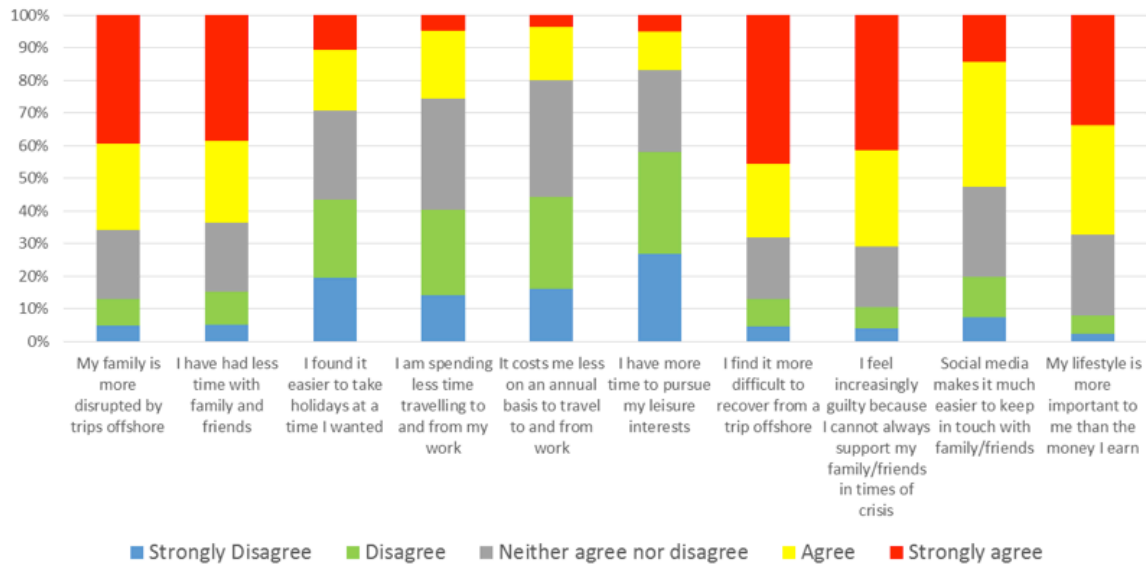


Figure 12 illustrates that the highest levels of agreement relate to the disadvantages of working offshore. In contrast, the statements relating to the perceived benefits of offshore working were met with limited endorsement. The statement with the highest level of strong agreement was “I find it more difficult to recover from a trip offshore” (45%). This indicates that work-life balance for those who work offshore is not just an issue of working remotely; the recovery periods also impact upon their return to the family.

The highest level of agreement with a positive statement was for “I found it easier to take holidays at a time I wanted” with 28% in strong agreement or agreement. In general, the positive statements regarding working offshore receive higher levels of disagreement than agreement. This implies the positive aspects of offshore working require significant enhancement to mitigate against the perceived substantial disadvantages of working away from home.

The increasing role of social media seems to be significant with a majority agreeing that it helps stay in touch. In total, 52% agreed or strongly agreed that social media makes it much easier to keep in touch with family/friends.

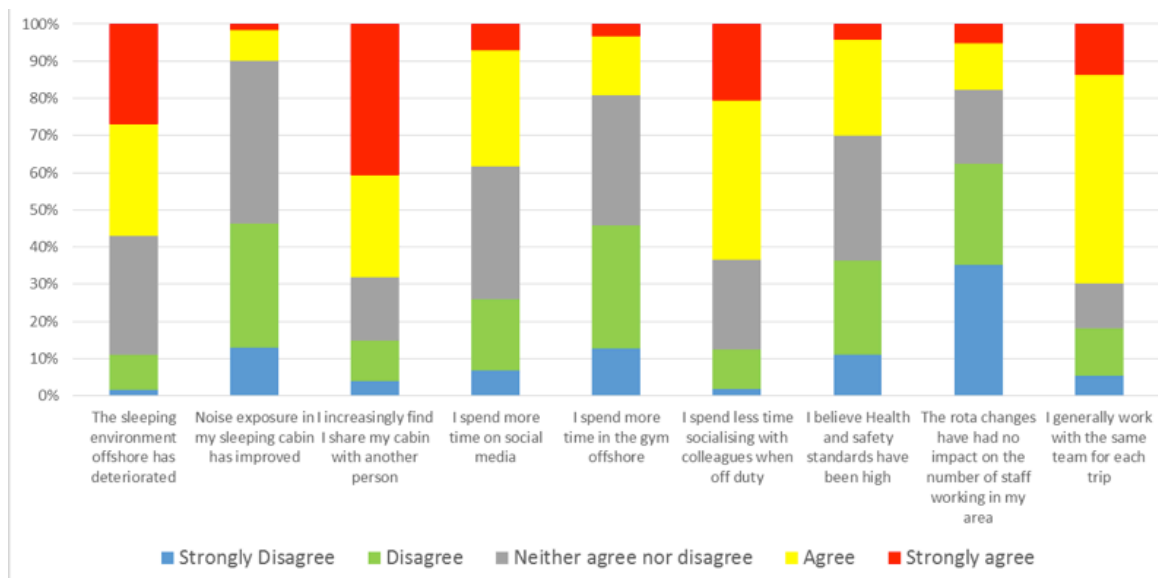
The overall message from this set of questions is emphasised by the responses to the statement that “my lifestyle is more important to me than the money I earn”; 67% agreed or strongly agreed with this statement. It is clear that the lifestyle offered by the industry must be reasonable if the industry is to retain its workforce. Furthermore, the industry’s ability to attract female workers may not improve if the lifestyle offering is not consistent with lifestyle and family ambitions.

When the sample is split to compare the views of those on different rotas, there are many significant differences of opinion. In terms of agreement with the statements relating to increased family disruption, less time with family and friends and difficulty recovering from trips, levels of strong agreement rise to 56%, 54% and 65% respectively. For those on a 2/2 rota a majority “agree” with the statement “my lifestyle is more important to me than the money I earn” but for those on 3/3 rota the majority “strongly agree” with this statement. As such the results in this survey seem to conflict with the expectations outlined by previous research, including Stewart (2016) who suggested that “extending the onshore break would be expected to have a positive impact on the performance and wellbeing of individual offshore workers.” Conversely, these respondents find it more difficult to recover from an offshore trip.

4.4 Working environment

The survey also presented a series of statements, as shown in Figure 13, concerning changes in the working environment since the rota change in June 2015. The sample was presented with an “agree - disagree” Likert scale and 9 separate statements.

Figure 13: Working Environment



Three of the questions related to sleep and the cabin environment. The highest level of strong agreement 41%, with a further 27% agreeing, was recorded in relation to “I increasingly find I share my cabin with another person”. The inference of this is that recent changes to rota may have wider implications that compound the impact on the workforce; not only are the workforce spending longer offshore, but the sleeping environment may also have worsened. This is supported by the reaction to the statement “the sleeping environment offshore has deteriorated”, as 57% of respondents agreed with this statement. Moreover, noise in the cabin may also have had an impact on this worsening sleeping environment as 46% of responses disagreed or strongly disagreed that it had improved. However, this may simply mean that it is still the same as it was. Nevertheless, there are clear implications of this in terms of fatigue of the workforce.

In relation to non-working time offshore; 63% of respondents agreed or strongly agreed with the statement suggesting they spend less time socialising. “More time in the gym offshore “ was disagreed or strongly disagreed with by 46% of the sample, but 38% agreed or strongly agreed to some extent that they spend more time on social media. People spending less time socialising may limit employee engagement and further research will be needed to understand if this might be the case.

Analysis reveals a strong relationship between those agreeing that they spend more time on social media and those spending less time socialising. Of those who strongly agree that they spend more time on social media, 53% admit to spending less time socialising with colleagues whilst off duty. Further investigation of the relationship between disturbed sleep, declining socialisation and the use of social media is required. Whilst social media may bring benefits such as helping to keep in touch with family, it might be to the detriment of team cohesiveness offshore and eat into sleep periods at the expense of recovery. However, time spent on social media is clearly at the discretion of the individual.

There were high levels of agreement or strong agreement with regard to the statement “I generally work with the same team for each trip”, a total of 70% of the sample. Such a pattern is a positive result as not working with the same team or peer group could have serious implications; previous research has revealed that changing colleagues is destabilising in terms of engagement (Anitha, 2014) and productivity (De Winne et al., 2018).

Cross tabulation by rota reveals a picture where the views of those working 3/3 are disproportionate to those on other rotas; 31% strongly agree that their sleeping environment has deteriorated and 46% increasingly find they share a cabin.

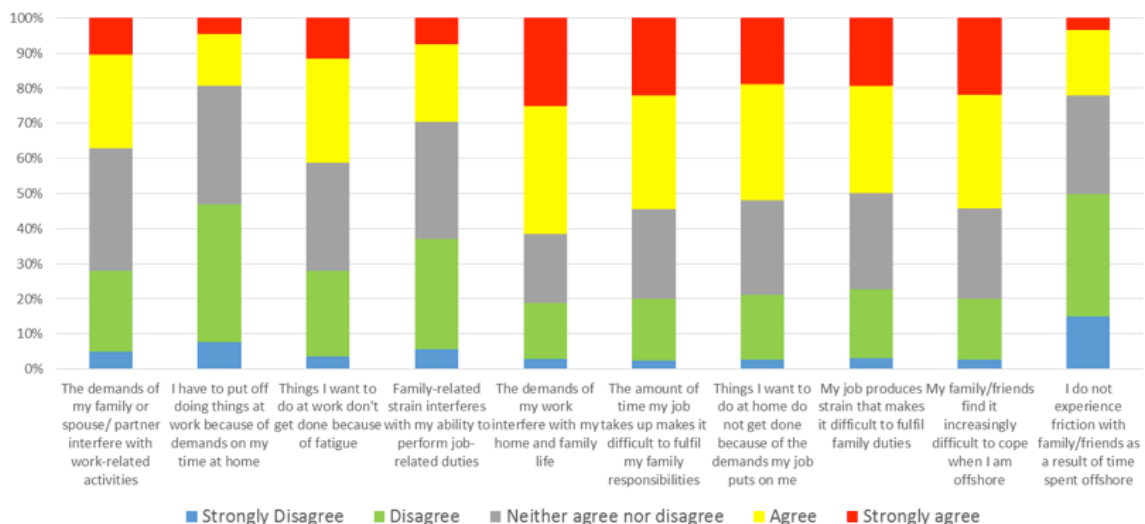
Responses for other topics covered in this question suggest that respondents perceive that rota changes have impacted on the number of staff working in their teams. 62% disagreed or disagreed strongly that the changes had “no impact on the number of staff working in my area”. This figure highlights that the perceptions regarding the 3/3 rota were measured during a period of significant job losses. As such, views of 3/3 will be associated with the challenges of working with a reduced headcount.

In relation to the statement, “I believe health and safety standards have been high” there was balance between those agreeing and disagreeing and 33% indicating neither choice. However, cross-tabulation reveals those most likely to disagree that health and safety standards are high are those who work the 3/3 rota. There is no significant difference by company in relation to responses regarding this statement.

