

Gendered experiences of obesity

Narrowing gender gaps in prevention and treatment

Scott Corfe
Jake Shepherd

SMF

**Social Market
Foundation**

Gendered experiences of obesity

Narrowing gender gaps in prevention and treatment

Scott Corfe
Jake Shepherd

Kindly supported by



Novo Nordisk has provided sponsorship to the Social Market Foundation (SMF) to cover the costs of research and production of this report. Novo Nordisk has had no influence over the creation, development or content of this report and full control remains the full responsibility of the SMF

FIRST PUBLISHED BY

The Social Market Foundation, November 2021
11 Tufton Street, London SW1P 3QB
Copyright © The Social Market Foundation, 2021

The moral right of the authors has been asserted. All rights reserved. Without limiting the rights under copyright reserved above, no part of this publication may be reproduced, stored or introduced into a retrieval system, or transmitted, in any form or by any means (electronic, mechanical, photocopying, recording, or otherwise), without the prior written permission of both the copyright owner and the publisher of this book.

THE SOCIAL MARKET FOUNDATION

The Foundation's main activity is to commission and publish original papers by independent academics and other experts on key topics in the economic and social fields, with a view to stimulating public discussion on the performance of markets and the social framework within which they operate. The Foundation is a registered charity (1000971) and a company limited by guarantee. It is independent of any political party or group and is funded predominantly through sponsorship of research and public policy debates. The views expressed in this publication are those of the authors, and these do not necessarily reflect the views of the Social Market Foundation.

CHAIR

Professor Wendy Thomson CBE

DIRECTOR

James Kirkup

TRUSTEES

Professor Tim Bale
Tom Ebbutt
Baroness Greender MBE
Rt Hon Dame Margaret Hodge MP
Rt Hon Baroness Morgan of Cotes
Trevor Phillips OBE
Melville Rodrigues
Mary Ann Sieghart

CONTENTS

Acknowledgements	4
About the authors	4
Executive summary	5
Chapter one – Introduction	8
Chapter two – Trends in and drivers of obesity by gender	10
Chapter three – Gendered experiences of obesity treatment	19
Chapter four – Policy options	34
Endnotes	41

ACKNOWLEDGEMENTS

The SMF is grateful to Novo Nordisk for sponsoring this research project. The views in the report do not necessarily reflect those of Novo Nordisk. The Social Market Foundation retains full editorial independence with respect to its research.

The authors are grateful to all those who participated in a roundtable discussion held as part of the research.

ABOUT THE AUTHORS

Scott Corfe

Scott Corfe joined the Social Market Foundation in 2017 and is our Research Director. As well as managing the SMF's research team, he authors research on a wide range of topics including consumer markets, taxation, low pay, housing and technology.

Before joining the SMF, he was Head of Macroeconomics and a Director at the economics consultancy Cebr, where he led much of the consultancy's thought leadership and public policy research.

Scott's expert insights are frequently sought after in publications including the Financial Times, the Guardian, the Times, and the Daily Telegraph. Scott has appeared on BBC News, Sky News, Radio 4 and a range of other broadcast media.

Jake Shepherd

Jake joined the SMF research team in March 2020, having previously held roles in the public and non-profit sectors. He was last employed at the Office for National Statistics and before that he worked at public service reform think tank, New Local.

Since joining, Jake has maintained an interest in economic sociology, social equality issues, and work and welfare. His research portfolio includes projects on 'sin' – alcohol and gambling – the four-day working week, and in-work poverty. Jake has an MA in Social Research from the University of Leeds and a BA in Sociology from Manchester Metropolitan University.

EXECUTIVE SUMMARY

This report explores gendered experiences of obesity in the UKⁱ, examining how obesity rates differ between men and women, the drivers of these trends and the extent to which policy aimed at reducing obesity rates needs to be gender specific.

The key findings of our research are outlined below.

Trends in obesity rates among men and women

- **In England, the obesity rate is slightly higher for women (29%) than for men (27%).** However, men are significantly more likely to have overweight (41% vs 31% for women).
- **Across both genders, obesity rates in England have increased by a similar amount since the early 1990s.** Between 1993 and 2019, the obesity rate among women rose from 16% to 29%, while for men it increased from 13% to 27%.
- **In England, obesity rates are higher for women than for men among those aged 25-54, while among those aged 55-74, men have higher obesity rates.** Among the youngest age group in the data, 16-24, men have a higher obesity rate, while among the oldest age group (75+) women have a higher obesity rate.
- **Women have significantly higher obesity rates than men in the North East of England, Yorkshire & the Humber, the East Midlands and London.**
- **A driver of higher rates of female obesity, relative to men, in regions such as the North East and Yorkshire & the Humber, is likely to be relatively low household incomes.** Among those living in the least deprived 20% areas of England, obesity rates among men and women are the same (22%), However, among the most deprived 20% of areas, the obesity rate for women stands at 39%, while for men the rate is significantly lower at 30%. That is to say, poverty appears to have a much more significant impact on obesity rates among women.

Drivers of obesity by gender

- **In the UK, it has been estimated that increased energy intake (calorie consumption) accounted for the entirety of the increase in body weight in women between 1986 and 2000, but not in men.** For men, the increase in body weight over this period is likely to be due to a combination of increased total energy intake and reduced physical activity levels.
- **Women are more likely to have medical conditions that contribute to weight gain and difficulty losing weight.** For example, thyroid disease is much more common in females than in males, with reported prevalence ranging from two to eight times higher in women. In the Opinium Survey commissioned by the SMF as part of its 2020 obesity study, 16% of women saying they would like to lose weight cited a medical condition as a barrier to doing so. This compared to 11% among men.

ⁱ Data limitations and lack of comparable statistics mean that however, in places, we draw on datapoints that just relate to England

Gendered experiences of obesity treatment

- **Women are more likely to be invested in diet than men.** Men are more likely to associate dieting with unappealing food and smaller meal portions, affecting their engagement with it. Across commercial service providers Weight Watchers, Slimming World, and Rosemary Conley Diet and Fitness Clubs, men represent just 11% to 18% of participants.
- **However, males with excess weight are more likely to exercise than females.** Among adults with overweight and obesity, findings from the Health Survey for England 2016 showed that men with overweight (72%) and obesity (63%) are more likely to meet aerobic activity guidelines than women with overweight (59%) and obesity (50%). Contributing factors to this difference are likely to be societal norms that often see some forms of exercise and, in particular, sport as a “masculine” or male-dominated activity.¹ Concerns about safety and harassment in public spaces also discourage women from participating in exercise.
- **Men are much less likely to undergo bariatric surgery to lose weight.** NHS data for England show that women accounted for 79% of those with obesity undergoing bariatric surgery in 2018/19.
- **Men with obesity are less likely to be using weight loss medication.** In 2015, a study conducted in Northern Ireland estimated that 0.6% of men with obesity were on anti-obesity medication, compared with 2.1% of women with obesity.
- **Women are much more likely to be referred to weight loss programmes by GPs. Despite being just as likely to accept, men make up only 1 in 10 referrals.**
- **SMF-commissioned survey data shows that women are more comfortable speaking to others about their weight than men.**

Policy recommendations

- **Both the NHS and commercial service providers should look to review their existing weight management programmes, with a view to incorporating male-friendly components into future designs.** A particular focus should be on creating environments in which men feel comfortable to discuss and work on issues related to their weight, physical activity and diet, with health service providers learning from existing successful initiatives such as “Men’s Sheds” and those run by local sports clubs.
- **Local authority-managed gyms, swimming pools and sports facilities should be required to offer women-only sessions and time slots, to create more safe spaces in which women feel comfortable to partake in physical activity. There should also be attempts to increase the availability of childcare facilities in gyms and sports clubs, supporting women (who undertake most within-household childcare) to exercise.** More broadly, policymakers must continue to explore ways of improving safety and promoting inclusivity in public spaces, particularly for women and girls. Among young women, the design of more equitable public spaces, as is proposed under the Viennese ‘gender mainstreaming’ model, may help to increase participation in outdoor exercise and play.

- **The government should issue grants to encourage local authorities and/or NHS trusts to trial cash incentive schemes to encourage individuals to lose weight, engage with weight management services and be more physically active.** This would help establish best practices for creating cash incentive schemes which have a significant and long-lasting impact on individuals' weight loss.
- **A payment premium on referrals of men to weight management services should be introduced, to create a stronger incentive for GPs to refer more men.** GPs should also be encouraged to have more opportunistic conversations with patients about weight loss, during appointments related to other issues.

Note on terminology: gender and sex

This report refers to gender, which the Collins dictionary defines as “the state of being male or female in relation to the social and cultural roles that are considered appropriate for men and women”. This is distinct from sex, which refers to being male or female in relation to physical anatomy. This report considers the behavioural, cultural, and social aspects of overweight and obesity, which are shown to differ between males and females - the social roles that are often ascribed to members of the different sexes can contribute significantly to overweight and obesity. This report does not consider any physiological differences between the sexes that contribute to differing experiences of overweight and obesity; such biomedical analysis is out of the scope and expertise of the SMF.

CHAPTER ONE - INTRODUCTION

The COVID-19 pandemic has seen obesity and overweight rise up the policy agenda, given the emerging evidence that excess weight is a significant risk factor with respect to coronavirus. In one meta-analysis, published in August 2020 in *Obesity Reviews*, a team of researchers pooled data from peer-reviewed papers capturing 399,000 COVID-19 patients. The analysis found that people with obesity who contracted COVID-19 were 113% more likely than people with a healthy weight to be hospitalised, 74% more likely to be admitted to an intensive care unit (ICU), and 48% more likely to die.² Another meta-analysis of 22 studies from seven countries in North America, Europe and Asia, published in 2021, found that obesity is associated with an increased likelihood of presenting with more severe COVID-19 symptoms, developing acute respiratory distress syndrome, being admitted to an ICU and undergoing invasive mechanical ventilation.³

People living with obesity are more likely than individuals with healthy weight to have other diseases that are independent risk factors for severe COVID-19, including heart disease, lung disease, and diabetes. They are also prone to metabolic syndrome, in which blood sugar levels, fat levels, or both are unhealthy and their blood pressure may be high.⁴ One study of 287 hospitalized COVID-19 patients found that metabolic syndrome substantially increased the risks of ICU admission, ventilation, and death.⁵

The apparent link between COVID-19 mortality and obesity has prompted the UK Government to take action. The unveiling of a new Obesity Strategy in 2020 was driven explicitly by a desire of Government to get the country to “lose weight to beat coronavirus (Covid-19) and protect the NHS”.⁶ A wide range of policies are being explored as part of the strategy, including bans on junk food advertising, restrictions on “buy one, get one free” deals on unhealthy food, calorie counts on restaurant menus, and an expansion of NHS services.

As we noted in our first report on obesity last year⁷, getting the Obesity Strategy right will be crucial if the UK is to reduce the substantial health and economic inequalities that exist in the UK.

This includes ensuring that obesity policymaking recognises important differences in the experience of obesity between genders – the focus of this report. As we show in this report, while obesity trends in recent years have been similar between men and women in Britain, the *causes* of these trends differ as does the extent to which men and women use weight management services. Our review of existing evidence suggests that reducing rates of obesity in men and women is likely to require different policy solutions. Given this, we set out a series of policy options which reflect differences in the gendered experiences of obesity.

The structure of this report is as follows:

- **Chapter two** provides an overview of trends in and drivers of obesity by gender.
- **Chapter three** explores gendered experiences of obesity treatment and prevention.

- **Chapter four** sets out policy options for reducing obesity rates among men and women in the UK.

Box 1: What do we mean by overweight and obesity?

The most widely-used gauge of the healthiness of someone's weight is the body mass index (BMI). The BMI calculation divides an adult's weight in kilograms by their height in metres squared.

For children and young people aged 2 to 18, the BMI calculation takes into account age and gender as well as height and weight.

According to the NHS, for most adults, an ideal BMI is in the 18.5 to 24.9 range.⁸ If your BMI is:

Below 18.5 – you are categorised as having underweight

Between 18.5 and 24.9 – you are categorised as having a healthy weight

Between 25 and 29.9 – you are categorised as having overweight

Between 30 and 39.9 – you are categorised as having obesity

40 or above – you are categorised as having morbid obesity

For the purposes of this report, unless otherwise specified, we use these definitions of overweight and obesity. However, as we acknowledge within the report, there are some issues with the BMI, which mean that healthcare professionals may take other factors into account when assessing whether someone is a healthy weight.

For example, BMI might not work well for very muscular individuals, as muscle is much denser than fat. Ethnicity can also affect the healthiness of a given weight; adults of Asian origin may have a higher risk of health problems at BMI levels below 25.⁹

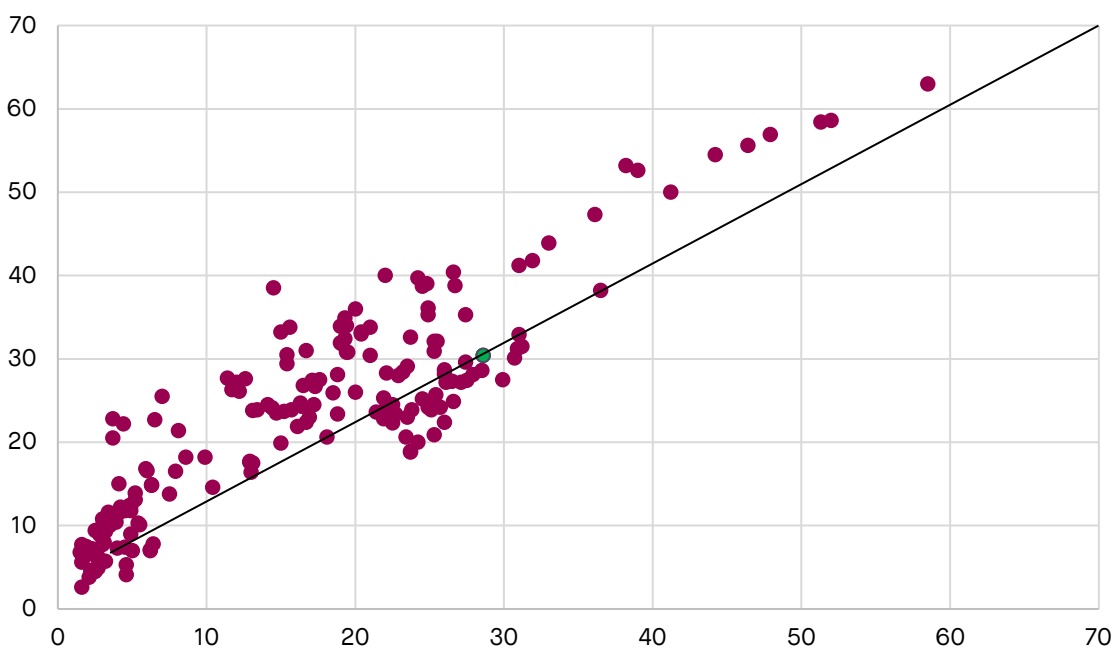
CHAPTER TWO – TRENDS IN AND DRIVERS OF OBESITY BY GENDER

In this chapter, we explore recent trends in obesity and overweight rates by gender, drawing on official statistics as well as an SMF-commissioned Opinium survey undertaken in 2020ⁱⁱ. In addition to examining trends, this chapter also assesses the *drivers* of changes in obesity rates, and disparities between genders.

Obesity and overweight by gender

In most countries the prevalence of obesity is greater in women than in men; however, the magnitude of the difference varies significantly by country.¹⁰ Food consumption is gendered according to “masculine” and “feminine” eating styles. Dieting and eating disorders occur more frequently among women than among men. Physical activity is also gendered, with variations by country. As the chart below shows, female obesity rates in the UK are higher than for men, though by a smaller amount than most other countries.

