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# Meeting population dietary goals in Scotland and Malta: shared challenges and opportunities for learning.

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| 2  | AND OPPORTUNITIES FOR LEARNING  |
| 3  |   |
| 4  | Commentary  |
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25 Dietary goals in Scotland and Malta

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## 31 Abstract

32 Scotland and Malta share a high prevalence of overweight and obesity: around two-thirds of adults are 33 overweight (including obese), and one-third are obese. Reducing this burden of overweight and obesity 34 is a priority for both Scottish and Maltese Governments, which involves setting dietary goals and 35 monitoring the progress of the population to meeting those goals, and developing policies to improve 36 health. This commentary summarises the progress of Scotland and Malta to meeting dietary goals, 37 challenges to meeting the goals, and actions being taken. Whilst dietary guidelines are in place in both 38 countries, Malta has yet to estimate average population dietary intakes and is awaiting results from its 39 first national survey. In Scotland however, there are various well established dietary surveys which can 40 be used to inform the development of policy, yet little progress towards the Scottish Dietary Goals has 41 been seen between 2001 and 2015, and the prevalence of overweight and obesity has not changed 42 since 2008. In order for dietary goals to be met, dietary guidelines need to be promoted, understood, 43 and translated into changes in dietary behaviour. However, barriers to behaviour change need to be 44 addressed, with research required to design long-term interventions that are successful and cost-45 effective in all population groups. Scotland can learn from Malta's dietary guidelines which treat fruit and 46 vegetables as two separate groups, provide serving size and consumption guidelines, and incorporate 47 the positive message to use herbs and spices for flavour. Also, Malta can learn from the methodologies 48 of established Scottish and UK surveys to create their own programme of dietary surveys. The sharing 49 of experiences of researchers, policy makers and health promoters in these countries is therefore 50 beneficial for tackling the current obesity epidemic and promoting a healthier future.

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#### 52 Keywords

- 53 Diet, food, nutrient, goals, Malta, Scotland
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#### 61 Introduction

62 Scotland and Malta share a significant obesity problem. In Scotland, the prevalence of overweight 63 (including obesity) and obesity was 65% and 29% respectively in adults aged ≥16 years in 2016 64 (Bardsley, 2017). In Malta, the prevalence of overweight was 70% in adults aged 18-70 years in 2014-65 16, and 37% of men and 31% of women were obese (Cuschieri et al, 2016). Reducing the disease 66 burden from unhealthy diets are priorities for Scottish and Maltese Governments. This involves setting 67 dietary goals and monitoring the progress of the population to meeting those goals, which informs 68 policies to improve health and wellbeing. This commentary summarises the progress of Scotland and 69 Malta to meeting dietary goals, challenges to meeting the goals, and actions being taken. We conclude 70 with recommendations based on the examination of strategies in place in each country.

71

# 72 Scottish Dietary Goals and Guidelines

73 The Scottish Dietary Goals were introduced in 1996 (The Scottish Office, 1996) and were based on the 74 UK Dietary Reference Values (Department of Health, 1991) for selected nutrients and foods. They were 75 originally intended for achievement in 2005, although the timescale was later extended to 2010. The 76 goals were most recently updated in 2016 to "indicate the direction of travel, and the extent of the dietary 77 change needed, to reduce the burden of obesity and diet-related disease in Scotland" and to "underpin 78 diet and health policy in Scotland" (Scottish Government, 2016). The goals are similar to those set in 79 1996 regarding fruit and vegetables, oily fish, total fat, saturated fat, and salt. Goals were also added 80 for red meat, calories, *trans* fatty acids, free sugars, dietary fibre and total carbohydrate.

81

Most goals are monitored via secondary analysis of Scottish data from the Living Costs and Food Survey, which collects food purchase data from every person over 7 years of age in each household for 14 days. Estimates of food waste are made before estimating consumption for a typical average household member (Barton et al, 2018). The National Diet and Nutrition Survey uses a four day estimated diary to monitor *trans* fatty acid intakes (Bates et al, 2017), and the urinary sodium survey monitors salt consumption (Scottish Centre for Social Research, 2011). The goal for calories is monitored using the Scottish Health Survey's estimates of overweight and obesity (Bardsley, 2017).