4.5 Family-work/Work-family Conflict

A series of statements (see Figure 14) was presented which focused upon work-family conflict and family-work conflict, based on the work of Netemeyer, Boles, and McMurrian, (1996). A direct replication of their statements was not possible due to the unique nature of the oil and gas industry. As a result a set of modified questions was developed at the request of the JWP.

Figure 14: Work-Family Balance

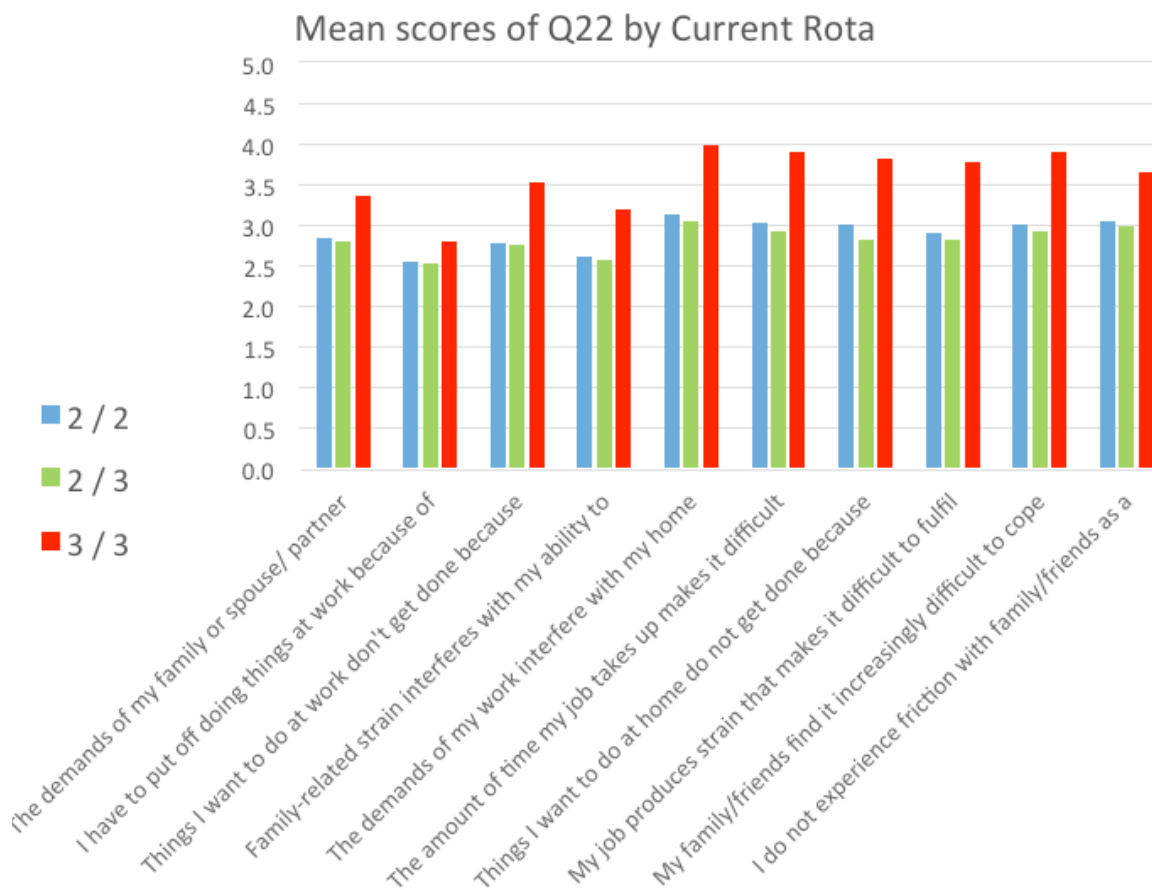


Three questions related to family work conflict; “The demands of my family or spouse/partner interfere with work-related activities”, “I have to put off doing things at work because of demands on my time at home” and “Family-related strain interferes with my ability to perform job-related duties”. All these statements received the lowest levels of combined agreement, none achieving a level of agreement above 38%. This implies that family life does not impinge upon work commitments to any great extent, although there will be exceptions to this.

Six questions related to work family conflict. All six statements received a level of agreement above 48%. The highest level of agreement (61%) related to the statement “The demands of my work interfere with my home and family life”.

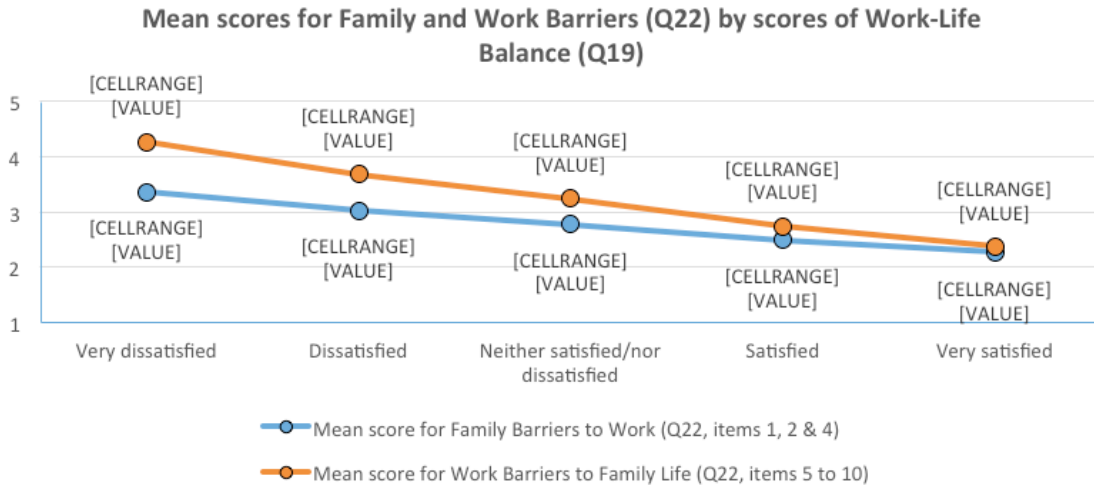
However, for those on the 3/3 rota, responses became increasingly polarised as shown in Figure 15. For the statements that relates to work-family conflict, the mean response for those on the 3/3 rota is 0.87 higher than those on the 2/2 rota. The impact which work has on home life is almost a whole response level of agreement higher for those on a 3/3 rota.

Figure 15: Work-Family Balance by Rota



A test for linearity between question 22 with regard to family-work and work-family conflict and question 19, concerning satisfaction with work-life balance, was performed. The results are shown in Figure 16 below.

Figure 16: Family and Work Barriers and Work-Life Balance



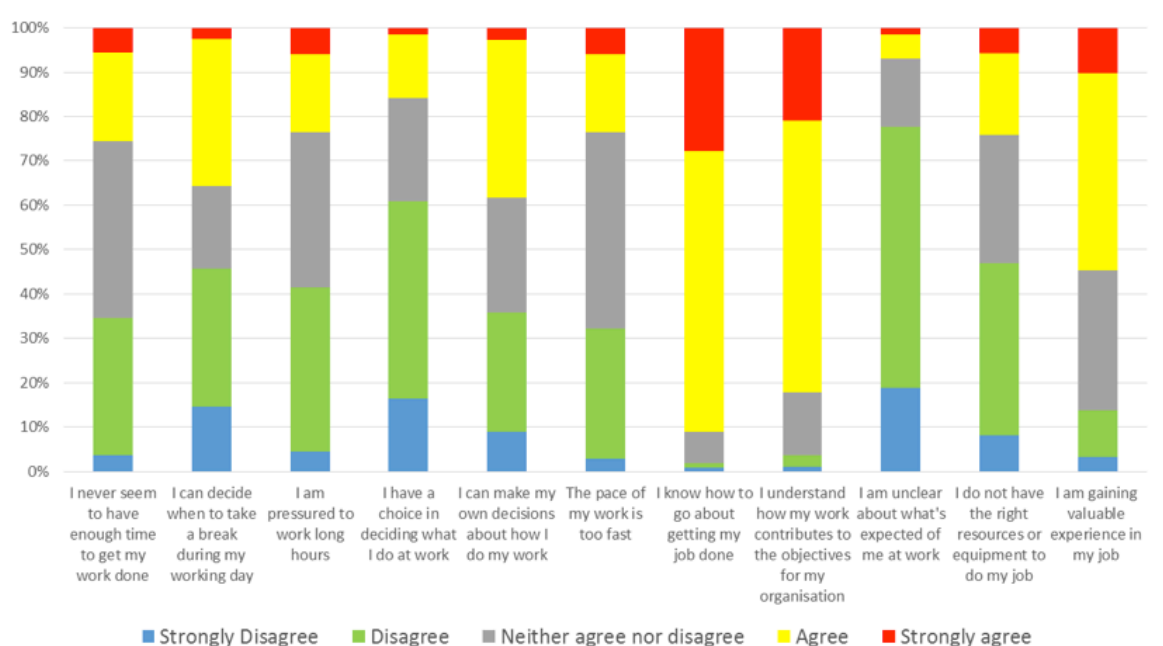
Overall, what this indicates is that across all the range of responses for work-life balance, work has a more negative impact upon family life, than family life has on work. This is to be expected given the remote nature of offshore employment but illustrates clearly the respondents' perceptions that work has a negative impact on family life.

One statement in this question was not related to either work or family barriers and asked whether "things I want to do at work don't get done because of fatigue". 42% of the sample agreed or strongly agreed with this signifying that levels of fatigue offshore are hindering activities and output for their employer. This suggests that fatigue may not just impact upon the employee, but also upon their productivity.

4.6 Nature of the Work

An important aspect of work-life balance is the nature of the actual work undertaken. This is especially important for offshore work where the nature of work is so different from the typical workplace. The questions in this section of the survey were based on a set of Quality of Working Life agreement statements relating to "actual work". (Department for Work and Pensions Research Report No 751.) Figure 17 illustrates the results.

Figure 17: Nature of the Work



The strongest levels of agreement related to the positively phrased statements “I know how to go about getting my job done” and “I understand how my work contributes to the objectives for my organisation”. Both statements recorded combined levels of agreement above 80%. Similarly in relation to the negatively phrased statements; “I am unclear about what’s expected of me at work” and “I do not have the right resources or equipment to do my job”, high levels of disagreement were recorded. Taken together the responses to these questions suggest that there is little employee dissatisfaction with how they are managed within their organisation. They seem to know what their role is, what is expected in their role and have the resources necessary to complete their work.

