The implications of defining obesity as a disease: a report from the Association for the Study of Obesity 2021 annual conference

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Summary

Unlike various countries and organisations, including the World Health Organisation and the European Parliament, the United Kingdom does not formally recognise obesity as a disease. This report presents the discussion on the potential impact of defining obesity as a disease on the patient, the healthcare system, the economy, and the wider society. A group of speakers from a wide range of disciplines came together to debate the topic bringing their knowledge and expertise from backgrounds in medicine, psychology, economics, and politics as well as the experience of people living with obesity. The aim of their debate was not to decide whether obesity should be classified as a disease but rather to explore what the implications of doing so would be, what the gaps in the available data are, as well as to provide up-to-date information on the topic from experts in the field. There were four topics where speakers presented their viewpoints, each one including a question-and-answer section for debate. The first one focused on the impact that the recognition of obesity could have on people living with obesity regarding the change in their behaviour, either positive and empowering or more stigmatising. During the second one, the impact of defining obesity as a disease on the

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National Health Service and the wider economy was discussed. The primary outcome was the need for more robust data as the one available does not represent the actual cost of obesity. The third topic was related to the policy implications regarding treatment provision, focusing on the public's power to influence policy. Finally, the last issue discussed, included the implications of public health actions, highlighting the importance of the government's actions and private stakeholders. The speakers agreed that no matter where they stand on this debate, the goal is common: to provide a healthcare system that supports and protects the patients, strategies that protect the economy and broader society, and policies that reduce stigma and promote health equity. Many questions are left to be answered regarding how these goals can be achieved. However, this discussion has set a good foundation providing evidence that can be used by the public, clinicians, and policymakers to make that happen.

Keywords: Obesity; Policy; Public health; Healthcare system; Health equity

Introduction

The debate on whether obesity should be classified as a disease continues in the U.K. and many other countries worldwide. In the last ten years or so, a handful of countries have recognised obesity as a disease, including the USA, which has one of the highest prevalence in the world.[1] Patients, healthcare professionals, and policymakers have contributed to this debate with strong arguments on both sides.

Many of the arguments used by the against camp relate to the definition of a condition as a disease. Based on this, a condition can be classified as a disease if it causes impairment of the normal functioning of the body, and the argument made is that many people live with excess adiposity without that having an impact on morbidity or mortality.[2] Indeed, the obesity paradox[3] postulates that obesity may even have protective effects on some individuals. They also claim that body mass index (BMI) is only a crude marker of adiposity and does not provide any information about health complications.[2] A disease, by definition, needs to have characteristic symptoms and signs, and even though excess adiposity is a characteristic sign, there are no symptoms that are unique to obesity.

To complicate matters, definitions of what constitutes a disease vary, and conditions may meet one definition but not another (e.g., alcoholism).[4] The American Medical Association (AMA) applied a different approach to this conundrum in 2013. Instead of trying to determine whether obesity fits specific definitions of disease, the AMA used a utilitarian approach to determine whether the recognition of obesity as a disease would have a positive impact on the individual patient, the healthcare system, and the wider society.[1]

In the U.K., the Royal College of Physicians (RCP) recognised obesity as a disease in 2019.[5] The main argument of RCP and those in favour of this recognition is that, unless obesity is defined as a disease, the funding for effective treatment options will be inadequate to stop its increasing prevalence and the health and socioeconomic costs associated with it.[5] The RCP highlights that some of the benefits of such recognition could include the reduction of stigma and discrimination, improved education for policymakers, healthcare professionals, and the public, as well as a holistic approach from the engagement of various stakeholders.[6] As the prevalence in adults is expected to increase and reach 35% in England by 2030, new strategies that differentiate from the previous primarily preventative lifestyle focused ones are needed.[5]

In response to this ongoing heated debate in the U.K., the Association for the Study of Obesity (ASO) held its annual conference in 2021 and dedicated an entire day of online discussions amongst key experts and representatives of major stakeholders. The aim of the meeting was to explore and debate, not whether obesity should be classified as a disease, but what the implications of doing so would be to the (i) individual patient, (ii) the National Health Service, and the wider economy, (iii) policy regarding treatment provision and (iv) policy regarding public health measures. An additional aim was to identify gaps in knowledge and ways these can be addressed to enable an evidence-based approach in decision making. Our aim was not to reach a consensus but to provide evidence that can be used by the public, clinicians, and policymakers to make informed decisions on whether the overall impact of recognising obesity as a disease would be positive or negative. The event was chaired by Professor Maria Bryant, a Professor in Public Health Nutrition, facilitated by Professor Giles Yeo, Professor of Genetics, and delivered by representatives from key stakeholders.