89

90 Table 1 shows recent estimated Scottish average intakes compared with the Scottish Dietary Goals. 91 Energy density, and intakes of total fat, saturated fat, salt and free sugars (as non-milk extrinsic sugars) 92 are considerably higher than recommended, and consumption of fruit and vegetables, oily fish and 93 dietary fibre (as non-starch polysaccharides) is lower than recommended. There has also been little 94 progress towards the goals between 2001 and 2015 (Barton et al, 2018). Therefore, the Scottish 95 population require more support to improve their diet, through a combination of individual behavioural 96 changes, reformulation by the food and drink industry, and changes to the obesogenic environment 97 through a range of initiatives such as taxes on high fat/sugar products and policies to reduce easy 98 accessibility to high fat/sugar foods and drinks.

99

Whilst the Scottish Dietary Goals act as a reference for organisations and stakeholders whose actions influence the population's diet, the Eatwell Guide is the key resource for consumers - providing recommendations on the proportions of each food group to achieve a healthy balanced diet (Public Health England, 2016). The Eatwell Guide divides foods into five groups: (1) fruit and vegetables, (2) potatoes, bread, rice, pasta and other starchy carbohydrates, (3) dairy and alternatives, (4) beans, pulses, fish, eggs, meat and other proteins, and (5) oils and spreads. There are also recommendations regarding fluid intake, food label use, and reducing fat, salt and sugar (table 2).

107

# 108 Maltese Dietary Guidelines and Nutrient Goals

109 Malta has long recognised the need for promoting a healthy balanced diet in response to changes in 110 eating behaviours and increased obesity prevalence. The first nutrient goals for Maltese adults were 111 presented in 1986 and included guidelines for 12 nutrients, with recommendations to "eat less meat and 112 have fish and poultry in preference to beef; substitute high-fat dairy products with low-fat alternatives; 113 and eat fewer eggs, more fresh fruit and vegetables and whole grain flour" (World Health Organisation, 114 1986). The first Food Based Dietary Guidelines were launched in 1990 and focused on reducing fat, 115 sugar and salt; increasing fibre; reducing meat with an emphasis on white meat and fish; less high fat 116 dairy and eggs; more fruit and vegetables and wholegrain products; and less alcohol. The Malta Food Pyramid Guide was launched in 2004, recommending the highest daily consumption from starchy foods 117 at the bottom of the pyramid, followed by fruit and vegetables, fewer daily servings of meat and 118 119 alternatives and dairy products, and the lowest consumption from fats and oils at the top of the pyramid.

120

121 The guidelines were updated in 2015 by the Health Promotion and Disease Prevention Directorate Malta 122 and considered recommendations from the 2015-2020 'Food and Nutrition Policy and Action Plan for 123 Malta' (Health Promotion and Disease Prevention Directorate Malta, 2014). This latest guide, for adults 124 aged 19-65 years, presents 'The Healthy Plate' versus the pyramid image, and depicts six food groups: 125 (1) cereals and cereal products, (2) vegetables, (3) fruit, (4) milk and milk products, (5) lean meat, fish, 126 poultry, eggs, legumes, nuts and seeds, and (6) fats and oils. It includes a focus on the Mediterranean 127 diet, serving sizes for all food groups, and the healthy lifestyle messages below (table 2). 128 1. A focus on variety from the different food groups 129 2. Using herbs and spices for flavouring, without adding salt 130 3. Drinking plenty of water 131 4. The importance of keeping active 5. Limiting intake of saturated and trans fats, sugar and salt, and consumption of alcohol and 132 133 energy drinks 134 6. Good oral health 135 7. Food safety tips 136

137 It is intended to revise these guidelines once results are available from the first Maltese dietary survey 138 - conducted in 2015-2016 using standardised electronic software (GloboDiet) and 24-hour dietary 139 recalls. However, it is expected that the population will not meet the dietary guidelines. The high 140 prevalence of obesity, and data from general food consumption surveys like the Malta Food 141 Consumption Survey (which used a 5-day food diary), suggest that sweets, biscuits and confectionery remain the most popular snacks, with a low intake of fresh fruit at 1.25 servings/day (Malta Standards 142 143 Authority, 2010). Similarly the 2014-2015 European Health Interview Survey (which used two lifestyle 144 questionnaires) reported that 58% of Maltese adults consume fruit each day, with only 40% consuming 145 vegetables daily (Gauci et al, 2018).