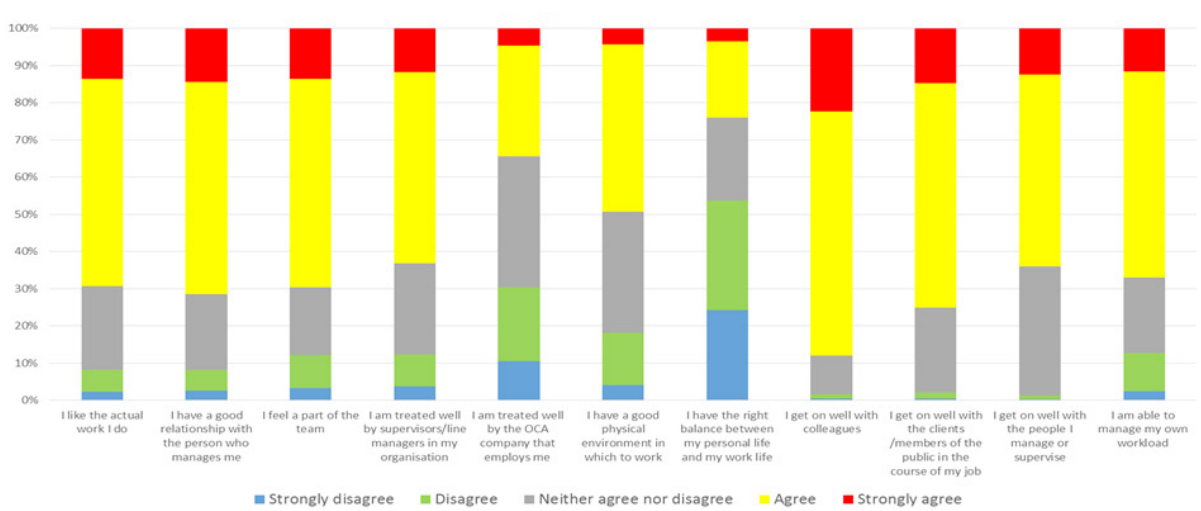
The highest level of disagreement related to “I have a choice in deciding what I do at work”, with a combined figure of 60%. This is perhaps unsurprising in an industry characterised as having limited worker autonomy and a long established work permit system. However, responses to the statement “I can make my own decisions about how I do my work” are perhaps surprising as respondents indicated slightly higher combined levels of agreement than disagreement. Furthermore, the comments “I am pressured to work long hours” and “the pace of my work is too fast” received higher combined levels of disagreement than agreement, again suggesting that the actual work offshore is not, on balance, looked upon negatively.

There was a majority of respondents with higher levels of combined disagreement for the statement “I can decide when to take a break during my working day”. This, and indeed many of the other statements in this section, are aspects of work that can make a substantial difference to people’s working lives. Being able to take a break when needed can be an important aspect of any job. Further investigation may be required to review how differing employers perform with regard to issues such as worker autonomy, choice and time management.

4.7 Experiences at Work

Further to question 23 which related to the work undertaken, a series of statements were presented relating to stress factors present in the workplace. Each of these statements is phrased positively, so responses with high levels of disagreement identify a factor which could lead to stress. Statements, 1 through 4, and 8 through 11, referred to in Figure 18, all received levels of combined agreement above 60%. This suggests that respondents feel positively about their relationships with their immediate teams, colleagues, managers and clients.

Figure 18: Experiences at Work



Some factors display a level of agreement below 50%, namely:

- I am treated well by the OCA company that employs me
- I have a good physical environment in which to work
- I have the right balance between my personal life and my work-life

Only 24% of respondents believe they have the right balance in their personal life and work-life and 34% of respondents disagreed or strongly disagreed that they are treated well by their OCA employer.

Further analysis was undertaken to determine if the rota or the company had an impact upon results, or whether the interaction between these, i.e. rota and company when considered together, affected the responses. Results are shown in Table 2.

Table 2: Q24 by Rota, Company and Interaction

	Q24	COMMENTS
1	I like the actual work I do	No significant rota or company effect. No evidence of interaction.
2	I have a good relationship with the person who manages me	Significant Company effect.
3	I feel a part of the team	Significant Company effect.
4	I am treated well by supervisors/line managers in my organisation	Significant Company effect, and significant interaction effect.
5	I am treated well by the OCA company that employs me	Significant Company, Rota and Interaction effects.
6	I have a good physical environment in which to work	Significant Rota effect, and borderline significance of company and interaction effects.
7	I have the right balance between my personal life and my work life	Significant Company, Rota and Interaction effects.
8	I get on well with colleagues	Significant Company effect, but no evidence of a Rota or Interaction effect.
9	I get on well with the clients /members of the public in the course of my job	No Company or Rota (or Interaction) effects.
10	I get on well with the people I manage or supervise	No Company or Rota (or Interaction) effects.
11	I am able to manage my own workload	Borderline Rota effect, but no Company or Interaction effects.

The implications of the above are as follows:

- Whether respondents like the work they do does not depend on the company for which they work, nor on their rota.
- Respondents from different companies differ significantly in perceptions of employee-manager relationships, and for some companies, the rota worked may also influence responses in that ratings depend on the respondent's shift pattern.
- Whether or not employees feel part of a team differs significantly between companies.

- Respondents from different companies differ significantly in perceptions of their treatment by their supervisors/line managers. As might be expected, this difference also depends on the rota worked by the respondent.
- Responses to "I am treated well by the OCA company that employs me" differ between companies and rotas, and also combinations of companies and rotas.
- Responses on perceptions of physical environment are largely dependent on rota.
- Perceptions of work-life balance depend upon the company, the rota worked, and combinations of companies and rotas.
- The extent to which respondents "get on well with colleagues" depends upon the company.
- The extent to which respondents "get on well with the clients/members of the public", "get on well with the people I manage or supervise" or are "able to manage my own workload" has no relationship to company, rota or interaction.

There are also clear differences across generations with a significantly higher proportion than expected amongst Generation Y disagreeing that the company treats them well, while a significantly higher than expected proportion of Baby Boomers agree that they are treated well. There could be a number of reasons for this, but responses are characterised by large numbers neither agreeing nor disagreeing which suggests there is perhaps only a moderate generational effect in this case.

Analysis by job type also illustrates significant differences in 8 of the 11 categories including feeling part of a team, a good physical environment and getting on well with colleagues. Those who self-selected craftsperson were least satisfied, with foreman and supervisors reporting highest levels of satisfaction. Technicians were also disaffected with lower levels of satisfaction for work-life balance and believing they were treated well by the OCA company which employs them.

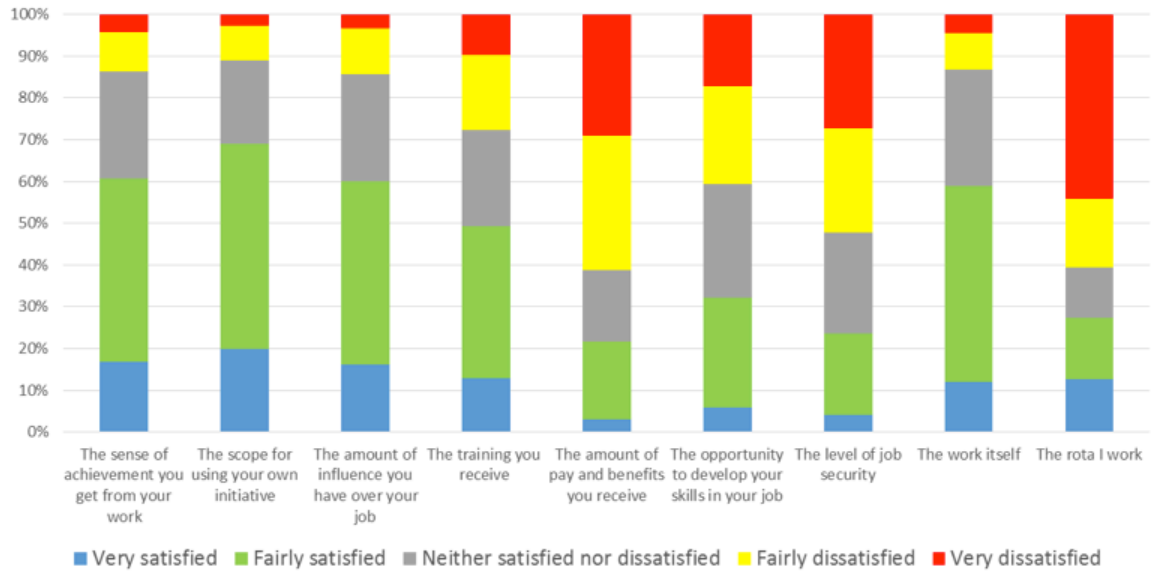
Considering the remote working environment that characterises offshore working, it is perhaps surprising that 49% of the respondents indicated a level of agreement to the statement that they have a good physical environment in which to work; only 18% actually disagreed with this statement. However, the response to both questions 23 and illustrate that in spite of the nature of the industry, the work undertaken and stress factors present are not problematic for most of the workforce. This is not to say that there are no problem issues, but there are many people in the industry who consider offshore work in a positive light.

Two further inferences can be made; firstly some OCA employers have been successful in making a remote work environment palatable and demonstrate that further enhancement is possible. Secondly, many people are content with the current offshore environment, though a small percentage are very dissatisfied. For example 2% of the workforce indicate that they disagree strongly with the statement "I like the actual work I do" and a further 6% disagree. These employees may wish to contemplate whether they have chosen the most suitable occupation for their requirements.

4.8 Job Satisfaction

Satisfaction with work is an important aspect of psychological wellbeing and is also a dimension in feelings of equity and fairness. Our survey used questions derived from Health and Wellbeing at work: a survey of employees (Young and Bhaumik, 2011) but with slight modification to include a question on the rota worked. The questions cover both management practice and rewards.

Figure 19: Job Satisfaction



The highest level of combined dissatisfaction is recorded in relation to pay and benefits with 61% expressing dissatisfaction or strong dissatisfaction, as seen in Figure 19. The highest level of strong dissatisfaction relates to the rota worked; the modal satisfaction response for all generations is “Strongly Dissatisfied.” It appears that respondents perceive that the significantly strong job dissatisfaction recorded concerning the rota worked is not being compensated by the pay and benefits package.

Table 3 shows the percentages of combined dissatisfaction compared with the responses from Young and Bhaumik, (2011).

Table 3: Levels of Dissatisfaction

Factor	OCA 2018	van Wanrooy, et al 2013
The work itself	13.2%	8%
The scope for using your own initiative	11%	9%
The sense of achievement you get from your work	13.8%	9%
The amount of influence you have over your job	14.3%	12%
The level of job security	52.3%	18%
The training you receive	27.8%	20%
The opportunity to develop your skills in your job	40.6%	20%
The amount of pay and benefits you receive	61.3%	20%
The rota I work	60.7%	Not applicable

Source: OCA Survey 2018 compared with van Wanrooy, et al (2013)

The comparison reveals that satisfaction levels are lower for offshore workers across all the variables. This is perhaps to be expected given the nature of the industry. However, in some case the levels of dissatisfaction recorded by offshore workers are considerably higher than the national figures. Dissatisfaction with job security and opportunity to develop skills are more than double the national figures. The current economic situation in the oil and gas sector will have had an impact on both these areas.

However, the low figure for satisfaction with regard to training and the opportunity to develop skills suggests that skills development still presents a challenge for the industry. The internal development of the workforce is critical if skills gaps are to be avoided and productivity improved.