Figure 1: Female obesity rates (%) against male obesity rates (%), 2016. UK denoted by the green dot. Black line denotes the point at which male and female obesity rates are equal.

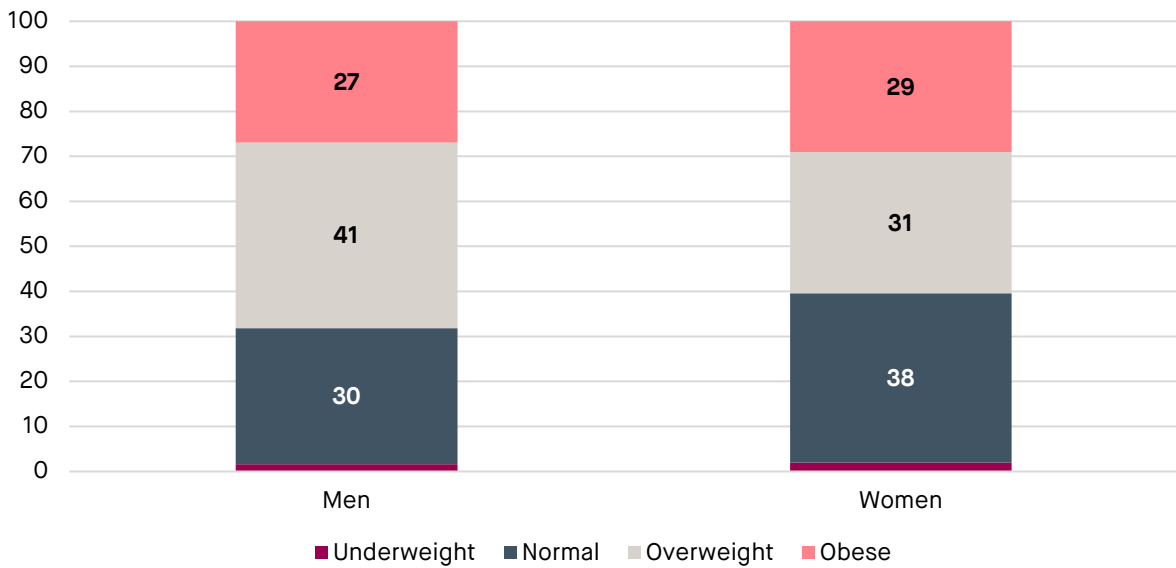


Source: World Health Organisation Global Health Observatory

The charts below show the weight distribution of men and women in England in 2019, drawing on data from the Health Survey for England. This data shows that the obesity rate is slightly higher for women (29%) than for men (27%). However, men are significantly more likely to have overweight (41% versus 31% for women).

ⁱⁱ The nationally representative survey of 2,000 adults in the UK took place between 11th September 2020 and 15th September 2020. Despite the passage of time since the survey was conducted, we are confident its findings remain robust and relevant.

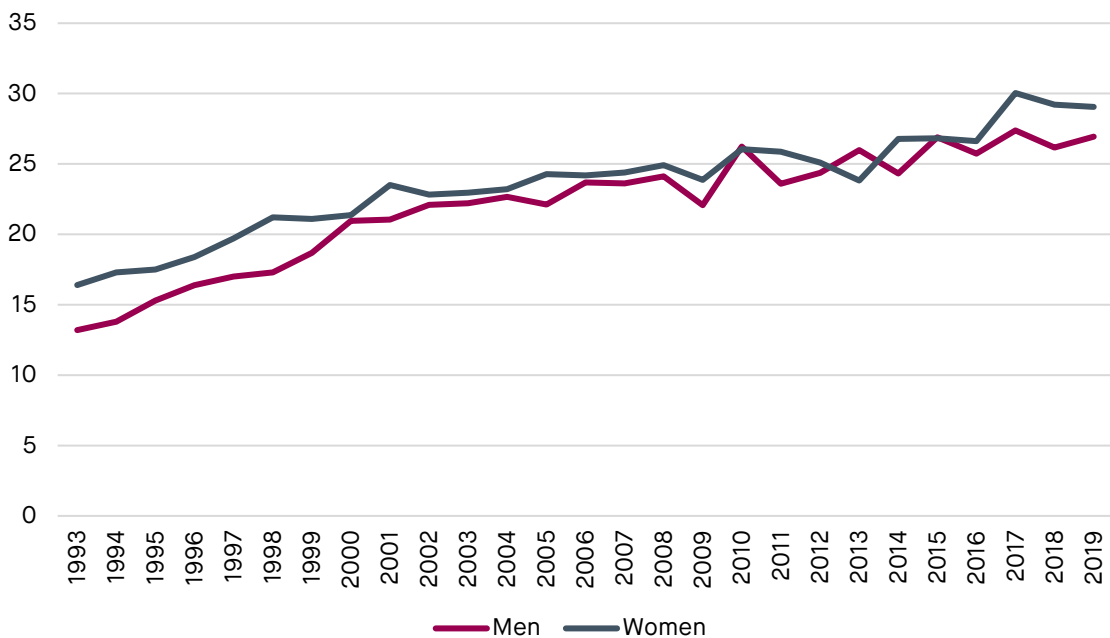
Figure 2: Weight distribution of men and women in England, 2019, %



Source: Health Survey for England

Across both genders, obesity rates in England have increased by a similar amount since the early 1990s, as shown in the chart below. Between 1993 and 2019, the obesity rate among women rose from 16% to 29%, while for men it increased from 13% to 27%

Figure 3: Obesity rates by gender in England, %

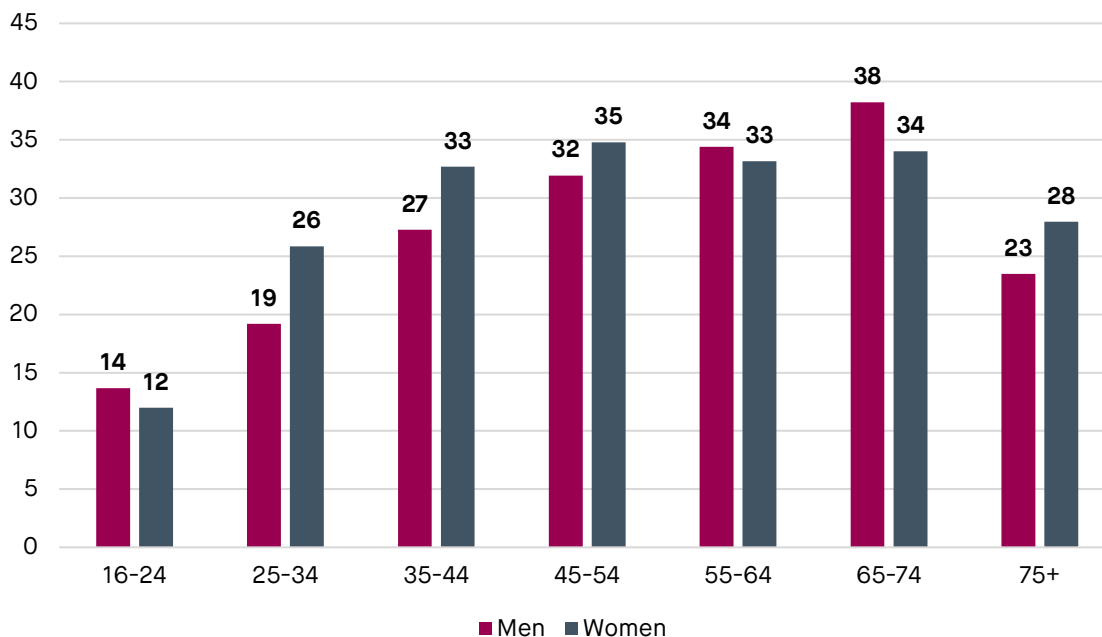


Source: Health Survey for England

Age, gender, and obesity

We note some differences in obesity rates by gender, upon segmenting by age group. In England, obesity rates are higher for women than for men among those aged 25-54, while among those aged 55-74, males have higher obesity rates. Among the youngest age group in the data, 16-24, men have a higher obesity rate, while among the oldest age group (75+) women have a higher obesity rate. Differences in the age profile of obesity rates by gender may have implications for treatment and prevention – insofar as evidence suggests some options may be better for younger or older age groups.

Figure 4: Obesity rates by gender and age in England, 2019, %



Source: Health Survey for England

One driver of higher overweight and obesity rates among women aged 25-54 may be the impact of childbirth and parenthood on bodyweight. A recent US-based study of 30,000 women who had given birth found that most women never returned to their pre-pregnancy weight.¹¹

However, the same study also found that their weight at 1-2 years after giving birth was nearly identical to what they could have been expected to weigh if they didn't have children. Women with and without children gained 1.94 pounds a year due to age. However, after these two years, a divergence occurred—once their children became toddlers, the mothers gained a full pound more annually than their childless peers.

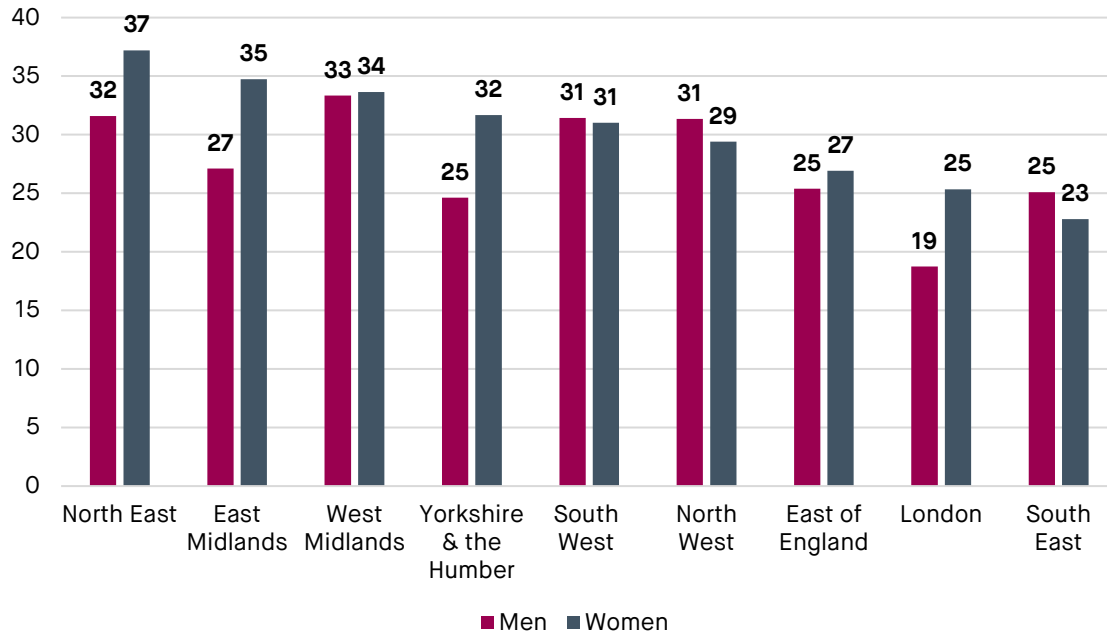
This trend is potentially explained by lifestyle differences for mothers compared with those without children – for example, mothers lacking the time to exercise or cook healthier meals.

Menopause is another factor affecting bodyweight among women, with fluctuating and falling hormone levels affecting the way women store fat and burn energy.¹²

Region, gender, and obesity

We also note some important variations in obesity rates by gender upon segmenting by region. Women have significantly higher obesity rates than men in the North East of England, Yorkshire & the Humber, the East Midlands and London. This is shown in the chart below.

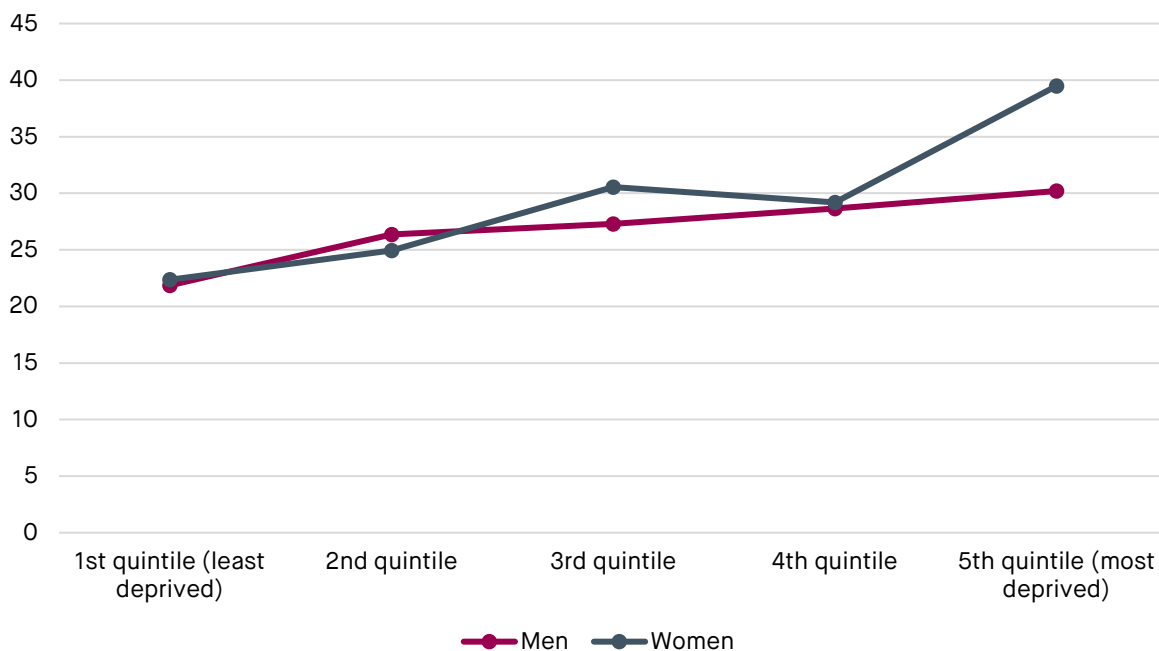
Figure 5: Obesity rates by gender and region in England, 2019, %



Source: Health Survey for England

A driver of higher rates of female obesity, relative to men, in regions such as the North East and Yorkshire & the Humber, is likely to be relatively low household incomes. Among those living in the least deprived 20% of areas of England, obesity rates among men and women are the same (22%). However, among the most deprived 20% of areas, the obesity rate for women stands at 39%, while for men the rate is significantly lower at 30%. That is to say, poverty appears to have a much more significant impact on obesity rates among women.

Figure 6: Obesity rates by gender and index of multiple deprivation quintile in England, 2019, %



Source: Health Survey for England

Drivers of obesity and overweight by gender

The World Health Organisation (WHO) notes that “the fundamental cause of obesity and overweight is an energy imbalance between calories consumed and calories expended” and that globally there has been an increased intake of energy-dense foods that are high in fat and sugars. This has combined with an increase in physical inactivity due to the increasingly sedentary nature of many forms of work, changing modes of transportation, and increasing urbanisation. The WHO recognises the complex drivers of these trends, noting that “changes in dietary and physical activity patterns are often the result of environmental and societal changes associated with development and lack of supportive policies in sectors such as health, agriculture, transport, urban planning, environment, food processing, distribution, marketing, and education.”¹³

In the UK, it has been estimated that increased energy intake (calorie consumption) accounted for the entirety of the increase in body weight in women between 1986 and 2000, but not in men. For men, the increase in body weight over this period is likely to be due to a combination of increased total energy intake and reduced physical activity levels.¹⁴ As such, while trends in obesity rates have been similar among men and women, as illustrated earlier, there appear to be important differences in terms of what has driven these trends.

