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PROGRAMME LISTING

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24th September 2024
S01: New drugs, new questions for weight management interventions
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S03: We are being held at a red signal—Barriers to accessing obesity treatments in the UK
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S04: The future of obesity policy: international perspectives (in collaboration with World Health Organization Health sustainable diets)
S04: Future directions in the management of bariatric surgery in the era of new medication
S05: New and Emerging Research in Childhood and Adolescent Obesity

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SYMPOSIA

S01: NEW DRUGS, NEW QUESTIONS FOR WEIGHT MANAGEMENT INTERVENTIONS

S01-01 Now that we have effective medical treatment for obesity, what is the future role for behavioural weight management interventions?

John Wilding

University of Liverpool: Medical treatment for obesity can potentially be transformed by the use of newer medications that can provide effective weight loss for many people. This may lead some to question whether behavioural weight management interventions still a place in have supporting people living with obesity who choose to attempt weight loss. Perhaps the most important point is that all the clinical trials of weight loss medicines have included background therapy that includes behavioural support to help with diet and physical activity, so providing some sort of diet/activity/behavioural support is implicit in the licensing for these treatments and should not be completely neglected. There are however trials that have combined very intensive behavioural treatment with medication, an example being the STEP 3 trial with semaglutide 2.4 mg weekly injections, where all participants had regular behavioural counselling. Although not a direct comparison; the additional weight loss seen with this approach, compared to a much less intensive approach used in the STEP 1 trial only resulted in approximately an additional 1% weight loss (14.9% in STEP 1 vs 16.0% in STEP 3). Conversely, the SELECT cardiovascular outcomes trial and the trials of the GLP1-GIP agonist drug tirzepatide in people with type 2 diabetes did not specifically offer dietary or behavioural support, but nevertheless resulted in clinically relevant weight loss. Hence intensive behavioural support may not be necessary for people taking medication, but this may allow less time to be spent focussing on the challenges of trying to restrict intake, and more time for counselling about making more appropriate dietary choices for the long-term and improving physical activity. Hence medication may allow a refocussing of dietary and activity behavioural counselling that ultimately provides greater benefits for people with obesity who are trying to lose weight and improve long-term health outcomes.

Declarations: None.

S01-02 Quantifying the rate of weight regain following the cessation of medication for weight loss: systematic review and meta-analysis

Sam West[1], Dimitrios A Koutoukidis[1], Jadine Scragg[1], Lia Willis[1], Heather Knight[1], Stella Haffner[1], Paul Aveyard[1], Susan A Jebb[1]

[1]University of Oxford: New and highly effective weight-loss medication is leading to major changes in the treatment of obesity. However, these new treatments are currently only licensed for 2 years with evidence emerging of high rates of earlier discontinuation and subsequent weight regain. We have previously reported weight regain of 0.027 kg per month relative to control, following the end of behavioural interventions for weight loss (Hartmann-Boyce et al, 2021; BMJ). In this systematic review, we aim to quantify the rate of weight regain after the cessation of medication for weight loss (PROSPERO - CRD42024532069). Trial registries, databases and forward citation searching were used to identify studies using weight-loss medication in adults with overweight/obesity. Single arm, non-comparative or randomised trials reporting body weight at baseline, after ≥8 weeks weight-loss medication and ≥4 weeks after cessation of weight-loss medication were eligible for inclusion. Changes in cardiovascular risk factors (e.g., plasma cholesterol, triglycerides, glucose, insulin and blood pressure) were included as secondary outcomes. Two independent reviewers screened abstracts and extracted data. In total, the search identified 8073 results with 37 studies (46 experimental arms) meeting the inclusion criteria. Twenty-nine of these studies are controlled trials comparing weight-loss medication to a non-pharmacological intervention. The mean (SD) length of treatment with weight loss medication was 33 ± 27 weeks with a mean (SD) off-drug follow up of 36 ± 21 weeks. Data will be synthesised and analysed using mixed-effect and meta-regression models where possible. Data for all experimental arms undergoing weight-loss medication will be included in the analysis to calculate the rate of weight regain after medication cessation. Data from controlled trials will then be analysed separately to examine weight regain relative to any non-pharmacological weight loss comparator (placebo, behavioural intervention). We will present the results of the meta-regression of weight change after weight-loss medication ceases and draw comparisons with our previous data following behavioural weight-loss programmes. These results will show us the rate of weight regain following weight-loss medication and provide insight into the factors associated with weight regain such as medication class and initial weight loss.

Declarations: DAK, SAJ, and, PA have reccived donations from Nestle Health Sciences and Oviva to the University of Oxford. JS has Invited speaker at a Nestle health Sciences webinar, for which a personal honorarium was received, is member of Nestle Health Sciences advisory board andinvestigator in a trial where Second Nature is delivering the weight loss intervention.

S01-03 Expanded use of weight-loss drugs and its effect on weight stigma and unconscious bias

Berit Lilienthal Heitmann[1]

[1]University of Copenhagen: The availability of novel effective weight-loss drugs, while offering new hope for obesity treatment, has complex implications for weight stigma and unconscious bias. Healthcare providers may be more likely to recognise obesity as a complex chronic disease, and weight loss might reduce weight stigma for individuals. However, the idea that thinner bodies are more desirable may also be reinforced, potentially deepening societal weight biases rather than alleviating them. Access to effective weight loss medication is currently limited by cost, which may lead to stigma against those who cannot afford treatment and exacerbate existing disparities in healthcare. It could also potentially lead to the marginalisation of non-medical approaches and those who prefer them. Thus, while the new effective weight loss drugs have the potential to reduce stigma by framing conditions as medical issues that can be effectively managed with treatment, access to affordable treatment is crucial for reducing both societal and internalised stigma. This presentation will discuss if reliance on medication for weight management might reinforce or exacerbate obesity-related weight stigma.

Declarations: None

S02: IT'S THE FOOD: EFFECTS OF THE FOOD ENVIRONMENT ON OBESITY AND WAYS WE CHANGE IT

S02-01 It's the Food: Effects of the food environment on obesity and ways we change it

Nika Pajda[1], Caroline Cerny[1], Lauren Bandy[2], Sonia Pombo[3]

[1]Bite Back 2030, [2]University of Oxford, [3]Action on Salt: Bite Back 2030 is a youth campaigning charity working with 50 passionate young activists who want to change the food system to one that protects children's health. The young people have shared their experience of being bombarded by unhealthy food and drink marketing and finding it difficult to access nutritious and affordable options. The aims of the research were to support their insights with evidence. In 2024, Bite Back launched a series of research on the top 10 food and drink manufacturers operating in the UK. Bite Back worked with researchers at the University of Oxford to identify how reliant the manufacturers are on sales of unhealthy food and drinks. The analysis found that for seven of the ten businesses, in 2022, more than two-thirds of their packaged food and drink sales came from products that are classed as high in fat, sugar or salt (HFSS) and therefore unhealthy. A second study with nutritionists at Action on Salt identified how many of the manufacturers' products that use child-appealing packaging are unhealthy. Of 262 food products with child-appealing packaging—including crisps, cereals, ice cream and confectionery—78% (204) were classed as unhealthy. Bite Back also analysed Nielsen Ad Intel advertising spend data and found that in 2022, all food manufacturers in the UK spent £55 million on online adverts for food and drink products from four food categories that are associated with children's excess sugar and calorie intake (biscuits, chocolate, crisps and ice cream). Bite Back's youth activists responded to the research findings, and shared examples of how they have been marketed to by the manufacturers. The research adds to the evidence base showing the effects of the food environment on young people.

Declarations: None

S02-02 Inequalities in food environments—exploring social patterns of exposure and equitable health promotion strategies

Frances Hillier-Brown[1]

[1]Population Health Sciences Institute, Newcastle University: Food environments are socially patterned and people living in more deprived areas are substantially more likely to be at risk of both obesity and poor food environments. In this talk I will present data demonstrating these relationships, with consideration of physical and virtual environments, including food advertising exposure. I will also explore current health promotion approaches aimed at improving food environments and how these might affect social groups in different ways. Theoretical mechanisms and effectiveness evidence will be discussed, highlighting gaps in the

current evidence base and ideas on where future research might be focused.

Declarations: None

S02-03 Can menu characteristics be used to predict calories ordered from food outlets?

Amy Finlay[1], Yuru Huang[2], Jean Adams[2], Andrew Jones[3], Eric Robinson[1]

[1]University of Liverpool, [2]University of Cambridge [3]Liverpool John Moores University: Greater consumption of food prepared outside of the home (OOH) is associated with poorer dietary quality and poorer health outcomes, particularly for individuals of a lower socioeconomic position (SEP). Strategies are needed to make eating OOH food less harmful to health. It is possible that the characteristics of food menus may nudge consumers toward unhealthy choices. Therefore, identifying any menu characteristics that contribute to higher energy consumption in the OOH food sector could inform future guidance and aid the characterisation of OOH outlets by their relative healthiness. Consumers (N = 1557) were asked to recall their food orders upon exiting a range of OOH outlets in England. Receipts were collected where possible to verify recall. For each outlet where purchases were made, a universal health rating score was calculated based on menu characteristics scraped from JustEat (i.e., mentions of chips, water and milk, number of desserts, number of unique vegetables). A deep learning model was used to create outlet healthiness scores based on the outlet name. Robust linear regression models clustered by outlet were used to identify whether the two scores, as well as individual menu characteristics were associated with calories purchased or consumed. Interactions with participant SEP and outlet type were also explored. Deep-learning scores but not universal health rating scores were negatively associated with calories purchased and consumed from OOH outlets in England. Therefore, as deep-learning scores increased (i.e., outlets were scored as healthier), calories purchased (95% CI −118.72 to −25.12) and consumed (95% CI −108.49 to −20.37) decreased. No menu characteristics from the universal health rating score were significant predictors of calories purchased or consumed. However, when a collinear predictor (outlet type) was removed, the number of mentions of chips on the menu was associated with both calories purchased and consumed. A random forest model was used to determine whether a range of menu characteristics (i.e., those above plus presence of menu items over 1345kcal and 2000kcal, the proportion of menu items under 600kcal and proportion of beverages over 100 kcal) could be used together to predict calories consumed.

Declarations: ER has previously received research funding from Unilever and the American Beverage Association for unrelated research projects.

S02- 04 How well is the industry responding to the UK Government's food policies? Findings from multiple cross-sectional studies

Lauren Bandy[1], Mike Rayner[1], Peter Scarborough[1], Susan Jebb[1]

[1]University of Oxford: Diet-related ill health is a pressing public health challenge. In an effort to encourage food manufacturers to improve the nutritional quality of everyday products sold in supermarkets, the UK Government has published a series of voluntary, category-specific reformulation targets for calories, sugar and salt. In order to monitor changes to food manufacturers product portfolios over time, we combined nutrition composition data for individual products collected from supermarket websites with brand-level sales data from market research company Euromonitor International. Our results show that between 2015 and 2018 the sales-weighted mean sugar content of all included foods fell by 5.2% (95% CI − 9.4%, −1.4%), from 28.7 g/100 g (95% CI 27.2, 30.4) to 27.2 g/100 g (95% CI 25.8, 28.4). There was great heterogeneity between categories and brands, with the largest reductions seen in yoghurts and breakfast cereals, with only small reductions in sugar and chocolate confectionery. These changes equated to a 7.5% reduction in the total volume of sugars sold from these categories, from 21.4 g/person/day to 19.7 g/person/day. The story was similar for salt, with great heterogeneity between categories and companies and overall mean salt content of packaged foods falling by 0.05 g/100 g, from 1.04 g/100 g in 2015 to 0.90 g/100 g in 2020, equivalent to −4.2% (p = 0.13). Looking at the product portfolios of the global top 20 companies in the UK, only 11% of their sales passed the WHO European nutrient profile model in 2022, which is used to determine if a product can be marketed to children. This meant for every £10 spent on these companies' products, only £1.10 was on "healthier" foods, with the majority of sales coming from "unhealthy" categories including confectionery, ice cream savoury snacks and soft drinks. These results suggest that the current voluntary approach to reformulation has led to small changes over relatively long periods of time, and other policies are needed if we are to see any significant improvement in the prevalence of diet-related diseases in the UK.

Declarations: None

S02-05 Opportunities for policy interventions—can nutrient warning labels improve diet and reduce obesity?

Rebecca Evans[1], Natasha Clarke[2], Zoe Colombet[1], Jennifer Falbe[3], Amy Finlay[1], Martin O'Flaherty[1], Eric Robinson[1]

[1]University of Liverpool, [2]Bath Spa University, [3]University of California Davis: There are some food products that can be detrimental to health when over-consumed, due to their excessive energy and/or nutrient of concern (e.g., salt, sugar, saturated fat) content. For example, there are foods which contain more than half, or even an entire day's worth of energy or nutrients of concern. Despite this, there are no population-level policies that address 'excessive' foods in the UK. One approach that has been legislated in parts of the Americas is the use of 'high in' labels; nutrient warning labels used to communicate that a food product or meal contains a 'high' amount of energy or nutrient of concern. These policies have demonstrated positive results in terms of improving diet. For example, post-implementation of nutrient warning labels on packaged products in Chile, population-level reductions in the purchase of energy and nutrients of concern have been observed, as well as reformulation of products to reduce energy and nutrient of concern content. Adoption in the UK is plausible, but yet to be examined. We first conducted a modelling study to examine the potential impact on national obesity prevalence of a new policy making nutrient warning labels mandatory on packaged food. Relative to the current traffic light labelling system, a mandatory nutrient warning labelling policy was estimated to reduce obesity prevalence. Next, we tested the impact of four nutrient warning labels (design informed by public consultation) on (i) perceived message effectiveness and (ii) hypothetical food choice in UK consumers. Participants (n = 2500, representative of the UK population) were assigned to one of five trial groups (four different nutrient warning labels and a control label). They completed three product choice tasks, three menu choice tasks, and a label rating task. Relative to the control label, all warning labels (i) were rated as more effective in terms of discouraging intake, (ii) reduced the% of labelled items selected and (iii) reduced nutrient of interest ordered. Findings suggest that nutrient warning labels could be used in a UK context to improve population-level diet and obesity.

Declarations: None

S02-06 Effects of HFSS value promotion intervention on calories purchased in an online supermarket

Ru Jia[1], Madison Luick[1], Darren Hilliard[2], Frances Bain[2], Hugo Harper[2], Ailidh Finlayson[3], Steve Human[3], Benji Horwell[3], Elena Meyer zu Brickwedde[3], Jordan Whitwell-Mak[3], Giulia Tagliaferri[3], Bobby Stuijfzand[3], Filippo Bianchi[3], Lauren Bandy[1], Rachel Pechey[1]

[1]University of Oxford, [2]Nesta, [3]Behavioural Insights Team: Consumption of foods high in fat, sugar, and salt (HFSS) is a known contributor to obesity, and other diet-related non-communicable diseases. Price promotions significantly increase the quantity of food and drink selected, and are largely applied to HFSS. While policy interventions such as removing price promotions for HFSS are of interest, there might be challenges implementing such interventions. This study aims to provide evidence on potential effectiveness of an alternative policy approach: allowing price promotions of HFSS products but restricting the communications of these promotions to consumers (e.g., removal of signage that alerts consumers about the reduced price of these products). 9004 participants (≥18 years) representative of the UK adult population with regard to age, gender, income, location and BMI took part in a between-subjects randomised controlled trial. Participants were randomised to complete a grocery shop at a simulated online supermarket where HFSS products were displayed: (1) without promotional price changes or promotion communication; (2) with price changes but without communication; (3) with price changes and communication. Participants selected food and drinks to cater for 2 days, without restrictions on the number of items to purchase or the overall budget. Outcome measures included energy (kcal) in basket, price of basket, number of items in basket, energy density (kcal/100g) of basket, and proportion of basket that was HFSS. Participants in the no promotions or communications group selected 11 items and 10,087 kcal on average. There were no significant differences in energy in baskets between groups, after controlling for demographic factors such as age, gender, household income, ethnicity, and deprivation. No significant differences between groups were found for price of basket, energy density of basket, or proportion of basket that was HFSS. There was a significant decrease in the number of items in the no promotion group compared to the price changes & communication group (estimated effect = −0.02, 95%CI: −0.04, −0.01, p = 0.003). Removing communications regarding temporary price promotions, or removing price promotions entirely, largely did not alter purchasing behaviours in a simulated online supermarket. Further price and communication-based interventions in real-world settings are needed to provide policy recommendations.

Declarations: None

S03: WE ARE BEING HELD AT A RED SIGNAL—BARRIERS TO ACCESSING OBESITY TREATMENTS IN THE UK

S03-01 Liraglutide 3.0 mg in the treatment of adults with obesity and prediabetes using real-world UK data: a clinical evaluation of a multi-ethnic population

Laurence J Dobbie[1], Claudia Coelho[1], Farah Mgaieth[1], Keisha Chauhan[1], Scott Campbell[1], Sumaya Shuriye[1], Joanna Hollington[1], Sarah Appleton[1], Piya Sen Gupta[1], Alastair Duncan[1], Barbara McGowan[1]

[1]Guy's and St Thomas' NHS Foundation Trust: UK guidelines recommend liraglutide 3.0 mg in adults treated within specialist weight management services with BMI ≥ 35 kg/m^2, prediabetes and high cardiovascular disease risk. There is limited real-world data evaluating the efficacy of liraglutide 3.0 mg in those with obesity and prediabetes of various ethnicities. We aimed to determine the effectiveness of liraglutide 3.0 mg in the Tier 3 South-East London Healthy Weight Programme and Tier 4 service at Guys and St Thomas' NHS Foundation Trust. We analysed patients on an obesity pharmacotherapy pathway over 22 months (1 July 2021–1 May 2023) from South East London. This was a prospective analysis of all patients referred to the pathway. Objective body weight (BW) was measured at baseline and 4 months, allowing classification as 'responders' (≥5% BW reduction) and 'non-responders' (<5% BW reduction). Baseline demographics were summarised as mean ± SD for parametric data and median with interquartile range (IQR) for nonparametric data. One hundred and twenty-one patients were evaluated. On average, they were 50 ± 11 years old and 84% were female. 44% were of white ethnicity, 36% of Black African and Caribbean Ethnicity, with a median multiple deprivation index of 3 (IQR: 2–5). At 4 months, 76% attended follow-up (83% responders, 17% non-responders); BW (−8.6 kg, 95%CI: −9.8, −7.4 kg), BMI (−3.2 kg/m^2, 95%CI: −3.6, −2.8) and%-BW (−6.6%, IQR: −8.8%, −5.2%) significantly reduced. In responders, HbA1c reduced by −5.0 mmol/mol (IQR: −7.0. −4.0 mmol/mol). In responders BW continued to reduce up to 12 months (4 m: −10.2 kg, p < 0.0001; 6 m: −15.6 kg, p < 0.0001; 9 m: −16.5 kg, p < 0.0001; 12 m: −16.7 kg, p < 0.01). Those of Black African and Caribbean ethnicity experienced less BW loss than those of white ethnicity (4.12 kg, p = 0.017) and had a greater attrition rate. In adults with obesity and prediabetes who are treated within specialist weight management services, liraglutide 3.0 mg reduces BW and HbA1c. Those of Black African and Caribbean ethnicity experienced less BW reduction and greater attrition at 4 months. Further evaluation of the ethnic differences in response to obesity pharmacotherapy is required.