The importance of the definition of obesity and its impact on the behaviour of people living with it

When discussing the impact that defining obesity as a disease can have on patients, it is important to first consider the experiences and views of people living with it. Studies adopting qualitative approaches have been shown to deliver a greater depth of understanding of complex and socially mediated diseases such as obesity.[7] The need to acknowledge the voices and experiences of

people living with obesity has been identified with studies such as SOPHIA (Stratification of Obesity Phenotypes to Optimize Future Therapy),[7] collecting relevant data in an attempt to make obesity more patient-centric.[8] Some of the participants' interviews presented during the conference from the SOPHIA study showed that the perceptions around obesity seemed to vary, with some believing that it is entirely their responsibility, others being able to see obesity as a disease considering the role of genetics, and others generally confused about its conceptualisation. Despite the variety of participants' perspectives on obesity and its definition, it was emphasised that it is essential to listen to and honour their voice in decision making to comprehend the nature of obesity better.

Research has explored doctors' use of language and how their choice of which term to use can impact patients' perceptions of a medical problem.[9] As the language used may influence how patients feel about their problem,[9] the question is whether the benefits of defining obesity as a disease outweigh the harms for the patients. Using a medical term could help with the problem by removing weight stigma, bias, and feelings of blame[10–12] while also offering a perception of severity needed for behaviour change to occur[13] as well as better access to medical interventions. When referring to stigma, it is essential to note that in a multi-cultural country like the U.K., the definition of disease and the presence of stigma when it comes to obesity might differ among populations. For instance, in some parts of sub-Saharan Africa, overweight and obesity have been historically associated with success, wealth, and good health, with the preference for larger body size maintained even after migration to developed countries regardless of the length of stay in the host country.[14] In addition to how the body weight is socially constructed and positioned, the language used to describe obesity should include populations for whom English is not their first language.

However, one of the speakers and experts in the field argued that from her analysis, defining obesity as a disease might not help with behavioural changes relating to overeating, sedentary behaviour, weight gain, obesity onset, and feeling empowered or being active. Concerns were raised regarding the need to change behaviour for the next generation and those who have already had treatment, as well as the possibility of the emergence of a new type of stigma, the biological one, which refers to people with obesity feeling biologically "inferior" to people of healthy weight.

The discussion on the impact of consultations with people living with obesity explored both the benefits and risks of its recognition as a disease. Improvement of care could result from updated clinical medical training, better communication between clinician and patient, and the inclusion of more obesity indicators in the Quality Outcomes Framework (QOF).[15–17] Study findings suggest that general practitioners (G.P.) perceive obesity interventions as a low priority,[18] with physicians-in-training not adequately educated regarding treatment options[19] and most medical students being unfamiliar with the emerging field of obesity medicine.[19] Could the recognition of obesity as a disease potentially place it higher in the priority of clinicians and change the current obesity medicine curriculum in medical schools? (See Table 1) On the other hand, concern was expressed that the recognition of obesity as a disease could potentially generate an excessive workload to an already stretched general practice while there is a lack of training, support, and infrastructure.

The cost implications of recognising obesity as a disease in the U.K., and its impact on the labour market

Different frameworks are used to estimate the cost of an intervention in health economics. Two approaches were presented in an attempt to examine the implications of the classification of obesity as a disease to the economy. The first is the budget impact[20] used by local budget holders to assess intervention affordability within society. This is used to monitor cost and cost savings

Key topics	Unanswered questions	Key research gaps
• Patients' voice needs to be put at the centre of understanding obesity. • The terminology used to describe obesity is important for patients' empowerment and prevention of disease. • There is an underreport of diagnoses of obesity when using the international classification of disease. • People living with obesity can experience disadvantages at work that can be attributed to stigma and discrimination. • The treatment and support for people with genetic obesity need to be tailored. • Educating people about the drivers of obesity could increase public support for policy interventions. • Political commitment and government funding are essential for obesity initiatives to be successful.	• Should obesity be defined as a condition or a disease? • Will defining obesity as a disease decrease stigma and discrimination? • Will it improve the provision of care and investment in research? • Should obesity become a protected characteristic under the Equality Act? • Should the current obesity medicine curriculum change in medical schools? • How can the public be educated efficiently? • Is there a need for more food and beverage taxes? Will these taxes affect the choices of the consumer?	• Determine the true cost of obesity to the healthcare system. • Construct reliable tools and guidelines for diagnosing and treating obesity. • Determine the distinguishable features of the different types of obesity. • Determine the benefits of countries which have already recognised obesity as a disease. • Explore the food reformulation programs and the involvement of the food industry. • Determine the strategies, infrastructure and training needed for the healthcare system to manage the increase in obesity treatment provision