Health conditions can also play a role in weight gain. The NHS, for example, highlights hypothyroidism (“underactive thyroid”), diabetes treatment, ageing, steroid treatment, Cushing’s syndrome, stress, low mood, and polycystic ovary syndrome as factors that can lead to weight gain, or make it difficult for individuals to lose weight.¹⁵

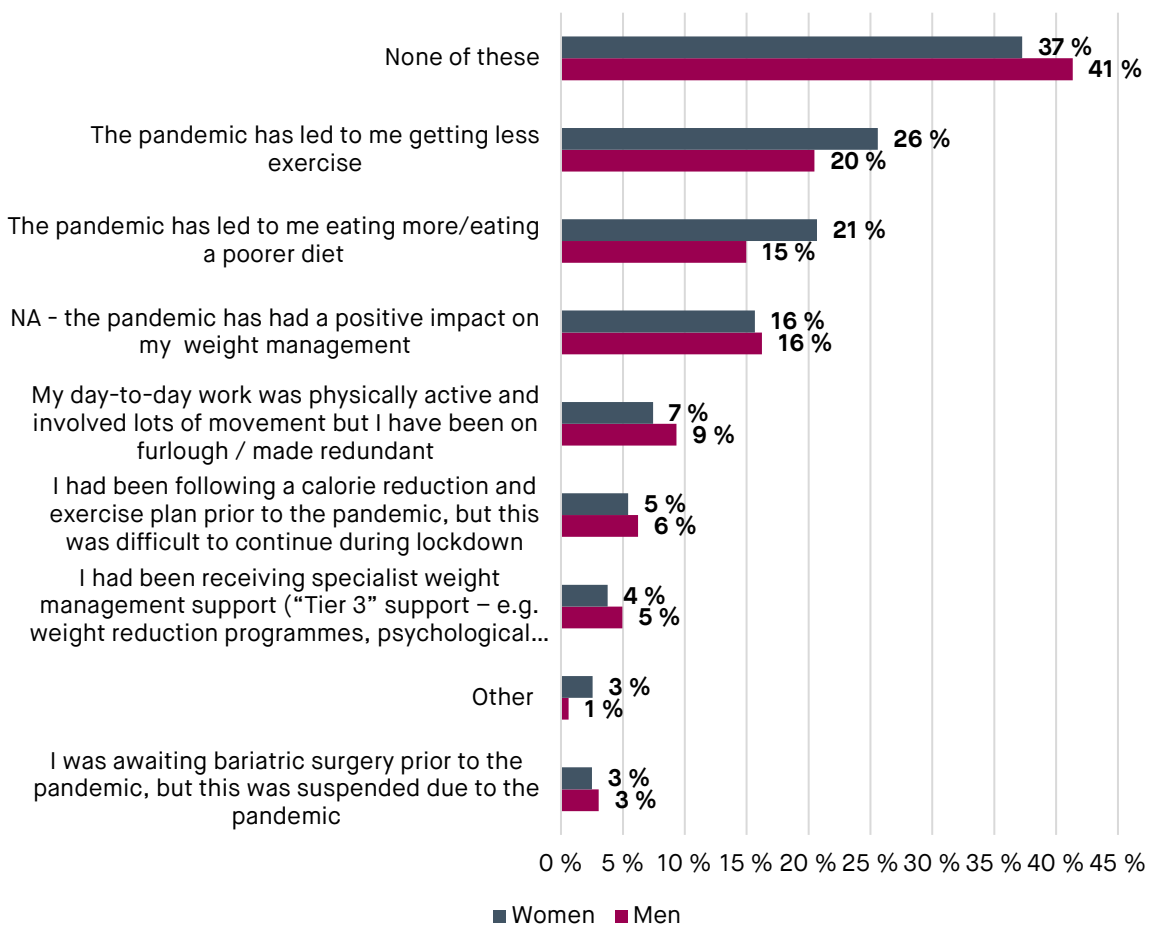
Critically, the prevalence of some of these medical conditions varies significantly by gender, leading to further differences in the underlying drivers of obesity trends. For example, thyroid disease is much more common in females than in males, with reported prevalence ranging from two to eight times higher in females.¹⁶ Depression, which is associated with a 58% increased risk of obesity,¹⁷ is also more common among women, as are mental health issues more broadly.¹⁸ Weight gain is a possible side effect of nearly all antidepressants.¹⁹

In the Opinium Survey commissioned by the SMF as part of its 2020 obesity study, 16% of females saying they would like to lose weight cited a medical condition as a barrier to doing so. This compared to 11% among men.

Gendered experiences of the COVID-19 pandemic

The Opinium survey we commissioned suggests that the COVID-19 pandemic has impacted men and women differently, in terms of efforts to lose or manage weight – with implications for obesity rates. Women were more likely than men to say that the pandemic had led to them getting less exercise (26% vs 20%) and had led to them eating more or eating a poorer diet (21% vs 15%).

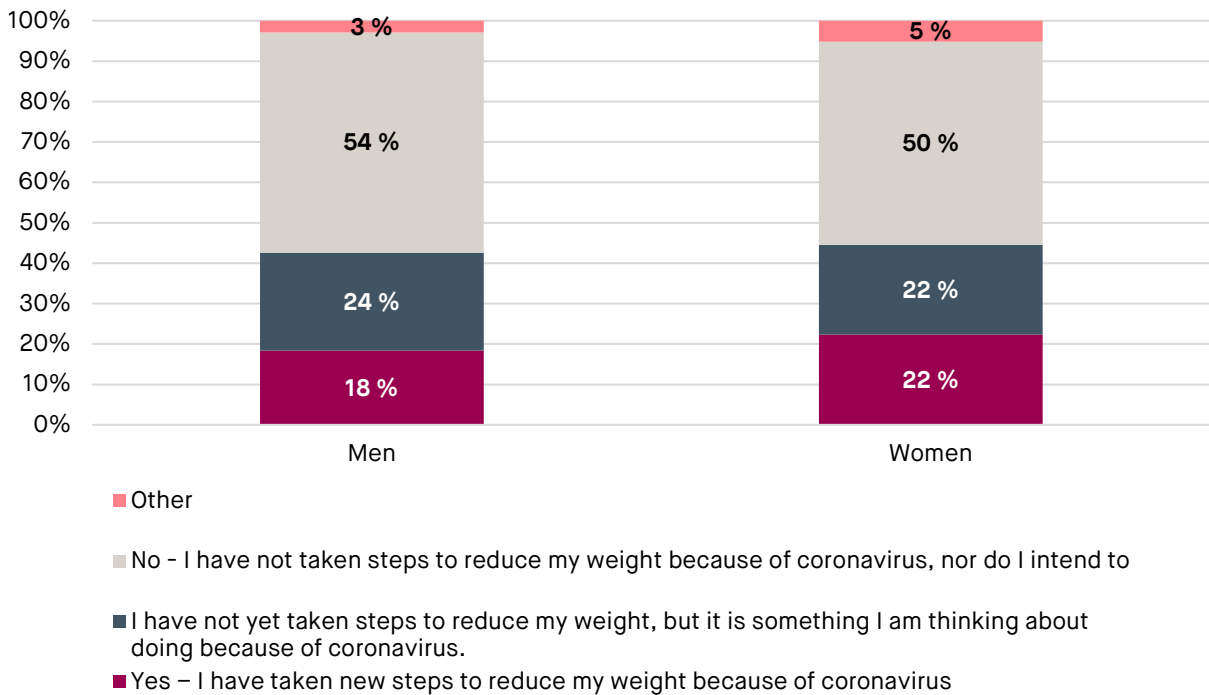
Figure 7: Has the pandemic had any of the following negative impacts on your ability to lose weight/manage your weight? %



Source: Opinium survey

At the same time, women were slightly more likely than men to report taking steps to reduce weight because of coronavirus and evidence suggesting that COVID-19 has more serious impacts on people living with overweight or obesity – 22% vs 18%. Some 54% of men said that they had not taken steps to lose weight because of coronavirus, nor do they intend to do so in the future. This compared with 50% among women.

Figure 8: Some of the news recently has mentioned that coronavirus, Covid-19, more seriously impacts people who are living with obesity or overweight. Has the coronavirus pandemic led to you taking action to reduce your weight?

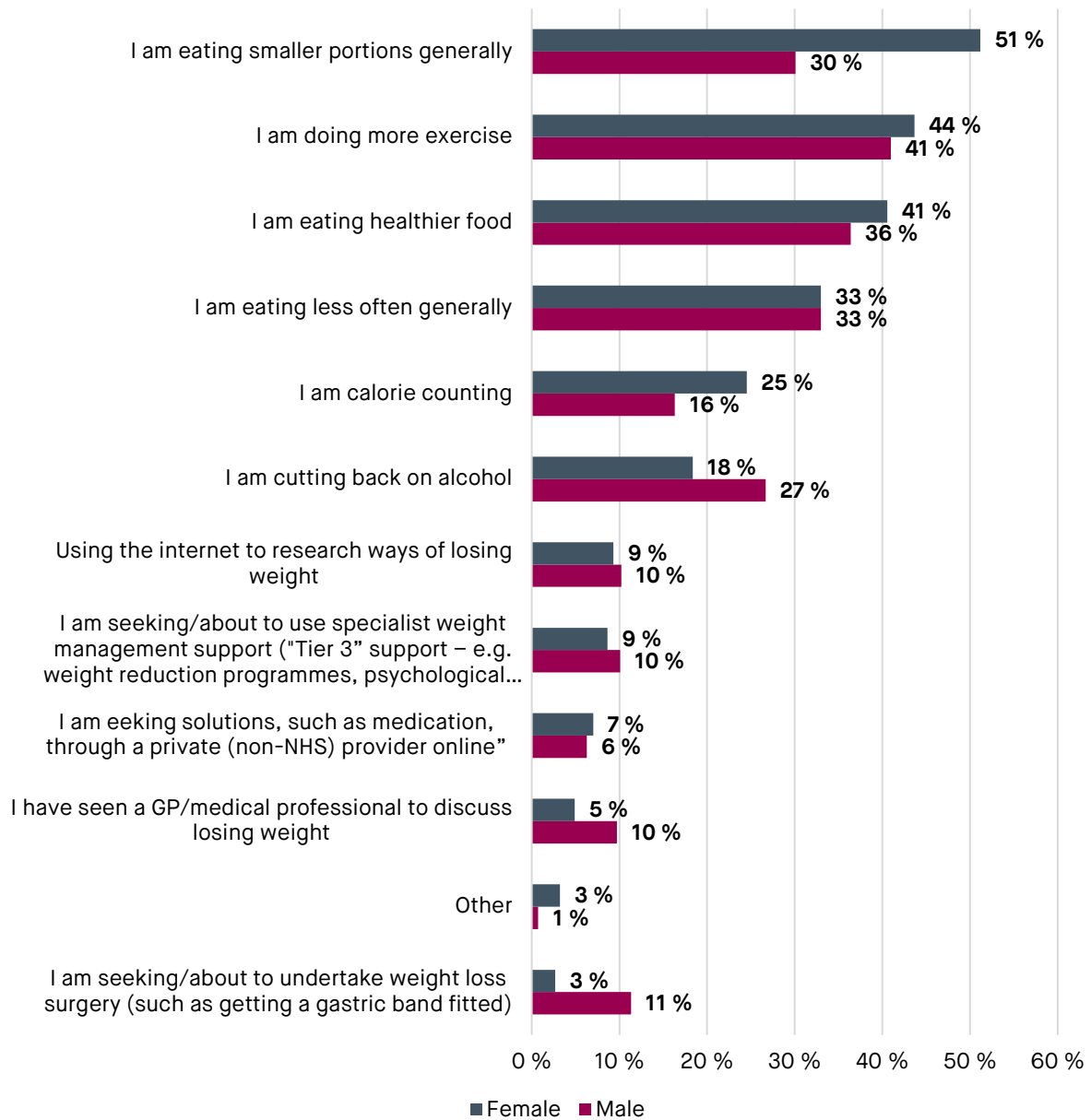


Source: Opinium survey

Among those stating that they have taken steps to lose weight in response to coronavirus, we note some significant differences in strategies adopted between genders. Women were much more likely than men to say they were eating smaller portions generally (51% versus 30%) or calorie counting (25% versus 16%). As we discuss in the next chapter, this may reflect a common concern among men that activities such as calorie counting are not “masculine”.

Men were significantly more likely than women to say that they were cutting back on alcohol as a strategy for losing weight (27% versus 18%).

Figure 9: You mentioned that coronavirus has led to you taking steps to reduce your weight. What steps have you taken?



Source: Opinium survey

Summary

While obesity rates among men and women are broadly comparable in the UK, as are their trends over time, there are important differences between genders. Diet has been the prime driver of higher female obesity rates since the early 1990s, whereas among men more sedentary lifestyles have also been an important factor. The age profile of men and women with obesity differs, with implications for policy. Further, poverty and economic deprivation appear to have a more significant impact on female than male obesity rates. Our survey data suggest that the COVID-19 pandemic has had a more significant impact on the ability of women to reduce and manage their weight, though women appear to have been slightly more motivated to lose weight in response to

evidence suggesting the coronavirus has a more detrimental health impact for those living with obesity. Among those taking steps to lose weight in response to COVID-19, women were more likely to adopt smaller meal portions and calorie counting as strategies to lose weight.

CHAPTER THREE – GENDERED EXPERIENCES OF OBESITY TREATMENT

What treatment options are available? What works?

There is no ‘quick-fix’ to reducing obesity, particularly severe obesity. As previous SMF research has highlighted, obesity and overweight are complex problems. Its drivers straddle a range of biological, environmental, and social dimensions, so treating it is not always straightforward.²⁰ However, there are a range of different options available to people looking to lose weight, summarised in the table below. While we acknowledge that not all of these treatments will be appropriate nor sustainable for all people, particularly those that live with severe or complex obesity, they are the range of potential options proposed by the NHS.

Table 1: Treatments for overweight and obesity, adapted from the NHS

Treatment	Description
Diet	To lose weight safely, most people are advised to reduce their calorie intake by 600 calories per day. The best way to achieve this is with a healthy and balanced diet.
Exercise	Reducing calories can help a person lose weight, while physical activity helps to burn energy and maintain a healthy weight. The Chief Medical Officers recommend that adults should do a minimum of 150 minutes moderate-intensity activity a week.
Very low calorie diets	A very low calorie diet is where you consume less than 800 calories a day. These diets can lead to rapid weight loss, but are not a suitable or safe method for everyone, and are not routinely recommended for managing obesity. They should not usually be followed for longer than 12 weeks at a time, and they should only be used under the supervision of a suitably qualified healthcare professional. ²¹
Weight management programmes	Weight management is formalised and led by trained specialists who design longer-term weight loss plans for people with obesity. Specialist support can be provided in face-to-face sessions, by telephone, or online.
Weight loss medicines	Weight loss medication may be prescribed for people with a BMI of 30 or more (or 28 or more with other weight-related conditions) to reduce the absorption of dietary fat. Medication is used in combination with other weight loss strategies.
Weight loss surgery	Also known as bariatric surgery, weight loss surgery is used to treat people who have severe obesity. It can lead to significant loss in weight, but is a serious operation that should only be considered if all other weight loss methods have been tried. It includes gastric bands, gastric bypasses, and sleeve gastrectomies.