Declarations: CC has received honorarium for support to attend meetings from Novo Nordisk. BM is a share-holder in Reset Health and also performs Advisory and educational work for Novonordisk and Advisory work for Lilly, Pfizer and Johnson & Johnson. All other authors do not declare any conflicts of interest.

S03-02 Please check the arrivals board for the latest information—a survey of obesity pharmacotherapy provision across the UK

Luke Boyle[1], Christo Albor[2], Oluwaseun Anyiam[3], Sarah Le Brocq[4]

[1]Guys & St Thomas NHS Foundation Trust [2]Kings College London, [3]University Hospital Derby, [4]All About Obesity: There is a wide variation in access to obesity services across the UK including a lack of Tier 2, Tier 3 and Tier 4 weight management services in some areas. Access to obesity treatments including diet and lifestyle, medications and bariatric surgery is linked to being able to access appropriate weight management services. With the introduction of newly approved pharmacotherapy for obesity, we aim to 1. Shed light on the existing disparities in the availability and distribution of approved obesity pharmacotherapy across diverse regions, 2. Provide an interactive tool to enhance transparency regarding obesity pharmacotherapy access. A national survey, conducted by All About Obesity CIC in partnership with the Royal College of Physicians' obesity fellows programme is being conducted to reveal the current status of obesity pharmacotherapy provision throughout the UK. The comprehensive survey is currently underway across the 42 Integrated Care Systems (ICS) to identify the presence of Tier 3 weight management services within the National Health Service (NHS). The questions in the survey seek to examine the nature of existing services, their features, and the extent of accessibility to new

obesity pharmacotherapy treatments. By the survey response completion in June 2024, the gathered data will be synthesised and translated into an interactive map. This tool will enable individuals to conduct a postcode search to discern the types of services offered and the level of accessibility within their local communities as well as providing valuable insights to stakeholders within the healthcare system.

Declarations: None

S03-03 We should be on the move shortly—prioritisation proposal for obesity pharmacotherapy

Kath McCullough[1]

[1]Royal Surrey Hospital, [1]Royal College of Physicians Advisor for Obesity: Demand for medical therapies for obesity continues to rise with further drugs in development. Currently, the National Institute for Health and Care Excellence (NICE) recommends GLP-1 analogues liraglutide and semaglutide in weight management settings. Tirzepatide is likely to be approved shortly and provision of these therapies has caused significant challenges for weight management services in terms of meeting demand and the capacity to deliver given the resources available. Due to global demand, GLP-1 analogues which historically have been predominantly used in type 2 diabetes mellitus, have become subject to a National Patient Safety Alert discouraging new prescriptions until at least the end of 2024. Challenges to equitable access will be discussed including provision of weight management services in England and the impact these new obesity therapies have had on commissioning, service re-design and access for patients living with obesity. This talk presents a proposal for phasing in of therapies developed for weight loss and their potential role in primary and secondary care. The evidence underpinning these recommendations will be discussed with focus on clinical need and risk evaluation whilst balancing resources available.

Declarations: KM declares previous honorarium for conference/workshop presentations on behalf of Novonordisk and Sanofi.

S03-4 This train has been delayed—characterisation of a bariatric/metabolic surgery waiting list at a tertiary NHS centre for obesity: opportunities for risk stratification

Luke D. Boyle[1], *Bader Ebrahim*[1], *Khalid Alsadhan*[1], *Claudia Coelho*[1], *Francesco Rubino*[2], *Barbara McGowan*[1], *Piya Sen Gupta*[1]

[1]Guy's and St Thomas' NHS Foundation Trust [2]King's College Hospital NHS Foundation Trust: Recovery of elective care continues post-pandemic, but waiting times for bariatric/metabolic surgery remain long. We aimed to characterise patients awaiting bariatric/metabolic surgery in order to identify those in greatest clinical need and to inform local business planning decisions.We undertook virtual case note reviews for South East London based patients who were active on the waiting list for bariatric/metabolic surgery in January 2024. We reviewed demographic data, waiting time already elapsed and clinical features including obesity-related co-morbidities by using the King's Obesity Staging (KOS) Criteria. KOS is a validated staging score and clinical tool for the systematic assessment of patients with complex obesity. Data are number of patients (%) or mean ± SEM. Of 274 patients on the bariatric/metabolic surgery waiting list, 139 (50.7%) were local to South East London. They were aged 47 (1.0) years and 114 (80%) were female. 48 (34.5%) were of a Black/Afro-Caribbean background, 44 (31.7%) White British and the remainder from another ethnic background. Their BMI was 49.8 (0.8) kg/m^2 and KOS score 9 (0.4). Of the 81 (58.3%) with OSA, 38 (27.3%) are on CPAP and 4 (2.9%) had a formal diagnosis of obesity hypoventilation syndrome. 64 (46%) had either prediabetes or T2DM, 63 (45.3%) had hypertension and 51 (36.7%) a diagnosed mental health disorder. 15 (10.8%) had PCOS, surgery for a life-limiting condition was planned for 15 (10.8%) and 6 (4.3%) had an active cancer. Their waiting time from date of referral was 87 (6.6) weeks and during this time 9 patients (6.5%) had attended A&E (for any reason), with 12 (8.6%) requiring an inpatient admission. Patients awaiting bariatric/metabolic surgery are high acuity and thus can ill afford to wait extended periods for surgical intervention. This evaluation has enabled our MDT to identify patients who would benefit from pharmacotherapy in preparation for surgery. The prevalence of anxiety and depression in this cohort is likely to be further exacerbated by long waits for treatment. Urgent consideration must be given to prioritising surgery flow, allocation of additional resources to expand service capacity, and to the role of pharmacotherapy in this clinical context.

Declarations: BM is a Reset Health shareholder, Advisor to Novo Nordisk, Eli Lilly and Pfizer and has received educational and speaker fees from Novo Nordisk, Eli Lilly and Amgen and research grants from Novo Nordisk. FR has reccived research/educational grants—Novo Nordisk, Ethicon, Medtronic, consulting/scientific adivsory board fees from Morphic Medical, GT, Metabolic Solutions, Keyron. And speaking honoraria from Medtronic, Ethicon, Novo Nordisk, Eli Lilly.

S03- 05 The destination has changed—European Recommendations from Health Care Professionals and People Living with Obesity on Safe Practice for Bariatric and Metabolic Surgery Medical Tourism: A Modified Delphi Consensus Statement from EASO, IFSO-EC and ECPO

Laurence J Dobbie[1], *Ralph Peterli*[2], *Susie Birney*[3], *Cathy Breen*[4], *Sheree Bryant*[5], *Ken Clare*[6], *Andreea Ciudin*[7], *Daniel Moritz Felsenreich*[8], *Jason C G Halford*[9], *Helen Heneghan*[10], *Nicola Di Lorenzo*[11], *Vicki Mooney*[5], *Chetan Parmar*[12], *Jean O'Connell*[4], *Grace O'Malley*[13], *Euan Woodward*[5], *Volkan D Yumuk*[14], *Barbara McGowan*[15], *BMT Consensus Group*[5]

[1]King's College London, [2]St. Clara Hospital and University Hospital, [3]Irish Coalition for People Living with Obesity (ICPO), [4]St Columcille's and St Vincent's University Hospitals, [5]European Association for the Study of Obesity, [6]Obesity UK, [7]Vall d'Hebron University Hospital, Universitat Autonoma de Barcelona, [8]Vienna Medical University, [9]University of Leeds, [10]St Vincent's University Hospital and University College Dublin[11]University of Rome "Tor Vergata", [12]Whittington Hospital, [13]Child and Adolescent Obesity Service, Children's Health Ireland at Temple Street, [14]Istanbul University-Cerrahpaşa, [15]Guy's and St Thomas' NHS Foundation Trust: Bariatric and metabolic surgery tourism (BMT) is becoming an increasingly popular route to treatment for patients living with obesity. Recent reports have highlighted that some patients travelling abroad for bariatric surgery have received inadequate care, fraudulent care, and, tragically, some cases have resulted in death. This study aimed to define consensus in Europe regarding safe practice in relation to BMT. The International Federation for the Surgery of Obesity and Metabolic Disorders, European Chapter (IFSO-EC), the European Association for the Study of Obesity (EASO), and the European Coalition for People Living with Obesity (ECPO) initiated a task force to delineate safe practice in BMT. Two expert European panels were convened, one of healthcare professionals (identified from EASO and IFSO-EC) and the other of patient representatives (identified from ECPO). The study utilised a modified Delphi consensus methodology and 135 questions were administered. Surveys were conducted anonymously online, and consensus was defined as ≥70% agreement. Themes analysed regarding BMT included: regulation, pre-operative evaluation, operative care, post-operative care, advertising and online information. One

hundred and nineteen healthcare professionals and 88 patient representatives took part from 24 countries. The healthcare professional panel included 66 bariatric surgeons (55.5%), 28 endocrinologists (23.5%), 18 dietitians (15.1%), 3 nurses (2.5%), 2 psychologists (1.7%), 1 general practitioner (0.8%) and 1 gastroenterologist (0.8%). Three questionnaire rounds were conducted for the healthcare professional panel and two questionnaire rounds were conducted for the patient representative panel. Consensus recommendations were given across all themes relevant to BMT. These included the need for the evaluation and management of psychological health, sleep apnoea, cardiovascular disease, liver health and for dietetic assessment. The recommendations covered the requirements for regulatory standards, including surgeon accreditation and procedural volume. They also included recommendations regarding patient education, standardised operative care, the provision of online information and follow-up. Through collaboration with healthcare professionals and patients living with obesity, we provide European recommendations regarding safe practice in relation to BMT. Further evaluation is required regarding outcomes following BMT. This data, alongside the Delphi consensus recommendations, will inform BMT clinical guideline development.

Declarations: VDK has served on advisory boards for Eli Lilly and Novo Nordisk. BM is a shareholder in Reset Health and also performs Advisory and educational work for Novo Nordisk and Advisory work for Lilly, Pfizer and Johnson & Johnson. KC is on the patient advisory board for Novo Nordisk, Boehringer Ingelheim and has consulting fees from Eli Lilly. He also declares lecture fees from Apollo Endo Surgery, Novo Nordisk and I&J Ethicon. KC is chair of ECPO, WLSinfo charity and director of Operations of Obesity UK.

S03-06 If you see something that doesn't look right, 'See it, Say it'—Tackling Obesity Stigma

Francesco Rubino[1]

[1]King's Health Partners Academic Health Science Centre: People with obesity face increased risk of serious medical complications and also a pervasive, resilient form of social stigma. Perceived—without evidence—as lazy, gluttonous, lacking will power and self-discipline, individuals suffering from obesity are often discriminated against in the workplace, education, and even by healthcare professionals. Extensive research has shown that obesity stigma can cause significant harm to afflicted individuals, including both physical and psychological consequences, and people with obesity are less likely to seek and receive adequate care. The damaging consequences of obesity stigma, however, extend beyond harm to individual victims. Despite scientific evidence to the contrary, the prevailing view in society is that obesity is a choice: a condition, rather than a disease, that can be reversed by voluntary decisions to eat less and exercise more. These assumptions mislead public health policies, confuse messages in popular media, undermine access to evidence-based treatments, and compromise advances in research. For all of the reasons above, tackling stigma is not only a matter of human rights and social justice but also a way to advance prevention and treatment of obesity and associated metabolic diseases. To begin to address this issue, a large group of international experts and scientific organisations have participated in a 2019 international consensus conference aimed at appraising the evidence of the causes and consequences of weight stigma. The resulting consensus statement and related pledge to eliminate weight stigma (www.pledge2endobesitystigma.org) were published in Nature Medicine in March 2020. These statements call on academic institutions and professional organisations to support educational initiatives aimed at eradicating weight bias through dissemination of current knowledge of obesity and body weight regulation. This programme discusses the role of educational initiatives specifically designed to tackle the stigma of obesity in UK. In accordance with recommendations from the international consensus statement, initiatives should be designed to raise awareness of the prevalence and consequences of weight bias and explain how the gap between current science of body weight regulation and the conventional narrative of obesity, built around unproven assumptions of personal responsibility and other misconceptions, contribute to fuel weight bias and stigma of obesity.

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S04: THE FUTURE OF OBESITY POLICY: INTERNATIONAL PERSPECTIVES (IN COLLABORATION WITH WORLD HEALTH ORGANIZATION HEALTH SUSTAINABLE DIETS)

S04-01 Data, methods and initiatives to monitor the progress of the food industry to nutrition policies globally

Lauren Bandy[1]*, Mike Rayner*[1]*, Susan Jebb*[1]

[1]University of Oxford: Nutrition-related policies are key to reducing the prevalence of diet-related disease. In order to be effective, policies should be based on high quality, robust and up-to-date evidence. Third-party sources of nutrition composition and food sales data have the potential to be used to monitor policies, although their uses and applications are less well understood. We present the results of a systematic review and WHO technical guide that outline the main sources of commercial food sales and nutrition composition data, their data collection methods and strengths and limitations. We then present the findings of two case studies; one that assessed the sales-weighted mean salt content of packaged foods in the UK in relation to the Government's salt reduction targets. It found great heterogeneity between categories and brands, with the sales-weighted mean salt content of included foods falling by just 0.05 g/100 g between 2015 and 2020. The second case study looks at how third-party data can be used to quantify the proportion of sales from global food and beverage companies that are derived from unhealthy foods to support global health and non-governmental organisations determine which companies might be considered high-risk when it comes to sponsorship, partnership and engagement opportunities. We analysed 35,550 products belonging to 1294 brands manufactured by the top 20 global food and soft drink companies in seven countries (Australia, Brazil, China, India, South Africa, UK and USA). Overall, 89% of the top 20 companies' brand sales failed the WHO European Nutrient Profile Model and were classed as 'unhealthy'. For every $10 spent on these products, only $1.10 was spent on products considered 'healthier'. These case studies demonstrate how third-party data can be used by both researchers and policymakers to monitor and evaluate how the food industry is responding to health-related policies and targets, and can help identify opportunities for policy development.

Declarations: None

S04-02 Diet and Obesity Policy in England

Tazeem Bhatia[1]

[1]Office of Health Improvement and Disparities, Department of Health and Social Care: One in three children leaving primary school and two thirds of adults in England are living with

overweight or obesity, with higher rates in more deprived communities. Our National Diet and Nutrition Survey shows that most people do not meet UK dietary recommendations. Poor diet and excess weight increase the risk of many cancers, type 2 diabetes, dementia, mental ill health, musculoskeletal disorders and cardiovascular and chronic respiratory diseases. Together these non-communicable diseases account for 60% of total disability adjusted life years lost to early death or ill health in England, and 1 in 4 adults has at least 2 (multi-morbidity). This presentation considers how evidence informs health improvement policy and how we work with and learn from our International partners. UK Government dietary recommendations, based on independent risk assessment and advice from the Scientific Advisory Committee on Nutrition, are encapsulated in the national food model, the Eatwell Guide. A wide range of policies are required to achieve these population dietary recommendations, from policies that encourage healthier food choice, such as labelling and public procurement standards to those that minimise the impact of the less healthy choice such as calorie, sugar and salt reduction and reformulation. The evidence on what works and what combination of structural and behavioural interventions is necessary to reverse current trends is evolving. In addition to policies that improve the food environment, those living with overweight or obesity benefit from services to support them to achieve a healthier weight and an enabling food environment to maintain it. The National Institute for Health and Care Excellence provides health, social care and public health practitioners with evidence-based obesity prevention and management guidance, including for the new obesity drugs. Given the role nutrition and excess weight play in the onset, prognosis and quality of life for those living with one or more of the non-communicable diseases, there are huge gains from even small dietary improvements.

Declarations: None

S04-03 Nutrient Profile Models: policy applications and developments

Margarida Bica[1], Jessica Renzella[1], Asha Kaur[1], Holly Rippin[2], Clare Farrand[2], Kremlin Wickramasinghe[2], Mike Rayner[1]

[1]University of Oxford [2]Special Initiative on NCDs and Innovation, World Health Organization Regional Office for Europe: Nutrient profiling is "the science of classifying or ranking foods according to their nutritional composition for reasons related to preventing disease and promoting health". Nutrient profiling has been increasingly recognised by authoritative bodies for its fundamental role in underpinning nutrition-related policies, such as restrictions on marketing to children, taxation and front-of-pack nutrition labelling (FOPNL). In 2023, the World Health Organization (WHO) Regional Office for Europe updated its nutrient profile model (NPM) for restrictions on marketing to children, first published in 2015, following the lessons learnt during the adaption of the 2015 model by European Member-States and other WHO Regional Offices. The process of update followed an expert meeting held in September 2021 by the WHO Regional Office for Europe and the work of the European Union's Joint Action - Best-ReMaP. The draft-updated model was tested by 13 Member States of the European Region, mostly partners of Best-ReMaP, to compare the performance of the old and updated models and to identify any practical issues in the application of the new model. Following these developments, Member-States have asked the WHO Regional Office for Europe for support in developing appropriate NPMs for FOPNL. Food labelling policies can improve population health by encouraging healthier dietary choices, influencing food availability by encouraging food producers to develop new healthier products, and encouraging reformulation of existing products. A new project—a collaboration between the WHO Regional Office for Europe and the University of Oxford - aims to develop NPMs that can underpin different formats of FOPNL. We have conducted a systematic review to identify all NPMs developed and/or used for FOPNL, to assist with the selection of appropriate NPMs for FOPNL. This systematic review has revealed significant heterogeneity in the NPMs underlying FOPNL, indicating there is a lack of consensus on what constitutes the most appropriate model and reinforcing the need for more guidance and regional alignment.