Table 1: **Summary of key topics discussed unanswered questions and key research gaps.**

across different budget posts over a short time, usually one to five year cycles. The second approach is the cost-effectiveness analysis[20] which addresses different questions to the prior approach. This is predominantly utilised within health economics to determine the value of money relative to an existing intervention; value is then defined as cost relative to a health outcome, which is usually determined through quality adjusted life years (QALYs). QALYs are used by decision-making bodies, such as the National Institute for Health and Care Excellence (NICE) or the Scottish Medicines Consortium. This approach analyses aggregate cost over longer time horizons when looking at alternative interventions compared to the budget impact analysis.

The framework used during the conference (adopted McCabe 2017) to determine the cost implications of defining obesity as a disease was the budget impact model. Through this model, the current state of healthcare before obesity is classified as a disease was compared to the state after its new classification in four elements: total population, sick population, target population, and resource utilisation. Ultimately, all these elements could change the overall cost of illness. To determine the new total cost of illness through this comparison, evidence is needed regarding the changes in the rate of diagnosis and delivery of tier 2 and 3 services,[21] the flow of costs and cost savings over time, and whether the change will lead to better access to surgery.

It was stressed that there are severe capacity constraints within the current service, and the changes that would take place over time would require alterations to the service and its provision. The number of G.P.s, physicians, and surgeons needed, along with changes to skill mixes and education/training required, would be impacted. The constraints on the current physical infrastructure also have an effect as bed availability for surgical patients becomes an issue. There are also variations in the availability of the current services across the country. Therefore, the budget impact in terms of setting up or expanding the existing service also needs to be considered. Ultimately, how the system responds to classifying obesity as a disease will need to be observed and examined to try to predict how this will impact the overall cost.

Data shows that the National Health Service (NHS) spent £6.1 billion on the treatment of obesity and overweight in 2014/2015.[22] In 2021, NHS England spent in total around £136 billion,[23] NHS Wales almost £9 billion,[24] Scotland £15 billion,[25] and Northern Ireland £6 billion,[26] totalling £166 billion. NHS England uses the International Classification of Disease (ICD-10) codes, and from the total ICD-10 codes used in England, only a few mention the words obesity which reflects that obesity is not taken as seriously as it needs to.[27] It is difficult to establish a value if the costing is not correctly recorded and the total cost is overlooked. If the impact is not being recognised it is difficult to predict the benefits of recognising obesity as a disease in the future. As presented, in Maidstone and Tunbridge Wells NHS Trust there were 1186 recorded diagnoses of obesity wording out of 158,824 records during the 2017–2018 period, which highlights under-reporting. When looking at maternity coding for the same period; there were 7212 births, and only two of those birth episodes mentioned obesity. For the same NHS Trust, across all specialties, only 1% mentioned obesity. Overall, if obesity is not recorded accurately and not recognised as a disease, the actual cost will be hidden, impacting the value of benefits from treating the disease differently.

The impact of obesity on the labour market over the previous couple of years was examined and presented. A clear finding was that individuals living with obesity can often experience workplace disadvantages attributed to stigma and discrimination.[24] Even though the cost of obesity in public health terms and the cost to the NHS receives the most attention, the research has shown a cost to the individual and the broader economy. This may have been underplayed and ignored by individuals, policymakers, and employers.

The Purpose programme[28] at the Institute for Employment Studies (IES) has been mainly looking at the obesity Wage Penalty to correct this. The research shows that the Wage Penalty affects women living with obesity more than men, with an estimated gap of up to 20% and an average of 9–13%.[29] There is strong evidence of a life course impact; women who live with obesity at 16 have 34% lower household income at the age of 42.[30] Research has also indicated that women's earnings can peak with a BMI of 20–22[29]; if BMI increased by 1 point, earnings decreased by 4% within four years.[31] Mothers living with obesity have been shown to earn almost 7% less than mothers of average weight.[32] One study showed that single mothers living with obesity faced a wage penalty of 7.6% per child.[32] Older women with a BMI over 40 are more likely to have extended sickness periods and will leave employment early.[33] Stigma and discrimination were shown to have had a role in this when age and health factors were controlled in the research.[29] When explaining the Wage Penalty, four main factors/perspectives were looked at:

Human Capital differences – the idea that women living with obesity have human capital differences. Lower education attainment on average, less work experience, and lower pay have lower working status. Evidence showed a strong link between obesity, occupational prestige, health, and employment.[34]