Source: NHS

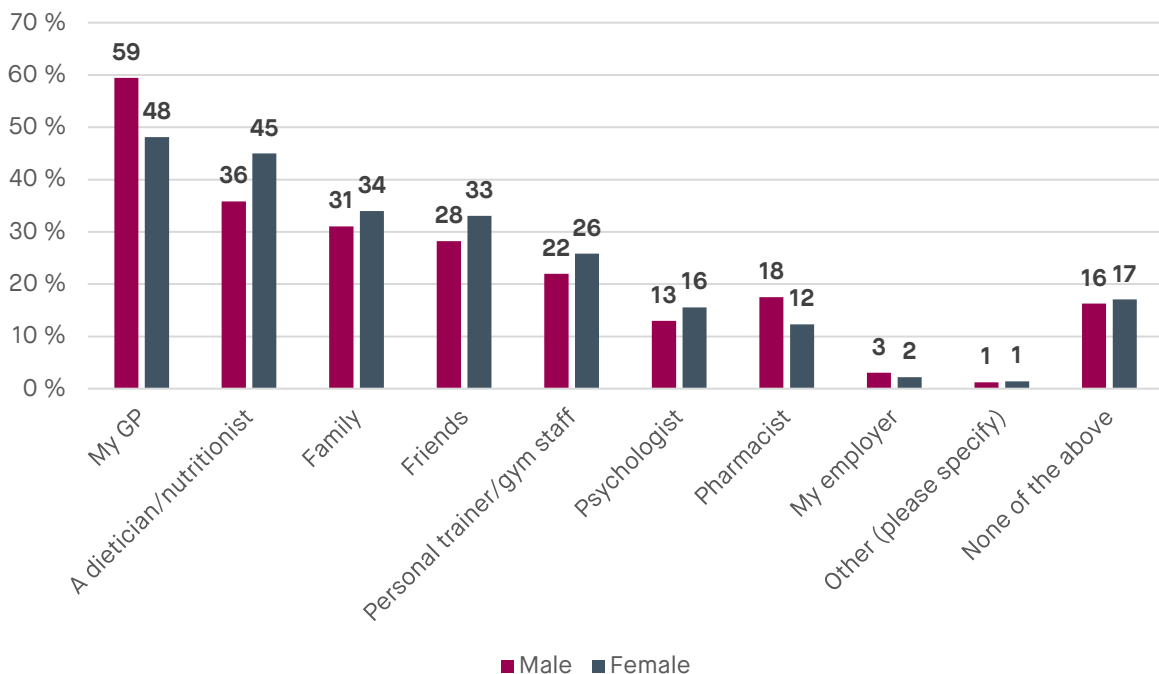
While there is no ‘one-size-fits-all’ approach, according to the NHS, steady weight loss is considered to be the best way to lose weight.²² However, this does not work for everyone and therefore other options may be required. Based on current evidence, bariatric surgery is considered the most effective strategy for weight loss, but all specialist weight management programmes should include non-surgical assessment of patients, medical treatments, and lifestyle changes such as improved diet, increased physical activity and behavioural interventions.²³

To reiterate, not all types of obesity support are effective for all types of people. The extent of their success depends on the individual person, their needs, and circumstances. As we highlight below, discrepancies may also apply to gender – treatments are not equally as effective for both men and women alike.

The prevention/treatment gap between men and women

Men and women engage with obesity support in different ways. For example, males are less likely to actively seek weight loss support, of any kind,²⁴ and are considerably less likely to undergo weight loss surgery.²⁵ SMF-commissioned survey data shows that, generally, women are more comfortable speaking to others about their weight than men. Men, although more reluctant, prefer to speak to their GPs and, to a lesser extent, their pharmacists and employers.²⁶

Figure 7: Which of the following would you be comfortable speaking to about the best way to lose weight? %

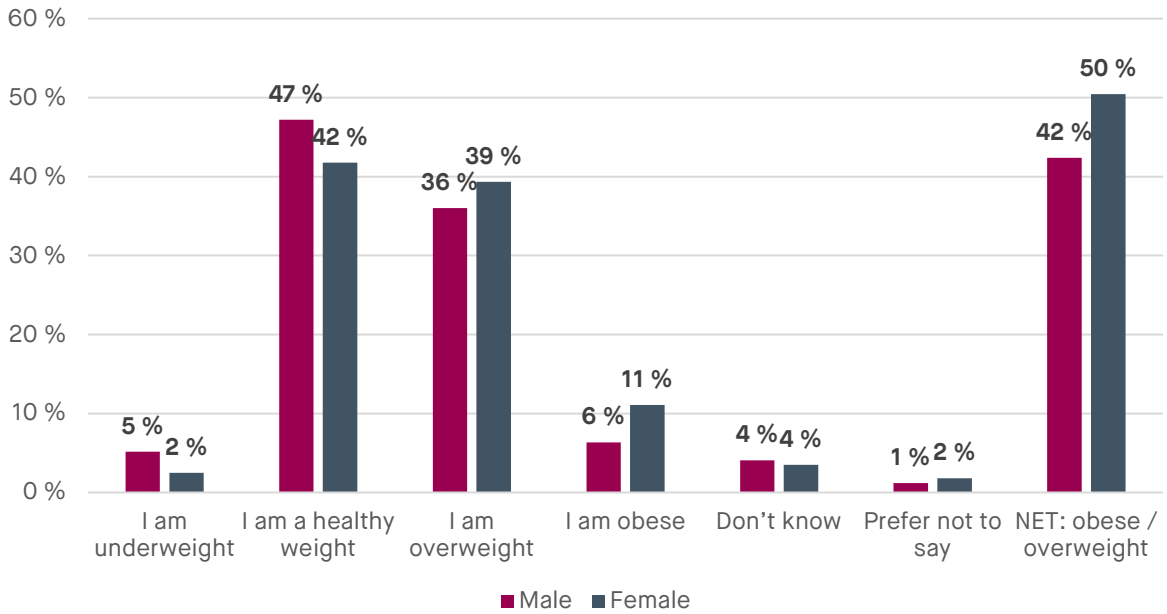


Source: SMF and Opinium survey

Further, survey data showed that women (50%) are more likely to describe their weight as obese or overweight than men (42%), and are less likely to view themselves as

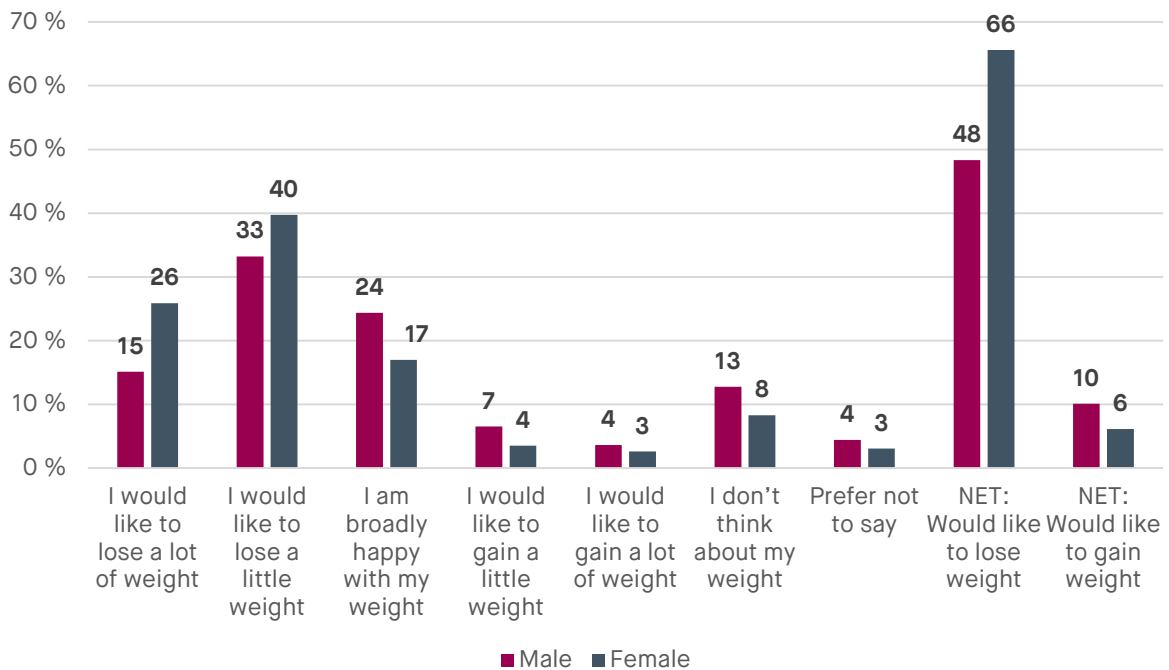
being a healthy weight (42% s 47%). The data also showed that they are more likely to want to lose weight than men (66% vs 48%); men are more likely to say they would like to gain weight (10% vs 6%), and that they are broadly happy with their weight (24% vs 17%).²⁷

Figure 8: Which of the following do you think best describes your weight?



Source: SMF and Opinium survey

Figure 9: Thinking about your weight...



Source: SMF and Opinium survey

Generally, women are more likely to observe their eating habits than men, and are therefore more likely to perceive themselves as in need of losing weight and, in turn, of undergoing a weight loss diet.²⁸ They are also more likely to take prescription diet pills and to follow special diets.²⁹ Men associate dieting with unappealing food and smaller meal portions, affecting their engagement with it.³⁰ As we explore below, the marketing of weight-loss products and services are also heavily gendered; often targeted towards females.

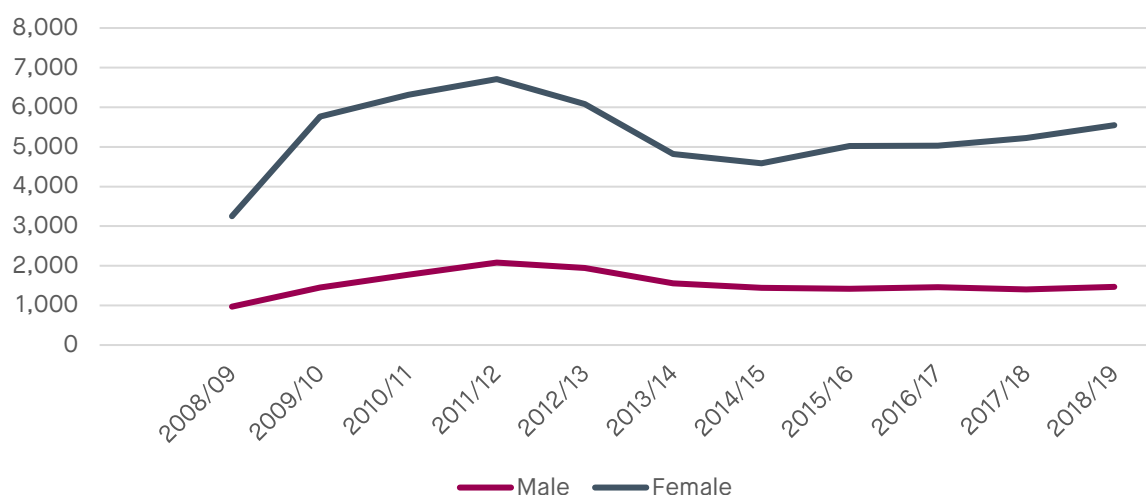
In general, males are more likely to exercise than females.^{31 32 33} Among adults with overweight and obesity, findings from the Health Survey for England 2016 showed that men with overweight (72%) and obesity (63%) are more likely to meet aerobic activity guidelines – 150 minutes of moderate activity or 75 minutes of vigorous activity per week, or an equivalent combination of both – than women with overweight (59%) and obesity (50%). It also showed that 66% of women who had obesity and 58% of women who had overweight were sedentary for four hours or more per weekday. The equivalent figures for men were slightly lower, at 62% and 57% respectively.³⁴

In the UK, engagement with both NHS and commercial weight loss treatment is low among men. In the NHS-commissioned Counterweight programme, only 23.0% were men when services were delivered in primary care³⁵ and 24.9% were men when delivered in community pharmacies³⁶. Across commercial service providers Weight Watchers, Slimming World, and Rosemary Conley Diet and Fitness Clubs, men represented just 11% to 18% of participants.³⁷

Anti-obesity medication has been shown to be an effective method of weight loss, and in the UK its increased prescription has been reported.³⁸ However, it has been found to be under-prescribed among males. In 2015, a study conducted in Northern Ireland estimated that 0.6% of men with obesity were on anti-obesity medication, compared with 2.1% of obese women.³⁹

Men are also much less likely to undergo bariatric surgery. In 2018/19, the number of women (5,545) that had bariatric surgery in England was significantly greater (See Figure 10) than that of men (1,466).⁴⁰ A study from the US, carried out in 2015, found a wide gender disparity in weight loss surgery – 80% of patients were women, despite obesity rates being similar among American men and women.⁴¹

Figure 20: Bariatric surgeries for men and women in England



Source: NHS Digital

Based on this evidence, the treatment gap between men and women seems stark, with men being less likely to seek help with their weight across different forms of support (apart from physical activity). However, there are few studies explaining *why* this is the case. This may be, in part, because men continue to be underrepresented in weight loss research.⁴² The following section will seek to untangle these differences, exploring the driving factors and motivations behind men and women's (dis)engagement with obesity treatment.

Drivers of gender gaps

Stigma and discrimination

For both men and women, weight stigma and discrimination occur in all walks of life, whether it be in the workplace, in education, in the media and online, even in the family home.⁴³ Research by the British Liver Trust has shown that obesity (62%) is the UK's most common form of discrimination, more so than ethnic background (60%), sexual orientation (56%), and gender (40%).⁴⁴ Weight stigma is also prominent – and detrimental – in healthcare settings, with patients with obesity receiving poorer quality care and worse outcomes.⁴⁵

Social stigma and discrimination play prominent roles in the UK's obesity challenge, and they are crucial to understanding why there are gender differences in obesity management. As noted in previous SMF research, the way we talk about obesity is an important issue, alongside how we measure and treat it.⁴⁶ A joint international consensus statement on weight stigma, whose signatories include organisations such as The Royal College of Physicians, Obesity UK, and the All-Party Parliamentary Group on Obesity, has warned:

“Weight stigma can cause considerable harm to affected individuals, including physical and psychological consequences. The damaging impact of weight stigma, however, extends beyond harm to individuals. The prevailing view that obesity is a choice and that it can be entirely reversed by voluntary decisions to eat less and exercise more can exert negative influences on public health policies, access to treatments, and research.”⁴⁷

Societal stigma reinforces stereotypes, including weight and gender (and where they intersect). As such, weight stigma affects men and women in different ways, with differing physical, social, and mental health outcomes. This paper has already shown that obesity prevalence is gendered, and that the gender gap *is* defined by pre-existing inequalities and socio-cultural standards, which are often (but not always) skewed towards females.⁴⁸ Indeed, females have reported higher rates of weight stigma than males, while the risks of stigma may also be more pronounced.⁴⁹

Because women tend to experience higher prevalence of stigma, they are often the focus of stigma research; there is substantial evidence which shows links between stigma and negative health outcomes in women, including weight gain.⁵⁰ Weight stigma is also associated with poor health in men, but less is known about how it is *experienced*, and they are often overlooked in studies. Here, further research is warranted.⁵¹

Gender stereotypes and norms

Girls and women are more likely to experience weight stigma due to pervasive social pressures and biases.⁵² In the same way, gender socialisation processes result in men generally having negative attitudes towards weight loss.⁵³ Societal expectations matter, and they intercede with people's health and health treatment.