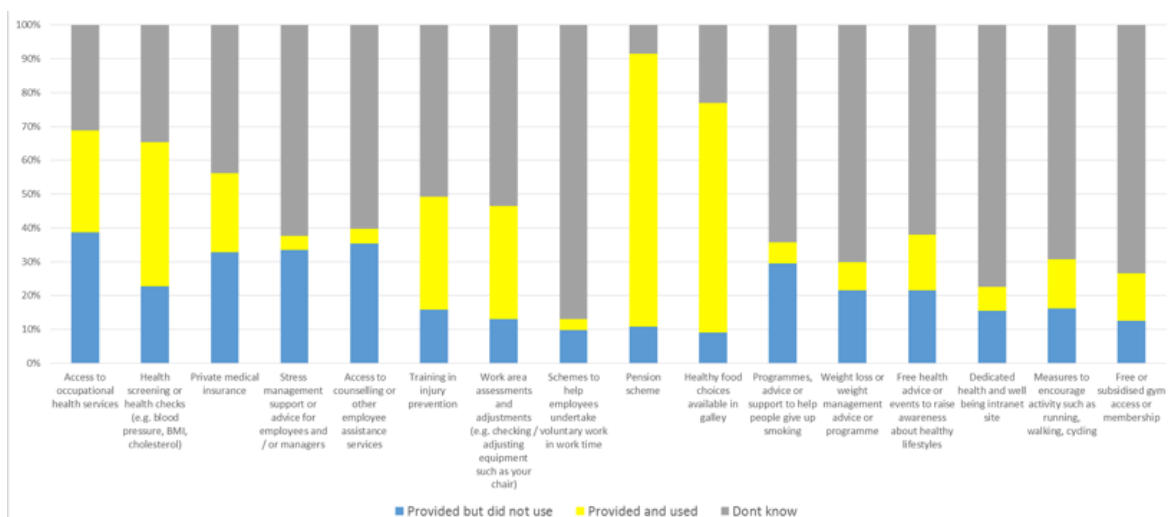
Analysis by rota identifies a series of interesting patterns. Those on the 2/3 rota display a lower mean score indicating they are more satisfied, for every statement. Both 2/2 and 3/3 rota display a significantly lower level of satisfaction than their 2/3 colleagues in relation to job security and pay. Those on the 3/3 rota display much lower levels of satisfaction with their rota, as evidenced by the mean satisfaction level, which is almost two response levels higher than those on 2/2.

There are also differences by company and one company has a much lower level of dissatisfaction with the rota; this company has very low numbers of employees working on the 3/3 rota (7.3%). This is in stark contrast to other OCA member companies who have anything from 54% to 80.3% working the 3/3 rota.

4.9 Benefits and Support

Question 26 sought to better understand the provision of benefits and support, primarily with regard to wellbeing and health, for the workforce. A series of benefits and initiatives were presented to respondents and they were asked to indicate whether they were provided by their employer and whether or not respondents used them in the last year.

Figure 20: Employer-Provided Benefits



The result can be compared with levels of provision encountered in Young and Bhaumik, (2011). The level of provision, as known by the OCA workforce, exceed or are comparable in all cases. The actual level of provision may also be understated as the employees may not know in all case exactly what is provided by their employer. In regard to the responses for benefits such as pension scheme, healthy food choices and private medical insurance, the response of the OCA workforce are significantly above the national figure, 21.5%, 52.9% and 33.2% respectively.

Despite this relatively high level of provision the number of “don’t know” responses suggest that provision could be expanded or that a significant awareness raising campaign is needed. Expansion of the use of such services may significantly mitigate against the problems encountered in offshore work.

It is clear that company use of provided benefits is not uniform. For one company, reported use across the listed benefits was either the highest or second highest levels of reported use whereas another has an average percentage use of the listed benefit and support mechanisms. Respondents from one company reported average levels of use of 54% whilst others reported use of 42%. Each company should consider the provision and uptake of support services. It is noteworthy that in the company with the highest percentage of workers on a 3/3 rota use of support mechanisms is lowest.

5.1 Overview

This section presents the analysis of the secondary data relating to OCA companies' health and safety statistics, before moving on to discuss the survey findings relating to these areas.

5.2 Secondary Data Analysis

One of the requirements of the project was to conduct an analysis of secondary data with regard to illness and accidents in the years since the introduction of the 3/3 rota. This section presents an analysis of the data related to offshore workers as recorded by the various OCA member companies in relation to their OCA employees. Data was collected for two time periods: June – December 2014 and June – December 2016. This allowed for comparisons between the time periods before and after the recent changes.

Meaningful analysis of this data has been extremely difficult. The expectation was that the data set would be based on the circumstances surrounding anonymised cases for each incident, with detailed category data. This would have allowed an analysis using a methodology similar to that completed for the questionnaire. Instead the data was presented as a series of reports. Whilst each set of data was no doubt relevant and accurate for each company comparison, analysis is rendered all but impossible due to the subtle differences in data recorded, measurement techniques and categories employed. A second data collection effort was commenced but response with the timeframe was not feasible.

The data collected by each company is only relevant when analysed in relation to the number of employees within the firm at differing time periods. Whilst there are employment figures for 2014 and 2018, there is no consistent data for numbers employed at each OCA member company in 2016. As such the reportable data is extremely limited.

Notwithstanding this, aggregated Lost Time Incidents have declined from 32 to 25 in absolute terms. These figure cover a period associated with significant contraction in employee numbers and so a frequency is the only reliable and accurate way of comparing the two periods for analysis. Frequencies require accurate man hours for the 2016 period and this is not available.

However, to provide a heuristic estimate a set of employee figure were estimated on the basis of the average for the 2014 and 2018 figures. This crude device allowed calculation of the estimate weighted means for the Lost Time Incident Frequency, as illustrated in Table 4. It should be noted that these calculations are based on only six OCA member companies.

Table 4: LTIF Weighted Means

	2014		2015	
Company LTIFs	LTIF	Employee Numbers (Offshore)	LTIF	Employee Numbers (Offshore)
Weighted Mean	0.9337	n=8380	0.4331	n=7284
Weighted St. Dev	0.9092		0.259	
Weighted St.error	0.00993		0.00303	

This is little more than an illustrative exercise but the direction of travel in the estimated LTIF is of decline, from approximately 0.93 to approximately 0.43. Better data would improve this analysis but this does seem to suggest there was a decrease in LTIFs in 2016, after the rota change.

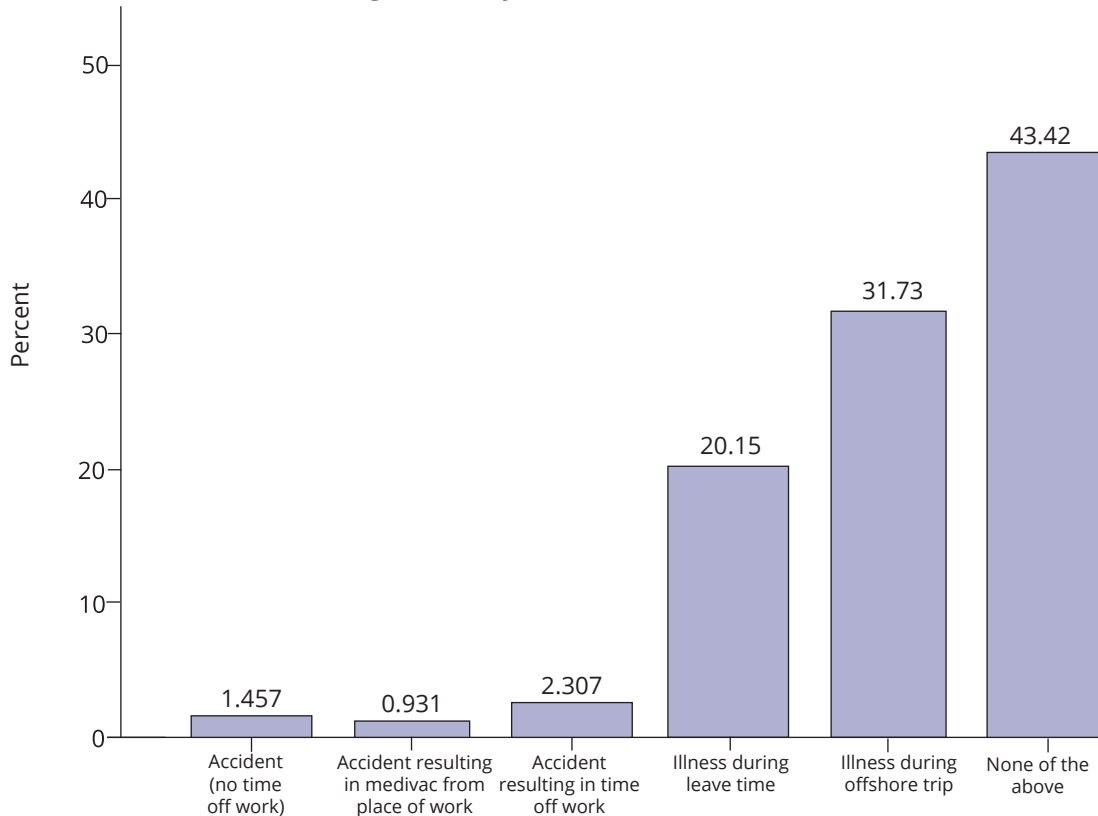
In terms of absence rates the data provided by the companies is again extensive, but it is not possible to get a consistent set of data that can be used to analyse all companies in aggregate. This would be useful for future studies and standardisation of reporting might be beneficial.

The conclusion contain a number of suggestions on how data collection could be improved to ensure that analysis is straightforward in subsequent years.

5.3 Impact of Work on Health

The questionnaire asked respondents “Does your work affect your health?” Responses can be seen in Figure 21.

Figure 21: Impact of Work on Health



The most frequent response is that work affects health negatively. However, the residual 60% either don't know, prefer not to say, don't think that work affects health or believe it has a positive effect. Removal of “prefer not to say” and “don't know” allows comparison of the results with the Sixth European Working Conditions Survey (EWCS): 2015 (Eurofound.europa.eu, 2018) in which a majority report that work does not affect their health. By comparison, the OCA workforce believe that work affects their health in a greater proportion than the national average for the UK. The results are compared in Table 5.