Life course barriers – The idea that it is difficult to shake off health and education inequalities of childhood and adolescence. Also, these people may be at more risk of living in a lower income household because they are less likely to marry or cohabit than women of average weight.[29]

Health differences – this suggests that women living with obesity may have more health conditions and co-morbidities that affect their ability to find and maintain work. Furthermore, these conditions could lead to a reduction in function and capacity, increased sickness absence, and a higher risk of leaving the labour market early.[29]

Stigma/discrimination – a theory that women living with obesity are subject to systemic discrimination in the job market and workplaces. They are matched to lower paying jobs for which they may be over-qualified. This may also be due to the aesthetic labour market, where customer-facing roles discriminate against those who do not meet the level.[29]

When looking at the cost of these implications through 4 UK-based scenarios, which were based on average earnings and a 30% prevalence of obesity, there was a high cost. A 2% wage penalty would mean a £500 reduction in annual earnings and a £2.3 billion economic loss yearly.[29] A 13% penalty equates to a £3250 reduction in earnings with an economic impact of £14.94 billion per year.[29] This has significant implications for the wider economy, with macroeconomic implications for customer spending, tax revenue, and welfare payments.

The stigma and discrimination toward those with obesity trying to enter the labour market need to be addressed. Although there is limited data to prove that defining obesity as a disease will directly impact the wage penalty, it is essential to notice the link between weight discrimination at the workplace and lower wages.[29] The classification of obesity as a disease may facilitate the acknowledgment of the multifactorial causes of obesity in the broader public[35] thus combating weight bias in the workplace. Furthermore, legislation can also help with unconscious bias, prohibiting employment discrimination based on weight. In several cities in the US, where obesity has been recognised as a disease since 2013, weight is a protected category under anti-discrimination law.[36] A question that has been raised is whether obesity should become a protected characteristic under the Equality Act to reduce its economic and human costs in the U.K (See Table 1).

The durability of weight loss needs to be considered when reflecting on treatment and cost, as it is currently limited when looking at evidence of initial response to therapy. There are different sets of treatments available within the U.K., and for the proper treatment to be chosen, the disease mechanisms need to be understood. These mechanisms vary for each person who will have reached obesity through a different pathway, with different relative contributions of genes and the environment. When looking at Mendelian or genetic forms of obesity, 1 in 20 of severe obesity with early onset in children was related to one mutation in the gene MC4R.[30] In adults with severe obesity, the MC4R gene (melanocortin 4 receptor) mutation was found in 1% of 1014 as part of a Dutch study similar to the U.K. sample.[37] Genetic obesity is common in the bariatric surgery clinic, with good initial weight loss seen in the gastric bypass and less in the sleeve gastrectomy procedures.[38] By identifying these mutations, treatment and support could be tailored for patients, leading to developing pathways for those who share the same mutations.

The economic models used tend to not cost obesity as a disease itself, but instead cost the consequences associated with it. Enabling a more accurate costing requires identifying the costs associated with the obesity diagnosis and the various degrees of obesity and its severity. Hence, offering treatments that are more tailored to the individual. NICE does not consider the labour market, productivity impact, or the societal perspective regarding obesity. In the Netherlands, on the other hand, two types of economic evaluation are used; one with the societal perspective and one without, which means the policymakers can make decisions based on the complete data available. In the U.K., obesity is not considered a protected characteristic, although conditions associated with it, such as osteoarthritis, are. This means that individuals living with obesity that think they are discriminated against because of their weight against employment do not currently have legal redress and are not covered under the disability status.[39] Case law existed that obesity of sufficient severity to affect a person's ability to carry out normal day-to-day functions could be covered under the disability law in the U.K. Equality Act 2010.[40] It was also argued that the reason NICE takes healthcare instead of a societal perspective into account is that it works from a healthcare budget, and therefore there is an opportunity cost. When a societal perspective is considered, the question is who has the responsibility for treating because if we are accounting for the cost of the disease and the societal cost, all that responsibility is placed entirely on the NHS. It was concluded that if obesity is recognised as a disease, more funding will be invested in research for developing economic models.