146

# 147 Barriers and solutions to healthier diets

In order for dietary goals to be met, dietary guidelines need to be promoted, understood, and translated
into changes in dietary behaviour. However, barriers to behaviour change need to be addressed before

- the gap between guidelines and practice can be closed. We discuss two examples below: reducing the
- 151 prevalence of overweight and obesity, and increasing the consumption of fruit and vegetables.
- 152

#### 153 Overweight and obesity

Individual, social and cultural, and environmental factors all contribute to weight gain. In a workshop conducted in July 2018 at the University of Malta, stakeholders discussed their opinions on what constituted the main barriers to weight loss. These were numerous and diverse and included time issues, the (higher) cost of healthy food, and taste (individual level), lack of support, cultural barriers and stigma (social and cultural level), and the obesogenic environment, i.e. easy availability of unhealthy food, lack of open spaces (for physical activity) and marketing of unhealthy products (environmental level) (personal communication, 2018).

161

162 In British adults, the most common perceived cause of obesity was the food environment: 'people are 163 overweight because there are so many unhealthy foods around' (61%) (Beeken and Wardle, 2013). 164 Individuals were most supportive of policies involving healthy lifestyle campaigns (71%) and food 165 labelling in restaurants and takeaways (66%), and least supportive of taxes on the sale of unhealthy 166 foods (32%). However, in 2018, the UK Government introduced the Soft Drinks Industry Levy (the 'Sugar 167 Tax') which requires soft drink companies to pay a fee if drinks contain too much added sugar. Since 168 the policy was announced in 2016, over 50% of manufacturers have reformulated their drinks to contain 169 less sugar (HM Treasury, 2018).

170

171 Also in 2018, the Scottish Government published its 'Diet and Healthy Weight Delivery Plan' which aims 172 to achieve its vision for Scotland 'where everyone eats well and has a healthy weight' by working on five 173 outcomes: (1) children have the best start in life - they eat well and have a healthy weight, (2) the food 174 environment supports healthier choices, (3) people have access to effective weight management 175 services, (4) leaders across all sectors promote healthy diet and weight, and (5) diet-related health 176 inequalities are reduced. However, Scottish Government's Obesity Route Map (2010) and Action Plan 177 (2011) had little success: the prevalence of overweight and obesity is unchanged since 2008 (Bardsley, 178 2017). Nevertheless, a review of the Action Plan concluded that the situation may have been worse 179 without the considerable effort in response to the Obesity Route Map (Kerr, 2015).

181 The Maltese 'Healthy Weight for Life Strategy' (2012-2020) outlines initiatives relating to the promotion 182 of healthy eating and physical activity and the provision of healthcare services including weight 183 management programmes. Policies to tackle overweight and obesity in Malta include 'A Strategy for the 184 Prevention and Control of Non-communicable Diseases in Malta' and 'A Healthy Weight for Life 185 Strategy' (Ministry for Health, the Elderly and Community Care, 2010 and 2012), and various initiatives 186 to promote healthy lifestyle, as outlined by the Malta Food and Nutrition Policy Action Plan (Health 187 Promotion and Disease Prevention Directorate Malta, 2014), include increasing physical activity, eating 188 more fruit and vegetables, promotion of the Mediterranean diet, and reading of food labels.

189

#### 190 Fruit and vegetables

191 The main barriers to increasing fruit and vegetable consumption have been reported to be 'cost' for fruit, 192 but 'food preferences' and 'taste' for vegetables (Glasson et al, 2010). Stakeholders in Malta also 193 identified taste, cost, lack of cooking skills and poor budgeting as individual barriers; stigma and peer 194 pressure as social barriers; and poor marketing (more unhealthy food being advertised) as well as fear 195 of high levels of pesticide residues as environmental barriers to consuming more fruit and vegetables 196 (personal communication, 2018). A Maltese study with stakeholders including farmers and consumers 197 revealed that prices and time to prepare healthy food were the main barriers for healthy, clean and fair 198 food (The President's Foundation for the Wellbeing of Society, 2018).

199

The different determinants of consumption of fruit and vegetables, and their differing potential health benefits, support their treatment as two separate groups in health promotion strategies - as in the Malta Healthy Plate, but not the UK Eatwell Guide. In Scotland, the lack of improvement in fruit and vegetable consumption since 2001, and the lower consumption of both fruit and vegetables in more deprived areas (Barton et al, 2018), justifies the need for considerable work to develop long-term interventions that are successful and cost-effective in all population groups.