Table 5: OCA and EWCS Compared

Does work affect your health?	EUROPEAN WORKING CONDITIONS SURVEY (2015) UK subset	OCA Survey 2018	3/3 rota	2/2 rota
Yes mainly negatively	21	51	63	31
No	61	36	26	50
Yes mainly positively	11	14	10	18

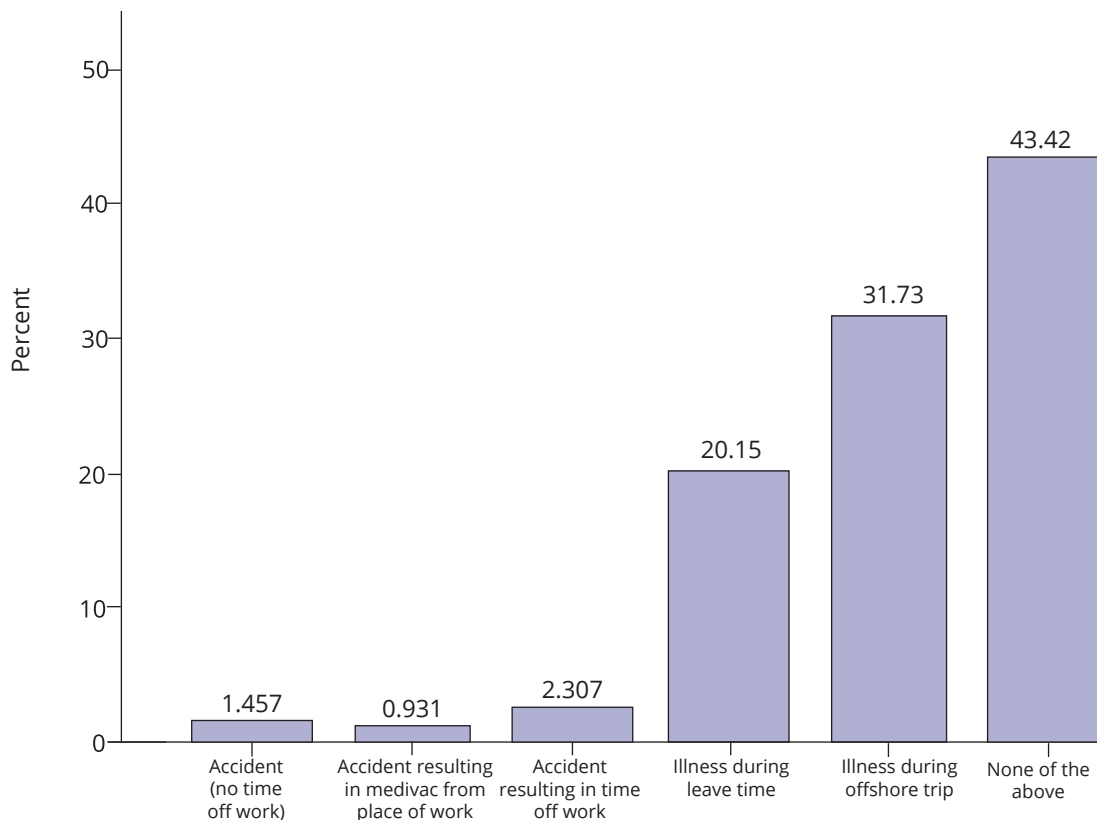
Source: OCA Survey 2018 compared with data from EWCS (2015)

Analysis by rota reveals the perceived impact of work on health increases with the 3/3 rota: 63% claim their health is negatively affected. Continuing the analysis by rota reveals that those on the 2/2 rota display a response pattern more like the UK average where the answer which appears most frequently is that work does not impact upon health.

5.4 Illness and Accidents

Workforce experience of illness and accidents are illustrated in figure 22.

Figure 22: Illness and Accidents



Forty-three percent report no illness or accidents, but responses for “illness during an offshore trip” (32%) and “accident resulting in medivac” (1%) show that nearly one third of respondents have experienced health problems or accidents during work time.

Analysis against generations illustrated that the proportion of Baby Boomers reporting that work affects their health negatively is significantly lower than expected, while for Generation Y, it is significantly higher than expected. Also, Baby Boomers were more likely to choose “Prefer not to say” than the younger Gen Y (significantly lower than expected for the former and significantly higher than expected for the latter). There does therefore seem to be a generational effect here, but not necessarily in the way expected. Stewart (2016) for example reported that “The issue of fatigue would be a particular concern for those in older age groups and/or those in roles involving heavy physical activity or in tasks requiring high vigilance and a low error tolerance over the course of a three week tour.” This could have implications for performance and safety.

When compared against the rota worked, the 3/3 group is more likely to claim a negative effect of work on health, or prefer not to say. With lower than expected proportions in the “don’t know” category for this group, evidence of this negative impact becomes more compelling.

Table 6 reveals the response to question 28 by rota. The results need to be interpreted with caution as the figures for accidents are based on very low frequencies. Moreover the result for those on a 2/3 rotation are not directly comparable as the length of time spent on leave is longer. Those on a 2/2 rota are more likely not to have experienced illness or accident.

Table 6: Illness/Accident by Rota

Illness/Accident	Current Rota Description		
	2 / 2	2 / 3	3 / 3
Accident (no time off work)	1%	1%	2%
Accident resulting in medivac from place of work	1%	1%	1%
Accident resulting in time off work	1%	4%	2%
Illness during leave time	15%	23%	22%
Illness during offshore trip	26%	28%	35%
None of the above	56%	44%	38%

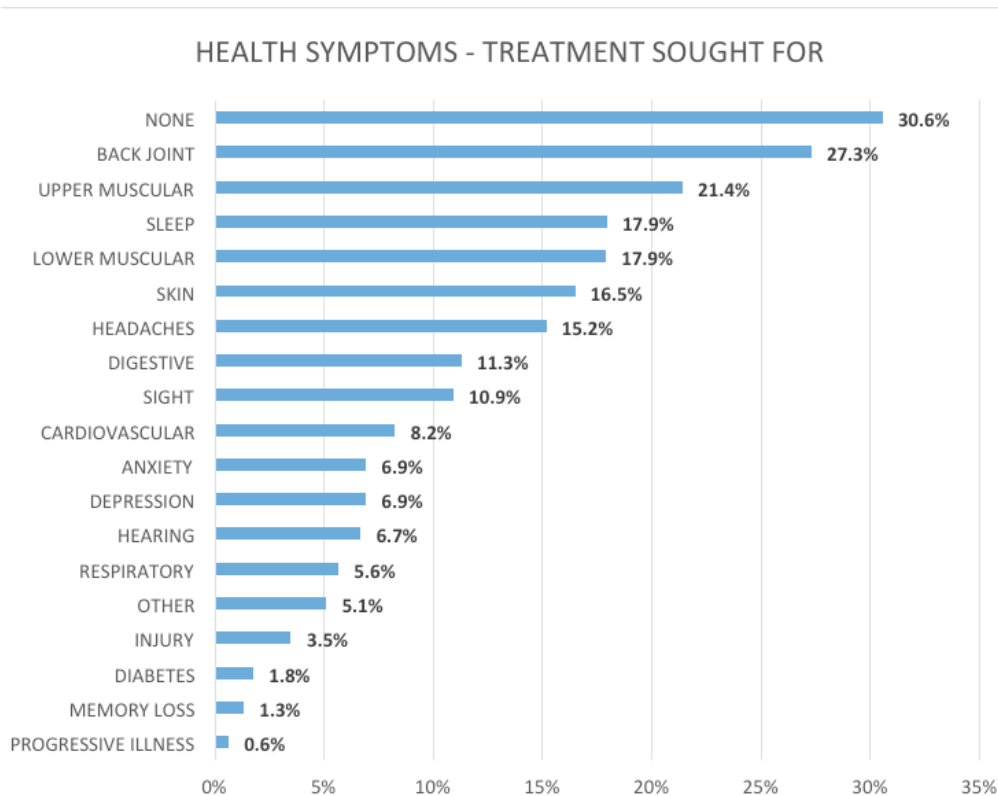
Nevertheless, the HSE (2002) reported that for tours of over 2 weeks, the ratio of fatalities and severe injuries increased markedly compared to tours of 1 – 2 week duration. Further research may shed more light on this.

All the above should be considered in line with the need for personnel to have been declared fit to work offshore through annual medicals.

5.5 Health Symptoms

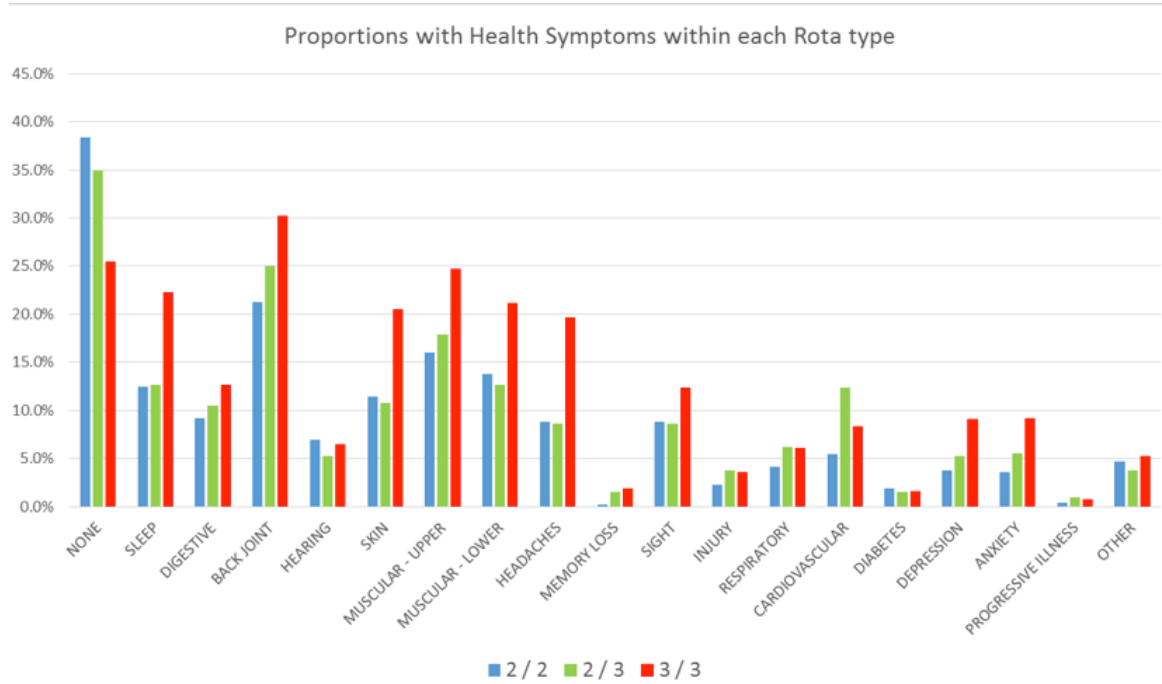
Question 29 presented respondents with a list of health symptoms and asked if they had sought treatment since June 2015.

Figure 23: Treatment Sought for Health Symptoms



In themselves, these figures simply report the types of symptoms experienced, however, comparison with work by Parkes and Swash (2000), as reported by the University of Oxford for the HSE (2002), indicates that there may be changes in the symptoms reported. In their study, musculo-skeletal problems were 23% of total and respiratory accounted for 28.5%. This compares with the current reporting of 67% for musculo-skeletal problems and 6% for respiratory symptoms. Thirty-one percent of the respondents reported that they did not seek help for any medical problems.

Figure 24: Health Symptoms by Rota



Results by rota show that levels of treatment sought for health symptoms are much higher for most categories of symptoms for those on the 3/3 rota.

5.6 Effect of Work on Health Symptom

Building on from section 5.5, respondents were asked to report whether their health symptom were caused, made worse by, or unrelated to work. Only those who had reported symptoms answered this question.

Table 7: Effect of Work on Symptoms

	Responses %
Caused by work	26
Made worse by work	33
Unrelated to work	19
Don't know	22

The figures in Table 7 show that 59% of those experiencing medical symptoms believe them to have been caused or made worse by work.

Further analysis indicated significant differences with regard to rota and whether the respondent works internally or externally on the installation. Those on 3/3 rotas and those who work externally on the installation are more likely to report that their symptoms were caused, or made worse, by work. Table 8 shows the analysis by rota.