Due to cultural norms, dieting⁵⁴ and weight loss services⁵⁵ are often perceived by men as “feminine”, serving as a potential barrier to men engaging with treatment.⁵⁶ Essentially, men may view weight loss services and weight loss facilities as being aimed at women, and therefore as incompatible with their needs as men.⁵⁷ At the same time, cultural influences encourage men to maintain a larger, more “masculine” body size.⁵⁸ In the same way, due to physical activity being stereotypically perceived as “masculine”, girls are often discouraged from taking part in many forms of exercise and sport from a young age, particularly during PE lessons at school.⁵⁹ There are socio-cultural barriers that that are shaped during childhood, affect their relationship with physical activity in later life, including self-consciousness and worries about ability.⁶⁰

Men are not just disengaged from obesity treatment, they are also reluctant to seek medical help more broadly. Because there is a “cultural script” that creates a constructed sense of toughness and self-reliance among men, they do not often seek preventative care, in various contexts.⁶¹ For example, men are less likely to seek help with both mental health and sexual health issues relative to women, while a survey by Bupa has found that 8 in 10 men would prefer to endure an illness rather than seek help.⁶² Research shows that the idea of masculinity are linked to men's health problems,⁶³ and men who demonstrate traditional masculine views are less likely to have consistent healthcare.⁶⁴ As we highlight below, men may also be less likely to be referred to certain kinds of health support.

Misperceptions of weight

Self-perceptions of weight also differ between men and women, which can be important in terms of recognising obesity and, in turn, of accessing appropriate treatments. In England, recent estimates suggest that one in three men and one in five women with overweight or obesity underestimate their weight.⁶⁵ Not accurately

identifying weight has been described as a significant public health challenge, and a major barrier to individual weight management efforts – it may even promote further weight gain.⁶⁶

Across studies, a key barrier to engagement with obesity programmes among men is that they often do not problematise their weight until they are diagnosed as ‘obese’.⁶⁷ Men are more likely to be unaware of their weight status, making it more difficult to make behavioural improvements in order to manage their weight.

Due to increased awareness of body ideals and of health more generally, women are more likely to self-identify as overweight. Research suggests that people who identify that they have overweight are more likely to experience worsening mental and physical health⁶⁸ – ‘knowing hurts’⁶⁹ – but they are also more likely to attempt to lose weight than those that do not.⁷⁰

Similarly, women are much more likely to be referred to weight loss programmes by GPs. Despite being just as likely to accept, men make up only 1 in 10 referrals. Practitioners offer more referrals to women because they believe programmes are less suitable to men – even though they are often just as effective.⁷¹ The National Institute for Health Research encourages GPs to endorse weight loss programmes equally among men and women in order to reduce gender imbalances in obesity treatment.⁷²

Advertising, marketing, and media influence

Gender stereotypes are inherently restrictive and, when it comes to weight management, the effects that they have upon men and women can be debilitating. The media helps construct and perpetuate those stereotypes, while market processes, such as marketing and advertising, drive the obesity ‘industry’.

For example, food marketing has been singled out as the single largest cause of the obesity epidemic.⁷³ In order to meet their business objectives and maximise company profit, food marketers seek to stimulate (unhealthy) food consumption through advertising, promotion, and branding.⁷⁴ There is a strong link between marketing, people’s attitudes to eating, and their food intake – all of which are heavily gendered. Gender stereotypes – such as “salad for women and steaks for men” – are created within the food market in order to sell more products, resulting in gender-segregated eating choices, nutritional behaviours, and biases.⁷⁵

While marketing shores up obesity rates, weight bias in the media sets unrealistic body standards. Thinness ideals, which portray thin bodies as desirable and overweight ones as undesirable, are common throughout the media, from advertising to television, film to social media. Weight-biased media can lead to psychological maladjustments such as body dissatisfaction, binge eating, and eating disorders among both men and women alike.⁷⁶

These repercussions are disproportionately felt by females. From a young age, girls and women are heavily exposed to body ideals and they are, in turn, more susceptible to weight-loss advertising. Indeed, because of these pressures, one study has found that adverts for anti-obesity medicines and treatments often *emotionally* resonate with adolescent girls, compelling them to buy that product. These attitudes can affect females’ health and lifestyle decisions for the rest of their lives.⁷⁷

Body image issues are often seen as only experienced by women, but it can also affect millions of men. Men too are exposed to images of idealised body types and, according to the Mental Health Foundation, 28% of men have felt anxious because of body image issues,⁷⁸ while analysis from 2017 found that the number of men being admitted to hospital with an eating disorder increased by 70% over the previous six years.⁷⁹ Historically, men have been less interested in their health, but a proliferation of media (including social media) has reinforced messaging about body image concerns, problems with self-esteem, and weight gain – all barriers to achieving a healthy weight. Male or female, thin and/or fit is often the cultural ideal, but men are socialised to be less equipped to talk about their vulnerabilities.⁸⁰

Evidence on the effectiveness of different treatment options for men and women

Due to traditional notions of masculinity that can prevent some men from feeling comfortable in seeking health support, inaccurate self-perceptions of weight, and a smaller chance of being referred by a health professional, men are often left out of the obesity discussion, and are therefore less likely to engage with weight loss services than women. However, when they do participate, they tend to lose just as much – or even more – weight than women.⁸¹

Research on the gender difference in weight loss is inconsistent,⁸² but there is sufficient evidence to suggest that attempts to lose weight can impact males and females differently, and that there are some gender-specific differences across treatments.

For example, dieting is more common in women than it is in men. Typically, women are less satisfied with their weight and are more likely to perceive themselves as being overweight or obese⁸³ (as shown in our polling) and they are therefore more likely to start diet plans, take prescribed diet pills, and follow special diets.⁸⁴ While women are more likely to have better nutritional awareness and intake, they are also more likely to have eating disorders.⁸⁵ Generally, men’s approach to nutrition is “uncomplicated and pleasure oriented”.⁸⁶ In terms of biological sex differences, men tend to lose more weight on diets because of their body size, higher muscle-to-fat mass ratio, and total energy expenditure.⁸⁷

In terms of exercise, it has been “repeatedly demonstrated that women are less physically active than men, regardless of the definition of physical activity or the methodology used to measure it”.⁸⁸ However, stigma can be a potentially significant barrier for females in engaging in physical activity, impacting their autonomous motivation and, in turn, their levels of walking and physical activity. Crime can also deter people from doing exercise outdoors;⁸⁹ but it disproportionately affects girls and women who are at an increased risk of violence and harassment, and who are targeted by males on the basis of their gender.⁹⁰

Men are much less likely to engage with weight loss services than women, but that is not to say they are less likely to lose weight once they are part of a programme. In fact, research suggests men lose *more* weight than women in these settings.⁹¹ As one example, a 2014 study found that men lost, on average, 1.8kg more than women within

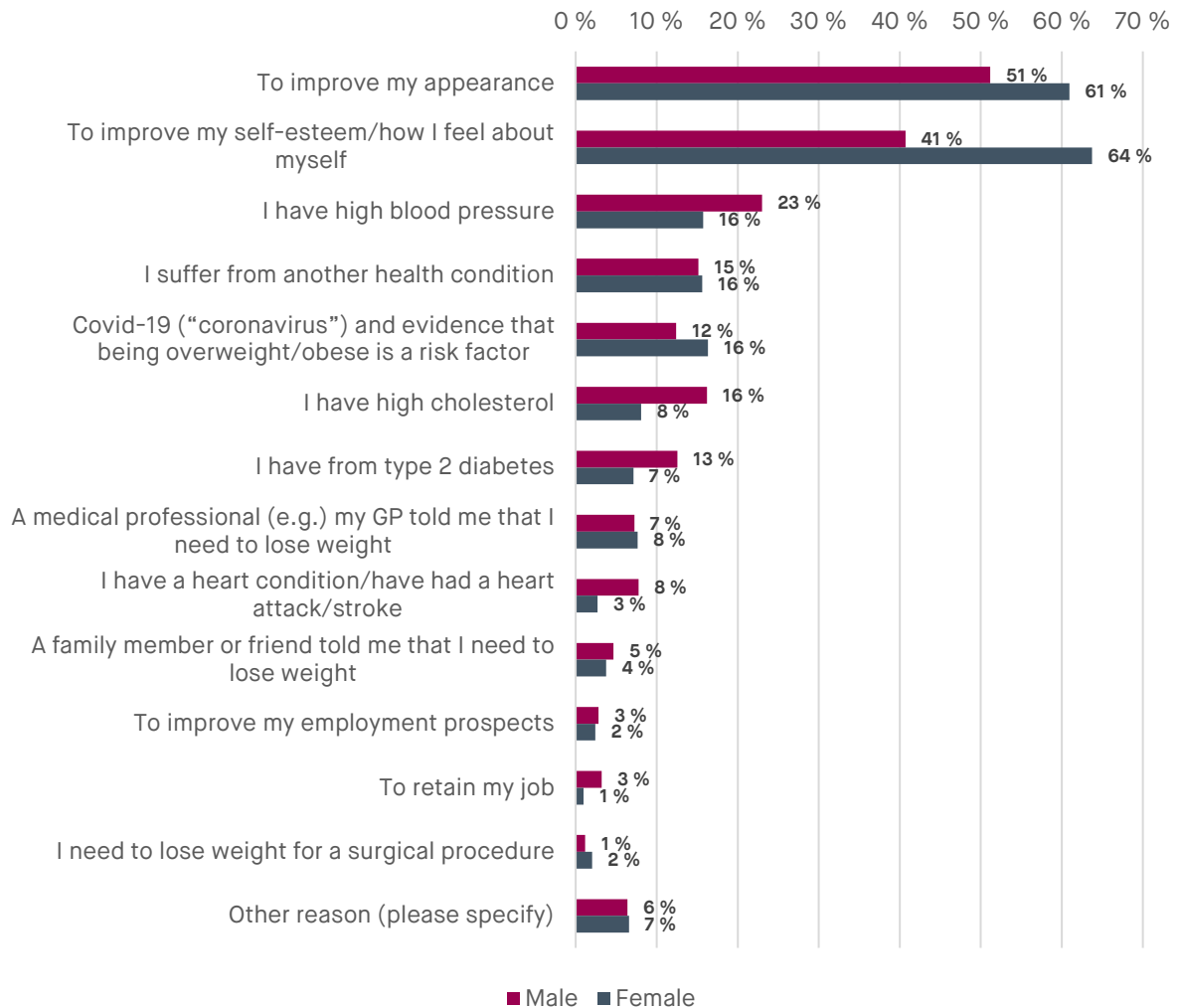
12 weeks, lost 3kg more within six months, and 5kg more within 12 months. While the approaches men and women used in the programme were not recorded, obscuring the reasons as to why men lost more weight, this suggests programmes themselves can be effective – engagement is the predominant issue.⁹² Literature on the gender differences for the effectiveness of weight-loss medicine is scarce; however, men have been found to be less likely to lose weight using Orlistat than women.⁹³

As we have shown, men are also far less likely to undergo weight loss surgery (e.g., bariatric surgery). This may be attributed to wanting to feel autonomous in addressing their weight problems, to the perceived sense that surgery is vain, shallow, and unrelatable,⁹⁴ and to knowledge and referral gaps among men.⁹⁵ Looking at the sex-based outcomes of bariatric surgery, however, weight loss surgery is an effective weight loss intervention for both men and women; most patients who undertake it will lose weight, will see their comorbidities reversed, and have their quality of life improved.⁹⁶ Despite these positive impacts, men who undergo surgery may also be at greater risk of dying than women – one large-scale study has shown they are five times as likely to die within 30 days of the procedure than women and that long-term mortality is three times higher. This may be because they are less willing to consider surgical weight loss in earlier life, when they have fewer comorbidities.⁹⁷

Though not typically found in weight loss management services, the use of cash incentives is becoming increasingly prevalent in healthcare settings. A randomised control trial designed to test the gender difference in response to financial incentives found that males better respond to cash. On average, men lose 2.4% of their weight over three months when provided with an incentive, compared with 0.9% in the control study – there was no such effect on women. This supports research which shows women are more likely to engage in weight loss treatment to improve their self-esteem, and they are more motivated by social incentives (or, pressures).⁹⁸ Indeed, SMF survey data shows that women are more likely to want to lose weight in order to improve self-esteem (64% vs 41%) and to improve appearance (61% vs 51%); these are motivations shared by men, albeit less prominently.

We discuss the potential future role of cash incentives for promoting weight loss and management in more detail in the next chapter of this report.

Figure 31: You mentioned that you would like to lose weight. Is this for any of the following reasons?



What works for getting men into treatment?

Busy lifestyles, financial restraints, and a lack of access to healthy foods are common external barriers to men engaging with obesity treatment,⁹⁹ in the same way that they are for women.¹⁰⁰ However, a prominent internal barrier is men’s reluctance to engage with (what they perceive to be) female-tailored weight loss treatments, and their perceived incompatibility with those services.

It has been suggested that the first step to disrupting how men traditionally think about health and health stigma might lie with education. By reframing the issue of poor health, breaking down the socialisation processes that condition men to believe that seeking help is a sign of weakness, the problem of not wanting to seek treatment can be resolved.¹⁰¹

For example, decision aids – tools to facilitate shared decision making – can help men with their fears relating to their masculinity and the invasiveness of screening for prostate cancer, addressing their concerns and empowering them to make informed decisions about their condition.¹⁰² In mental health care, practitioners help men to

understand that depression is the result of chemical imbalances in the brain or the product of living a demanding, stressful personal life – that it is *not* caused by weakness.¹⁰³

Some academics and practitioners are looking to ‘change the landscape’ of men’s health treatment, through national campaigns, such as Movember and Prostate Cancer UK, and community-based services. At the local level, such programmes aim to create spaces and places that are engaging to men and are responsive to men’s needs, changing the language of – and thus men’s attitudes towards – preventive healthcare.¹⁰⁴ Initiatives include Men’s Sheds, a support body that helps men to set up and connect with community-based ‘sheds’ to reduce loneliness and raise health awareness¹⁰⁵ and, in Canada, DUDES Club, which promotes health through education and health screening clinic by providing culturally safe spaces for indigenous men.¹⁰⁶ Both of these programmes provide events, activities, and support services to men, who would otherwise be out of reach.¹⁰⁷ This type of awareness-raising could also take place in public spaces you might typically expect to find men, for example barbershops¹⁰⁸ or pubs.¹⁰⁹

Box 2: Movember

Movember is an annual campaign that takes place during November in order to raise awareness of men’s health issues, such as prostate cancer, testicular cancer, and men’s suicide. With five million supporters across the world and as the “leading charity changing the face of men’s health”, Movember looks to challenge the status quo of men’s attitudes towards health, men’s health research, and the way health services engage and support men.¹¹⁰¹¹¹

Movember has funded over 1,250 men’s health projects in 20 different countries, investing in culture-specific initiatives to address the men’s health gap.¹¹² In the UK, this includes reaching men at risk of poor health outcomes across Rugby League communities, delivering tailored health content and support to those that need it most;¹¹³ addressing knowledge gaps in order to understand the role of masculinity in men’s health behaviours,¹¹⁴ and encouraging physical activity among Movember’s male community.¹¹⁵ It also has a partnership with Prostate Cancer UK.¹¹⁶

As a men’s health movement, Movember seeks to engage men to understand what works best for them while looking to improve health outcomes. In their words, their “success can largely be attributed to the strength of the community... we’re part of something bigger, united by a commitment to help change the face of men’s health”.