Declarations: None

S04-04 Food taxes for healthy eating

Franco Sassi[1]

[1]Imperial College Business School: Major health and environmental impacts of food consumption and production make diet improvement a priority goal for public policies. Taxes on sugar-sweetened beverages, adopted widely throughout the globe, and health taxes on food applied in a smaller number of countries show the potential for fiscal policies to improve nutrition and health. Among the countries that have applied health taxes on food, perhaps the most prominent examples are Colombia, Hungary and Mexico. Most countries already apply taxes on food, often at different rates on different foods, but these taxes are poorly aligned with health or environmental sustainability goals. Fiscal incentives for healthy eating can be created without increasing the overall tax burden on food and overall food prices, and sometimes without introducing new taxes. Pursuing health objectives in food taxation means aligning fiscal incentives, and ultimately the relative prices of different foods, to their nutritional quality, incentivising healthier food choices and reformulation by food manufacturers. Subsidies on healthy foods, possibly in the form of tax reductions, can increase the nutrition and health benefits of food taxes. Rather than targeting a single nutrient or category of products, health taxes on food should rely on a measure of the overall nutritional quality of foods, such as a suitable nutrient profile model, to prevent unwarranted food substitutions and reformulations. Health taxes on food need appropriate design, implementation, and monitoring in order to achieve their goals without increasing tax burden and administrative costs. Any plan to introduce health taxes on food should start from an assessment of food taxes already in place, including the mapping of food tax burden to different types of food products, by nutritional quality and, where relevant, place of production and consumption. A more detailed assessment would follow of the type(s) of taxes currently applied to food, the extent to which they can be modified, and the possible need for new taxes to complement existing ones.

Declarations: None

S04-05 Reducing overweight and obesity in the WHO European Region to reduce premature mortality from noncommunicable diseases

Julianne Williams[1], Stephen Whiting[1], Kremlin Wickramasinghe[1]

[1]Special initiative on NCDs and innovation, World Health Organization Regional Office for Europe: Obesity and overweight are leading causes of premature mortality, morbidity, and disability in the WHO European Region. One in three school children and 60% of adults are living with overweight or obesity, and levels continue to rise. Level of childhood obesity in many countries rose following the COVID-19 pandemic. Halting the rise in obesity is one of the nine global indicators related to SDG Target 3.4, aiming to reduce by one-third the prevalence of premature mortality in the region. A comprehensive strategy for

obesity must include national obesity surveillance initiatives among children, adolescents, and adults to define the problem, set the agenda, and monitor and evaluate progress. Policies to create healthier food and physical activity environments for the prevention of obesity and to support countries in ensuring effective obesity management services as part of universal health coverage are essential. The benefits of healthy diets and physical activity extend into many other arenas. For example, adhering to WHO nutrition guidelines not only helps combat obesity but also reduces hypertension and contribute to sustainable food systems. Physical activity can enhance social integration and contribute to the climate agenda. The discussion around a comprehensive approach to halting the rise in obesity is complicated by a lack of evidence of country-level initiatives that have successfully reduced population-wide levels of overweight and obesity. It is important that governments continue to implement policies to ensure population-level approaches to obesity prevention and control—particularly by tackling obesogenic food environments and the commercial enterprises that promote them, continuing to remember the benefits that these interventions can have beyond reducing obesity. Governments have a responsibility to implement policies that increase the availability and affordability of fruits and vegetables, promote, protect, and support breastfeeding, restrict the marketing of unhealthy products, tax unhealthy products, provide front-of-pack food labelling, and create environments and opportunities for people to be active where they live, work, and play. The WHO European Regional Office aims to highlight the successes, challenges, and opportunities that countries face in their efforts to adopt comprehensive and effective obesity policies, to facilitate the sharing of best practices.

Declarations: None

S05: BARIATRIC SURGERY—FUTURE DIRECTIONS IN THE MANAGEMENT OF BARIATRIC SURGERY IN THE ERA OF NEW MEDICATION

S05-01 Nutrition evaluation and lifestyle intervention: outcomes and challenges

Mary O'Kane[1]

[1]Leeds Teaching Hospitals NHS Trust: Metabolic and bariatric surgery is an effective treatment option for people living with severe obesity, resulting in an improvement in obesity related co-morbidities. All procedures impact on nutritional intake, and many will affect the absorption of micronutrients. Careful assessment, preparation and support both before and after surgery are essential. Although achieving weight loss is important, an holistic approach is needed to prevent malnutrition, including sarcopenic obesity, and improve quality of life. Food preferences often remain the same after surgery; however, research suggests that there is individual variability, and those with positive changes in food preferences in the early postoperative period have a greater weight loss. Although surgery may help improve satiety, emotional eating may continue, with people continuing to graze after surgery, or replace binge eating with grazing. Eating regular meals, not eating past fullness and not grazing are associated with better weight loss outcomes and maintenance. A good nutritional intake with supplementation with vitamin and mineral supplements, reduction in sedentary behaviour and increasing physical activity, and regular monitoring are essential components in supporting the patient to achieve good outcomes. The introduction of new obesity management medications opens further treatment options for people living with obesity. Lessons learned from metabolic and bariatric surgery, and how these may apply to this population, will be discussed in this presentation.

Declarations: None

S05-02 Culinary Medicine: Back to the basics looking for a better future after bariatric surgery

Violeta Moizé

Hospital Clínic de Barcelona: Healthcare faces a significant challenge: the rising prevalence of chronic diseases influenced by dietary factors like obesity, cardiovascular diseases, cancer, hypertension, diabetes or osteoporosis. Thus, good nutrition is increasingly recognised as a critical tool for preventing non-communicable disease and all kinds of healthcare professionals (HCP) are expected to bridge dietary advice and disease management. However, it is well-know that they often face this challenge with insufficient skills, confidence, and time to deliver this care. It is documented that the share of home-cooked food in the diet of UK households as well as in the rest of the world, declined from the 1980. A worldwide trend shows the increase in the consumption of ready-to-eat or processed foods has been linked to adverse health outcomes, such as obesity, as well as to negative impacts on cognitive outcomes, particularly amongst children. Home cooking could be a powerful tool to reverse this trend since it is associated with better diet quality and help to embrace sustainability and reduce your environmental impact. Malnutrition-related disorders adversely impact social interactions, family caregiving, mood, sleep, cognitive and physical functions, sense of self, and overall quality of life. Nutritional care is increasingly recognised as a pivotal tool for enhancing people living with obesity's (PLwO) experience. Culinary medicine (CM), an evidence- based approach that integrates cooking skills with medical knowledge, empowers HCP to gradually integrate tools that favour progressive changes into PLwO's daily routines, and assisting them to fostering sustainable, health-conscious culinary habits through their education and empowerment. Systematic revisions of the literature have shown positive outcomes of cooking programmes on dietary habits, health status, managing comorbidities, and psychosocial outcomes in adults, highlighting the importance of these approaches; also, when targeting patients and medical students. We show that HCPs receiving training in CM would be more likely to adopt and share good practices to peers and patients. During this symposium we will discuss evidence-based approaches of Culinary Medicine programme addressed to both HCP and PLwO to improves their experience.

Declarations: None

S06: NEW AND EMERGING RESEARCH IN CHILDHOOD AND ADOLESCENT OBESITY

SO06-01 Pharmacological interventions for the management of children and adolescents living with obesity – an update of a Cochrane systematic review with meta-analyses

Torbahn, G.[1]*, Jones, A.*[2]*, Griffiths, A.*[3]*, Matu, J.*[3]*, Metzendorf, M.*[4]*, Ells, L. J.*[3]*, Gartlehner, G.*[5]*, Kelly, A. S.*[6]*, Weghuber, D.*[1]*, Brown, T.J.*[3]

[1]Paracelsus Medical University [2]Liverpool John Moores University, [3]Leeds Beckett University, [4] Heinrich-Heine-University Düsseldorf, [5] Danube University, [6]University of Minnesota Medical School: Anti-obesity medications (AOMs) can form an integral component of obesity treatment. A 2016 Cochrane review by Axon et al. suggested that AOMs (metformin, sibutramine and orlistat) may help older children and adolescents living with obesity to achieve a small reduction in body mass index (BMI (kg/m^2) (−1.3; 95% confidence interval (CI) [-1.9; -0.8]), when delivered alongside a concomitant lifestyle intervention. New AOMs for paediatric obesity and further

randomised controlled trials (RCTs) require an update of the evidence base. We used Cochrane methodology and data from Axon et al., ran searches on 17th March 2023 in two electronic databases (Cochrane CENTRAL, MEDLINE) and two trials registries (ClinicalTrials.gov, WHO ICTRP). Inclusion criteria were RCTs ≥6 months in people <19 years living with obesity. We included any AOM including withdrawn/unlicensed. Where possible, we undertook pairwise random-effects meta-analyses to pool effect sizes comparing AOMs to placebo, using mean difference, or risk ratio and respective 95%-CI and investigated potential effect modifiers. We included 35 RCTs (4,331 participants) follow-up: 6–24 months; age: 8.8–16.3 years; BMI: 26.2–41.7 kg/m^2. Moderate certainty evidence demonstrated a −1.71 (95% CI: −2.27 to −1.14)-unit BMI reduction, ranging from −0.8 to −5.9 units between individual drugs with semaglutide producing the largest reduction of −5.88 kg/m^2 (95% CI: −6.99 to −4.77, N = 201). Drug type explained ~44% of heterogeneity. Low certainty evidence demonstrated reduction in 95th percentile BMI: −11.88 percentage points (95% CI: −18.43 to −5.30, N = 668). Serious adverse events and study discontinuation due to adverse events did not differ between medications and comparators, but medication dose adjustments were higher compared to comparator (10.6% vs 1.7%; RR = 3.74 [95% CI: 1.51 to 9.26], I2 = 15%), regardless of approval status. There was a trend towards improved quality of life. Evidence gaps exist for children, psychosocial outcomes, comorbidities and weight loss maintenance. Anti-obesity medications in addition to behaviour change improve BMI but may require dose adjustment, with 1 in 100 adolescents experiencing a serious adverse event. Missing data for diabetes, mental and social health highlight an important evidence gap in patient-relevant outcomes.

Declarations: ASK engages in unpaid consulting and educational activities for Boehringer Ingelheim, Eli Lilly, Novo Nordisk, and Vivus; receives donated drug/placebo from Novo Nordisk and Vivus for National Institutes of Health-funded clinical trials. DW has received lecture and consulting fees from Novo Nordisk A/S.

S06-02 Setting up a Weight Management Clinic for children and young people living with severe obesity; an MDT approach and lessons learnt'

Pooja Sachdev[1]

[1]Nottingham Children's Hospital: The Complications of Excessive Weight (CEW) service is a tier 3 complex obesity pilot service funded by NHS England for under-18s living with severe obesity and related complications. Nottingham University Hospitals and University Hospitals Leicester NHS Trusts form the East Midlands hub and commenced services in November 2021. Several roles (admin, nursing, psychology, physiotherapy) were shared across both sites initially with delivery of joint structured patient education, joint team meetings and use of shared guidelines. Later, a 35% increase in funding accompanied a doubling of patients (100 at each site). We reviewed the MDT evolution to increase capacity and better meet demand alongside describing our patient cohort. To facilitate expansion and improve efficiency, staffing models and funding allocation was adapted, novel approaches to patient engagement were utilised and different models of working identified. Separating the allocated funding to Nottingham and Leicester improved recruitment processes. Fixed-term, single site roles were arranged to trial different MDT models e.g., youth worker. Unused funding was proactively identified and used to employ a clinical fellow. We maximised available clinic rooms by running adhoc clinics and filling cancellations at short notice. Home visit numbers increased by upskilling existing staff. Community venues were used to run cooking sessions and offer family focused therapy- non-violent resistance (NVR) training. Families were contacted ahead of clinic to offer the travel compensation scheme (if eligible) to reduce the financial implications of attendance. Clinics were overfilled to allow for non-attendance. Pre-clinic contact helped to identify any family issues, such as access or language barriers prior to the first appointment so that appropriate adaptations could be made. During the Covid pandemic we delivered education sessions virtually, returning to face-to-face promptly. Mixed virtual and in-person options continue to be offered to improve patient engagement. 135 (F = 72) patients seen, mean age 13.2 years, mean BMI SDS + 4.2, 20% with neurodiversity, 50% at least one complication related to weight, 62% from the 2 most deprived deciles. 209 patients waiting to be seen. The service has met increased target numbers by adapting continuously, however demand far outstrips capacity and needs urgent attention.

Declarations: None

S06-03 Adolescent and parental views on weight and weight management: A qualitative study

Melissa Little[1]*, Paul Aveyard*[1]*, Susan a Jebb*[1]

[1]University of Oxford: The prevalence of clinically defined overweight and obesity in adolescents is increasing and weight management interventions are recommended to reduce future health risk. However, there is some evidence that parents and adolescents are mistrustful of medicalising obesity in young people and fearful that offering weight support will be harmful. This study examines the views of adolescents with excess weight and parents of adolescents with excess weight on weight and weight management. Parents and adolescents were recruited through schools, social media, and youth centres. Semi-structured interviews were conducted over the phone and analysed using reflexive thematic analysis to interpret the data. Ten parents and sixteen adolescents were interviewed, including four linked parent-child dyads. Both parents and adolescents reported that adolescents reported feeling societal pressure to achieve an "ideal body" and that this pressure was the primary motivator for weight loss. All interviewed parents perceived themselves as overweight; however, those who had minimal weight-based shame were more likely to normalise weight discussions, reducing weight shame in their children. Adolescents preferred parents to display healthy behaviours rather than initiate weight-based discussions; however, they wanted to feel supported if the conversations were self-initiated. Weight is a sensitive issue in inter-generational relationships, primarily driven by feelings of shame. Adolescents feel supported by a 'show not tell' approach from parents, which is more likely in families with less shame. While guidelines encourage clinicians to initiate weight-related conversations, this may not be welcomed by adolescents, though they do want confidence that they could access weight management support if they choose to seek help.

Declarations: None

S06-04 Quantifying the impact of weight management interventions on childhood obesity and health outcomes

Simon Russell[1]*, Jessica Packer*[1]*, Disha Dhar*[1]*, Oliver Mytton*[1]*, Russell Viner*[1]

[1]UCL Great Ormond Street Institute of Child Health: Rates of childhood obesity in England and elsewhere remain high. There are structural and systemic determinants of obesity that need to be addressed, and prevention is key. However, estimates suggest there are approximately 1.3 million children aged 2–18 years living with clinical obesity (98th centile). Effective weight management for these children is a high public health and policy priority. As part of the NIHR-funded Healthy Weight Policy Research Unit, we undertook a cross-sectional simulation of the child population

(2–18) in England using 10-years of data from the Health Survey of England. We explored the potential impacts on obesity prevalence of systematically offering preventive and treatment interventions to eligible children in England, based on health or weight status, defined using clinical criteria outlined by the UK National Institute of Health and Care Excellence. Effect sizes for treatment were taken from systematic reviews and applied for each weight-management tier (from prevention to bariatric surgery) with realistic estimates of uptake and completion. We also modelled two systematic approaches: a staged approach, where children were given the most intensive treatment for which they were eligible, and a stepped approach, where management tiers were applied sequentially, with additive effects. We estimated decreases in the prevalence of obesity of 0.2% (0.1 to 0.4) for interventions within a primary-care setting; 1.0% (0.1 to 2.1) for community and lifestyle interventions; 0.2% (0.0 to 0.4) for pharmaceutical interventions; and 0.4% (0.1 to 0.7) for surgical interventions. Stepped care led to an absolute decrease of 2.4% (0.1 to 4.8), which equates to a relative decrease of 21.4% or approximately 275,000 fewer children with clinical obesity. We are further developing this work by undertaking a substantive project that has three key aims. First, to undertake a scoping review to comprehensively identify the health and social complications of obesity during childhood; second, where evidence is lacking, to use nationally-representative cohort data to provide evidence to quantify the relationship between BMI and health and social outcomes; third, to further develop our cross-sectional model to in order to evaluate the cost-effectiveness or cost-benefit of childhood obesity interventions in terms of health and social impacts.

Declarations: None

S06-05 The use of low energy diets in children and young people living with severe obesity and Type 2 Diabetes: considerations, initial outcomes and future outlook

Elizabeth Procter[1], Pooja Sachdev[1]

[1]Nottingham Children's Hospital: The incidence of severe obesity and type 2 diabetes (T2DM) are increasing amongst adolescents and treatment options are limited. The low energy diet (LED) is a treatment option for adults with obesity although there is limited research for this approach within the paediatric sphere. This approach involves a 12 week period of having four meal replacement products a day (shakes/soups/bars) with additional portions of non-starchy vegetables, totalling 800-1200kcal. This is followed by a gradual introduction of healthy balanced meals combined with an active lifestyle to induce diabetes remission and weight loss. However, adolescents have markedly different biological, psychological and social influences compared to adults. Some small paediatric studies have shown the benefits and safety of LED in treating T2DM and obesity. Gow et al (2017) n = 8 with T2DM, aged 7–16 years, showed 7.5% mean weight loss at 8 weeks and 12.3% at 34 weeks, with HbA1c reduction from 65mmol/L to 49mmol/L. Older studies such as Willi's retrospective review of T2DM patients (2004) (n = 20) and Sothern (2000) (n = 56, patients with obesity) also demonstrated significant weight loss which was maintained at 1 year. PPI work done by our team has highlighted the need for adaptations to improve the acceptability of using the LED in adolescents. Age, pubertal stage, family circumstances, exam timings and learning to drive are important considerations. At Nottingham University Hospital NHS Trust, there have been 9 adolescents (aged 13–17) who have trialled the LED as a treatment option (6 with T2DM, 3 with obesity). There were 3 individuals who followed the plan for 12 weeks and achieved a mean weight loss of 9.65kg. The adolescents were supported throughout the process by a registered dietitian and provided with portion size guidance during the food re-introduction phase. Next steps include exploring the feasibility of this approach in a multi-centre setting. The LEGEND (low energy diet in adolescents with T2DM and obesity) study, funded by Diabetes UK, aims to understand the recruitment and retention rates alongside the motivations and barriers to the use of the LED for young people with T2DM. It is due to commence recruitment in 2024.