Table 8: Effect of Work by Rota

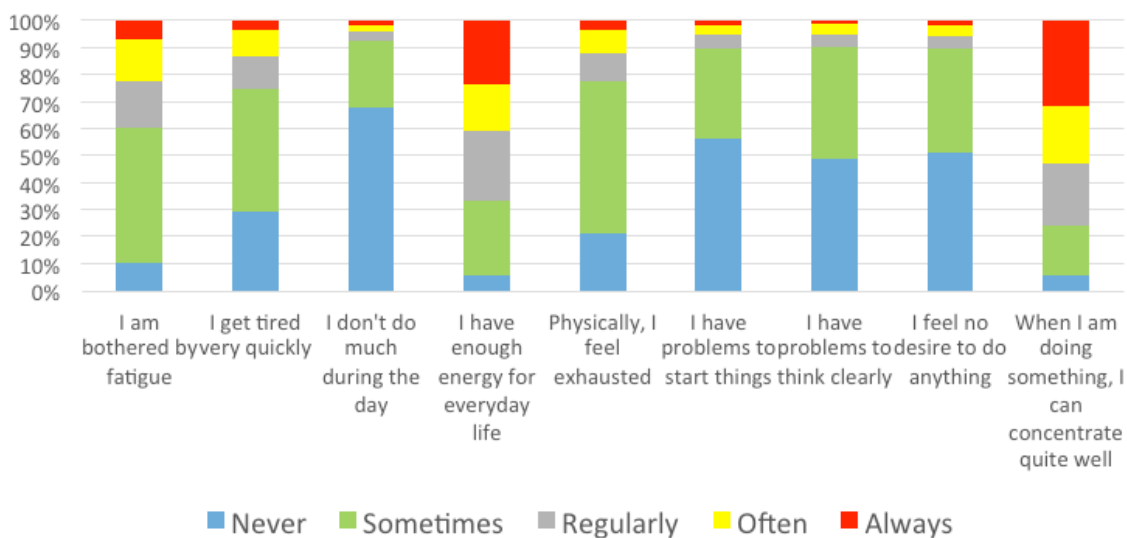
Rota	Unrelated to work (%)	Caused by work (%)	Made worse by work (%)	Don't know (%)
2/2	28	20	29	23
2/3	28	18	30	24
3/3	14	30	36	22

For those on a 3/3 rota there was an increase in the percentage of respondent believing their symptom was caused by work or made worse by work, 30% and 36% respectively. Higher than expected proportions within 2/2/ and 2/3 declare their health symptom to be unrelated to work.

5.7 Fatigue

The nature of offshore employment is that people have to work relatively long shifts for an extended period of time, now increasingly exceeding 14 days. In this environment a careful consideration of the levels of fatigue on the workforce is important. Respondents were presented with a selection of well-established statements used for assessing fatigue (De Vries, 2003). For each statement respondents could choose one out of five answer categories, varying from Never to Always. Some statements relate to mental fatigue, whilst the remainder relate to physical fatigue.

Figure 25: Fatigue



The answers with the high number of “always” and “often” responses relate to fatigue and “I get tired quickly”. The positively phrased statements, “I have enough energy for everyday life” and “When I am doing something, I can concentrate quite well” received relatively disproportionate responses for never or sometimes.

Overall, those statements relating to physical fatigue attracted higher mean scores than those statements relating to mental fatigue. This suggests physical fatigue is more problematic for the OCA workforce than mental fatigue.

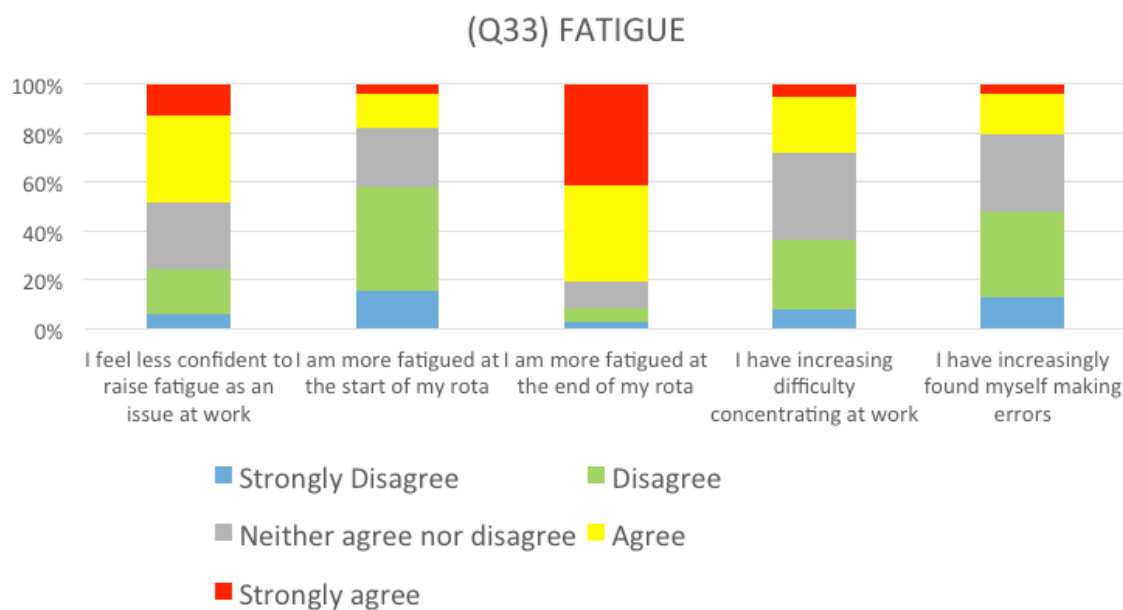
A mean variable score of less than 2.2 indicates normal fatigue. When aggregated for all questions, a score of less than 19.8 would indicate no significant fatigue issues. The aggregated mean figure for all respondents is 18.5 which is below the level associated with substantial fatigue, suggesting fatigue is not problematic. However, the aggregated mean for those on a 3/3 rota rises to 21.25, which would indicate substantial fatigue. Those working a swing shift record a slightly higher aggregated mean of 21.64, suggesting those on a swing shift record slightly higher levels of fatigue.

Fatigue in this context is defined as “an experience of tiredness, dislike of present activity, and unwillingness to continue” (Bartley, 1970), or as a “disinclination to continue performing the task at hand and a progressive withdrawal of attention” (Brown, 1994) from environmental demands. Fatigue can be associated with a decline in employees’ performance, function, alertness and vigilance. Each of these impairments will have a financial cost to employers as well as the employee. However, it is important to note this is not extreme fatigue and the mean is only marginally above the threshold for substantial fatigue.

5.8 Impact of Fatigue

Question 33 sought to measure the perceived impact of fatigue. In relation to “I have increasing difficulty concentrating at work” and “I have increasingly found myself making errors” combined agreement was 28% and 20% respectively. The incidents of fatigue were clearly experienced at the end of the rota rather than the beginning.

Figure 26: Impact of Fatigue



6.0 Mental Health and Wellbeing

6.1 Overview

This section discusses the results in relation to mental health and wellbeing.

Two tools were used, a bespoke mental health assessment tool (MHAT) used to measure levels of psychological distress, and the Warwick-Edinburgh Mental Well Being Scale (WEMWBS) which is a well validated measure used to monitor mental wellbeing in various population samples.

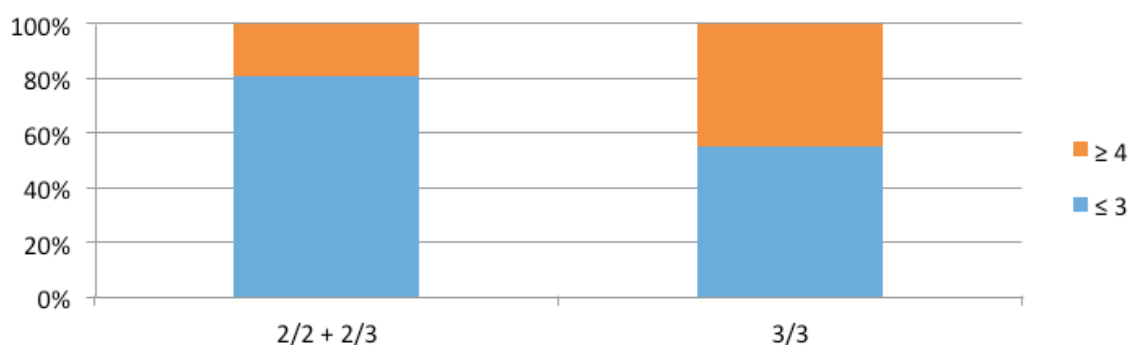
6.2 Psychological Distress

The MHAT was developed to be measured in two distinct ways. The first has scores ranging from 0 to 36 indicating improved mental health state (0 to 9), normal state (10 to 18), mild to moderate problems (19 to 27) and moderate to severe problems (28 to 36). The mean score recorded was **19.87**, differing from the neutral score of 18 by 1.87, suggesting a very slightly heightened level of psychological distress in the group. This corresponds with the score derived from a similar tool utilised by Parkes (1992) with 84 off-shore workers over 25 years ago, where both tools report a mean score that is above the neutral score by a factor of less than one standard deviation. This indicates little has changed with regard to mental health state in 25 years.

The second approach to scoring the MHAT scores responses from 0 to 12. A score of 3 or under (corresponding with the HSE 2012 report below) was considered to be “not a problem”. The mean score for the MHAT using this approach was 3.05. Although this is not considered significant, the Health Survey for England (HSE) 2012 (Knott, 2013) found that 12% of men reported a score of 4 or above when asked to complete a comparable questionnaire. In the OCA study, 35% of participants reported a score of 4 or above, which indicates there may be a problem.

This was particularly clear when analysed by rota as can be seen in Figure 27. Nineteen percent of the combined 2/2 and 2/3 rota workers reported a score of 4 or more and 45% of the 3/3 rota workers reported the same range of scores. In short, 3/3 workers were twice as likely to have a tendency towards psychological distress.

Figure 27: MHAT by Rota

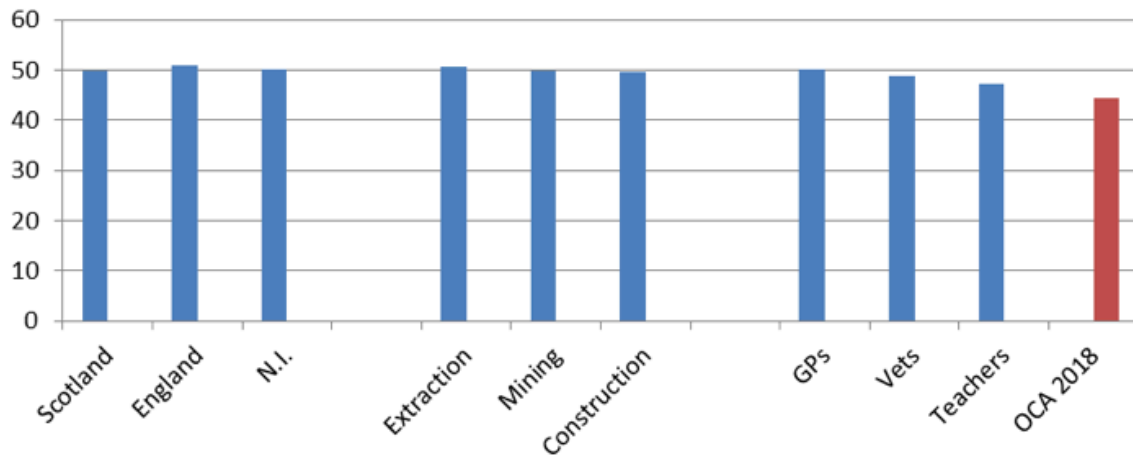


6.3 Mental Wellbeing

The WEMWBS measures overall levels of wellbeing in individuals and populations. Wellbeing is a useful proxy for the absence (or otherwise) of psychological distress and the presence of healthy attitudes and emotions. As there was no data against which to benchmark this specific population over time, the mean score of 44 was compared to large scale National Survey reports, namely National Surveys in Scotland, England and Northern Ireland with mean scores of 50, 51 and 50 respectively, and between different occupational groups in Scotland, including mining (mean score 50), manufacture of chemicals (50), construction (50), extraction of petroleum and natural gas (51) (McLean, Christie and Gray, 2017; Stranges et al, 2014; Taulbut and McCartney, 2017). Further work by Murray, Cardwell and Donnelly (2017) also looked at UK GPs (50), UK vets (49) and UK teachers (47). These were also used as comparators.