There is a lack of evidence-based solutions to getting men into obesity treatment, but that is not to say gender-sensitised approaches have not already been delivered. For example, in a programme delivered by Scottish Premier League professional football clubs, which was designed to “work with rather than against prevailing understandings of masculinity”, the programme was gender sensitised by way of context (the stereotypically male environment of a football club), content (the role of alcohol in weight loss) and delivery style (the encouragement of male banter). It was found that outcomes were considerably improved for participants, and that such programmes could be an effective strategy to challenge male obesity.¹¹⁷ Similar results were also found in programmes run in the German Bundesliga,¹¹⁸ the Australian Football League,¹¹⁹ and professional rugby clubs in New Zealand.¹²⁰

Another example of a gender-sensitised approach for getting men into obesity treatment can be found in the SHED-IT (Self-Help, Exercise, and Diet using Information Technology) trial, an Australian internet-based programme. Results showed that the self-monitoring of diet, exercise, and weight was strongly related to weight loss among men, and that such approaches (rather than high-interaction or group-based settings) can achieve clinically important weight loss after a one-year follow-up. Questionnaires and interviews showed men were satisfied with SHED-IT.¹²¹

Box 3: Shape Up

In 2014, Watford F.C.’s Community Sports and Education Trust, commissioned by Hertfordshire Council, set up the Shape Up weight project to support middle aged men lose weight using group exercise and sport. Initially scheduled to run up until 2017, due to successful results the project was extended to August 2020.¹²²

Shape Up was a free, 12-week weight loss course, and was aimed at men aged 18 to 65 years-old with a BMI of 30 or over and men from the BAME community with a BMI of 28 or over. Sessions are comprised of education and physical activity, and are delivered with the aim of sustaining weight loss and healthy lifestyles in the long-term, rather than short-term gains. The course was accessible to all, across all districts of Hertfordshire and Harrow, and it was supported by local GPs who could help sign up participants through their local surgery.¹²³

According to the programme’s 2019 Impact Report, a total of 1,291 people took part in the programme, amounting to 54,305,650 calories burnt and a total weight loss of 15,515.9lbs – equivalent to 7.1 tonnes. It also achieved sustainable health changes, as 64% of men managed to maintain 5% weight loss at 12 months.¹²⁴

What works for getting women into treatment?

Based on the literature, it can be said that women are much better at seeking obesity treatment than men, whether that be in terms of dieting, enrolling in weight management programmes, or undergoing bariatric surgery. When it comes to exercise, keeping fit is characterised by sexism, discrimination, and a culture of harassment at the hands of men, and as such women's participation in physical activity is too often limited – as is their ability to control their weight.

For example, in 2020, a survey conducted by YouGov on behalf Nuffield Health found that almost three-quarters of women feel unsafe exercising outdoors in the dark.¹²⁵ In 2021, a survey by *Runner's World* and *Women's Health* showed that 60% of women have been harassed while running, that 25% have been regularly subjected to sexist remarks or sexual advances, and 6% have felt threatened so severely while exercising that they have feared for their lives.¹²⁶ Significant volumes of commentary in conventional and social media platforms since the murder of Sarah Everard suggest that high-profile cases of violence against women can have a deterrent effect on outdoor exercise for women. Grey literature suggests that women are also more likely to experience 'gymtimidation', disengaging from exercise due to a fear of being judged while exercising.¹²⁷ For these reasons, as well as wider issues surrounding gender roles in caregiving and access to sports,¹²⁸ women continue to be less active than men. According to Sports England, there are 313,600 fewer women than men who exercise regularly. However, when asked, 13 million women said they would like to increase how much sport and physical activity they do.¹²⁹ This not only points to a gender gap in physical activity participation, but it also highlights the need for more inclusive spaces that allow women to exercise safely and confidently.

Studies have shown that gender-tailored interventions for physical activity – programmes that address the distinct sociopsychological barriers of women – can help to increase physical activity. In particular, female-only fitness groups and clubs celebrate women that are seeking to become more active, providing a supportive, comfortable environment for women to engage in exercise.¹³⁰ Examples of such initiatives include Curves, the world's largest chain of fitness clubs for women,¹³¹ and This Girl Can, a national campaign that inspires women to become more active by connecting them with other women and activities and classes – including women-only classes.¹³²

Box 4: This Girl Can – Victoria

Based on Sport England’s successful This Girl Can campaign, VicHealth, a health-promotion foundation based in Victoria, Australia, launched its own campaign to help support women to embrace physical activity. VicHealth is the first organisation in the world to license the This Girl Can campaign from Sport England.¹³³

VicHealth research found that a fear of being judged was stopping women from exercising, and its subsequent campaign efforts focused on breaking down stereotypes about women can and cannot do in terms of physical activity. Its objectives were to increase physical activity and support gender equality and, along with elements typically expected of a national campaign – from advertising to council partnerships – it found 46 inspiring ambassadors as women in order to inspire women to become active.¹³⁴

Its Year 3 Campaign Report (2020) has shown that, in 2020, almost 320,000 Victorian women were motivated to be more active in their homes and neighbourhoods as a result of the campaign’s influence.¹³⁵

Sports and exercise facilities aside, local infrastructure is not often designed with women in mind. This can have a significant impact on their safety and, in turn, their movement.¹³⁶ In particular, urban spaces can create barriers for women and girls, particularly if underfunded, turning ostensibly inclusive places, such as parks, into areas that are threatening.¹³⁷

For young girls, park areas and playground equipment are often dominated by boys, deterring their participation. In looking to find solutions to making parks more appealing to girls, a study conducted in the city of Vienna found that the design of gender-segregated spaces, such as volleyball and badminton courts, can increase park usage.¹³⁸ Vienna’s model of ‘gender mainstreaming’¹³⁹ has been used to design more equitable spaces for females, and it has led to new streetlighting, wider footpaths, and spaces for activities other than stereotypically male-centric sports, such as basketball, across Europe – all for the benefit of girls.¹⁴⁰

How COVID-19 may have impacted access to treatment

At the beginning of the pandemic, a World Obesity Federation policy statement noted that the measures introduced to help combat the spread of coronavirus were likely to have posed a number of risks for people with obesity. Even in its first ‘phase’, it soon became apparent that changes in eating behaviours, particularly among children (more consumption of calories and less exercise under lockdown), and food insecurity among the vulnerable (e.g., due to school closures) would risk the exacerbation of obesity, as well as highlighting some existing infrastructure challenges.¹⁴¹

As noted in the previous chapter, SMF-published survey results showed little difference of impact between gender in terms of taking action to reduce weight during the pandemic - women were slightly more likely to have taken action. However, women were more likely than men to say that the pandemic had led to them getting less exercise and had led to them eating more or eating a poorer diet.

Elsewhere, data from May 2020 showed that a quarter (25.4%) of adults reported doing less physical activity during lockdown than before the pandemic.¹⁴² This risk was found to be significantly increased for women compared to men,¹⁴³ Indeed, figures from Sport England showed that factors limiting access to facilities disproportionately affect women, with women making up the majority of the UK's gym members (54%), group fitness classes (76%) and swimmers (53%). In terms of activity levels, it was found that the pandemic *did* lead to a growth in the gender gap.¹⁴⁴

Weight management services were also affected by the pandemic, as many NHS programmes were forced to cease face-to-face contact in order to reduce coronavirus transmission rates. A study evaluating those effects during the first lockdown found that the provision of weight management services was negatively impacted as a result.¹⁴⁵ In a separate study, compared with those not attending, people who attended a weight management service before and during the first COVID-19 lockdown reported a worsening of their diet and physical activity.¹⁴⁶ There were also issues with the change of format from in-person classes to video conferences on weight loss programmes.¹⁴⁷ The literature was limited in terms of suggesting which gender was most impacted by these changes, though given that women are far more likely to use weight management services, it seems fair to conclude that they have been impacted the most by the closure of such services. .

The COVID-19 outbreak shocked the country's healthcare systems, diverting attention from non-communicable diseases to the immediate threat of the virus. In May 2020, survey data from adult treatment centres across Europe showed that 61% of medical staff had been diverted away from routine obesity treatment to focus on coronavirus. It also found that 99% of staff said in-person outpatient visits had been blocked or reduced, while 96% of bariatric surgeries had been blocked or postponed.¹⁴⁸ Again, due to limited data, it is not clear whether one gender group had been affected more than the other by restricted access to surgery.

CHAPTER FOUR – POLICY OPTIONS

In this chapter, we set out a series of policy recommendations, informed by the preceding analysis.

We acknowledge the complex nature of the UK's obesity challenge, and we understand that a range of policies are needed to address its drivers. Often, such policies are not explicitly health policies. For example, as we showed earlier, there is a clear link between poverty and obesity, particularly among women. As such, policies aimed at improving economic growth and reducing income inequality would probably help reduce obesity rates, even if this is not the prime motivation of the policies.

The SMF has already made the case for a “whole systems” approach to reducing obesity, and to addressing structural inequalities. We have also argued the case for a “health in all policies” approach within government, which considers the health implications of a broad range of policy measures such as those largely focused on economic growth and crime reduction.¹⁴⁹

The focus of this report lies predominantly with gender disparities in obesity treatment and prevention, and therefore, while we acknowledge the importance of these broader systems' issues, here we hone in on some more specific policy recommendations for narrowing gender disparities.

Improving the availability of male-friendly obesity treatments

When it comes to obesity treatment, differences exist on both sides of the gender divide. But evidence shows there is a much stronger hesitancy among men in acknowledging their weight issues, in talking about them openly, and in seeking help.

The NHS recognises that weight-loss programmes are not usually designed for men, and as a result, men are consistently under-represented in programme referrals and enrolments. Research suggests that gender-specific programmes can be more appealing – and, in the long-term, beneficial – for men that are unwilling to participate in existing programmes. However, these solutions are not yet widely available.¹⁵⁰

Obesity policy should look to respond to this treatment gap, looking beyond ‘traditional’ weight management programmes to take into account gender-based behaviours and preferences. By increasing the provision of these services – ones that are tailored and are targeted to better engage men and meet their needs – the attendance of men can improve, and gender imbalances can reduce.

In this paper, we have already emphasised the role of masculinity in complicating or impeding interaction with health treatment, with men being more motivated by settings that are convenient and non-threatening to their identities as men.¹⁵¹ Some key lessons for the delivery of male-specific interventions include: avoiding (what is considered to be) female-oriented settings, or holding services in male-only social settings; focusing on physical activity, rather than solely on dietary changes; and individualising programmes, including the self-monitoring of weight loss.¹⁵²

Including treatments that are more likely to be perceived as feminine, such as dieting, the Government should consider launching a national campaign to educate and

improve awareness of obesity among men. Campaigns that aim to masculinise health and empower men to seek health treatment, for example Prostate Cancer UK,¹⁵³ seek to normalise issues that may otherwise be seen as embarrassing or a sign of weakness through raising awareness in male settings, such as pubs,¹⁵⁴ or getting male role models and celebrities to talk candidly about their own experiences.¹⁵⁵ The newly-formed Office for Health Improvement and Disparities, in partnership with prominent obesity organisations, would be well positioned to oversee such a campaign.

Alongside this, both the NHS and commercial service providers should look to review their existing weight management programmes, with a view to incorporating male-friendly components into future designs and increasing the amount of gender-specific services available to men.

In particular, NHS trusts have the unique advantage of already being placed within communities, and they are therefore well positioned to make use of their insights and resources. For example, by working with partners in local authorities, such as men's community groups or sports clubs, services could be more easily tailored and targeted to those in need. This would include the incentivisation of referrals from partner organisations, as well using social prescribing to encourage behaviour change in other, non-clinical spaces, like male-only cookery classes or physical activities.¹⁵⁶

Under such a local 'whole-system' approach, whereby other parts of the community – from healthcare to education, transport to business – are drawn upon to respond to complex issues interdependently, access to treatment could be greatly improved. As we have highlighted, (gendered) experiences of obesity depend on a wide range of determinants, including processes of socialisation, stereotyping, and stigmatisation – a whole-system approach could help to challenge those norms and affect cultural change locally, from the bottom-up, empowering men to seek help.¹⁵⁷

Recommendation

Both the NHS and commercial service providers should look to review their existing weight management programmes, with a view to incorporating male-friendly components into future designs and increasing the amount of gender-specific services available to men. A particular focus should be on creating more “masculine” environments in which men feel comfortable to discuss and work on issues related to their weight, with health service providers learning from existing successful initiatives, such as “Men’s Sheds” and those run by local sports clubs.

Empowering more women to exercise

Generally, women find it easier to engage with obesity treatment than men. This may be, in part, because they have a greater awareness of health issues and, in particular, of their weight and of their body image. It may also be attributed to the (perceived or otherwise) feminine nature of some treatments, such as dieting or weight loss programmes. Because of pervasive societal expectations in the media and in many

aspects of day-to-day life, there is an immense pressure for women to be conscious of their weight.

Where women often do not feel as comfortable in managing their weight is in physical activity or sport – activities that are, culturally speaking, often considered to be masculine. Women’s exercise can also become dominated, even tyrannised, by the intrusive behaviour of men. For example, as we mentioned earlier in this report, one study has showed that the majority – 60% – of women have been harassed while running, while a smaller proportion have been regularly subjected to sexual advancements.¹⁵⁸ Almost three quarters of women feel unsafe exercising outdoors in the dark,¹⁵⁹ and some women have felt so threatened that they have feared for the lives.¹⁶⁰ For this reasons, it is unsurprising that there is a gender gap in physical activity.

To help women lose weight or maintain a healthy weight through physical activity – the best form of obesity treatment when combined with reducing one’s calorie intake¹⁶¹ – additional support is needed to help them engage in exercise confidently.

Academics have suggested this should begin with coherent messaging about the importance of exercise¹⁶² – information that is largely absent in the Government’s latest obesity strategy¹⁶³ – but that it should also be targeted to girls and women in particular, widening participation.¹⁶⁴ In getting almost three million women to become more active,¹⁶⁵ the success of the This Girl Can campaign has showed that positive reinforcement is key in changing consumer behaviour.¹⁶⁶

Women-only exercise groups, while already available in many gyms and facilities, can provide a space for women that otherwise feel uncomfortable or unsafe in taking part in physical activity, whether that be because of negative past experiences or because they simply do not feel it is ‘for them’. As we have pointed out, women make up the majority of people in gyms and exercise classes,¹⁶⁷ and the consequences of the pandemic showed that, if there are fewer facilities for women to attend, then activity levels drop.¹⁶⁸ It is not unreasonable to assume that if there are more facilities available, then that gap will reduce.

Women need the time to exercise, as well as the space. ‘Unpaid work’ – household, care, and domestic work – is disproportionately carried out by women,¹⁶⁹ and the time spent on those tasks can lead to declines in physical exercise.¹⁷⁰ In particular, parental duties are closely associated with reduced leisure time, and some of the major barriers to parents engaging with exercise include family responsibilities, a lack of support, and scheduling constraints.¹⁷¹ While these barriers are felt by fathers and mothers, the bulk of the burden does, again, fall on women,¹⁷² and they can translate into weight gain or obesity.¹⁷³ Policy should reflect this, providing support to women so they are able to exercise without worrying about childcare. For example, this might mean the increased availability of crèche facilities, such as that provided by Nuffield Health and its N Stars programme for gym members.¹⁷⁴

As well as improving its messaging around exercise for women, the Government should look to increase the amount of funding available for sports and exercise facilities, providing more opportunities for women to be active and maintain a healthy

weight. In exchange for improved funding, local authorities should be required to increase the number of women-only sessions and childcare programmes available in their facilities.

When it comes to the gender gap in physical activity, there is a broader point to be made about sexism and misogyny in society, and how discrimination invariably limits female participation in exercise. While a cultural step-change in gender bias is certainly needed, delivering it is an enormous task. The above policy recommendations are but first steps to increasing women's engagement in exercise.