Declarations: None

AWARD SESSION

A01: 3-MINUTE THESIS COMPETITION

A01-01 Longitudinal changes in diet quality and physical activity in relation to changes in adiposity among UK adults: the Fenland Study

Shayan Aryannezhad[1], Nicholas J. Wareham[1], Soren Brage[1], Nita G. Forouhi[1]

[1]Medical Research Council Epidemiology Unit, University of Cambridge, UK,: Diet and physical activity are each related to body weight but less is understood about their combined impact, especially regarding their longitudinal changes and their relationship with adiposity. We aimed to evaluate the separate and combined associations of changes over time in overall diet quality and total physical activity with concurrent changes in different body composition indices. In total, 6,056 participants from the Fenland study with repeated measurements of health behaviours and adiposity were included in the analyses (aged 29 to 65 years at recruitment, 51.7% women). Data collection occurred in Phase 1 (2005-2015) and Phase 2 (2014-2020), with a median follow-up period of 7.2 years (IQR 2.0 years). Adherence to the Mediterranean Diet Score (MDS, range 0-15 points) was derived based on responses to a validated food frequency questionnaire. Physical activity energy expenditure (PAEE [J/kg/day]) was derived using individually calibrated combined heart rate and movement sensing. Weight, height, and dual-energy X-ray absorptiometry measurements were used as indices of body composition related to total adiposity (weight, body mass index [BMI], fat mass [FM]) and regional adiposity (visceral adipose tissue [VAT] and subcutaneous adipose tissue [SCAT]). Multivariable linear regression models were adjusted for age, sex, smoking status, energy intake, socioeconomic variables, follow-up time, test site, and adiposity at baseline. For ΔMDS (Δ represents changes over time), per 1 SD increase (1.27 points), beta coefficients (95%CI) were: Δweight -0.46 (-0.61, -0.31)kg, ΔBMI -0.17 (-0.22, -0.11)kg/m2, ΔFM -412 (-532, -292)g, ΔVAT -41 (-52, -30)g, and ΔSCAT -24 (-33, -16)g. For ΔPAEE, per 1 SD increase (19.0 J/kg/day), beta coefficients (95%CI) were: Δweight -1.57 (-1.72, -1.42) kg, ΔBMI -0.54 (-0.59, -0.48)kg/m2, ΔFM -1380 (-1503, -1257)g, ΔVAT -106 (-117, -95)g, and ΔSCAT -75 (-84, -66)g. In the joint association analysis, compared with the participants with stable MDS and PAEE over time, those who increased both MDS and PAEE consistently had the greatest decrease in all adiposity markers and vice versa. In conclusion, changes in overall diet quality and total physical activity levels are independently associated with long-term changes in adiposity. The greatest obesity-related benefits are achieved by combining these health behaviours.

Declarations: None

A01-02 Creating conditions for behaviour change in group-based weight management interventions: exploring factors that support

and inhibit group identity development in the PROGROUP feasibility trial

Laura Hollands[1], Lily Hawkins[2], Shokraneh Moghadam[2], Jenny Lloyd[2], Dawn Swancutt[1], Rod Sheaff[1], Jon Pinkney[1], Mark Tarrant[1]

[1]University of Plymouth, [2]University of Exeter: Group-based weight management interventions may meet the demand for cost-effective and time-efficient treatments, but they potentially also provide inherent therapeutic benefits unique to group settings. These benefits stem from within the group itself, where group processes such as connection, social support, social influence, and collective agency equip individuals with resources that support behaviour change. Evidence suggests that these processes are enabled by development of shared social identity (a shared sense of "us") between members of intervention groups. However, where group members do not develop shared identity, access to these resources may be inhibited, and groups may experience conflict that can undermine group experience and behaviour change. Group function is therefore an important mechanism underpinning the success of these interventions. This presentation explores and compares the progression of four groups throughout the feasibility trial of PROGROUP, a group-based weight management intervention, and identifies factors that both support and inhibit social identity development. Analyses triangulated multiple data sources, including end of session questionnaires exploring group processes, interviews with participants and facilitators, attendance data, and video and audio recordings of intervention sessions. Findings show that, generally, members' sense of connection with their group improved as the intervention progressed, although some groups experienced fluctuations in connection throughout the programme. The shared experience of living with obesity fostered a safe space where members felt understood and that their contributions were valued. Personal disclosures by group members provided opportunities for the group to give support, bringing members closer together. Similarly, setting up a WhatsApp group allowed group members to provide support to each other outside the group sessions, but moreover supported participants to form new connections that aren't defined by their weight. However, challenges of poor attendance, or inconsistency of those attending, impeded the development of trust and familiarity, undermining the group. Shared social identity was further undermined by perceived heterogeneity in terms of demographic characteristics and motivation for participating. This exploration of group processes underscores the importance of actively managing group development to enhance the effectiveness of weight management interventions. The insights provided offer valuable guidance for practitioners aiming to strengthen relationships within therapeutic groups.

Declarations: None reported

A01-03 Weight management discussion in real-world general practice consultations: A qualitative analysis in Australia

Kimberley Norman[1], Neha Giri[1], Nilakshi Gunatillaka[1], Divya Ramachandran[1], Kellie West[1], Liz Sturgiss[1]

[1]Monash University: Background: While primary care is positioned to be best suited to deliver weight management healthcare, the highly individualised patient experience of obesity, coupled with the difficult and intricate nature of communicating obesity healthcare messages in appropriate and non-stigmatising ways, makes the role of a GP increasingly complicated even before a patient even decides to engage with any obesity healthcare options. This study aimed to explore discussion strategies used in real-world GP-patient consultations when discussing obesity. Method: Secondary data analysis of Australia's first, and only, Digital Library video recorded consultations was used. Fourty-seven consultations and patient post-consultation satisfaction surveys were analysed using descriptive content analysis with seventeen consultations discussing weight in some manner. A multi-disciplinary research team, including lived experience experts and practicing GPs, identified three overarching themes for how weight was discussed. Results: 15/17 discussions about health in relation to weight were GP initiated and 2/17 were patients initiated. Fourteen used a structured approach (all GP initiated), while three used an opportunistic approach (one GP and two patients initiated). GPs raised the concept of weight in a patient-autonomous way, asking for consent to discuss weight as part of their routine care, or giving space for the patient to decline discussion. Weight was always positioned as a factor in relation to another presenting health concern of the patient and was discussed in positive, encouraging ways that were relative to each individual patient's health context. Conclusions: This study of naturally occurring GP-patient consultations highlighted the intricacies of ways the delicate topic of weight was approached in consultations. While there was no overt discourse or behaviour from patients to indicate obesity stigma was present in these consultations, potentially stigma could have been internalised or perceived by patients. With the majority of weight discussions initiated by GPs in structured ways in these consultations, future research could look to develop specific evidence based non-stigmatising 'weight' discussion prompters for GPs to refer to in their practice for flexible consistency with the range of patients seen. This could help empower GPs with confidence to discuss weight in consultations and ensure potential covert stigma is minimised.

Declarations: None

A01-04 Kisspeptin offers mechanistic insight into the impact of obesity on hypothalamic dysfunction in women with PCOS

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[1]Imperial College London: Polycystic Ovary Syndrome (PCOS) is the commonest cause of anovulation in women of reproductive age affecting 8-13%. Overweight/obesity is present in 50-88% of women with PCOS. Hypothalamic overactivity is a key feature of PCOS, particularly in lean women with PCOS, resulting in increased gonadotrophin releasing hormone (GnRH) pulsatility, subsequently causing increased luteinising hormone (LH) levels, and, in turn, increased ovarian androgen production. Notably, women with overweight/obesity often present with impaired hypothalamic function, which is characterised by reduced LH levels. Insulin resistance associated with overweight/obesity further exacerbates ovarian androgen production. Kisspeptin is a neuropeptide that specifically stimulates hypothalamic GnRH neurons. In this study, we administered kisspeptin as a challenge test to interrogate hypothalamic function to gain mechanistic insight into the pathophysiological impact of obesity on hypothalamic function in women with PCOS. Study participants included women with PCOS aged 18–35 yrs, who were categorised as lean (BMI < 25 kg/m^2; n = 8), having overweight (BMI 25–30 kg/m^2; n = 6), or obesity (BMI > 30 kg/m^2; n = 11). Healthy women without PCOS and BMI < 25 kg/m^2 (n = 33) served as controls. All participants received an intravenous bolus of kisspeptin (9.6 nmol/kg), following which serum LH and follicle stimulating hormone (FSH) levels were measured every 15 min for 8 h. Groups were compared by Kruskal-Wallis test. In women with PCOS, the mean (SD) peak rise in LH (IU/L) after kisspeptin was 6.5 (6.4) in lean women, 8.8 (7.1) in women with overweight, 12.1 (6.9) in women with obesity, and 9.7

(11.4) in healthy controls. The mean (SD) maximal rise in FSH (IU/L) after kisspeptin was 1.8 (2.1) in lean women, 2.4 (1.5) in women with overweight, 3.6 (2.1) in women with obesity, and 4.2 (3.4) in healthy controls. The FSH response was higher in women with obesity than in lean women with PCOS ($p = 0.042$). Kisspeptin induced greater gonadotrophin responses in women with obesity and PCOS compared to lean/overweight women with PCOS. These data provide new mechanistic insight into the differential hypothalamic dysfunction underpinning the neuroendocrine disturbances in women with PCOS, and suggest an additional obesity-related suppression of hypothalamic function that contributes to menstrual disturbance in women with obesity.

Declarations: None

A01-05 A metabolomic signature associated with lifestyle behaviours and obesity: a cross-sectional analysis in the UK Biobank

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[1]University of Granada, Granada, Spain, [2]University of Zaragoza, [3]Institute for Global Health (ISGlobal), Barcelona, Spain, [4]University of Oxford: There is evidence showing that people who meet healthy lifestyle recommendations, namely never smoker, alcohol intake ≤112g/week, 150 min moderate physical activity or 75 min vigorous activity/week, ≥5 servings of fruit or vegetables/day, have a lower risk of non-communicable diseases and all-cause mortality1. However, risk is higher in people with obesity who meet all lifestyle recommendations. This study aims to identify metabolomic signatures associated with healthy lifestyle behaviours and to analyse differences between individuals with vs without obesity. Of a total of 105,632 UK Biobank participants with available metabolomic data, we selected individuals that met 0–1 vs 3–4 lifestyle recommendations, of which $n = 13{,}361$ had body mass index (BMI) 18.5–24.9 kg/m^2 and $n = 19{,}766$ had BMI ≥ 25. High-throughput NMR-based platform for metabolite quantification was performed in plasma samples. An elastic net model, which was adjusted for confounding variables (sex, age, region, ethnicity, townsend index, education and menopause), was used to compute the coefficients of metabolomic signatures associated with lifestyle behaviours. The dataset was randomly split into two subsets, 70% training set and 30% test set. Optimisation of the model parameters and a final model was performed on the training set. After, we evaluated the robustness of the final model on the test set. The computation of metabolic signatures was performed in a stratified manner, with healthy BMI and overweight/obesity being separated for the model's construction. We found large differences in metabolites between people that met more vs less lifestyle recommendations, including increased levels of triglycerides in very-low density lipoprotein, linoleic acid, total cholines, and lower levels of omega 6 fatty acids, phosphatidylcholines, and phosphoglycerates. In general, these associations followed the same direction in people with normal BMI vs overweight/obesity, although most of the observed associations were attenuated in people with obesity. Following lifestyle recommendations is associated with a particular metabolomic profile both in people with normal BMI and those with overweight or obesity. However, some metabolites appear to be attenuated in people with obesity, suggesting the potential role of obesity as a marker of cardiometabolic health.

Declarations: None

A01-06 Could a weight loss programme similar to the NHS Path to Remission increase the risk of disordered eating in susceptible individuals? A non-inferiority randomised controlled trial

Elena Tsompanaki[1], Paul Aveyard[1], Rebecca J Park[1], Susan A Jebb[1], Dimitrios A Koutoukidis[1]

[1]University of Oxford: The NHS path to remission programme offers total diet replacement (TDR) with behavioural support to people living with overweight/obesity and type 2 diabetes (T2D), to achieve significant weight loss and diabetes remission. However, there are concerns that the national roll-out of TDRs could increase the risk of disordered eating, if offered without screening. We conducted a non-inferiority trial to assess this. Individuals with T2D, BMI ≥ 27kg/m^2, and medium to high scores of disordered eating based on the Eating Disorders Examination questionnaire (EDE-Q) were randomised 1:1 to TDR with remote weekly/bi-weekly dietetic support or standard care (NCT05744232). Participants were re-assessed remotely at 1, 3, 4, 6, and 12 months. The primary outcome was the between-group difference in global EDE-Q score at the end of the intervention (6 months). Impairment from disordered eating (Clinical Impairment Assessment score, CIA) was one of the secondary outcomes. The EDE-Q score was analysed with linear mixed-effects models and a non-inferiority margin of +0.72 for the upper limit of the confidence interval for the EDE-Q and +11.1 for the CIA. Between March 2023 and September 2023, 56 individuals (mean age 49.9 years, 62.5% female, 96.4% White, mean BMI 39.6kg/m^2 and mean global EDE-Q 3.3) were randomised to intervention ($n = 28$) or usual care ($n = 28$). EDE-Q data at 6 months were available for 22 and 27 participants in the intervention and usual care groups respectively. Compared with usual care, intervention participants lost 9.7 kg (95%CI: -13.42, -5.99) at 6 months. The upper limit of the two-sided 90% confidence interval was below the 1SD non-inferiority margin for EDE-Q global score, difference -0.87 (90%CI: -1.32,-0.41, $p = 0.002$) and the CIA, difference -14.5 units (90%CI: -19.30, -9.70, $p < 0.001$). There was one serious adverse event reported in the control group. The results of this study showed TDR is non-inferior to standard care; in other words, there was no evidence that TDR increases disordered eating and its impairment compared to usual care in the short term, and in fact, showed significant improvement. These findings suggest that the NHS pathway to remission programme can be safely implemented without additional screening.

Declarations: ET has been awarded the Doctoral Fellowship in Clinical Diabetes 2021 by the Novo Nordisk UK Research Foundation, member of the Association of Medical Research Charities. The funder had no involvement in designing and conducting this study. DAK, SAJ and PA are investigators in two investigator-led publicly funded (NIHR) trials where the weight loss intervention was donated by Nestle Health Sciences and Oviva to the University of Oxford outside the submitted work. None of these associations led to payments to these authors. No other conflicts of interest are reported.

ORAL SESSIONS

O1: USING TOTAL DIET REPLACEMENT, FROM BENCH TO BEDSIDE

O1-01 Remotely-delivered weight management for people living with long COVID and overweight (ReDIRECT): a waitlist controlled randomised trial using a personalised patient-reported primary outcome measure

Emilie Combet[1], Laura Haag[1], Janice Richardson[1], Caroline Haig[1], Yvonne Cunningham[1], Heather Fraser[1], Naomi Brosnahan[2], Tracy Ibbotson[1], Jane Ormerod[3], Chris White[3], Emma McIntosh[1], Catherine A. O'Donnell[1], Naveed Sattar[1], Alex McConnachie[1], Mike Lean[1], David N. Blane[1]

[1]University of Glasgow, [2]Counterweight Ltd., [3]Long Covid Scotland: Long COVID is a complex multi-symptom condition that

can affect people following COVID-19 infection. Risk factors for long COVID include female sex, socioeconomic disadvantage, and raised body mass index (BMI)1. There are no established treatments for long COVID. ReDIRECT assessed whether home-delivered weight management could improve long COVID symptoms in people living with excess weight. ReDIRECT was a randomised, wait-list-controlled trial (ISRCTN:12595520) in UK participants with long COVID and BMI>27kg/m^2 (>25kg/m^2 for South Asians). The intervention comprised remotely-delivered structured weight management (total diet replacement, 850 kcal/d, or an alternative if not tolerated) and behaviour change guidance for 12 weeks, followed by food reintroduction and weight loss maintenance support for one year. Trained dietitians provided personalised phone/video or text support, in-app weekly monitoring and nudges, and peer-group support. We pre-specified a personalised primary outcome: participants selected the major long COVID symptom they most wanted improved, from Fatigue, Breathlessness, Pain, Anxiety/Depression, and Other, assessed using validated questionnaires and VAS scales at baseline and 6 months. Secondary outcomes included changes in weight, blood pressure, health-related quality of life (EQ5D), and each long COVID symptoms at 3 and 6 months. Participants (84% women, 90% white), mean age 46, median BMI 35 (IQR 32-40) kg/m^2) were randomly assigned to intervention (n = 116) or waitlist control (n = 118) groups (December 2021; July 2023). The intervention improved the primary outcome (patient-selected long COVID symptom) with a mean between-group difference of -0.34 [95% CI -0.67, -0.01, p = 0.047] at 6 months. Mean weight change in the intervention group was -10.3 (SD 7.5) kg at 6 months, compared to -0.7 (SD 5.2) kg in the control group. The intervention improved Fatigue (treatment effect of -3.46 [95%CI -5.42, -1.86], p < 0.0001), Breathlessness (-0.27 [95%CI -0.48, -0.06], p = 0.0124), Anxiety/Depression (-1.94 [95%CI -3.64, -0.25], p = 0.0249) and Other symptoms (-1.13 [95%CI -1.82, -0.44], p = 0.0016) vs. control group at 6 months, but not Pain. The intervention improved blood pressure and health-related quality of life, with no excess of adverse events. Entirely remotely-delivered weight management was safe and effective at reducing long COVID symptoms that matter most to people living with long COVID and excess weight after 6 months.

Declarations: NB is an employee and shareholder of Counterweight Ltd., subcontracted to the University of Glasgow to deliver the ReDIRECT intervention. AM is a member of Clinical Steering Committee for ARC Medical Inc. NS has received institutional grant support from AstraZeneca, Boehringer Ingelheim, Novartis, Roche Diagnostics and honoraria from Abbott Laboratories, Afimmune, Amgen, AstraZeneca, Boehringer Ingelheim, Eli Lilly, Hanmi Pharmaceuticals, Janssen, Merck Sharp & Dohme, Novartis, Novo Nordisk, Pfizer, Sanofi. ML has received lecturing fees from Novo Nordisk, Nestle, Oviva, Sanofi and is a medical advisor to Counterweight Ltd, with fees paid to the University of Glasgow.