The impact of recognising obesity as a disease on the development of policies for healthcare provision

The expected benefits of the recognition of obesity as a disease include increased and prioritised access to treatment, provision of clarity to healthcare professionals, reduced stigma, and encouragement of governmental action to prioritise the creation and implementation of strategies for obesity reduction in the U.K. However, although research has shown that obesity impacts the development of multiple health conditions, mental health, and overall life expectancy,[41] evidence is needed to support all the benefits mentioned. To recognise obesity as a disease, the current challenge of defining obesity must be addressed, as

the current methods of measuring obesity, such as BMI and other metrics, although universally recognised, are not robust indicators of adiposity.[42]

The power of public perception should also be considered a critical aspect as it can influence governmental policy[43]; data has shown that a government is more likely not to implement a change or action on a policy that the public has a low opinion on as there would be a risk to securing votes in future elections.[43–45] Furthermore, the terminology and framing of the policy might play a crucial role in the public's opinion toward change. Evidence has presented that participants who agreed with campaigns that blamed the individual would be more likely to support a policy with interventions that penalise those with obesity whereas participants that agreed with the blaming of the environment as a cause were more likely to support a policy that protects individuals living with obesity.[44] The evidence also suggests that educating people about the drivers of obesity through messaging campaigns could increase public support for policy interventions and be employed as an effective tool.[44] Moreover, data also highlighted psychological factors that could influence policy, as individuals who empathise due to their own experience would have a more supportive attitude towards policy interventions.[45] The recognition of obesity as a disease would also require a change in approach from multiple stakeholders within healthcare and society to ensure the problem is adequately funded and prioritised. Ultimately, this would need a whole system approach with infrastructural change and long-term funding to achieve this. There are, however, concerns regarding how G.P.s would cope with the sudden increase of patients requiring treatment in an already overstretched service. Current evidence suggests that G.P.s are reluctant to discuss weight management to avoid offending patients.[46]

It is unclear with the data available what the policy implications for recognising obesity as a disease in terms of treatment provided will be and whether access to treatment will increase. Countries that have defined obesity as a disease, such as the US, Canada, Germany, Italy, and Portugal, although all have very different health systems from the U.K., do not have enough data yet to demonstrate any benefit from this recognition.[47] There are even less data to show if the classification has impacted prevalence, although significant progress has been made toward access to support services. For example, the Food and Drug Administration (FDA)'s development of pathways and frameworks for new treatments, the increase of access services from health insurance providers, and the introduction of the U.S. Treat and Reduce Obesity Act to Congress, even if it is still a bill.[48] However, the improvements in the USA have been patchy, with only some areas benefiting.[47] When obesity was recognised as a disease in the USA, there was a spike of searches on Google from the public; however, this only lasted three months,[49] and even after the recognition, there was still a disparity in the provision of bariatric surgery.[50,51] The question remains the same: will recognising obesity as a disease change policy and, therefore, the provision of care? (See Table 1) It might be too early to tell.

Obesity could be defined as a central disease in a cluster of multimorbidity. Multimorbidity can modify health outcomes for individuals and lead to a decrease in quality of life.[52] The impact of biopsychosocial factors, somatic risk factors, social networks, the burden of these diseases, and healthcare consumption can act as disease modifiers, thus resulting in an increased disability.[53] The focus should be on the holistic, patient-centred approach to deal with the root causes of obesity and the multimorbidities present with it, as this is a chronic, life-long disease. Furthermore, this would help shape interventions that would have fewer relapses. The implications for weight management services are that obesity is a complex issue and that treatment is more than just weight loss and will require a broader team in a variety of different settings, such as primary care, which, in turn, would require an increase in the service as well as funding.

Of 52.4 M adults, 32.4 M have a high BMI; of those, 14 M are living with obesity, with over 2 M qualifying for surgery by NICE guidelines.[54] The NHS currently provides approximately 5000 bariatric operations annually, which is 0.25% of those eligible, as it is only possible to offer surgery to some due to logistics and finance.[55] In comparison, France performs approximately 60,000 state funded weight loss procedures per year.[56] The lack of evidence makes it difficult to compare to other countries as there are examples like the USA, where with a population of 300 million, there are 225,000 weight loss surgeries a year.[57] However, their healthcare system is not state funded like the NHS.

The National Bariatric Surgery Registry for the U.K. has 146 surgeons across 61 hospitals. If the level increased to 20,000 patients annually, that would equate to 3 cases (one all day operating list) per week. In 2019, before the start of the pandemic, the BOMSS Professional Standards and Commissioning Guidance 2012 had been updated in 3 key areas[58] and emphasised the need for specialist dietician services if the workload increases following the recognition of obesity as a disease. Furthermore, there would be a need for a specialist MDT (Multi-Disciplinary Team), including a bariatric surgeon, specialist dietician, bariatric specialist nurse, experienced bariatric psychologist, bariatric physician, and bariatric anaesthetist.