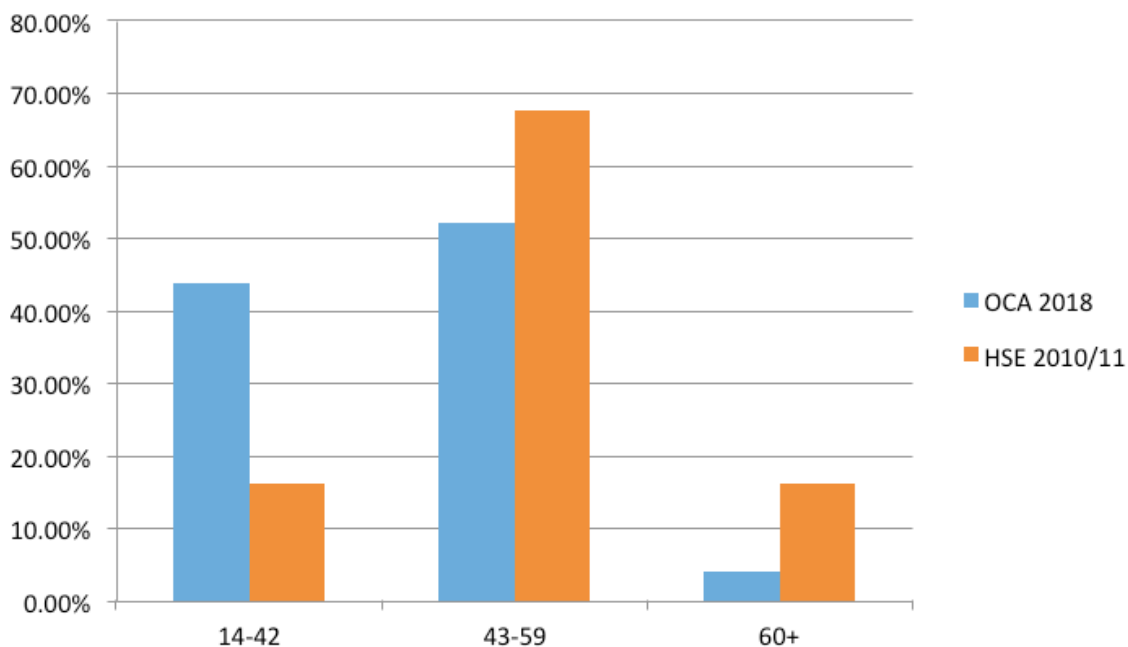
Figure 28 illustrates that the respondents reported a significantly lower WEMWBS score, indicating a reduced state of wellbeing. It should be noted that the majority (if not all) of participants in comparator studies would work in an onshore setting. Parkes (1992) has shown that onshore workers have better mental health than offshore workers, particularly in relation to anxiety symptoms, therefore these results should be considered with this in mind.

Figure 28: WEMWBS Scores Compared



Stranges et al (2014) breakdown the WEMWBS scores derived from the Health Survey for England 2010/11 into three groups; low, 14-42; middle, 43-59 and high, 60+. Figure 29 illustrates these categories and compares the results from both studies.

Figure 29 : WEMWBS Groupings Compared

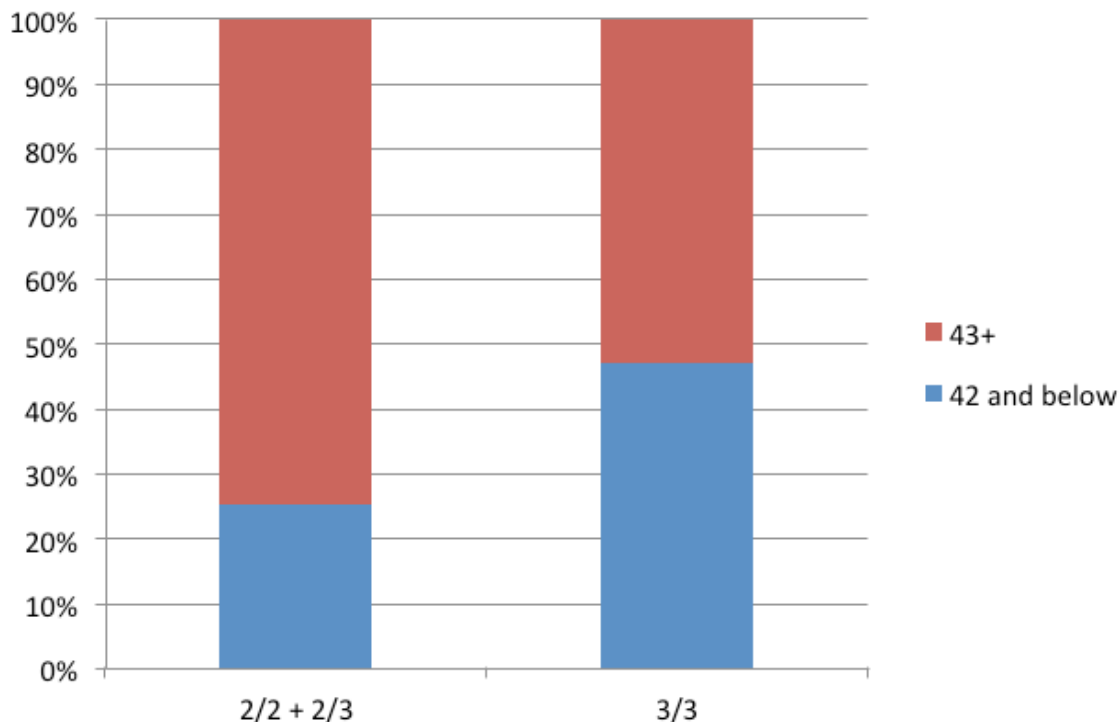


Source: OCA Study (2018) and Stranges et al (2014)

Overall, the results from this survey compare negatively as a lower score indicates a poorer state of wellbeing. OCA have more than twice as many in the low category, and fewer in the middle and high category than HSE.

Breaking this down further, examination of the results for the three main rotas highlights the mean WEMWBS scores were 46.85 for 2/2 and 47.64 for 2/3, both higher than the overall mean. For the 3/3 rota, a mean of 42.28 was reported, which is 1.99 lower than the overall mean. This means the percentage of people working 3/3 reporting a score of 42 or below is almost double that of the combined 2/2 and 2/3 as can be seen in Figure 30, indicating poorer states of wellbeing.

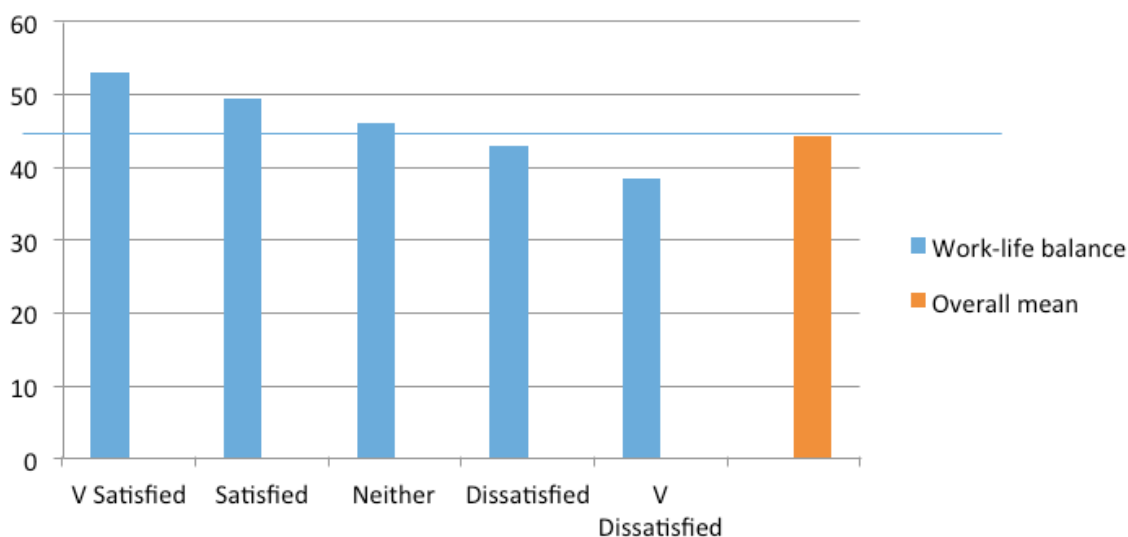
Figure 30: Mean WEMWBS Scores by Rota



Analysis was carried out by various other factors including; employer, age, job title, length of service in the industry, work-life balance and work experiences (safety). Of these, only the latter two had significant outcomes.

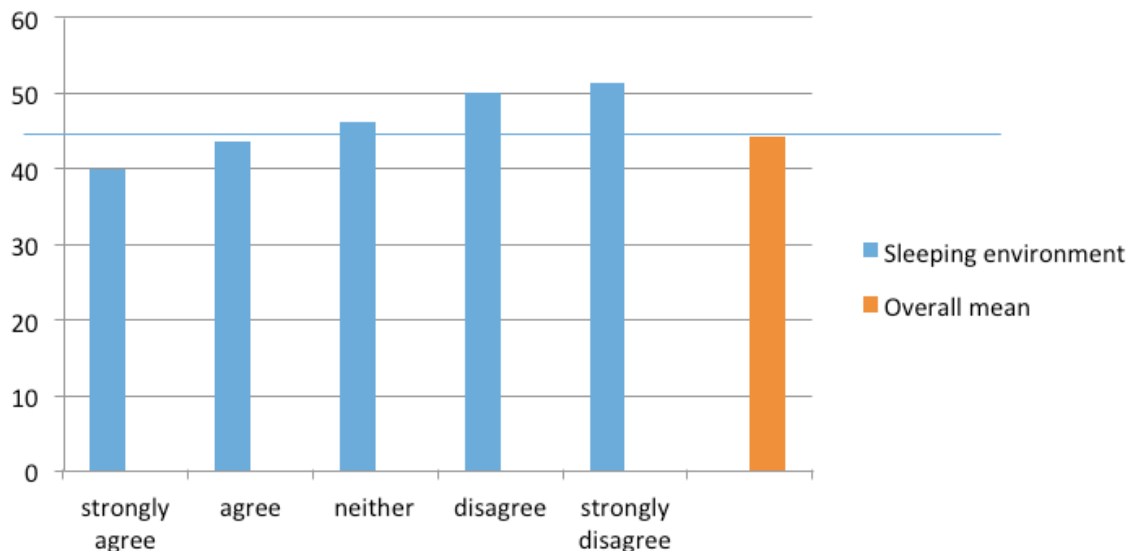
There was a clear, and highly significant, correlation between satisfaction/dissatisfaction with work-life balance and WEMWBS scores. The most satisfied reported a score 8.74 points above the mean score for the study, while the most dissatisfied reported a WEMWBS score 5.9 points below the mean. This implies a link between mental health and satisfaction with work-life balance. Those who are satisfied with work-life balance indicate better levels of mental health. The full range of scores can be seen in Figure 31.