O1-02 A fall in risk without a risk of falls: How to lose fat while preserving muscle, bone and physical function

Franciskos Arsenyadis[1]

[1]University Hospitals of Leicester NHS Trust & University of Leicester: The landmark DiRECT and DROPLET trials paved the wave for introducing low energy diet (LED) through meal replacement as a safe, fast and effective way for achieving weight loss in people living with obesity with or without type 2 diabetes. Weight loss in those living with excess adiposity offers great benefits for disease management and prevention. However, not all intentional weight loss is desirable. Each attempt at bodyfat loss is accompanied by significant losses to lean mass and bone mineral density and the ratio of bodyfat to fat free mass loss may vary depending on factors such as age and sex. Reduction in bone mineral density and lean mass may link to increased risk of fractures and poor physical function in older adults achieving significant weight loss. It may also affect younger adults with significant cardiometabolic disease and phenotypes of accelerated metabolic aging, such as seen in young adults with type 2 diabetes. What interventions undertaken in conjunction with sustained energy deficit through LED can mediate the physiological response to energy restriction are not clearly defined. Titration of protein intake or addition of mixed aerobic and resistance training for example, may further aid improving body composition and cardiometabolic and respiratory health during weight loss, but the exact amounts or dosages needed to both a) preserve lean mass, bone mineral density and physical function/strength and b) offer an achievable intervention for people living with obesity, are not well described. This short talk will explore the most recent updates in the field of LED for weight loss and share initial trial findings of how combined LED and exercise interventions affect body composition and other relevant key physiological and metabolic outcomes.

Declarations: None

O01-03 Dietary energy restriction demonstrates a favourable safety profile, is well-tolerated, and decreases liver steatosis in people with obesity and compensated cirrhosis due to metabolic dysfunction-associated steatotic liver disease: a randomised controlled trial

Dimitrios A Koutoukidis[1], *Susan A Jebb*[1], *Jeremy W Tomlinson*[1], *Ferenc E Mozes*[1], *Michael Pavlides*[1], *Miriam Lacharie*[1], *Francesca Saffioti*[2], *Paul Aveyard*[1], *Jeremy F Cobbold*[2]

[1]University of Oxford, [2]Oxford University Hospitals NHS Foundation Trust: People with compensated cirrhosis due to metabolic dysfunction-associated steatotic liver disease (CC-MASLD) are at increased risk of morbidity and mortality but receive no aetiology-specific treatment. We aimed to investigate the safety and impact of substantial dietary energy restriction in this population. This was a 24-week prospectively registered, randomised controlled trial in a tertiary hepatology centre (ISRCTN13053035). Adults with obesity and CC-MASLD were randomised 2:1 to receive one-to-one remote dietetic support to follow a low-energy (880kcal/day) total diet replacement programme for 12 weeks and stepped food reintroduction for another 12 weeks or standard of care. The trial had 3 co-primary outcomes to assess signals for safety and efficacy: (a) severe increases in liver biochemistry (alanine transaminase, aspartate transaminase, INR, total bilirubin) or signs/symptoms of hepatic decompensation, (b) changes in iron-corrected T1, a marker of liver fibro-inflammation, (c) and changes in liver stiffness on magnetic resonance elastography (MRE), a marker of liver fibrosis. Changes in liver steatosis on magnetic resonance imaging, physical performance test, liver frailty index, and fat-free mass were secondary outcomes. Data were analysed with mixed effects models. Between February 2022 and September 2023, 17 participants [36% female, median (IQR) age 58 (9) years] were randomised to the standard of care (n = 6) or the intervention (n = 11). Ten (91%) participants completed the intervention. Five and eleven participants in each group attended the 24-week follow-up. Compared to standard of care, mean weight change in the intervention group was -11.9kg (95%CI: -17.2, -6.6) at 24 weeks. Liver biochemistry was stable in all participants throughout the trial and there was no evidence of hepatic decompensation. cT1 and liver steatosis significantly reduced [-149.9ms (-258.1, -41.7) and -6% (-11.3, -0.6), respectively]. There were no between-group differences in changes in MRE-estimated liver stiffness [0.2kPa (-1.1, 1.6)], physical performance test, or liver frailty index. Compared with standard of care, absolute fat-free mass reduced

at 24 weeks but the relative fat-free mass increased. There were no serious adverse events. In conclusion, dietary energy restriction can be used to achieve substantial weight loss in patients with CC-MASLD with a favourable safety profile and promising signals for delaying disease progression.

Declarations: DAK, SAJ, JWT, MP, PA, and JFC are investigators in an investigator-led trial where the weight loss intervention was donated by Nestle Health Sciences and Oviva to the University of Oxford. JWT has been part of the scientific advisory board for Novo Nordisk. MP is a shareholder in Perspectum, a University of Oxford spin out company, and has applied for a patent for medical imaging.

O01-04 The Ups and Downs of the NHS Low Calorie Diet pilot: A Qualitative Exploration Through the Patients Eyes'

Catherine Homer[1], Karina Kinsella[2], Kevin Drew[2], Duncan Radley[2], Tamara Brown[2], Jordan Marwood[2], Simon Rowlands[2], Charlotte Freeman[2], Abimbola Ojo[2], Jennifer Teke[2], Ken Clare[2], Chirag Bakhai[3], Louisa Ells[2]

[1]Sheffield Hallam University, [2]Leeds Beckett University, [3]Larkside Practice: The National Health Service (NHS) Low Calorie Diet (LCD) pilot programme aimed to support people with type2 diabetes (T2D) to lose weight, reduce glycaemia and potentially achieve T2D remission using total diet replacement (TDR) alongside behaviour change support. The Re:Mission study aimed to deliver a coproduced, comprehensive qualitative and economic evaluation of the NHS LCD pilot. Insights from the patient perspective explored the extent to which aspects of the service work and do not work, for whom, in what context and why and how the service can be improved to enhance service user experience and address inequities. Coproduced with NHS England and a diverse patient group of people living with obesity and/or T2D three data collection methods of cross-sectional, longitudinal and withdrawing participant (service user) surveys, interviews and photo elicitation techniques were used to understand patient experience of three delivery models (1 to 1, group and digital). Longitudinal interviews and surveys were conducted at 12 weeks (end of total diet replacement phase), 18 weeks (end of food reintroduction phase) and 52 weeks (end of the programme). Interviews were thematically analysed. Results highlight the patient journey across the LCD programme and their motivations to take part. At 12 weeks experiences are largely positive with TDR having provided control with eating behaviours which contributed to weight loss and improved glycaemic control. Food reintroduction was challenging for many and more personalised support and guidance with meal preparation and planning was desired. At 12 months, many participants reported improvements with psychosocial and physical functioning, however continued use of TDR products as a weight loss mechanism was evident. The findings have identified the need for person centred support which considers the life circumstances such as cultural diversity and economic status of service users. The coach-service user relationship was important to providing this person centred support. These findings offer insights into the participant experience of the NHS LCD programme and gives recommendations for improvement to the service for commissioners, providers and referrers, many of which have already informed the development of the NHS programme.

Declarations: None

O01-04 Economic evaluation of NHS England's low-calorie total diet replacement intervention for adults living with obesity and type 2 diabetes: evidence from real-world data and patient simulation modelling

Adam Martin[1], Tayamika Zabula[1], Miaoqing Yang[1], Davide Tebaldi[1], Tamara Brown[2], Louisa Ells[2]

[1]University of Leeds, [2]Leeds Beckett University: NHS England's 'Type 2 diabetes Path to Remission programme' (T2DPR) assists adults with BMI>25kg/m^2 (>27kg/m^2 if White) in reversing a recent diabetes diagnosis. Piloted since 2020, the 12-month intervention is being scaled-up nationwide. Following a primary care referral, service-users receive 900 kcal/day diet replacement products for 12 weeks to initiate rapid weight loss. Guidance on reintroducing healthy foods, increasing physical activity and sustaining weight loss is also provided. Real-world clinical data was collected by commercial service providers and general practices and then linked to National Diabetes Audit data and cost data, including out-of-pocket expenses obtained from surveys and interviews. A commercially available, pre-built patient-level simulation model (UKPDS Outcomes Model) utilised data collected pre-referral and at 12 months to predict health economic outcomes for the service-users at 24 months and annually until death. Additionally, a counterfactual scenario portraying potential outcomes for the same service-users without the intervention was generated utilising only pre-referral data. Various assumptions regarding weight regain and HbA1c trajectories among service-users at 24 months onwards, relative to the counterfactual scenario, were examined. T2DPR could be cost-effective against a £20,000/QALY threshold if weight and HbA1c trajectories remain below those in the counterfactual scenario for at least six to seven years (£19,759.80/QALY assuming 7 years) and against a £30,000/QALY threshold if those trajectories remain apart for four to five years (£27,625.99/QALY assuming 5 years). Compared to results of the Diabetes Remission Clinical Trial (DiRECT), T2DPR was not cost-saving. Our sample was larger ($n = 838$ vs. 149 in DiRECT's intervention arm) and more sociodemographically diverse. At baseline, mean HbA1c was comparable, but mean weight was higher (+10kg). At 12 months, mean HbA1c reduction was smaller (2.3 vs. 9.8 mmol/mol) and mean weight loss was comparable (9.9kg vs. 10.6kg in DiRECT). These changes varied by gender, ethnicity and, to a lesser extent, area-level deprivation. Although service-users might save on grocery expenses, potentially offsetting intervention costs, it seems unreasonable to include these in commissioning decisions. Given potentially high demand, due to high T2D incidence among eligible adults, and the unlikelihood of being cost-saving, the T2DPR could improve health whilst also having large budgetary impacts.

Declarations: None

O2: FOOD MARKETING, POLICY AND EATING BEHAVIOURS

O2-01 In-store and online promotions of food and drink products: two observational studies

Jennifer Forsyth[1], Tom Steiner[1], Sarah Spreckley[1], Shehar Bano[1]

[1]Obesity Action Scotland: Price and location promotions of unhealthy products high in fat, salt and sugar (HFSS) dominate our food environment and are a significant concern for obesity outcomes. These promotions are highly visible and available, both in retail in-store settings and online. We carried out two observational studies recording price and location promotions available in these settings. We visited 5 supermarkets in Glasgow and the online websites of 6 national supermarkets in July and August 2023 recording all the promotions we saw. Products were categorised by type of promotion and as discretionary or non-discretionary, based on the categories detailed in the Scottish Government's consultation on promotions restrictions held in 2022. In the 5 in-store supermarkets, we recorded a total of 5,804 food and drink promotions – 63% (3642) were price promotions, and 37% (2161) location promotions. Temporary price reductions

(TPRs) and meal deals were the most commonly used types of price promotions, accounting for 86% of all price promotions. Additionally, we found 34% of promotions on discretionary items, with confectionary, crisps and added sugar soft drinks the most commonly promoted discretionary categories. From the online study, we found that more than half of all promotions were price promotions, with multi-buys the most commonly used type of price promotion, followed by TPRs. Prominent pricing was the most commonly used type of non-price promotion. The results from both our studies indicate the widespread use of various types of promotions across both settings and that these were significantly focused on unhealthy HFSS products. We identified a number of key policy recommendations as a result of the studies. These include TPRs require to be considered in any promotions restrictions and any restrictions of HFSS promotions should include as many types of promotions as possible. We recommend and call on the Scottish Government to take bold and urgent policy action by comprehensively regulating all forms of promotions of unhealthy food and drink products to change the food environment to improve healthy weight outcomes for all.

Declarations: None

O02-02 A conceptual model and model boundary for the impact of food taxes on obesity and the wider UK system

Penny Breeze[1], Katharine Pidd[1], Amelia Lake[2], Helen Moore[2], Natalie Connor[2], Andrea Burrows[2], Rebecca Wells[3], Christian Reynolds[3], Christina Vogel[3], Alan Brennan[1]

[1]University of Sheffield, [2]Teesside University, [3]City University: Food taxes have been proposed and used to reduce obesity. Obesity in the UK has been explained through various mechanisms, actors, and systems. Economic evaluation of obesity interventions should incorporate an understanding of system complexity. Conceptual modelling provides a framework to decide the boundary of a model (which parts of the system are included). We aimed to develop a conceptual understanding of the contextual factors, components and mechanisms in the system that links policy change to outcomes to support the development and interpretation of a health economic model. We undertook a literature review of reviews of food taxes. We developed an initial conceptual logic model that described (1) the mechanisms that translate food taxes to system changes, (2) the outcomes of these changes and (3) contextual factors that modify the mechanisms. We reviewed previous health economic evaluations of food and drink taxes to identify outcomes and highlight which parts of the system have been included. The conceptual model and model boundary were revised according to feedback from 14 stakeholders from public, academia, policy, and third sector organisation across three workshops in 2023. Outcomes and mechanisms were selected for the model based on evidence, strength of association and interest to stakeholders. Our conceptual model grouped system components across 8 sub-systems: policy infrastructure, industry behaviour, consumer behaviour, nutrition, health outcomes, environmental outcomes, macroeconomic outcomes, households. We identified four mechanisms to include in the final specification of the model boundary: industry tax pass-through, reformulation, price-elasticity of demand, and cross-price elasticity of demand. Alongside obesity prevalence, the conceptual modelling process identified 29 outcomes of interest across the sub-systems of which 22 were selected for inclusion in the model. Model development should consider the mechanisms in which individuals, industry and policymakers might modify the effects of food taxes, and the extent to which these actions can be anticipated. System-wide factors outside of the model boundary need to be documented so that the modelled evidence is interpreted considering these uncertainties. The conceptual model remains a live document of the food system to be updated as evidence and perspectives on food taxes develop over time.

Declarations: None

O02-03 A systematic review on the prevalence of disordered eating/eating disorders in adults with overweight/obesity in obesity treatment settings

Hannah Melville[1], Natalie Lister[1], Sol Libesman[1], Anna Seidler[1], Clare Cheng[1], Judy Kwan[1], Sarah Garnett[1], Louise Baur[1], Hiba Jebeile[1]

[1]University of Sydney: Data on prevalence of disordered eating/eating disorders in adults presenting for obesity treatment is inconsistent and needed to guide service provision. This systematic review aimed to understand the prevalence of disordered eating/eating disorders in adults presenting for obesity treatment. Three databases were searched to March 2024. Eligible studies measured disordered eating/eating disorders in adults with overweight/obesity at baseline, including ≥ 325 participants to ensure a representative sample. Quality was assessed with JBI Critical Appraisal. 83 studies (k) were included (n = 92002, 75.9%F, median age 44 years (IQR = 6), median BMI 45 kg/m^2 (IQR = 11). Adults were presenting for bariatric surgery (k = 53), behavioural weight management (k = 10) or low/very low energy diets (k = 5). Diagnosed eating disorders were assessed by clinical interview in 31 studies. Prevalence of any eating disorder was reported in seven studies, four reported prevalence of 1.3% to 8.6%, and three between 19.7% and 31.9%. Prevalence of binge eating disorder was 1.3% to 41.1% in 19 studies using DSM-4 criteria and varied in studies using DSM-5 criteria with six studies reporting prevalence of 3.4% to 6.4% and three studies reporting 26% to 28%. Prevalence of bulimia nervosa ranged from 0.1% to 3.6% (k = 8), night eating syndrome ranged from 0.8% to 10.1% (k = 4) and anorexia nervosa 0% to 0.2% (k = 3). One study reported prevalence of unspecified eating or feeding disorders at 9.5%. No studies reported on avoidant/restrictive food intake disorder or pica. 56 studies used self-report questionnaires. Binge eating disorder assessed by Questionnaire on Eating and Weight Patterns ranged from 2.6% to 36.6% (k = 19). Binge eating, night eating and loss of control behaviours were reported via interview or self-report with prevalence of 2.2% to 65.2% (k = 38), 0.8% to 28.0% (k = 13) and 6.3% to 61.2% (k = 3) respectively. Overall, there was high variability in prevalence of eating disorders in adults presenting for obesity treatment, with most studies reporting prevalence of less than 20%. For some eating disorders however, such a binge eating disorder, prevalence ranged up to 40%. It is important to consider possible co-morbidity in adults presenting for obesity treatment and resolve what population factors drive this heterogeneity.

Declarations: None

O02-04 The impact of non-fiscal mandatory and voluntary policies and interventions on the reformulation of food and drink products: a systematic review

Jessica Packer[1], Semina Michalopoulou[1], Disha Dhar[1], Joana Cruz[1], Russell Viner[1], Simon Russell[1]

[1]UCL: Poor diet quality is a key modifiable risk factor for non-communicable diseases. Improving diet quality at a population level through policies and interventions is a public health and policy priority in the UK and other countries. Reformulating food and drink products can effectively improve diet quality and can be achieved via fiscal (e.g., taxes or subsidies) or non-fiscal policies or

interventions. The impact of non-fiscal interventions on reformulation is unclear. Non-fiscal policies and interventions can be mandatory (e.g., regulations relating to advertising or food labelling) or voluntary (e.g., nutrient reduction targets). We systematically searched the international academic (ten databases) and grey literature (nine websites) to explore whether non-fiscal policies and interventions result in the reformulation of food and drink products. We were interested in all nutrients, both the in- and out-of-home sectors, and included studies published since 2013 to ensure policy relevance. We identified 77 real-world studies from 19 countries, assessing a total of 101 non-fiscal policies or interventions. The most common interventions were reduction targets (n = 43), front-of-pack labels (n = 24), and advertising standards (n = 9). The majority of interventions were voluntary (n = 66), compared to mandatory (n = 35), and focused on the in-home sector (n = 63). While the strength of evidence varied for different types of policies and interventions, all were effective at driving reformulation to some extent, except industry-led initiatives, which showed mixed results. Mandatory interventions were marginally more successful at driving reformulation compared to voluntary interventions. Sodium was the most targeted nutrient (n = 56) and was found to be successfully removed or reduced in most products. However, successes with sodium may not be replicable in other nutrients, given complexities relating to composition and palatability. For instance, reducing sugar impacts product taste and overall bulk, as it is cheaper. Causation is difficult to establish from real-world studies, but evidence from Chile suggests that regulatory and multi-component strategies may be effective at driving reformulation. These findings suggest that non-fiscal policies and interventions can play an important role in driving reformulation, alongside fiscal policies, as part of a broad programme of measures that seek to improve diet quality.

Declarations: None

O02- 05 Co-production of a youth advocacy video on unhealthy food marketing in Scotland

Marissa J. Smith[1], Caroline Vaczy[1], Shona Hilton[1]

[1]University of Glasgow: Children and young people in the United Kingdom (UK) are disproportionately affected by food marketing and obesity as compared with other age groups. The most recent data available from the Scottish Health Survey 2022 shows that 18% of children aged 2-15 are now at risk of developing obesity. The latest UK and Scottish Government obesity plans propose measures to reduce consumer exposure to products high in fat, salt and sugar (HFSS), including tackling price and location promotions and limiting children's marketing exposure by restricting TV advertisements. This research aimed to investigate young people's exposure to and perceptions of unhealthy food marketing to co-produce an advocacy video. Between March to September 2023, a four-phase project was conducted with young people aged 11–16 living in the central belt area of Scotland, UK. The phases included; 1) workshops to discuss their experiences with unhealthy food marketing; 2) photographing examples of marketing in their local areas and online; 3) focus groups to discuss the photographs and 4) co-production of an advocacy video featuring photos taken by the young people. The video was co-produced in collaboration with young people, the research team, and a specialised video production company. Young people frequently encounter unhealthy food marketing daily, whether watching TV, browsing social media, walking around town or to or from school, or waiting for a bus. Many young people reported being personally influenced by marketing techniques including social media influencers, food-related apps, promotions, brightly coloured and attention-catching adverts, and food company branding. Additionally, several young people discussed the targeted advertising by fast-food chains aimed at their age group or younger. The young people were predominantly supportive of increasing the representation of 'healthy' foods in advertising, marketing and promotional materials, highlighting that doing so could have the potential to encourage people to purchase healthier foods, thus improving population health. Our project co-produced a youth advocacy video that can persuade audiences such as Members of the Scottish Parliament to influence policies, furthermore, it will empower a new generation to advocate for themselves as their voices help shape policy regarding promotions and other facets of the obesogenic food environment.