The United Kingdom National Bariatric Surgery Registry, which has 80,000 patients registered, has demonstrated that mortality in surgery is very low at a rate of 0.04,[59] and the benefits offset the extra cost.[60] Focusing just on surgery, Sleeve Gastrectomy and Gastric Bypasses make up the vast majority of all NHS

bariatric surgeries, with the average tariff being £6000 per case. If cases increased from 5000 patients (£30 million) to 20,000 cases (£120 million) per year, that would be an overall increase of £90 Million per year. That, however, could lead to less sickness, fewer people requiring disability payments, and increased employment. There is still a stigma around obesity, and too much focus is placed on personal responsibility, making the public reluctant to support funding more bariatric surgeries. Thus, more comprehensive education regarding the biological underpinnings of obesity is essential to gain public support and reduce stigma (See Table 1).

There needs to be a reliable tool when defining obesity along with BMI. It was explained that for diseases like type 2 diabetes or hypertension, there are more precise indicators for diagnosis and classification, but that is not the case for obesity. It was suggested that there need to be other measurements such as body composition, health related risks, and multimorbidity; otherwise, this will cause challenges for policy making.

The impact of recognising obesity as a disease in public health policy and the importance of a whole system approach

For a disease to be included within public health policy, there are specific measures that are implied, such as the provision of health education for the disease, provision of targeted intervention to people who are at high risk, provision of population directed approaches for primary prevention, and attempt to change the environment for primordial prevention.[61–64] The commonwealth systems framework for strengthening health was presented, which consists of eight components required for public health policy.[65] These components include the overall governance, the quality of knowledge and information, measures for the protection and health promotion, disease prevention, using people both as advocates and workforce to provide the policy, and the recipients of the information. As stated in the 'Effective Public Health Program Implementation', six components are necessary for health policy to be effective: political commitment, technical package, communication, partnerships, management, and innovation. One in four people in the U.K. is living with obesity.[66] Policymakers have a duty of care to those who are or could be affected by obesity, with future generations needing to be safeguarded against this progressive and relapsing disease.

There has been progress with the National NHS guideline (SIGN- Scottish Intercollegiate Guidelines Network 2010)[67] identifying obesity as 'the disease-process, with interacting genetic and environmental aetiology, of excess body-fat accumulation with multiple organ-specific consequences.'

A 2020 study[68] regarding the remission of Type 2 Diabetes Mellitus (T2DM) after weight loss has shown that a substantial loss of 10–15 kg will reverse T2DM for up to 80% of individuals. The mechanisms behind that entail a reduction of liver fat and a return to normal pancreatic morphology & β-cell capacity.[69] The study also showed that when gaining weight, those at risk of metabolic conditions will develop ectopic fat at some point.[70] That can then lead to conditions like T2DM, hypertension, and hyperlipidaemia, which puts them at high risk of macro vascular and microvascular complications and the risk of cancers. Treatment can also be provided by specialist services remotely. A study showed a 15 kg weight reduction at the 12-week point, also maintained at 12 months in a post-Covid remotely delivered Counterweight-Plus with 132 participants.[71] When comparing obesity mediated T2DM to other serious diseases such as breast cancer and Non-Hodgkin Lymphoma, T2DM has been shown to have the lowest 10-year survival rate of 50%,[72] whereas breast cancer is around 80%[73] and Non-Hodgkin Lymphoma has a rate of 60%.[74] This presents obesity as a much more severe disease than was previously comprehended.[63]

Three challenges around classifying obesity as a disease were presented in the context of health policy. The first challenge indicated consideration of the impact on the individual and the wider society and reflection on the fact that the current government approach has been on prevention. It needs to be understood that classifying obesity as a disease may not impact its overall prevalence and may not contribute to the current government focussing on prevention. However, there is a greater chance of more support for people living with obesity. Examining the international view is crucial as countries like Portugal and Germany are starting to or have gone through this route. It is also beneficial to consider the successful interventions of other countries and settings in general.

Amsterdam, for instance, has outlined a model which has been working.[75] That was done by identifying a common agenda and serious strategic leadership from their political leaders and not battling between prevention and treatment; they agreed that both treatment and prevention are critical.[76] Also, the Amsterdam council has invested in their strategy much more than what is currently spent in the U.K.[75] Through recognising obesity as a disease; an agenda could go around and then focus on a common purpose. The Amsterdam model shows low levels of childhood obesity, with proportionate action against obesity being significant. Due to fragmented systems such as the NHS, PHE (which since October 2021 has officially become the U.K. Health Security Agency-UKHSA), and local authorities, the time has been spent on moving around the system instead of working together. Shared objectives and a joint philosophy must be set so that collaboration can start on clear pathways for people to get the treatment and respect they deserve. Through the creation of clear

plans that get put into action, there would be the opportunity for shared outcomes, shared accountabilities, and shared resources. Ultimately, this could be the stimulus for further investment and effort to achieve the primary objective, which is to see a long-term reduction in levels of obesity.