Lastly, and importantly, it is crucial that policymakers ensure that women feel safe in public spaces, including when using such spaces to exercise. Better policing and improvements to the urban environment – such as increased CCTV camera coverage and more street lighting – while not strictly public health policies, may have second order benefits in terms of increasing participation in physical activity in public. Among young girls, the design of more equitable public spaces, as is proposed under the Viennese 'gender mainstreaming' model, may help to increase participation in outdoor exercise and play.

Recommendation

Local authority-managed gyms, swimming pools and sports facilities should be required to offer women-only sessions and time slots, to create more safe spaces in which women feel comfortable to partake in physical activity. There should also be attempts to increase the availability of childcare facilities in gyms and sports clubs, allowing women (who undertake most within-household childcare) to prioritise exercise.

More broadly, policymakers must continue to explore ways of improving safety and promoting inclusivity in public spaces, particularly for women and girls. While health and obesity reduction are not the primary reasons for doing this, evidence suggests a significant proportion of women currently feel unsafe exercising in public spaces, or have been harassed while doing so.

Cash incentives

There is potentially a role for cash incentives to encourage individuals to lose weight and engage with weight management services. As we noted earlier, evidence suggests that cash payments may be particularly useful for encouraging men to lose weight.

Having said that, it is crucial that cash incentives are well-designed and, in particular, encourage individuals to maintain a healthier weight rather than revert back to excess weight after receiving a cash payment. Evidence on the effectiveness of cash incentives is mixed and likely to reflect, in part, the importance of scheme design. One systematic review of financial incentives in treatments for obesity and overweight,

published in 2008, showed no significant effect of use of financial incentives on weight loss or maintenance at 12 months and 18 months.¹⁷⁵

However, more positive conclusions can be drawn from recent studies. A 2015 policy paper from the World Bank Group examined the sustainability of weight loss achieved through cash awards and, for the first time, the potential of monetary incentives to prevent “weight cycling” – i.e., repeated loss and regain of body weight.¹⁷⁶ In a three period randomised controlled trial, about 700 people with obesity were assigned to two treatment groups, which were promised different cash rewards contingent on the achievement of an individually-assigned target weight. Those that successfully lost weight were subsequently allocated to two treatment groups offering different monetary incentives for maintaining the previously achieved target weight.

The study found that monetary rewards for weight loss have sustainable effects on the bodyweight of individuals with obesity, with a €300 (£253) reward for successful weight loss amounting to roughly 2.8% and 3.3% reductions in weight six and 18 months after the intervention period, respectively. This corresponds to a weight loss reduction of about 1.1 and 1.3 BMI points.

Another study by academics in Singapore found that cash incentives to lose weight can be effective. In a randomised eight-month Singapore-based trial, 161 participants paid S\$234 to access a 16-week intensive weight loss programme. They then received rewards for meeting weight loss goals, with a maximum possible reward value of S\$660, if all goals were met. The trial found that weight loss was more than twice as great for those receiving rewards than for a control group that did not receive rewards.¹⁷⁷

In 2015, the Singaporean government’s Health Promotion Board launched the National Steps Challenge, the world’s first population-level, fitness tracker-based physical activity initiative that encourages Singaporeans to move.¹⁷⁸ The Challenge encourages Singaporeans to take more steps and clock moderate-to-vigorous physical activities daily as part of their everyday lives. They do so, using a fitness tracker and the “Healthy 365” mobile application. Points accumulated for physical activity can be exchanged for cash vouchers.¹⁷⁹

The Challenge has been successful at reaching a wide number of people; the first four “seasons” reached 1.3 million different participants, amounting to 26% of the Singaporean population aged 17 and above.¹⁸⁰

The UK Government appears to be taking notice of these recent success stories. This year saw Sir Keith Mills, who pioneered the Airmiles and Nectar reward programmes, appointed to advise the government on developing a new “fit miles” approach that will use incentives and rewards to support people to eat better and move more.¹⁸¹ Starting in January 2022, the Government will also be piloting a scheme allowing people to earn shopping discounts for walking more and getting their five-a-day of fruit and vegetables as part of a new Government health app. The Department of Health and Social Care said that it would spend £3 million on rewards for app users who achieved health goals.¹⁸²

Given some of the mixed evidence on financial incentives and the importance of scheme design, we suggest that in the first instance the Government should focus on encouraging experimentation across the country, in addition to January's pilot – for example through grants to encourage local authorities and/or NHS trusts to trial cash incentive schemes to encourage individuals lose weight, engage with weight management services and be more physically active.

Recommendation

The Government should issue grants to encourage local authorities and/or NHS trusts to trial cash incentive schemes to encourage individuals to lose weight, engage with weight management services and be more physically active. This would help establish best practices for creating cash incentive schemes which have a significant and long-lasting impact on individuals' weight loss.

Improving GP referrals

As noted earlier, structured programmes help people to lose weight, but they are overwhelmingly used by women and GPs are less likely to refer men to these programmes. This is despite evidence showing that men are similarly successful at losing weight when they attend.

It is also despite men being almost as likely as women to accept a GP's referral to a weight loss programme. A recent UK-based study, published in *Clinical Obesity*, explored the impact of a 30-second intervention by a GP (opportunistically, in a consultation unrelated to weight), in which GPs endorsed, offered and facilitated a referral to one of two 12-week weight loss programmes. Slightly more women took up the offer of support than men, but the GPs' intervention dramatically reduced the gender imbalance.¹⁸³

It seems likely that the current GP referral gap reflects men being less likely than women to see a GP in the first place, and to discuss issues related to weight with a GP. Presumptions in the medical community about men's willingness to accept referrals to weight management services, or men's ability to successfully lose weight upon participating, may also play a role.

GPs who offer weight management support to men and women equally are taking an important step to increasing the numbers of men receiving weight loss support. The study noted above found that, with GP referral, 30% of men attended a weight loss programme, compared to 50% of women. This meant that for every 16 women attending a programme, there were 10 men. In contrast, with usual practice, 90 women are referred to a programme for every 10 men.

We suggest that policymakers take steps to tackle the referral gap between men and women living with obesity. GP practices in England have recently been given an 'allocation' of patients that they can refer to the new weight management enhanced service, with £11.50 paid per referral up to the limit of their referral allocation.¹⁸⁴

A payment premium on referrals of men to weight management services should be introduced, to create a stronger incentive for GPs to refer more men. GPs should also be encouraged to have more opportunistic conversations with patients about weight loss, during appointments related to other issues – particularly given the study above suggesting that even short interventions can have a significant impact on referrals to weight management services.

Recommendation

A payment premium on referrals of men to weight management services should be introduced, to create a stronger incentive for GPs to refer more men. GPs should also be encouraged to have more opportunistic conversations with patients about weight loss, during appointments related to other issues.

ENDNOTES

- ¹ <https://theconversation.com/girls-are-being-denied-access-to-certain-sports-in-pe-simply-because-of-their-gender-106471>
- ² <https://onlinelibrary.wiley.com/doi/full/10.1111/obr.13128>
- ³ <https://www.nature.com/articles/s41598-021-86694-1>
- ⁴ <https://www.sciencemag.org/news/2020/09/why-covid-19-more-deadly-people-obesity-even-if-theyre-young>
- ⁵ Xie et al (2020), “Metabolic Syndrome and COVID-19 Mortality Among Adult Black Patients in New Orleans”
- ⁶ <https://www.gov.uk/government/news/new-obesity-strategy-unveiled-as-country-urged-to-lose-weight-to-beat-coronavirus-covid-19-and-protect-the-nhs>
- ⁷ <https://www.smf.co.uk/publications/obesity-and-coronavirus/>
- ⁸ <https://www.nhs.uk/common-health-questions/lifestyle/what-is-the-body-mass-index-bmi/>
- ⁹ Ibid
- ¹⁰ <https://www.nature.com/articles/ejcn201486>
- ¹¹ <https://news.umich.edu/don-t-blame-pregnancy-mom-s-weight-gain-likely-caused-by-parental-lifestyle-age/>
- ¹² <https://www.liverpoolwomens.nhs.uk/media/3538/menopause-and-weight-gain-patient-information-leaflet.pdf>
- ¹³ <https://www.who.int/news-room/fact-sheets/detail/obesity-and-overweight>
- ¹⁴ Scarborough, Burg et al (2011), “Increased energy intake entirely accounts for increase in body weight in women but not in men in the UK between 1986 and 2000”
- ¹⁵ <https://www.nhs.uk/live-well/healthy-weight/nine-medical-reasons-for-putting-on-weight/>
- ¹⁶ <https://www.medscape.com/answers/122393-11271/is-hypothyroidism-more-common-in-males-or-females>
- ¹⁷ <https://www.priorygroup.com/blog/the-relationship-between-mental-health-and-obesity>
- ¹⁸ <https://mhfaengland.org/mhfa-centre/research-and-evaluation/mental-health-statistics/>
- ¹⁹ <https://www.mayoclinic.org/diseases-conditions/depression/expert-answers/antidepressants-and-weight-gain/faq-20058127>
- ²⁰ <https://www.smf.co.uk/wp-content/uploads/2020/12/Obesity-and-coronavirus-Dec-20.pdf>
- ²¹ <https://www.nhs.uk/conditions/obesity/treatment/>
- ²² <https://www.nhs.uk/conditions/obesity/treatment/>
- ²³ <https://www.england.nhs.uk/wp-content/uploads/2016/05/appndx-7-obesity-surgery-guid.pdf>
- ²⁴ <https://bmcpublichealth.biomedcentral.com/articles/10.1186/s12889-020-8252-5>
- ²⁵ <https://www.omicsonline.org/open-access/gender-differences-in-the-outcome-of-obesity-treatments-and-weight-loss-maintenance-2165-7904-3-176.php?aid=14309> ; <https://bmcpublichealth.biomedcentral.com/articles/10.1186/s12889-020-8252-5>

- ²⁶ <https://www.smf.co.uk/wp-content/uploads/2020/12/Obesity-and-coronavirus-Dec-20.pdf>
- ²⁷ <https://www.smf.co.uk/wp-content/uploads/2020/12/Obesity-and-coronavirus-Dec-20.pdf>
- ²⁸ Davy, S.R.; Benes, B.A.; Driskell, J.A. Sex Differences in Dieting Trends, Eating Habits, and Nutrition Beliefs of a Group of Midwestern College Students. *J. Am. Diet. Assoc.* 2006, 106, 1673–1677. [CrossRef] [PubMed]; Provencher, V.; Drapeau, V.; Tremblay, A.; Després, J.-P.; Bouchard, C.; Lemieux, S. Eating behaviours, dietary profile and body composition according to dieting history in men and women of the Québec Family Study. *Br. J. Nutr.* 2004, 91, 997–1004
- ²⁹ <https://journals.sagepub.com/doi/full/10.1177/1557988314567223>
- ³⁰ <https://bmcpublichealth.biomedcentral.com/articles/10.1186/s12889-020-8252-5>
- ³¹ <https://www.sportengland.org/know-your-audience/demographic-knowledge/gender>
- ³² <https://www.bbc.co.uk/news/health-23778945>
- ³³ <https://www.independent.co.uk/life-style/health-and-families/british-women-exercise-inactivity-who-study-health-a8523321.html>
- ³⁴ <http://healthsurvey.hscic.gov.uk/media/63730/HSE16-Adult-phy-act.pdf>
- ³⁵ Ross HM, Laws R, Reckless J, Lean M. Evaluation of the counterweight Programme for obesity management in primary care: a starting point for continuous improvement. *Br J Gen Pract.* 2008;58(553):548–54.
- ³⁶ Morrison D, McLoone P, Brosnahan N, McCombie L, Smith A, Gordon J. A community pharmacy weight management programme: an evaluation of effectiveness. *BMC Public Health.* 2013;13:282.
- ³⁷ Lavin JH, Avery A, Whitehead SM, Rees E, Parsons J, Bagnall T, et al. Feasibility and benefits of implementing a slimming on referral service in primary care using a commercial weight management partner. *Public Health.* 2006;120(9):872–81; see <https://bmcpublichealth.biomedcentral.com/articles/10.1186/s12889-020-8252-5>
- ³⁸ National trends in the use and costs of anti-obesity medications in England 1998–2005. *Srishanmuganathan J, Patel H, Car J, Majeed A J Public Health (Oxf).* 2007 Jun; 29(2):199–202.
- ³⁹ <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3914727/>
- ⁴⁰ <https://researchbriefings.files.parliament.uk/documents/SN03336/SN03336.pdf>; <https://digital.nhs.uk/data-and-information/publications/statistical/statistics-on-obesity-physical-activity-and-diet/england-2020/data-tables>
- ⁴¹ <https://health.ucsd.edu/news/releases/pages/2015-04-29-men-less-likely-to-have-bariatric-surgery.aspx>
- ⁴² <https://bmcpublichealth.biomedcentral.com/articles/10.1186/s12889-020-8252-5>
- ⁴³ <https://www.worldobesity.org/what-we-do/our-policy-priorities/weight-stigma>
- ⁴⁴ <https://britishlivertrust.org.uk/wp-content/uploads/WOF-Obesity-and-stigma-report-2018.pdf>
- ⁴⁵ [https://www.thelancet.com/journals/eclinm/article/PIIS2589-5370\(21\)00090-0/fulltext](https://www.thelancet.com/journals/eclinm/article/PIIS2589-5370(21)00090-0/fulltext); see also <https://bmcmmedicine.biomedcentral.com/articles/10.1186/s12916-018-1116-5>
- ⁴⁶ <https://www.smf.co.uk/wp-content/uploads/2020/12/Obesity-and-coronavirus-Dec-20.pdf>
- ⁴⁷ <https://www.nature.com/articles/s41591-020-0803-x>

- ⁴⁸ <https://www.nature.com/articles/ejcn201486>;
<https://nutrition.bmj.com/content/early/2020/09/07/bmjnph-2020-000074>
- ⁴⁹ <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5846936/>; Andreyeva et al., 2008; Eisenberg et al., 2003; Falkner et al., 1999; Hebl and Turchin, 2005; Puhl et al., 2008; Spahlholz et al., 2016).
- ⁵⁰ Puhl RM, Himmelstein MS, Gorin AA, Suh YJ. Missing the target: including perspectives of women with overweight and obesity to inform stigma-reduction strategies; Hunger JM, Major B, Blodorn A, Miller C. Weighed down by stigma: how weight-based social identity threat contributes to weight gain and poor health. *Soc Personal Psychol Compass* 2015; **9**: 255- 268.; Puhl RM, Suh Y. Health Consequences of weight stigma: implications for obesity prevention and treatment. *Curr Obes Rep* 2015; **4**: 182- 190.
- ⁵¹ <https://pubmed.ncbi.nlm.nih.gov/31364819/>
- ⁵² https://www.euro.who.int/__data/assets/pdf_file/0017/351026/WeightBias.pdf;
<https://www.obesityaction.org/resources/weight-bias-does-it-affect-men-and-women-differently/>
- ⁵³ <https://bmcpublichealth.biomedcentral.com/articles/10.1186/s12889-020-8252-5>
- ⁵⁴ Archibald D, Douglas F, Hoddinott P, Van Teijlingen E, Stewart F, Robertson C, et al. A qualitative evidence synthesis on the management of male obesity. *BMJ Open*. 2015;5(10):e008372.
- ⁵⁵ Wolfe BL, Smith JE. Different strokes for different folks: why overweight men do not seek weight loss treatment. *Eat Disord*. 2002;10(2):115–24.
- ⁵⁶ <https://bmcpublichealth.biomedcentral.com/articles/10.1186/s12889-020-8252-5>
- ⁵⁷ <https://bmcpublichealth.biomedcentral.com/articles/10.1186/s12889-020-8252-5>
- ⁵⁸ McCabe MP, McGreevy SJ Role of media and peers on body change strategies among adult men: is body size important? *Eur Eat Disord Rev* 2011;**19**:438–4
- ⁵⁹ <https://theconversation.com/girls-are-being-denied-access-to-certain-sports-in-pe-simply-because-of-their-gender-106471>
- ⁶⁰ <https://theconversation.com/girls-are-being-denied-access-to-certain-sports-in-pe-simply-because-of-their-gender-106471>
- ⁶¹ <https://theconversation.com/men-more-reluctant-to-go-to-the-doctor-and-its-putting-them-at-risk-57420>
- ⁶² <https://www.telegraph.co.uk/news/2019/11/24/many-men-still-failing-take-health-seriously-despite-success/>
- ⁶³ <https://www.sciencedirect.com/science/article/abs/pii/S0277953699003901>
- ⁶⁴ <https://www.rutgers.edu/news/tougher-men-think-they-are-less-likely-they-are-be-honest-doctors#.XdvSipP7Su6>
- ⁶⁵ Muttarak R. Normalization of plus size and the danger of unseen overweight and obesity in England. *Obesity (Silver Spring, Md)*. 2018;26:1125-1129.
- ⁶⁶ <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7556430/>
- ⁶⁷ <https://bmjopen.bmj.com/content/5/10/e008372#xref-ref-8-1>
- ⁶⁸ <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7556430/>
- ⁶⁹ <https://core.ac.uk/download/pdf/145240823.pdf>
- ⁷⁰ <https://core.ac.uk/download/pdf/145240823.pdf>