Declarations: None

O03: NOVEL AND EMERGING INTERVENTIONS FOR OBESITY MANAGEMENT

O03-01 The views of specialist adult weight management dietitians on Tier 3 service provision for people with obesity and severe mental illness and/or learning disability: a qualitative study

Anita Attala[1], Emma Giles[2]

[1]Northumbria Healthcare NHS Foundation Trust, [2]Teesside University: Specialist adult weight management (AWM) services (tier 3) provide multidisciplinary support for people with obesity to manage their weight. Many people with severe mental illness (SMI)/learning disability have obesity. This study aimed to explore the opinions of specialist AWM dietitians in the North-East and North Cumbria (NENC) region regarding their skills, knowledge, and services for supporting people with obesity and SMI/learning disability. Dietitians (n = 9), who responded from five of the six NHS Trusts in the NENC region, were purposively selected, ensuring a representation of genders, experience, and NHS Trusts. Semi-structured interviews were conducted over Microsoft Teams, in July 2023. The data was thematically analysed. There was inconsistency in dietitians' pre-registration training on SMI/learning disability. Dietitians' confidence in supporting people with SMI/learning disability was also wide ranging. Six themes were identified: training, resources, service provision, networking & external influences, assessment, and compassion & self-efficacy. Specialist AWM dietitians in the NENC region are compassionate and want to provide a supportive service for people with obesity and SMI/learning disability. However, they occasionally felt they failed this client group due to lack of training and resources. Improved training on, and resources for, SMI/learning disability may help to improve dietitians' confidence and reduce stigma when supporting people with these conditions. Additionally, linking with mental health dietitians for supervision, training and resources may increase dietitians' confidence and improve patient care. The British Dietetic Association (BDA) may wish to lead on ensuring the provision of training pre- and/or post-registration training on SMI and learning disability, as well as accessible resource development/sharing. Furthermore, specialist AWM dietitians endeavour to make reasonable adjustments but may be limited due to staffing pressures and waiting lists. Alternative pathways for people with additional needs and obesity might be of benefit. Additional funding and comprehensively completed referrals may assist this.

Declarations: None

O03-02 Effectiveness of a low carbohydrate weight loss programme with remote support for glycaemic control in people with type 2 diabetes in primary care: A randomised clinical trial

Elizabeth Morris[1], Jadine Scragg[1], Richard Stevens[1], Susan A Jebb[1], Paul Aveyard[1]

[1]University of Oxford: The NHS commissions digitally delivered weight loss programmes to support people with type 2 diabetes (T2D) based on observational evidence of their effectiveness. Low carbohydrate programmes may be especially beneficial to people with T2D. We conducted a randomised trial to establish the effectiveness of an NHS-provided digitally supported programme with advice to lower-carbohydrate intake to improve glycaemic control and support weight loss for people with T2D, compared with usual diabetes management in primary care. We recruited and individually randomised 115 people with T2D and BMI greater than 27 kg/m^2 from 19 UK general practices to receive either a 12-week programme with dietary advice to lower carbohydrate intake and remote support (n = 55), or usual primary care for T2D (n = 60). We analysed the change in HbA1c (primary outcome), weight, blood pressure, lipid profile, and quality of life (QOL) at 3 and 12 months. Programme engagement was assessed based on dietary data, use of digital tools, and qualitative interviews. Participants (55% women, 94.8% White) were recruited between November 2021 and July 2022. There was no between-group difference in HbA1c change from baseline to 3 (n = 107) and 12 months (n = 110) (estimated mean difference (95% CI) 2.1mmol/mol (−1.6–5.8), and 1.3 (−2.4–5.0) respectively). An omnibus likelihood ratio test did not support the primary hypothesis (p = 0.51). Greater mean weight change in the intervention group at 3 months (adjusted difference 2.8 kg (0.9–4.8)), was not sustained by 12 months (−0.2 kg (−2.1–1.8)). Both groups reported reduced energy intake at 3 and 12 months. There was a small reduction in carbohydrate intake in the intervention group relative to control at 3 (adjusted mean difference 10% (4 to 16, p = 0.001) but not 12 months. Cardiometabolic risk and diabetes distress reduced and QOL increased in both groups with no evidence of a difference between groups. There was no evidence of a meaningful impact of the intervention on glycaemia, cardiovascular risk factors, or wellbeing beyond that achieved with usual care. Assessing the benefits of this type of programme using observational evidence may be misleading and RCTs are needed to ensure these programmes add value in healthcare systems.

Declarations: PA and SAJ are investigators on a trial in which Nestle donated food products to support the trial.

O03-03 The effectiveness of Liraglutide 3mg for managing obesity: a retrospective analysis of real world clinical data

Kieran Sachania[1], Cari O'Rourke[1], Irena Cruiskshank[1], Isy Douek[1], Rob Andrews[1], Rhodri King[1]

[1]Musgrove Park Hospital: Liraglutide 3mg for weight loss was approved for NHS use in December 2020. This was for a maximum duration of 2 years, and limited to prescribing within Tier 3 weight management services in England to patients meeting certain clinical criteria. Only patients that achieved >5% weight loss at 3 months were able to continue beyond this time. A variety of factors meant that its use nationally was limited, and there is a paucity of NHS data demonstrating its effectiveness in a real-world clinical setting. The aim of this study was to investigate the effectiveness of Liraglutide 3mg on weight, BMI and treatment tolerability in a Tier 3 weight management clinic. Data were retrospectively obtained from medical records for patients commenced on Liragluitde between January 2021 and June 2023 in the weight management service at Musgrove Park Hospital, Taunton. 135 patients were identified, 73% female with mean (±SD) baseline age, weight and BMI of 51.8 years, 141.2 ± (30.5) kg and 50.7 (±9.3) kg/m^2. Twenty five patients (18.5%) had discontinued Liraglutide by 6 months due to either side effects (n = 8) or <5% weight loss (n = 17). Seven patients had been lost to follow up, meaning 103 patients had completed 6 months of treatment and 40 of these completed 12 months of treatment. Average (±SD) percentage weight loss at 6 and 12 months was 7 ± 4.6% and 10 ± 6.6% respectively. Reported side effects were similar to known adverse effects including nausea, vomiting, constipation and diarrhoea. This study illustrates that the use of GLP-1 medication in a real world setting can achieve significant weight loss, similar to that achieved in clinical trials. It also highlights the need to stop treatment when efficacy is low to maximise results and minimise adverse effects. Regular clinical support is needed to aid treatment tolerability and reduce discontinuation rates. Unfortunately, restricted access to effective medications for weight loss is likely to continue following national guidance for the next generation of GLP-1 agents such as Semaglutide 2.4mg, and wider, more equitable access is required.

Declarations: None

O03-04 Influence of opiates, steroids and psychotropic medications on weight loss response to bariatric surgery

George Lam[1], Sultan Aydemir[1], Kavita Narula[1], Samantha Scholtz[2], Lucy Tweedle[2], Karen O'Donnell[1], Chioma Izzi-Engbeaya[1], Jessica Upton[1], Anna Sackey[1], Louisa Brolly[1], Bernard Khoo[3], Harvinder Chahal[1], Saira Hameed[1], Sanjay Purkayastha[1], Christos Tsironis[1], Ahmed R. Ahmed[1], Tricia Tan[1]

[1]Imperial College Healthcare NHS Trust, [2]Imperial College London, [2]Imperial College Healthcare NHS Trust, [3]West London Mental Health Trust: Bariatric surgery is still the most effective intervention for obesity. About 20% of patients are 'Poor Responders' where a patient never achieves a minimal total weight loss (TWL%) of 20% or regains weight to a final TWL% of <20% on long-term follow-up. The reasons for poor response are not clear. Many patients are treated with polypharmacy for obesity-related chronic pain (opiates and steroids) and often present with mental health conditions that are treated with psychotropic medication. These medications are associated, in healthy individuals, with weight gain. The effect of these medications on weight-loss outcomes in bariatric patients is not known. Our objective was to understand whether use of medications (opiates, steroids, antidepressants and antipsychotics) can influence weight-loss outcomes. We hypothesised that treatment with opiates, steroids, antidepressants and antipsychotics will lead to lower TWL% on long-term follow-up (defined as ≥48 months after surgery) and a greater proportion of 'Poor Responders'. Retrospective, observational cohort study on 370 patients that received bariatric surgery at Imperial Weight Centre, between 13 October 2014 and 29 November 2021, with follow-up weight data to ≥48 months after surgery. The use of opiates, steroids, antidepressants and antipsychotics was recorded at baseline and 12-months. Surgery type was significantly associated with the 'Good and Poor Response': Roux-en-Y Gastric Bypass had the greatest proportion of Good Responders and best weight loss outcomes, followed by sleeve gastrectomy and then gastric banding. We found no association between opiates, steroids, antidepressant or antipsychotic use neither at baseline nor 12-months with 'Good and Poor Response' trajectory types. It has previously been assumed that pre- and post-operative use of opiates, steroids, antidepressant and antipsychotic therapy might influence post-surgical weight loss, however, these were not found to be influential in this retrospective analysis. Therefore, it is important to conduct further research to identify other modifiable factors that may play a role in influencing post-surgical weight loss.

Declarations: None

O03-05 Outcomes of 'My Life Plan' An Inclusive Digital Weight Loss Programme by Morelife

AB Sirin Ayva[1], Sophie Edwards[1], Victoria Simpson[1], Paul Gately[1]

[1]MoreLife UK: Individuals living in deprived areas may experience some barriers to accessing weight management services. Common barriers include language barriers, shift work, childcare, and lifestyle. Research shows that digital interventions help support weight loss in adults living with obesity and overweight. MyLifePlan (MLP) was created by Morelife, an interactive digital platform consisting of 12 weekly sessions with educational videos, recipes, podcasts and other nutrition, physical activity and psychology resources. The platform is accessible through mobile phones and computers. It has Auto-translation to 98 languages and ReachDeck assistive technologies: text-to-speech, translations, Picture Dictionary, Screen Mask (reduces visual stress/improves focus), text magnifier, webpage simplifier (removes potentially distracting content),and multiple formats including Easy Read. Recipes on this platform reflect a variety of cultures, religions, beliefs and financial pressures. The platform has progress and interactive goals/exercise trackers, motivational and personalised nudges and interactive challenges. This digital platform has been offered to Morelife clients as an option for weight management purposes. This service evaluation aims to analyse the outcomes of the MLP platform. In total, 262 (155 female, 107 male) clients completed the digital programme by engaging with the content for 12 weekly sessions and uploading their self-measured weight between weeks 8 and 12. 215 (82%) had hypertension, 49 (19%) Type 1 diabetes and 61 (23%) Type 3 diabetes. Outcomes show that 189 (72%) clients lost more than 3% of their initial body weight, and 126 (48%) clients lost more than 5% of their initial body weight. 49% of those with hypertension, Type 1 and Type 2 diabetes, 49%, 29% and 46% achieved over 5% weight loss respectively. These outcomes show that the MLP digital programme helps clients with hypertension and diabetes lose weight in 12 weeks. Future research is needed to evaluate the long-term effectiveness of this platform for weight loss maintenance and to identify characteristics of those most likely to have success using a digital platform for weight management.

Declarations: None

O4: OBESITY SERVICES IN THE UK

O4-01 Added value from multidisciplinary specialist weight management services - an underappreciated resource?

Carly A Hughes[1], Helen M Parretti[2]

[1]Fakenham Medical Practice, [2]University of East Anglia: Multidisciplinary specialist weight management services are recommended for people living with severe and complex obesity. However, they are not universally commissioned, and commissioners sometimes query their value. However, in addition to weight management, there can be other under-reported benefits from these services. These are illustrated here from the experience of the Fakenham Weight Management Service (FWMS), a community-based service, which ran for 10yrs. None of the following were commissioned or funded, so represent added value generated by the enthusiasm of the multidisciplinary team, and cross fertilisation of ideas. FWMS was integral in setting up and running a local obesity network, providing educational meetings between local public health, commissioners and weight management, nutrition and physical activity providers. Local care pathways were mapped, gaps identified and shared with Norfolk primary care practices to improve access to care for people living with obesity (PLwO). Innovatively, FWMS included patients in its core management group and sought detailed patient feedback to develop the service, leading to problems with long-term follow-up being identified. Subsequently, long-term support groups were established and FWMS staff became instrumental in research into long-term post-bariatric surgery follow-up, including developing resources for GPs (https://bomss.org/gp-hub).The multidisciplinary nature of the team allowed inter-specialty learning, which improved the quality and flexibility of the service, e.g., the development of eating behaviour groups delivered by clinical staff after training from the psychologist. FWMS hosted training for doctors and nurses in obesity management, and inspired, mentored and supported future clinical leaders in obesity, whilst also improving training for primary care staff. Links were developed with the local university to offer healthcare students research opportunities and a register of patients interested in research was developed (some participated in national research). Two FWMS physicians developed academic obesity careers. Since 2014 FWMS staff have been involved in running the Eastern region ASO, and extensive national and international education work, including publishing data on the service (https://onlinelibrary.wiley.com/doi/10.1111/cob.12066), which has been viewed >1000 times. In summary, as well as providing commissioned clinical care, FWMS fostered local interest, learning and innovation in obesity management, leading to improved care for PLwO beyond its own patients.

Declarations: C A Hughes-Education work funded by NovoNordisc and Ethicon. H M Parretti None

O4-02 Turning the tide towards healthy weight in Scotland

Tom Steiner[1], Jennifer Forsyth[1]

[1]Scottish Obesity Alliance: In 2021, a unique strategy report was published which provided cross-sectoral policy recommendations on obesity prevention. The strategy was a first of its kind, using expertise from various health professionals to form clear evidence-based policy actions aimed at UK Government decision-makers. Following this publication, the Scottish Obesity Alliance aimed to design a similar strategy with a focus on forming policy recommendations specific to the context in Scotland and its government's devolved powers. To achieve this, sector-mapping was carried out to identify key drivers of diet and weight outcomes, along with national experts in each area. Topics of focus included (but were not limited to) marketing of unhealthy food and drink products, planning policy, physical activity, infant feeding, and public procurement of food and drink. Experts were contacted and subsequently interviewed using a uniform interview guide to elicit responses that could be reported in a similar format. Eleven interviews were completed in total, and all were recorded to ensure discussion points could be captured in full afterwards. Responses were analysed alongside existing evidence for each topic to produce final policy recommendations that would be immediately valuable to policymakers in Scotland. A total of 33 recommendations were developed and categorised using the KIND framework (Keep, Intensify, New, Develop) to represent their respective stages in the policy-making process (e.g., Keep reflects policies that already exist, while Develop represents areas that have not yet been explored). The final report provides a novel addition to policy advocacy efforts in Scotland and underlines the high number of evidence-based, cross-sectoral actions that health leaders could employ to increase levels of healthy weight at the population level.

Declarations: None

O4-03 Under- or non-commissioning of Tier 3 Obesity Services by Integrated Care Boards (ICBs) in England

Nick Finer[1], Cecilia Pyper[1]

[1]Public Health Action Support Team (PHAST): PHAST surveyed Tier 3 weight management adult services in England

commissioned by ICBs across England in financial year 2022-2023 via freedom of information requests. We received responses from all 42 ICSs, a 100% response rate. Five ICS reported that their ICB had no Tier 3 provision (NHS NW London, NC London, Lancashire and South Cumbria, Northeast and North Cumbria, and Northamptonshire.) Since deprivation is the major underlying inequality underpinning differences in obesity levels we explored the relationship with deprivation measured by the Index of Multiple Deprivation (IDM) for each ICB and referral rates to Tier 3 services. Including only data from those ICBs returning numbers of referrals, we identified there was no correlation between IMD and referral rates ($R2 = 0{,}074$; $P = 0.210$). Since obesity prevalence data mapped to ICB level was not available, we used regional data and estimated that 25% of those with obesity were likely to have a BMI ≥ 35 and be eligible for referral to Tier 3 management. We then calculated the percentage receiving treatment. The percentage of eligible patients treated (according to ICB reports) ranged from zero to 1.1%, the highest number in the South East of England, this region correlated with the lowest levels of deprivation. Lastly, we noted that, several ICBs were commissioning services that appeared to not meet the definition of a Tier 3 service and were more in keeping with the criteria for a Tier 2 service. Accessing full details for these programmes is currently not readily available. However, treatment programmes exclusively accessed online are: incomplete in their multidisciplinary team; lack clinical assessment and screening for obesity related diseases; without access to pharmacotherapy or bariatric surgery and do not comply with NICE guidance. In addition, current Tier 3 commissioned services often do not meet commissioning guidelines. We conclude that provision of Tier 3 services in England is both inadequate and variable in the way it meets the needs of the population, with 5 regions providing no services at all. Action is urgently required to implement government policy and meet clinical need and guidelines.