The second challenge is understanding the wider determinants of obesity. Research has indicated that deprivation and the wider environment can significantly impact health, well-being, and the likelihood of obesity.[66] Although 14 strategies over 25 years have focused on physical exercise and diet, none has worked.[77] These strategies have not addressed some of the deprivations and environmental issues that would have impacted health and wellbeing and the likelihood of obesity. The stigma needs to be understood and addressed, not just within the general population but also within healthcare, and there is currently no policy to address this.

The third challenge would be the implications for society outside of healthcare. Research has shown that individuals have experienced discrimination in the workplace concerning their weight.[78] There was little protection for these individuals who live and work with obesity as the Equality Act 2010 does not cover it.[39] Potentially, recognising obesity as a disease could have implications for workplaces and employees, and this means we will need to think about linked policy areas. This will need to be considered carefully to avoid unintended consequences. There will need to be clarity on the threshold as the definition is still unclear.

Obesity, like every disease, has a partly genetic and partly environmental aetiology.[79] NICE in England and SIGN in Scotland already have huge reports on treating, preventing, and managing obesity.[80,81] What is required is changing the policy. The vectors of obesity, as per Boyd Swinburn, are high energy density/high-calorie foods that are constantly consumed between meals and in an environment that now does not require physical activity.[82] These are the two significant changes in the last two to three generations that have led partly to this epidemic, and the government's approach to tackling sugar consumption is a fraction of what needs to be done.

Policymakers must examine why their 14 strategies[77] over the last 25 years have not been successful from the prevention and treatment perspective. A successful system would reduce obesity rates and promote health equity by taking a system-wide approach that addresses the plethora of drivers that leads to the obesogenic environment, concentrating more on shaping the external influences of the environment rather than relying on the responsibility and behavioural change of the individual. A successful strategy would have policies proposed in a way that could readily lead to effective implementation with an evaluation plan and numerical targets to ensure that. It would also include policies that have not failed in the past. Research shows that many of the policies that have been proposed were similar or exactly the same in multiple strategies over multiple years, often with no reference to having been presented in a previous strategy.[77]

There needs to be a new coalition and new partners where the dialogue is not just among health and social care but where business is also on board. However, although business is critically important, the powerful profit-making food industry has had collateral damage through excess energy consumption and food production. By making healthy food cheaper, we might be able to address obesity equitably.

The question that arises is whether there is a need for more policies such as the sugar tax and the need for punitive taxation versus subsidy (See Table 1). The sugar tax has increased profits for the soft drinks industry because they have replaced sugar with cheaper artificial sweeteners.[83] However, it is not only the tax and food price that will determine if consumers make certain purchases. Food purchases and choices also depend on socioeconomic class and education regarding cooking with fresh ingredients. So, a specific tax will only be efficient if other societal changes back it up.

Issues like obesity can be addressed more holistically and from a whole-system perspective by several organisations with the same goal of improving the health, wealth, and happiness of local people. The genetic/metabolic issues, as well as the poverty and food issues, need to be addressed. An example of a case when the Department of Health started focusing on severe childhood obesity was mentioned, where instead of considering the whole pathway, they provided support for the medical complications of children suffering from obesity.[84] The food industry is prepared to make changes in response to demand, and they have made tremendous changes in some areas, like the trans-fat content, which has been obliterated due to popular demand.[85] They have also responded to government pressure and seem willing to change when there is a future and prospect of profitability, like using particular sweeteners. So, engaging is essential but must be a complete engagement, and one must come to accept the evidence and the popular wish. The problem was not just the food industry but the reduced physical activity too; two vectors of obesity have changed, and it was a two-way approach.

It was added that part of the successful model in Amsterdam was the whole system approach where they engage with the food industry and all stakeholders, which is part of that common purpose. The food industry has to be a key player as it feeds the population and is one part of the energy balance equation. If we are not communicating with the food industry, expecting them to join our agenda is unreasonable.

An example was given with the formulation of a 'healthy' pizza, where the recipe of a pizza used in schools was modified.[86] A version that looked, smelled

and tasted like a pizza was created but contained all the essential micronutrients and only 10% saturated fats. It also passed the test by parents and kids. That reformulation of food is feasible and that once the general public demand a product, the industry will follow. Surprisingly, the pizza industry has not changed the formulation, although the cost was the same.

If the food manufacturers can be convinced to reformulate to healthier foods, then the market can drive this rather than legislation. Legislation is needed to some degree, but there needs to be a balance between legislation and market forces. For the government's actions to be more effective, a larger coalition is required, including not only the food business but also the wellbeing of the workforce perspective as well as a broader agenda. It is essential to recognise the whole system approach and the complexity of obesity which puts it in the hands of various organisations and stakeholders to put their efforts in and benefit from these efforts as well.