- ⁷¹ <https://evidence.nihr.ac.uk/alert/gp-referrals-weight-loss-programmes-accepted-men-women-alike/>
- ⁷² <https://evidence.nihr.ac.uk/alert/gp-referrals-weight-loss-programmes-accepted-men-women-alike/>
- ⁷³ <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3495296/>
- ⁷⁴ <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3495296/>
- ⁷⁵ <https://nutritionj.biomedcentral.com/articles/10.1186/s12937-021-00706-4>
- ⁷⁶ https://www.researchgate.net/publication/331759445_The_Impact_of_Weight-Biased_Media_on_Weight_Attitudes_Self-Attitudes_and_Weight-Biased_Behavior
- ⁷⁷ <https://academic.oup.com/her/article/21/5/719/753094>
- ⁷⁸ <https://www.mentalhealth.org.uk/news/millions-men-uk-affected-body-image-issues-mental-health-foundation-survey>
- ⁷⁹ <https://www.theguardian.com/society/2017/jul/31/eating-disorders-in-men-rise-by-70-in-nhs-figures>
- ⁸⁰ <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6125080/>
- ⁸¹ <https://bmcpublichealth.biomedcentral.com/articles/10.1186/s12889-020-8252-5>
- ⁸² <https://www.karger.com/Article/FullText/512294>
- ⁸³ <https://www.karger.com/Article/FullText/512294>
- ⁸⁴ <https://journals.sagepub.com/doi/full/10.1177/1557988314567223>
- ⁸⁵ <https://www.liebertpub.com/doi/pdf/10.1016/j.jmhg.2005.04.010?download=true>
- ⁸⁶ <https://www.liebertpub.com/doi/pdf/10.1016/j.jmhg.2005.04.010?download=true>
- ⁸⁷ <https://www.nature.com/articles/s41366-020-00708-y>
- ⁸⁸ <https://onlinelibrary.wiley.com/doi/full/10.1111/obr.12779>; see Hallal PC, Andersen LB, Bull FC, Guthold R, Haskell W, Ekelund U. Global physical activity levels: surveillance progress, pitfalls, and prospects. *Lancet*. 2012; **380**: 247–257.
- ⁸⁹ Janke, Propper and Shields (2013), “Does Violent Crime Deter Physical Activity?”
- ⁹⁰ <https://www.bbc.co.uk/news/uk-england-humber-56197368> ;
<https://www.runnersworld.com/uk/training/a36278390/reclaim-the-run/> ;
<https://www.girlsgonestrong.com/blog/articles/harassment-street-and-gym/>
- ⁹¹ Bhogal, Manpal Singh; Langford, Robert (2014). Gender differences in weight loss; evidence from a NHS weight management service. *Public Health*, 128(9), 811–813. doi:10.1016/j.puhe.2014.06.019
- ⁹² Bhogal, Manpal Singh; Langford, Robert (2014). Gender differences in weight loss; evidence from a NHS weight management service. *Public Health*, 128(9), 811–813. doi:10.1016/j.puhe.2014.06.019
- ⁹³ <https://www.menshealthforum.org.uk/best-practice-tips-weight-loss-programmes>
- ⁹⁴ Natvik E, Gjengedal E, Moltu C, Råheim M. Translating weight loss into agency: men’s experiences 5 years after bariatric surgery. *Int J Qual Stud Health Well-being* 2015;10:277729.
- ⁹⁵ <https://misjournal.net/article/view/3404#B30>
- ⁹⁶ <https://misjournal.net/article/view/3404>
- ⁹⁷ <https://cdn.ps.emap.com/wp-content/uploads/sites/3/2021/09/72Bariatricsexdifferences.pdf>

- ⁹⁸<https://www.cambridge.org/core/journals/behavioural-public-policy/article/cash-incentives-for-weight-loss-work-only-for-males/CECCBD8F35509FB7084DA160D91E75E6>
- ⁹⁹ <https://bmcpublichealth.biomedcentral.com/articles/10.1186/s12889-020-8252-5>
- ¹⁰⁰ <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3963684/>
- ¹⁰¹ <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4907547/>
- ¹⁰² <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5705146/>
- ¹⁰³ <https://www.rcpsych.ac.uk/mental-health/problems-disorders/depression-and-men>
- ¹⁰⁴ <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4907547/>
- ¹⁰⁵ <https://menssheds.org.uk/about/>
- ¹⁰⁶ <https://dudesclub.ca/> ; <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4907575/>
- ¹⁰⁷ <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4907547/>
- ¹⁰⁸ See <https://www.thelionsbarbercollective.com/about-us/>
- ¹⁰⁹ <https://www.healthline.com/health-news/why-so-many-men-avoid-doctors#Why-men-withhold-information-from-doctors>
- ¹¹⁰ <https://uk.movember.com/about/foundation>
- ¹¹¹ <https://uk.movember.com/about/history>
- ¹¹² <https://uk.movember.com/report-cards>
- ¹¹³ <https://uk.movember.com/report-cards/view/id/3452/uk-manvan-2019-2020>
- ¹¹⁴ <https://uk.movember.com/report-cards/view/id/3271/global-health-and-wellbeing-survey>
- ¹¹⁵ <https://uk.movember.com/report-cards/view/id/2845/move>
- ¹¹⁶ <https://uk.movember.com/about/prostate-cancer>
- ¹¹⁷ [https://www.thelancet.com/journals/lanres/article/PIIS0140-6736\(13\)62420-4/fulltext](https://www.thelancet.com/journals/lanres/article/PIIS0140-6736(13)62420-4/fulltext)
- ¹¹⁸ <http://eprints.gla.ac.uk/193491/>
- ¹¹⁹ <https://journals.plos.org/plosmedicine/article?id=10.1371/journal.pmed.1003136>
- ¹²⁰ <http://eprints.gla.ac.uk/180642/>
- ¹²¹ <https://pubmed.ncbi.nlm.nih.gov/20523304/>
- ¹²² <https://www.shapeupherts.com/about>
- ¹²³ <https://www.watfordfccsetrust.com/project/shape-up/>
- ¹²⁴ <https://www.watfordfccsetrust.com/app/uploads/2020/05/Shape-Up-Impact-Report.pdf>
- ¹²⁵ <https://www.nuffieldhealth.com/article/almost-three-quarters-of-british-women-dont-feel-safe-exercising-outdoors-in-the-dark#about>
- ¹²⁶ <https://www.runnersworld.com/uk/training/a36278390/reclaim-the-run/>
- ¹²⁷ <https://metro.co.uk/2019/09/09/one-in-four-women-feel-too-intimidated-to-go-to-the-gym-study-finds-10710751/>; <https://sustainhealth.fit/lifestyle/women-fear-being-harassed-at-the-gym/>;
- ¹²⁸ <https://www.sportengland.org/know-your-audience/demographic-knowledge/gender>
- ¹²⁹ <https://www.sportengland.org/know-your-audience/demographic-knowledge/gender?section=research>

- ¹³⁰ <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2578875/>;
https://www.researchgate.net/publication/316815710_Women's_Exercise_Experiences_in_Women-Only_Gyms_in_Turkey_An_Examination_Within_the_Framework_of_Self-Determination_Theory; <https://onlinelibrary.wiley.com/doi/full/10.1002/jnr.23896>;
<http://shura.shu.ac.uk/28121/1/sustainability-13-01683-v2.pdf>
- ¹³¹ <https://www.curves.eu/uk/about-us>
- ¹³² <https://www.thisgirlcan.co.uk/about-us/>
- ¹³³ <https://thisgirlcan.com.au/about-us/>
- ¹³⁴ <https://thisgirlcan.com.au/wp-content/uploads/2020/11/TGC-Year-3-Report.pdf>
- ¹³⁵ <https://thisgirlcan.com.au/wp-content/uploads/2020/11/TGC-Year-3-Report.pdf>
- ¹³⁶ <https://www.theguardian.com/global-development-professionals-network/2016/oct/13/why-arent-we-designing-cities-that-work-for-women-not-just-men>
- ¹³⁷ <https://www.turley.co.uk/comment/gender-focussed-design-and-planning-building-inclusive-public-realm>
- ¹³⁸ <https://behavioralscientist.org/how-better-urban-planning-can-improve-gender-equality/>
- ¹³⁹ <https://www.wien.gv.at/english/administration/gendermainstreaming/>
- ¹⁴⁰ <https://www.turley.co.uk/comment/gender-focussed-design-and-planning-building-inclusive-public-realm>
- ¹⁴¹ <https://www.worldobesity.org/news/obesity-and-covid-19-policy-statement>
- ¹⁴² <https://www.medrxiv.org/content/10.1101/2020.05.12.20098921v>
- ¹⁴³ <https://www.medrxiv.org/content/10.1101/2020.05.12.20098921v>
- ¹⁴⁴ <https://www.ukactive.com/news/how-lockdown-has-affected-the-gender-gap-in-activity-levels/>
- ¹⁴⁵ <https://www.gov.uk/government/publications/weight-management-services-during-covid-19-phase-1-insights>
- ¹⁴⁶ [https://www.thelancet.com/journals/eclinm/article/PIIS2589-5370\(21\)00076-6/fulltext](https://www.thelancet.com/journals/eclinm/article/PIIS2589-5370(21)00076-6/fulltext)
- ¹⁴⁷ <https://onlinelibrary.wiley.com/doi/10.1002/osp4.540>
- ¹⁴⁸ <https://www.karger.com/Article/FullText/510005>
- ¹⁴⁹ <https://www.smf.co.uk/wp-content/uploads/2020/12/Obesity-and-coronavirus-Dec-20.pdf>
- ¹⁵⁰ <https://evidence.nihr.ac.uk/alert/gp-referrals-weight-loss-programmes-accepted-men-women-alike/>
- ¹⁵¹ <https://bmjopen.bmj.com/content/5/10/e008372>
- ¹⁵² See <https://www.menshealthforum.org.uk/best-practice-tips-weight-loss-programmes>
- ¹⁵³ <https://www.civilsociety.co.uk/fundraising/emotional-engagement.html>
- ¹⁵⁴ <https://www.campaignlive.co.uk/article/why-prostate-cancer-uk-went-pub-men-utd-campaign/1333196>
- ¹⁵⁵ <https://prostatecanceruk.org/about-us/ad-men-we-are-with-you>
- ¹⁵⁶ See whole-society approach <https://www.kingsfund.org.uk/sites/default/files/2021-07/Tackling%20obesity.pdf>

¹⁵⁷ See <https://www.smf.co.uk/wp-content/uploads/2020/12/Obesity-and-coronavirus-Dec-20.pdf>

¹⁵⁸ <https://www.runnersworld.com/uk/training/a36278390/reclaim-the-run/>

¹⁵⁹ <https://www.nuffieldhealth.com/article/almost-three-quarters-of-british-women-dont-feel-safe-exercising-outdoors-in-the-dark#about>

¹⁶⁰ <https://www.runnersworld.com/uk/training/a36278390/reclaim-the-run/>

¹⁶¹ <https://www.nhs.uk/conditions/obesity/treatment/>

¹⁶² <https://www.dur.ac.uk/news/allnews/thoughtleadership/?itemno=42349>

¹⁶³ <https://theconversation.com/four-reasons-the-uk-governments-obesity-strategy-may-not-work-for-everyone-143695>

¹⁶⁴ <https://www.dur.ac.uk/news/allnews/thoughtleadership/?itemno=42349>

¹⁶⁵ <https://www.thisgirlcan.co.uk/about-us/>

¹⁶⁶ <https://www.campaignlive.co.uk/article/case-study-this-girl-can-16-million-women-exercising/1394836>

¹⁶⁷ <https://www.ukactive.com/news/how-lockdown-has-affected-the-gender-gap-in-activity-levels/>; <https://www.statista.com/statistics/971228/group-exercise-classes-participation-by-gender-england/>

¹⁶⁸ <https://www.ukactive.com/news/how-lockdown-has-affected-the-gender-gap-in-activity-levels/>

¹⁶⁹ <https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/earningsandworkinghours/articles/womenshouldertheresponsibilityofunpaidwork/2016-11-10>

¹⁷⁰ <https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0247959>

¹⁷¹ <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4227023/>

¹⁷² <https://www.thelancet.com/journals/lanpub/article/PIIS2468-2667%2819%2930135-5/fulltext>

¹⁷³ <https://news.umich.edu/don-t-blame-pregnancy-mom-s-weight-gain-likely-caused-by-parental-lifestyle-age/>

¹⁷⁴ <https://www.nuffieldhealth.com/gyms/services/childrens-creche-and-junior-programme>

¹⁷⁵ <https://core.ac.uk/download/pdf/177116.pdf>

¹⁷⁶

<https://openknowledge.worldbank.org/bitstream/handle/10986/22222/Small0cash0rew0the0obesity0epidemic.pdf?sequence=1&isAllowed=y>

¹⁷⁷ <https://www.nutraingredients-asia.com/Article/2017/06/19/Cash-incentives-to-lose-weight-Could-this-help-solve-Asia-s-obesity-epidemic>

¹⁷⁸ <https://www.smartnation.gov.sg/initiatives/health/national-steps-challenge>

¹⁷⁹ <https://blog.moneysmart.sg/fitness-beauty/national-steps-challenge/>

¹⁸⁰ <https://bjsm.bmj.com/content/54/17/1047>

¹⁸¹ <https://www.gov.uk/government/news/new-specialised-support-to-help-those-living-with-obesity-to-lose-weight>

¹⁸² <https://www.thetimes.co.uk/article/earn-shopping-discounts-exercise-fitness-obesity-w3wm5w7v8>

¹⁸³ <https://evidence.nihr.ac.uk/alert/gp-referrals-weight-loss-programmes-accepted-men-women-alike/>

¹⁸⁴ <https://www.pulsetoday.co.uk/news/clinical-areas/obesity-and-nutrition/gps-to-receive-allocation-for-referring-obese-patients-via-new-weight-management-es/>