Declarations: None

O4-04 Effect of the National Enhanced Service for Obesity on the content of annual review consultations for patients with obesity who have hypertension or diabetes

Stella JP Haffner[1], Sarah Mounsey[1], Rachna Begh[1], Anisa Hajizadeh[1], Alice Hobson[1], Paul Doody[1] Charlotte Albury[1], Laura Heath[1], Kayley McPherson[1], Susan A Jebb[1] Paul Aveyard[1]

[1]University of Oxford: UK guidelines recommend that clinicians offer support to patients (such as referral to a smoking cessation programme) when patients present with certain modifiable risk factors. While the guidelines specify that clinicians should intervene when patients have obesity or a high waist circumference, referrals to weight management services are infrequently offered by practitioners. To provide additional support to patients living with obesity and weight-related conditions, the government instated the National Enhanced Service for weight management (NES) in England, including an incentive to reimburse practices for referring patients to weight management programmes. The current investigation aimed to assess the impact of the NES on conversations about weight and related behavioural risk factors in primary care consultations. Eleven medical practices were recruited from England where the NES was operating and six comparator practices from Scotland and Wales where there was no NES. Clinicians audio-recorded annual review appointments of patients living with obesity and hypertension and/or diabetes – conditions where weight loss can improve the medical issue and where the reduction of other behavioural risk factors would reduce the risk of complications. The content of these consultations discussing weight and related behavioural risk factors was synthesised using conventional content analysis. Consultations with 92 patients with obesity and a diagnosis of hypertension and/or diabetes were analysed, 58 in England and 34 in Scotland and Wales. No difference was found between the NES sites (England) and non-NES sites (Scotland and Wales) in the proportion of referrals made to weight management programmes. Clinicians in England weighed patients and took other body measurements more often, mentioned BMI more often, and had more detailed discussions about patients' diets, but there was no evidence they differed in their discussion of weight management programmes or other modifiable risk factors. We found no strong evidence that the NES affected how clinicians addressed weight management or related behavioural risk factors within annual review consultations for patients living with obesity and hypertension and/or diabetes.

Declarations: None

O5: RAPID FIRE COMMUNICATIONS

O05-01 "My words would have more weight": Exploring weight stigma in UK dietetic practice and dietitian's lived experiences of weight stigma

Adrian Brown[1], Stuart Flint[2]

[1]University College London, [2] University of Leeds: Weight stigma is pervasive within healthcare and negatively impacts both access to care and the patient-practitioner relationship. There is limited evidence about weight stigma amongst registered dietitians, particularly in the UK, though data suggests weight-related prejudice towards people living with obesity. The aim of this study was to examine both explicit and implicit weight stigma in UK practicing dietitians and the lived experience of weight stigma among dietitians towards themselves and towards others. An online cross-sectional survey was disseminated between February to May 2022 through social media advertisements and professional organisations using purposive and snowball sampling. 402 dietitians responded to the survey (female [94.1%], mean age 40.2 years [SD 10.7]; White ethnicity [90%]; median 12 years [IQR 6, 22] within dietetic practice). Mean self-reported body mass index (BMI) was 25.1 kg/m^2 (SD 8.7). Dietitians self-reported experiencing weight stigma prior to (51%) and post-registration (59.7%), while nearly a quarter (21.1%) reporting that body-size influenced their ability to perform as a dietitian. Overall participants reported explicit weight bias attitudes towards people living with obesity, moderate beliefs that obesity is controllable and implicit anti-fat bias. Weight bias internalisation significantly differed according to BMI, with those with a self-reported BMI ≥ 25 kg/m^2 and BMI ≥ 30 kg/m^2 having the highest scores. Dietitians with a BMI ≥ 30 kg/m^2 reported higher weight bias internalisation scores compared to dietitians with a BMI < 30 kg/m^2. Qualitative responses revealed dietitians reported three key themes related to their personal experiences of weight stigma towards themselves and others 1) experiences of stigma in dietetic practice, 2) impact of weight stigma and 3) implication of weight, appearance, and job. This study shows that UK registered dietitians exhibit both explicit and implicit weight bias towards people living with obesity. Dietitians reported that their experiences of weight stigma and body size have impacted career related decisions including the area of expertise they chose to train and work in, and their perception of their ability to perform the role of a dietitian, with dietitians appearing to avoid obesity management to avoid being stigmatised. The study findings highlight the need to address weight stigma and its implications within the dietetic profession.

Declarations: AB reports honoraria from Novo Nordisk, Office of Health Improvement and Disparity, Johnson and Johnson and

Obesity UK outside the submitted work and is on the Medical Advisory Board and shareholder of Reset Health Clinics Ltd. SWF reports grants from Novo Nordisk, travel fees to attend academic meetings from Novo Nordisk and Johnson & Johnson, outside the submitted work.

O502 A systematic review and qualitative synthesis of weight management interventions for people with spinal cord injury

Carolyn Taylor[1], Claire Madigan[2], James King[2], Sven Hoekstra[3], Henrietta Graham[2], Hatasha Kirk[2], Jordan Fenton[2], Vicky Goosey-Tolfrey[2]

[1]Sheffield Teaching Hospitals NHS Foundation Trust, [2]Loughborough University, [3]University of Texas Health Science Center at San Antonio: Due to muscle atrophy, people with spinal cord injury (SCI) have altered body compositions leading to higher fat mass compared to the muscle mass of those without a spinal cord injury. This increases the risk of developing obesity and related co-morbidities, above that seen in the general population. The objectives of this systematic review were to examine the effectiveness of weight management interventions for people with SCI and to synthesise the experiences of people involved with SCI weight management (e.g., SCI healthcare professionals and caregivers). Five databases (Medline, SportsDiscus, CENTRAL, Embase, and Scopus) were searched (up to 31st July 2023) and 5,491 potentially eligible articles were identified. Following screening, 22 articles were included, comprising of 562 adults. There was considerable heterogeneity in study design, and weight loss interventions included behavioural nutritional and exercise education sessions, recalling food diaries, exercise interventions and pharmaceuticals. The mean percentage change of the pooled body mass data equated to -4.0 ± 2.3%, with a range from -0.5 to -7.6%. In addition, 38% of the individuals with SCI who completed a weight loss intervention (N = 262) had a ≥ 5% reduction in body weight, with highest weight loss seen in those with a higher body mass index. Qualitative synthesis indicated that among health care professionals (HCP) there was a perceived lack of evidence for weight management in SCI, HCPs struggled with supporting barriers to weight loss including when to discuss weight management, how to increase physical activity and it being a lower priority in rehabilitation. Collectively, although on average the included interventions led to moderate weight loss, the finding that just over a third of individuals achieved clinically meaningful 5% weight loss suggests that available interventions for this population may need to be improved. HCPs lack of the awareness of recommendations for SCI, therefore interventions need to include improving communication and training within the HCP community.

Declarations: None.

O5-03 A latent trajectory analysis of upper tier local authority trends in children living with obesity

John Rahilly[1], Mario Cortina Borja[1], Oliver Mytton[1]

[1]Great Ormond Street Institute of Child Health, University College London: There is marked local variation in the prevalence of children living with obesity across England. Identifying areas which diverge from the majority over time may offer insights to inform intervention. We used routinely published National Child Measurement Programme data on the prevalence of children in Reception and Year 6 living with obesity (BMI ≥ 95th centile) for 150 Upper Tier Local Authorities (LAs) in England for each year (2007/2008 to 2018/2019). We fitted linear Latent Growth Mixture Models to identify distinct classes with different trajectories. We then used logistic regression to test whether socio-demographic factors would predict class membership, using routinely collected data: Index of Multiple Deprivation [IMD] (2010, 2015, 2019), Income Deprivation Affecting Children Index [IDACI] (2010, 2015, 2019) and school ethnicity (2010 - 2019). Analyses of Reception data separated LAs into two classes; Class I (majority group): "Moderate & Stable" (136/150, 91%); and Class II: "High & Declining" prevalence (14/150, 9%). For Year 6 LAs there were three classes; Class I (majority group): "Moderate & Increasing" (125/150, 83%); Class II: "High & Stable" (12/150, 8%); and Class III: "Low & Stable" prevalence (13/150, 9%). Nine LAs were Class II for both Reception and Year 6. LAs assigned to Class II trajectories tended to be located within London or the South-East (13/14 for Reception, 11/12 for Year 6) and Class III primarily in the South. Class II membership was associated with higher deprivation and a higher proportion of the child population being from ethnic minority groups at multiple time points. It was also associated with a relative reduction in deprivation over time, but not with a change in the ethnic composition of the population. Class III membership was associated with lower deprivation. There was no association with ethnicity or change in deprivation or ethnicity. A small number of LAs, predominantly located in the South-East of England, were identified as following trajectories that diverged from the majority for both Year 6 and Reception children. These authorities should be subject to further analysis to identify and understand any shared modifiable factors, which could have contributed to this trend.

Declarations: None

O5-04 Associations of body composition with risk of cardiovascular disease among South Asians in UK Biobank

Federica Re[1], Paul Sherliker[1], Andrew Browne[1], Jennifer L. Carter[1]

[1]University of Oxford: The relevance of measures of general and central adiposity for cardiovascular disease (CVD) risks in populations of European descent is well-established. However, findings in South Asian populations have been inconsistent, largely due to small, cross-sectional studies and limited data on non-fatal disease. We investigated the relations of body mass index (BMI), waist circumference (WC), and fat mass with incident fatal and non-fatal CVD among South Asian individuals in UK Biobank. Within the UK Biobank prospective study, 8,855 middle-aged men and women of South Asian ancestry were examined. To mitigate reverse causality, participants with a history of CVD, stroke, or cancer in the five years prior to baseline assessment were excluded. The relationship of BMI, WC, and fat mass corrected for fat-free mass with risk of fatal and non-fatal CVD, defined as myocardial infarction, coronary revascularization, or ischaemic stroke, was assessed using Cox proportional hazards regressions, along with examination of a broad range of clinical and lifestyle covariates. Measures of body composition were examined in quartiles to assess shape, and if approximately linear, as continuous one standard deviation (SD) changes to compare strength across measures. Mean (SD) BMI, WC, and fat-mass were 27.1 kg/m^2 (4.4), 91 cm (11.8), and 23.3 kg (8.3) respectively. Over a median follow-up of 11 years, 2,064 (23.3%) individuals experienced a fatal or non-fatal CVD event. The shape of associations with CVD were approximately linear for all measures of body composition. After adjustment for a range of clinical, anthropometric, and lifestyle risk factors, the hazard ratio (HR) of CVD per 1-SD change in BMI was 1.26 (95%CI: 1.20–1.33), 1.30 (95%CI: 1.22–1.37) for WC, and 1.23 (95%CI: 1.15–1.32) for fat mass adjusted for fat-free mass. Adjustment for confounders resulted in only a modest attenuation of the observed effects compared to minimally adjusted models. Measures of both general and central adiposity had strong, positive associations with risk of fatal and non-fatal CVD among South Asians in UK Biobank. Larger

prospective samples within South Asian countries are required to further support these findings and inform targeted CVD primary prevention efforts in these populations.

Declarations: None

O05-05 Assessing adherence to Government's sugar, salt, and calorie reduction targets of the top 20 UK restaurants' menus in 2024: A cross-sectional study

Alice O'Hagan[1], Rachel Pechey[1], Hannah Forde[1], Lauren Bandy[1]

[1]University of Oxford: To confront growing obesity rates, the UK government published voluntary targets for industry to reduce the calorie, salt, and sugar content of food products. Initial reports suggest little progress has been made across the food sectors, however assessment of the out-of-home sector is particularly lacking due to insufficient nutritional data. This study aims to assess the adherence to targets and overall nutritional content of food products sold by the 20 highest-grossing chained restaurants in the UK. Data from market research company Euromonitor International was used to identify the top 20 UK chained restaurants. Nutritional information for 4880 products was collected manually from restaurant websites. Each product was given an overall category (e.g., main meals, sides, etc.), and a category defined by the calorie, sugar and salt reduction targets. The UK Ofcom Nutrient Profile Model (NPM) was applied to each product, providing them with a score ranging from -15 (most nutritious) to 40 (least nutritious). Products were classified as 'healthy' or 'less healthy' based on their NPM score, in-line with Ofcom NPM guidelines. 72% of products met calorie targets, 60% met salt targets, 36% met sugar targets, and 43% met all applicable targets. Categories with the highest proportion of products meeting the respective target were 'Salads' for calories (96%) and all applicable targets (96%), 'Burgers' for salt (100%), and 'Breakfast Items' for sugar (73%). Salads had the lowest mean NPM score (-5.67) and lowest proportion of products classified as 'less healthy' (0%), whilst Desserts, cakes, and other sweet treats had the highest mean NPM score (15.49) and highest proportion of products classified as 'less healthy' (89%). The calorie targets were reasonably well adhered to whilst a significant proportion of products still exceeded the target levels for salt and sugar especially. There was great heterogeneity between individual restaurants' levels of adherence, with the proportion of products meeting all applicable targets ranging from 7-78% across companies. The low adherence rates may be a result of ambiguities in the food categorisation system the targets use, making application somewhat subjective and thus preventing progress towards target attainment.

Declarations: None

POSTER SESSIONS

P01 Navigating weight management discussions in real-world GP-patient primary care consultations: A qualitative exploratory study in Australian general practice

Kimberley Norman[1], Neha Giri[1], Divya Ramachadran[1], Nilakshi Gunatillaka[1], Kellie West[1], Elizabeth Sturgiss[1]

[1]Monash University: The highly individualised experience of living with obesity, coupled with the challenge for GPs to deliver healthcare messages in non-stigmatising ways, makes the role of a GP in obesity management complex. This study aimed to explore discussion strategies used in real-world GP-patient consultations when discussing obesity. Secondary data analysis of Australia's first, and only, Digital Library of naturally occurring video recorded consultations was used. Forty-seven consultations and patient post-consultation satisfaction surveys were analysed using descriptive content analysis with seventeen consultations discussing weight eligible for in-depth analysis. A multi-disciplinary research team, including lived experience experts and practicing GPs conducted the analysis. 15/17 discussions about health in relation to weight were GP initiated and 2/17 were patient initiated. 14 used a structured approach (all GP initiated), while 3 used an opportunistic approach to weight (one GP and two patient initiated). GPs routinely asked for consent to discuss weight as part of their routine care, or gave space for the patient to decline discussion. Weight was always positioned as a factor in relation to another presenting health concern of the patient and was discussed in positive, encouraging ways that were relative to each individual patient's health context. All patients reported in a post-consultation survey that they felt listened to and respected during consultations. This study of naturally occurring GP-patient consultations highlighted the intricacies of ways the topic of weight was approached in consultations. GPs navigated weight discussions in a way that attempted to minimise potential damage to the therapeutic relationship and related weight to health concerns relevant to each patient. While there was no overt discourse or behaviour from patients to indicate obesity stigma was present in these consultations, potentially stigma could have been internalised or perceived by patients. With the majority of weight discussions initiated by GPs in structured ways in these consultations, future research could look to develop specific evidence based non-stigmatising 'weight' discussion prompters for GPs to refer to in their practice for flexible consistency with the range of patients seen. Such prompters could support GPs to discuss weight in consultations and ensure potential covert stigma is minimised.

Declarations: None

P05 Lifestyle and BMI affect young people's blood pressure: a mixed methods study

Trang Hong Khoa[1], Bui Cong Minh[1], Tran Xuan Quynh[1], Nguyen Chien Thang[1], To Minh Thien[1], Vo Minh Dung Ngan[1], Vo Tran Phuong Tuong[1]

[1]Can Tho University of Medicine and Pharmacy: In clinical practice blood pressure is a vital sign easily affected by various factors. Control of the non-pathological factors is necessary to ensure the accuracy of blood pressure. Measurement technique, movement state, and Body Mass Index (BMI) might strongly correlate with blood pressure. This study ssessed the association between blood pressure and BMI using linear regression and survey the knowledge and attitude about nutrition and physical exercise. It combined cross-sectional descriptive and questionnaire methods in 310 students 20–25 years old at Can Tho University of Medicine and Pharmacy, Vietnam. The history of hypertension and hypotension is 1.3% and 1.6%, respectively, with 0.3% using medication to regulate blood pressure. The BMI is 13.6–33.9 kg/m^2. The systolic blood pressure (SBP) and diastolic blood pressure (DBP) are significantly different between the left and right upper limbs ($p < 0.001$). The SBP of the left upper limb increases in movement state by 14.6 ± 9.8 mmHg ($p < 0.001$, 95%CI: 15.7–13.5). The DBP of the left upper limb decreases in movement state by 1.7 ± 7.6 mmHg ($p < 0.001$, 95%CI: 0.8–2.5). The SBP and DBP relate to BMI through the following equation: $SBP = 71.41 + 1.8x$ BMI ($R^2 = 0.21$, $p < 0.05$), $DBP = 52.02 + 0.81$ x BMI ($R^2 = 0.09$, $p < 0.05$). The rates of unknown harm associated with laking breakfast and regular physical exercise are 3.9% and 3.2%, respectively. 8.1% feel it is challenging to have three main dishes daily, and 6.5% feel it is difficult to have regular exercises. There is an association between BMI and SBP, DBP, in which, lack of knowledge about diet and exercise increases BMI.

Declarations: None

P06 Feasibility and preliminary efficacy of N-Acetylcysteine for loss of control eating: an open label study

Muthmainah Muthmainah[1], Diana Sketriene[1], Roberta Anversa[1], Andrea Gogos[1], Priya Sumithran[2], Robyn Brown[1]

[1]University of Melbourne, Australia, [2]Monash University, Australia: Loss of control eating negatively impacts outcomes of obesity treatment. However, there are a lack of effective medications for this maladaptive eating behaviour. N-acetylcysteine (NAC) has been shown to restore glutamatergic dysfunction in the brain and reduce several compulsive behaviours. We evaluated the feasibility and preliminary efficacy of NAC for loss of control eating. A single site open label study involving community residents in greater Melbourne was conducted between January and October 2023. A total of 30 participants with loss of control eating were enroled in the study. Participants received oral NAC medication (2400 mg/day) for 12 weeks. Treatment outcomes were assessed using both retrospective questionnaires and ecological momentary assessment (EMA). The primary outcome was feasibility including recruitment rate, retention rate at week 12, and adherence to medication. The secondary outcome was change in loss of control eating from baseline to week 12. Changes in drivers of eating behaviour as a result of NAC treatment were also explored. Recruitment rate was 3.8 participants per month; retention rate was 90% and medication adherence was 93%. Participants reported significant reduction in the frequency and severity of loss of control eating after NAC treatment. Participants showed less food craving, emotional eating, and pre-occupation with food at the end of week 12. Our data show that delivering a 12-week NAC intervention in people with loss of control eating and conducting behavioural assessments using EMA is feasible. This pilot study provides a rationale for conducting a randomised controlled trial to determine the efficacy of NAC for compulsive eating.

Declarations: PS has co-authored manuscripts with medical writing assistance provided by Novo Nordisk and Eli Lilly. The other authors declare none.