Conclusions

The recognition of obesity as a disease could impact individuals and the broader society in different ways. It is important to note that there are many ways in which the definition of obesity could influence not only patients' behavioural change but also the changes in the provision of care. There were different opinions on if and how this recognition would benefit people affected by obesity. However, all speakers agreed on the importance of acknowledging patients' perspectives on this matter and removing the stigma associated with it.

Although it may be difficult to accurately predict what the cost implications of recognising obesity as a disease would be to the NHS and wider economy, a consensus was reached on the fact that the data available is underestimating the actual financial burden of obesity. There needs to be an accurate definition of what constitutes the disease of obesity and prioritisation of treatment, and subsequently, the cost of treating obesity not only for the NHS but society in general.

Countries such as the US, Canada, Japan, Portugal, and Germany have all already recognised obesity as a disease.[87,88] Although there are still gaps in the evidence showing how that affected the prevalence of obesity, significant progress has been made toward access to support services, and it is argued that unless there is a universal recognition to change the perception of obesity as a lifestyle choice, the prevalence is unlikely to be reduced.

It was highlighted that while obesity is often viewed as a single risk factor for other diseases, there are many distinguishable subpopulations living with different types of obesity, including those defined by risks of complications and others by optimal treatment response. Therefore, more research must be conducted to determine their distinguishable features for subsequent risk and response stratification and provide robust data to inform guidelines and economic models.

The policy implications of recognising obesity as a disease, in terms of treatment provision, necessitates the development of new scientific knowledge which will only have value when it changes perceptions and behaviours of people living with obesity, clinicians, regulatory bodies, payment agencies, and industry alike. This new scientific knowledge needs to establish a new narrative, understanding, and vocabulary based on an amalgamation of evidence, including psychosocial factors, public involvement and education. Finally, a consensus was reached by the working group of the 2021 annual ASO conference on the importance of both public health legislation but also the collaboration of the public sector with different stakeholders in a way that allows for a holistic consideration of the impact obesity has in the broader economy and the society, ultimately for the benefit of people living with the disease of obesity.

Contributors

ADM and ML conceptualised the idea, designed and wrote the first draft and edited the manuscript based on co-authors comments. GY, EFa, JO, HP, SLB, EFr, PM, AR, SB, AB, JL, VM, NI, ML, CM, PG, and MB spoke at the conference and contributed to the design, editing and the revision of the final version of the manuscript. KC, GF, SW, NA, GKD, NH, BJ, JM, MO, RLB, and KR contributed to the design, editing and the revision of the final version of the manuscript.

Declaration of interests

All authors declare no competing interests relevant to this conference report.

ADM has received grants or contracts from Fractyl, Novo Nordisk and Randox, and payment or honoraria for lectures, presentations, speakers bureaus, manuscript writing or educational events from Novo Nordisk AstraZeneca, Currax and BI. HP has received grant funding paid to institutions, from Public Health England, the Office for Health Improvement and Disparities, and the National Institute for Health Research; honoraria for educational events from Johnson & Johnson; as well as honoraria for educational materials and accompanying presentations – arms length sponsorship and travel expenses for delivering an educational presentation from Novo Nordisk. She has also had unpaid leadership or fiduciary roles as a British Obesity and Metabolic Surgery Society council member, Obesity Empowerment Network professional steering group co-opted member and NICE weight management guidelines committee member. EFr has received research grants from NIHR (NIHR 152858; NIHR204247; NIHR300773; NIHR133099; NIHR203012; NIHR 13/164/51; RP-PG-0618-20008), and UKRI (BB/V004832/1); Royalties from authorship on an OUP Book from Oxford University Press; travel and accommodation support for attending the UK ASO22 conference from the Association for Study of Obesity, and travel support for attending an NIHR Academy training meeting in London as invited speaker from NIHR. She has also had leadership or fiduciary roles as an Elected Board member for the International Health Economics Association and a Member of NIHR Public Health Research funding panel. SB has received a grant paid to his employer, the Institute for Employment Studies IES, from Novo Nordisk to conduct research on obesity stigma in employment. IES retains full editorial control of all research outputs. AB has received researcher led research support and supported attendance of the Obesity Week/BOMSS 2022 from Novo Nordisk, and researcher led research grants from NIHR/BRC, Rosetrees Trust, MRC, BDA, BBSRC and Innovate UKRI. He has also received personal honoraria for presentations/chairing from Novo

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Appendix A. Supplementary data

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