Figure 31: Work-life balance and WEMWBS



When asked to comment on the statement, “The sleeping environment offshore has deteriorated”, those who agreed most strongly reported a score 4.21 lower than the mean score while those who disagreed most strongly scored 7.21 points above the mean, indicating better sleeping conditions have a positive effect on mental health.

Figure 32: Sleeping Conditions and WEMBWS Scores



Responding to the statement, “I increasingly find that I share my cabin with another person”, those who agreed most strongly had the lowest WEMBWS scores (2.46 lower) and those who disagreed most strongly had the highest score (4.64 above the mean). However, the correlation was disrupted by the group who “agreed” with the statement who reported a WEMBWS score 2.07 points *higher* than the mean.

One potential explanation of this anomaly lies in the relationship between these scores and the rota worked; only the group who responded “agree” had less than 50% of respondents working on the 3/3 rota. This group also had the highest percentage of workers on the combined 2/2 and 2/3 rota category. This could suggest that time spent offshore is a factor in the length of time some people can maintain a reasonably positive sense of wellbeing while sharing sleeping accommodation, with two-weeks being a cut-off point.

6.4 West of Shetland Basin

Analysis of the responses of participants who reported being based on installations in the West of Shetland basin was undertaken as it was reported that four installations in this area; Clair, Clair Ridge, Foinaven and Schiehallion had been operating on a 3/3 rota for a number of years. Any significant positive differences in the responses from this group might indicate that the relationship between the 3/3 rota and decreased wellbeing may be time limited and wellbeing would improve as workers became used to the new rota. There were no responses from workers on either Foinaven or Schiehallion, and of those on Clair and Clair Ridge who responded the mean score was 45.37. This was not significantly different from the overall mean. However, only 8% (n=7) reported working on the 3/3 rota, the remainder reported working on the 2/2 or 2/3 rota. Comparison between the Clair/Clair Ridge responses and the responses from all workers on the 3/3 rota (42.28) showed a significant difference of 3.09. This provides an unexpected, specific example of the overall trend, whereby mental wellbeing is negatively associated with responses from those who work on the 3/3 rota.

7.0 Conclusions

This survey was commissioned by the OCA, showing their commitment to their workforce and the ongoing sustainability of operating in the UKCS. A Joint Working Party was established to act as a steering group for the research. The JWP consisted of the OCA, recognised Trade Unions and ACAS. The work was undertaken by an independent third party, Robert Gordon University.

The survey was undertaken in early 2018, a time when the Oil and Gas industry had undergone four years of significant change as a result of the downturn in the industry, caused in part by the declining price of crude oil. This context is important as reactions to the survey have to be considered in the light of the significant ongoing change, including downsizing and the drive for long term sustainability.

The aim of the work was to undertake an analysis of the impact of the operation of the 3/3 equal time rotation on the workforce with regard to health, safety and work-life balance.

The change to the 3/3 equal time rotation was a significant and contentious alteration in working patterns. Obtaining objective empirical data was required to investigate the impact of this on the workforce.

The objectives were:

1. Conduct a statistical analysis of existing data from the periods July to December 2014 and July to December 2016 relating to agreed, appropriate and available demographic and health and safety metrics
2. Gather objective, impartial and reliable data on employee attitudes, opinions, behaviours and experiences surrounding the adoption of 3/3 rotas. These will centre on the issues of work-life balance, health and safety
3. Provide an opportunity for all workers' views with regard to the changing offshore environment to be heard and recorded, via a secure survey
4. Produce a clear evidence report and present results to the Offshore Contractors' Association, recognised Trade Unions and ACAS.

To fulfil objective one, data was requested from OCA member companies with regard to health, safety and absence for two distinct periods: one prior to (June – December 2014) and after (June – December 2016) the introduction of the 3/3 rota in June 2015. Only limited analysis of this data was possible due to the lack of standardisation between companies in recording their data. Terminology and categories reported on varied significantly, therefore findings from this data should be treated with caution, the available data on Lost Time Incident Frequencies (LTIF) suggests a decrease in the frequency of incidents, although this finding should be treated as an estimate due to the quality of the raw data. Other data relating to absence was not possible to aggregate robustly. This is a lost opportunity in a critical area, and clear reporting would replace opinion with fact. A standardised OCA format for recording and reporting this data would make future analysis simple, valid and efficient.

The perceptions of health safety in this survey are such that only 30% of respondents to the survey agree that health and safety standards have been high. Clear reporting can both fill the void in information and identify any areas which may need enhancement.

To fulfil objectives two and three, the second phase was a secure online survey, issued to all employees from OCA member companies who had not taken the opportunity to “opt-out” of the survey. In total 6,111 were emailed a link to the survey and 40% (2,438) responded, making the survey one of the largest undertaken for this sector. This report and subsequent presentations fulfil objective 4.

Responses to the survey from women were so low that analysis by gender was not possible. However, this gender imbalance is typical of the industry and therefore the sample is broadly representative, although more pronounced than shown by previous studies.

The percentage of respondents from each OCA member company was generally in proportion to their overall workforce, including two companies which had either no or very few respondents. There were two companies which were over-represented. These companies could be considered to be at opposite ends of the spectrum with regard to the views of their workforce, with one attracting responses which indicated considerably better levels of satisfaction than the other. The length of service in the industry showed that the majority of respondents had experienced the industry before and after June 2015, making them well-equipped to comment on the impact of the changes. This further demonstrates that the views were representative of the workforce and elicited a balance of views from respondents.

OCA employees range from 20 – 71 years of age, with a mean of 47 years. There is a gap in the 40 – 44 year age bracket. This gap was first reported three decades ago and implies that something with regard to the nature of offshore work does not fit with the career and/or lifestyle aspirations of this group. This may also be a factor in the low number of women working offshore.

A key aspect of the survey was identifying the rota worked by respondents. This showed a clear move towards the 3/3 rota, with 56% reporting this as their usual rota. Some employees had shifted from a 2/2 rota to a 3/3 rota, thus going from one equal time rotation to another. Others had gone from 2/3 to 3/3, arguably a more disruptive change as they were not moving from one equal time rotation to another.

The offshore location can be both harsh and remote but despite this, there is satisfaction evidenced from respondents for factors such as the work undertaken, knowledge of how to do the job and how the work contributes to the organisation. Respondents also knew what was expected of them at work and had the right equipment to do so. Dissatisfaction with regard to levels of autonomy reflect a workplace environment and culture that, of necessity, can hinder worker choice. Further, less than half the workforce believe their employer treats them well; that they have a good physical environment in which to work and they have the right balance between work and life. For these variables, the rota has a significant impact on results.

Over 60% report dissatisfaction with levels of pay and two-thirds believe their lifestyle is more important than the money they earn. The current state of the industry is impacting upon employees, where lifestyles have been disrupted due to rota changes whilst wage levels have declined; a necessary step for employers who need to ensure continued global competitiveness. This situation is not unique to oil and gas but historically, above average pay rates have perhaps compensated for the hostile environment and working conditions. In the current financial climate, balancing financial and non-financial rewards, coupled with raising awareness of what constitutes the total reward package for employees, may enable a mutually acceptable way forward.

Just over one quarter of the workforce report satisfaction with work-life balance, highlighting the obvious problem with offshore working; people are removed from their home life for half the year (for those on equal time rotations). There is no evidence to suggest, as proposed in previous literature, that the extra time at home afforded by a 3/3 rota compensates for this. This has an impact upon employees who report that work-family conflict is more common than family-work conflict. This explains the levels of dissatisfaction with work-life balance as work is seen to have a negative effect upon family life. The increased use of social media offshore, and the increased opportunity that this affords for employees to stay in touch with their loved ones does not seem to have had a significant mitigating impact on the increased duration of time away from home.

However, the issue of social media is an opportunity for further research as if employees choose to spend time on social media at the expense of either sleep or socialising with colleagues, this may impact negatively on fatigue, social cohesion and team-working.

Levels of fatigue offshore are considered 'normal' for OCA workforce as a whole, but this rises to 'substantial' fatigue for those on a 3/3 rota. This has implications for both work and family life as recovery from an offshore trip is more problematic, and for work, as some respondents report levels of fatigue which impact upon their capacity to do the job. This raises concerns with regard to the health, safety and efficiency of the offshore workforce, particularly during an era where productivity is increasingly important.

Overall, comparison against other studies with regard to work-life balance, health, mental health and wellbeing showed that the OCA workforce on a 3/3 rota had poorer results than other populations. However, for the OCA workforce as a whole, respondents fare comparatively well against average employees typically in 9-5 environments. These comparisons were necessary as there are comparatively few offshore studies to use as benchmarks. This study provides not only an indication of the impact of the 3/3 rota on the workforce, but also a robust benchmark for future studies.

A key finding from this survey is the role played by individual OCA member companies. It is clear that respondents from the different companies view the changes in significantly different ways. Some companies are perceived to offer better working conditions by their employees, in others the benefits relating to the health and wellbeing are more extensively used and significantly different proportions of employees work particular rotas depending on company. Ultimately, the factor which appears to make the key difference with regard to employee satisfaction is the rota; negative employee perceptions almost always correlate with those on the 3/3 rota. It should be noted that whilst the OCA workforce are referred to as one entity, in reality they work for different employers, the management styles and practices of which will also have impacted upon people's perceptions. Whilst it is outwith the remit of this report to identify specific company details, the sharing of best practice between firms could improve working conditions and perceptions for the whole OCA workforce.

The conclusion has to reflect the negative impact of the change to the 3/3 rota on those who work this particular pattern. At the time of writing, the changes have been in place for just under three years. During this time, the industry has faced further disruption due to ongoing economic conditions, reductions in size of the workforce and a period of industrial unrest. These may contribute to the low levels of satisfaction with issues such as job security and may also explain other elements of dissatisfaction, such as the opportunity to develop new skills in the job. This may be an appropriate time to reflect on the perceptions of the workforce documented in this report and negotiate a secure future.

Furthermore, this result needs to be taken in the context of an industry which clearly evidences good practice; for example as seen by the average tenure of employees working in the industry. The majority report working with the same team for each trip; they like the work they do; working relationships are good; respondents feel part of a team; they are treated well by supervisors; are able to manage their own workload and have scope for using their own initiative. It is from these positive points that the industry could work to lower fatigue and mitigate the health impacts of the recent changes.

The remit of this report has not been to evaluate the cost impacts or efficiencies of differing rotas. Job losses are continuing in the industry and the economic realities are that hard choices will have to be made that involve balancing rota patterns, secure employment, and the long term sustainability of the UKCS. This is no easy task but the first step is for all sides to approach the challenge from an informed position. It is hoped that this reports provides a useful evidence base from which to proceed

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