206

#### 207 Recommendations

Scotland and Malta require food and drink policies that are effective in order to treat and further prevent
 overweight and obesity. Policies need to create an enabling environment for all sectors of the population,

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210 with priorities being children who need to learn healthy food preferences, and groups in more deprived 211 areas who need to overcome barriers to express healthy preferences. We can benefit by learning about 212 strategies in other countries which share similar challenges, and exploring opportunities for translating 213 these practices into effective policies at home. For instance, Scotland can learn from Malta's dietary 214 guidelines which treat fruit and vegetables as two separate groups, provide serving size and 215 consumption guidelines, and incorporate the positive message to use herbs and spices for flavour. Also, 216 Malta can learn from the methodologies of established Scottish and UK surveys to create their own 217 programme of dietary surveys. The sharing of experiences of researchers, policy makers and health 218 promoters in these countries is therefore beneficial for tackling the current obesity epidemic and 219 promoting a healthier future.

220

## 221 Conflicts of interest

- 222 The authors report no conflicts of interest.
- 223

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| Food / Nutrient      | Goal   | Average Intake                  | Source                     |
|----------------------|--|---------------------------------|----------------------------|
| Energy density       | Average energy density of the diet to be lowered to 125 kcal/100g  | 178 kcal/100g                   | Barton et al, 2018         |
| Fruit & vegetables   | Average intake to reach >400 g/day                                 | 257 g/day                       | Barton et al, 2018         |
| Oily fish            | Increase to 1 portion per person per week (140 g/week)             | 34 g/week                       | Barton et al, 2018         |
| Red & processed meat | Average intake to be pegged at around 70 g per person per day      | 56 g/day                        | Barton et al, 2018         |
| Total fat            | Average intake to reduce to no more than 35% food energy           | 38.9% food energy               | Barton et al, 2018         |
| Saturated fat        | Average intake to reduce to no more than 11% food energy           | 15.1% food energy               | Barton et al, 2018         |
| Trans fatty acids    | Average intake to remain below 1% food energy                      | 0.6-0.8% food energy            | Bates et al, 2017          |
| Free sugars          | Average intake not to exceed 5% total energy                       | 14.4% total energy <sup>1</sup> | Barton et al, 2018         |
| Salt                 | Average intake to reduce to 6 g/day                                | 8.8 g/day                       | Scottish Centre for Social |
|                      |  |                                 | Research, 2011             |
| Fibre                | Increase in average consumption for adults (≥16 years) to 30 g/day | 12 g/day <sup>2</sup>           | Barton et al, 2018         |
| Total carbohydrate   | Average intake of approximately 50% total dietary energy           | 46.6% food energy               | Barton et al, 2018         |

**Table 1**: Average food and nutrient intakes in Scotland compared with the Scottish Dietary Goals (Scottish Government, 2016)

322 <sup>1</sup>Average intake of non-milk extrinsic sugars

323 <sup>2</sup>Average intake of non-starch polysaccharides (main component of dietary fibre)

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**Table 2**: Comparisons between the UK Eatwell Guide and Malta Healthy Plate

| Components                              | UK Eatwell Guide | Malta Healthy Plate |
|---|------------------|---------------------|
| Within main illustration                |                  |                     |
| Plate model                             | ✓                | ✓                   |
| Number of food groups                   | 5                | 6                   |
| Fat, sugar and salt reduction           | $\checkmark$     | 1                   |
| Hydration                               | $\checkmark$     | $\checkmark$        |
| Food labels                             | $\checkmark$     | Х                   |
| Energy intake                           | $\checkmark$     | Х                   |
| Limit alcohol intake                    | Х                | 1                   |
| Keep active and reduce sitting time     | Х                | 1                   |
| Herbs and spices                        | Х                | $\checkmark$        |
| Within full guidelines document         |                  |                     |
| Vitamin and mineral supplements         | $\checkmark$     | Х                   |
| Oral health                             | Х                | $\checkmark$        |
| Avoid energy drinks                     | Х                | $\checkmark$        |
| Food safety                             | Х                | $\checkmark$        |
| Serving size and consumption guidelines | Х                | $\checkmark$        |