P08 The effects of a home-based resistance training programme on body composition and muscle function during weight loss in people living with overweight or obesity: a randomised controlled pilot trial

Ahmad Binmahfoz[1], Emma Dunning[1], Lynsey Johnston[1], Cindy M Gray[1], Stuart Gray[1]

[1]University of Glasgow: Obesity continues to grow as a public health concern and is associated with an increased risk of morbidity and mortality, and an increase in health and social care costs. Although dietary interventions can be effective at reducing body mass and improving cardiovascular risk factors, they also result in undesirable loss of lean tissue, highlighting the need for strategies that preserve muscle mass during weight loss. The aim of this randomised controlled trial was to investigate the effects of a home-based resistance training exercise programme on body composition and muscle function in people living with overweight or obesity undergoing dietary weight loss. Participants ($n = 48$) from Glasgow were randomly assigned to either a diet-induced weight loss group (WL) or a diet plus home-based resistance training exercise group (RT + WL) for 12-weeks. Measures of body composition, muscle strength, and physical function were assessed at baseline and post-intervention. There was no effect of the resistance exercise training programme (all $p > .05$) on body mass index (RT + WL: mean change (Δ)-0.87, 95% CI: -1.33, -0.41; WL: Δ-1, 95% CI: -1.61, -0.39), body mass (RT + WL: Δ-2.45, 95% CI: -3.77, -1.13; WL: Δ-2.83, 95% CI: -4.63, -1.03), fat mass (RT + WL: Δ-1.23, 95%CI: -2.48, 0.02; WL: Δ-1.94 95% CI: -3.59, -0.29), fat free mass (RT + WL: Δ-1.22, 95% CI: -2.41, -0.03; WL Δ-0.88, 95%CI: -1.62, -0.14) or muscle thickness (RT + WL: Δ-0.075, 95% CI: -1.3, 1.15; WL: Δ-0.74, 95% CI: -1.75, 0.27) during weight loss. However, resistance training during weight loss resulted in higher grip strength (RT + WL: Δ2.65, 95% CI: 0.44, 4.86; WL: Δ-0.26, 95% CI: -2.04, 1.51:$p = 0.046$), maximal voluntary contraction force (RT + WL:Δ23.61, 95% CI: 3.39, 43.84 WL: Δ-11.95, 95% CI: -35.37, 11.48;$p = 0.019$), and sit-to-stand test scores (RT + WL:Δ5.9, 95% CI: 4.27, 7.53 WL: Δ1.47, 95% CI: 0.13, 2.82; $p < 0.001$). These findings suggest that incorporating home-based resistance training into weight loss programmes can preserve, or even enhance, muscle function without negatively impacting the effectiveness of dietary weight loss interventions. The study highlights the potential of accessible, home-based resistance exercises in mitigating muscle function losses during weight loss in people living with overweight or obesity.

Declarations: None

P09 Validation and Efficacy of a Lifestyle Intervention Multidisciplinary AI-Based Weight Loss and Weight Maintenance Digital Platform

Sarfraz Khokhar[1], John Holden[2]

[1]Rasimo Systems, USA, [2]University of Illinois, USA: Lifestyle adjustment is a key component of weight management strategies as a standalone measure or complementing pharmacological or surgical therapies. Artificial intelligence, along with digital technologies, can offer individualised approaches to enable people to lose and maintain weight loss through lifestyle intervention. In this 2-phase study spanning 24 weeks each, our objective was to validate and quantify the efficacy of an AI-based lifestyle intervention digital platform implementing a multidisciplinary approach for weight loss and weight maintenance. During the first phase, the platform was tested by 391 participants (58% women) with a broad range of BMI (20–78 kg/m^2) aiming to lose weight in a multinational field trial. The focus of the second phase was weight loss maintenance. The digital platform consisted of a mobile app, an internet-connected scale, and a discipline of artificial intelligence called Expert system to provide individualised guidance, education, motivation, accountability, psychosocial coaching, and community support. The participants were on low calorie diet based on their metabolic rate. We divided the participants into seven subgroups: Overweight category, Obesity I, Obesity II, Obesity III, Obesity IV, Obesity V, and Obesity VI based on their BMI. After first phase completion, the participants achieved mean weight loss of 13.9% of their initial body weight, standard deviation (SD) = 4.4, 95% Confidence Interval: 13.4–14.3%, and p value < 0.00001. Individually, subgroups achieved 12.5–15.6% mean weight loss. Almost all (98.7%) participants lost at least 5% of body weight, 75% lost at least 10%, 43% at least 15%, and 9% at least 20%. During weight maintenance phase of 24 weeks, overall, 95.78% of participants maintained their weight with mean Additional Weight Loss (AWL) of 2.48%, with SD = 1.58, 95% confidence interval: 2.27–2.68%, p value < 0.00001. Individually, all participant who were in Overweight category maintained their weight with mean AWL of 1.72%. Among the remaining subgroups, 93.54 to 97.22% participant maintained their weight. Our study concludes that using an AI-assisted lifestyle intervention, with user-friendly and personalised features, people with all level of obesity can lose and maintain their weight. Such interventions not only can help maintain the weight loss but also can contribute to additional weight loss.

Declarations: None

P10 Encouraging healthy weight for adults living with learning disabilities: supporting the role of carers

Karen D Coulman[1], Justine Womack[2], Carly Atkinson[3], Briony Caffrey[4], Alison Tavaré[5], Nicola Powell[6], Roz Erskine-Gray[7], Amanda Owen-Smith[1]

[1]University of Bristol, [2]Office for Health Improvement and Disparities, UK, [3]Gloucestershire Hospitals NHS Foundation Trust, [4]Cornwall Partnership NHS Foundation, [5]Health Innovation West of England, UK, [6]NHS England South West, [7]Parent Carer representative: Adults with learning disabilities (LDs) die 20 years earlier than the general adult population and heart disease is one of the main causes of avoidable deaths. Adults with LDs have a higher prevalence of obesity, a key risk factor for heart disease. Adults with LDs often need support from carers to engage with and maintain healthy behaviours, however, a lack of appropriate training for carers has been identified. This research aims to develop free e-learning for carers on supporting healthy weight in people with LDs. Methods include three stages: 1) Identification and content analysis of key printed and online resources used by professionals to promote healthy weight in people with LDs, 2) Qualitative interviews with managers, clinical leads, and commissioners working in relevant health and social care settings ($n = 14$) to identify key barriers and enablers for carers in supporting healthy weight in people with LDs, to inform the training content, 3) Qualitative interviews with paid and unpaid carers to discuss and refine draft training content (in progress). Here we present key findings from thematic analysis of stage 2. The importance of the carer as a role model with 'a lot of power' in the relationship was highlighted. Key carer related challenges in promoting healthy weight in people with LDs included workforce pressures, their own views, confidence, and skills related to healthy behaviours and cooking, 'misplaced knowledge' around weight and what is achievable, the use of food as a reward and perceived tensions in supporting choice alongside promoting healthier behaviours. 'Mainstream' weight management services were difficult for adults with LDs to access as they were not commissioned or set-up to meet their needs. Some examples of innovative practice were described, such as joint education of both carers and people with LDs. A need to upskill carers on the basics of healthy eating and physical activity and supporting specific challenges in the LDs population was identified. Training content is currently being developed with carers (stage 3). Adults with LDs are involved in co-creating lived experience videos to support the training content, which is expected to be nationally available by early 2025.

Declarations: CA is a Trustee of the Caroline Walker Trust.The other authors have none.

P11 Obesity Trends in England: An age-period-cohort approach to studying long-term trends in adiposity measures

Laura A Gray[1], Magdalena Opazo Breton[2]

[1]University of Sheffield, [2]University of Nottingham: Obesity prevalence in England, and across the world, has been increasing in recent years and continues to do so. Obesity is often defined using established body mass index (BMI) thresholds but BMI cannot differentiate between muscle mass and fat mass. Waist measurement, allows central obesity and the distribution of fat mass to be assessed. This is arguably a better predictor of obesity-related harm than a weight-based measure. Recently, the National Institute of Health and Care Excellence (NICE) has recommended using waist-to-height ratio (WHtR) as well as BMI to identify and assess obesity. This study aims to determine whether trends in obesity differ when using BMI or WHtR definitions. We use the Health Survey for England and analyse individuals between the ages of 16 and 85 years, using data from 1997-2019, enabling us to investigate cohorts born between 1909-2003. Individuals are considered to be living with obesity, or not, using established thresholds for each measure. We investigate simple trends in the prevalence of obesity across time, and illustrate age-trajectories for 5-year birth cohorts, using WHtR and BMI obesity definitions. Next, we estimate an age-period-cohort (APC) model for each of the obesity definitions, to disentangle the effects of aging, from contextual factors and generational effects. The prevalence of obesity increases over time after accounting for age and cohort, when using each of the definitions. The prevalence of obesity using WHtR increases considerably with age across the lifespan. In contrast to the prevalence of obesity using BMI decreases after 65 years. The prevalence is similar across birth cohorts for both measures. There are no significant differences between males and females in the prevalence of obesity using either measure. Our results are broadly similar across WHtR and BMI. However, whereas the prevalence of obesity falls after the age of 65 years when using BMI, this is not the case when using WHtR. This could mean that WhtR might better identify obesity in older individuals. Our results could have important policy implications, both for how to measure obesity-related risks and for policymakers in identifying appropriate ages and cohorts for intervention.

Declarations: None

P12 Behavioural Weight Management Interventions in Asian countries: A Systematic Review and Meta-Analysis of Randomised Controlled Trials

Nurul Afiedia Roslim[1], Sufen Zhu[2], Min Gao[2], Charlotte Lee[2], Jadine Scragg[2], Michaela Noreik[3], Aryati Ahmad[1], Jamie Hartman Boyce[4], Susan Jebb[2]

[1]Universiti Sultan Zainal Abidin, [2]University of Oxford, [3]University of Applied Sciences, Krefeld, Germany, [4]University of Massachusetts Amherst: Obesity is a growing global health problem due to serious implications on individual's health outcome. Behavioural weight management interventions (BWMIs) can reduce health risks associated with excess weight. However, the effects have yet to be established in Asian countries. This review aimed to examine the effectiveness of BWMIs for adults with a body mass index ≥23.0 kg/m^2 in Asian countries. Seven electronic databases were searched from 1946 to the end of March 2024 for randomised controlled trials (RCTs) of BMWI programmes conducted in South Asian, East Asian and Southeast Asian countries. Two researchers independently identified eligible studies, extracted data and assessed risk of bias using the Cochrane risk of bias tool. Meta-analysis was conducted using random effects models, and a pooled mean difference for body weight at baseline to 12 months and 24 months was calculated. Out of 6713 identified studies, a total of 13 RCTs (2585 participants) met the inclusion criteria and were included in this review. Ten studies were judged at high risk of bias, whilst two studies were judged with 'some concern' and one was judged as 'low risk'. The mean difference for weight change at 12 months was −0.99 kg (95% confidence interval −1.75 to 0.22, $I^2 = 79\%$, $p = 0.01$) and −3.16 kg (−3.71 to −2.62, $I^2 = 0\%$, $p < 0.001$) at 24 months (two studies, $n = 668$) favouring the intervention group. In a subgroup analyses, studies that incorporated both diet and exercise (mean difference: −1.67 kg; $p = 0.0008$), tailored (mean difference: −1.49 kg; $p = 0.04$) and individual (mean difference: −1.25 kg; $p = 0.010$) approach showed greater weight changes than other kind of approach. Besides, studies with participants aged >53 years, healthy, predominantly female (>50%) and from lower-income countries reported greater weight

changes than their counterparts ($p < 0.05$). Findings demonstrated that tailored BWMIs are effective in tackling excess weight problems in adults in Asian countries. These discoveries offer valuable insights for healthcare practitioners and researchers, adding in the development of BWMIs to combat obesity and its associated health risks in the future.

Declarations: None

P13 The Longitudinal Association of Body Weight Misclassification in Adolescence with Body Fat and Waist Circumference in Adulthood

Abdulaziz D. Alouf Aloufi[12]

[1]The University of Queensland, [2]Ministry of Health, Saudi Araia: This study examines the longitudinal association between adolescent body weight misclassification and body fat and waist circumference during adulthood. A Birth cohort study was used, data collected at 14 and 30 years after birth. To determine misclassification, we compared perceived with measured body weight data. Analyses examines means and mean differences of body fat percentages and waist circumference level across weight misclassification groups. Early life and adolescent covariates were included in the data analyses. Children of all consecutive public obstetrical patients delivered at a major obstetrical hospital in Brisbane, Australia. Participants were ($n = 1002$) those with measured and perceived body weight at 14-year follow-up as well as actual measure of adult body fat and waist circumference at 30-year follow-up. Adolescent body weight underestimation was significantly associated with an increase in body fat percentages and waist circumference in adulthood compared to those who correctly estimated their body weight for males and females. In mean difference analyses, adolescent males and females who underestimated their body weight were found to have significantly higher body fat and waist circumference means than those who correctly estimate their body weight in both unadjusted and adjusted comparisons. Males who, as adolescent, overestimated their body weight have higher body fat and waist circumference means when they reach adulthood. Weight underestimation in adolescence predicts increased body fat and waist circumference during adulthood. Increase awareness of weight misclassification and actual body weight might contribute to better control of weight gain.

Declarations: None

P14 Local health service leads and commercial provider staff experiences of the NHS Low Calorie Diet programme pilot: a qualitative exploration

Louisa Ells[1]*, Kevin Drew*[1]*, Susan Jones*[2]*, Catherine Homer*[3]*, Tamara Brown*[1]*, Duncan Radley*[1]*, Patricia Watson*[2]*, Charlotte Freeman*[1]*, Karina Kinsella*[1]*, Maria Maynard*[1]*, Chirag Bakhai*[4]

[1]Leeds Beckett University, [2]Teesside University, [3]Sheffield Hallam University, [4]Churchfield Medical Centre, Bedfordshire, UK: The NHS-Low-Calorie-Diet pilot programme was established to support people living with Type-2-Diabetes to lose weight and improve their glycaemic control using total diet replacement alongside behaviour change support. The Re:Mission study was commissioned to provide a comprehensive qualitative and economic evaluation. Here we present key insights on the barriers and facilitators to equitable mobilisation from the perspective of local health service leads, and implementation and equity from the service providers' perspective. Twenty semi-structured interviews were completed with locality leads, and thirteen focus groups were conducted with commercial providers across the first two-years of the programme. Interviews with locality leads explored several topics of interest, including referrals, training, communication, incentivisation, governance and engagement. Focus groups with commercial providers were grounded on Normalisation Process Theory, with the addition of topics on equity and person-centredness. Seven core themes were identified from the locality leads: COVID-19 and primary care capacity and engagement; methods of communication; approaches to training; approaches to incentivisation; approaches to referrals; barriers to referrals; and the importance of collaboration. Our findings demonstrate the large variation and differences in the approaches taken when delivering the programme across ten geographically and demographically distinct pilot sites, and lack of a consistent approach or strategy to mobilisation and delivery support for the programme. From the providers' perspective, the programme was found to fulfil the requirements for normalisation. However, barriers were identified in engaging some GP practices and receiving sufficient referrals, as well as supporting some service users through challenges to remain engaged. There was also variation in communication and training between provider sites. Health inequalities remain a significant challenge during mobilisation, but health service leads with responsibility for programme planning and organisation can contribute to tackling this challenge by adopting an equity perspective from the start. The programme was most workable when supported by effective primary care engagement, training, and internal and external communication. Limitations in relation to programme specifications (e.g., eligibility criteria, service specification) and local commissioning decisions (e.g., pattern of roll out, incentivisation of general practice) were identified and could be addressed in the national specification and through sharing insights from pilot sites.

Declarations: CB is a primary care advisor to the national diabetes programme for NHS England and NHS Improvement.

P15 Acceptance of novel bean-based meals in diverse primary school settings; a real-world observational study

Natasha Bayes[1]*, John Ingram*[2]*, Charlotte A. Hardman*[1]

[1]University of Liverpool, [2]University of Oxford: Beans are nutrient powerhouses, offering plant-based protein, fibre, vitamins and minerals, which can contribute to healthy dietary patterns and potentially reduce risk of obesity and other diet-related chronic health conditions. They are also affordable and environmentally sustainable food sources. The 'BeanMeals' research project uses novel UK-grown beans for food system transformation by developing healthy and sustainable bean-based meals. The current study explored how to promote acceptance and consumption of newly-introduced bean-based lunchtime meals in six primary schools in Leicestershire, alongside school staff training and children's food system educational activities. School cooks, midday supervisors and Year 5 class teachers engaged in training to prepare the beans and to nurture children's positive experiences and exposure to the beans, and Year 5 children participated in bean-based educational activities (234 children across the six schools, aged 9-10 years). Lunchtime observations were conducted at each school (39 observations in total across the six schools from February to July 2023) to measure overall uptake, consumption and liking of the bean-meals using pre-post meal photos and liking ratings collected from Year 4 and 5 children ($N = 132$). Findings suggest that the schools offered the beans in numerous composite meals (e.g., cottage pie, curry, chilli, pizza) and sides (e.g., baked beans), with visible (e.g., beans identifiable in curry) and invisible (e.g., beans blitzed into pasta/pizza sauce) offerings provided within mostly vegetarian dishes. The most frequently presented meals were bean-pizza (provided at 17% of meal observations) and baked beans (at 19% of meal observations). There were variations in children choosing (uptake),

consuming and liking of the different bean-based meals, with bean-pizza generally being most popular and well-liked. However, across all of the meals and observations, children on average consumed 71% (standard deviation (SD) = 37%) of their bean-meal with an average liking rating of 3.7 (SD = 1.3) on a 5-point rating scale (1 Super Yuck – 5 Super Yum). Collectively, the findings offer insights into school acceptance, opportunities and barriers to offering novel UK-grown bean-based meals into school lunchtime food. These insights will help the future implementation of healthy, affordable and sustainable foods to children lunchtime school food.

Declarations: CAH declares research funding from the American Beverage Association (paid to institution), primary supervision on a PhD studentship funded by Coca-Cola, and personal honoraria from International Sweeteners Association and International Food Information Council for work unrelated to the submitted abstract. NB and JI reports no conflicts of interest.

P16 A qualitative exploration of children's acceptance of novel bean-based meals and educational activity in diverse primary school settings

Natasha Bayes[1], John Ingram[2], Charlotte A. Hardman[1]

[1]University of Liverpool, [2]University of Oxford: The 'BeanMeals' project was implemented in six Leicestershire primary schools, using novel UK-grown beans to offer healthy and sustainable bean-based lunchtime meals. BeanMeals ran from February 2023-July 2023 and offered bean-based meals to children (whole school) alongside educational activities (Year 5 children) about beans. Towards the end of the project, 115 children participated in focus groups (40 Year 4 control group, 75 Year 5 intervention group). Thematic analysis generated two themes for the qualitative data: 1. Perceptions of the project, and 2. Impacts of the project on their knowledge about the food system and their eating behaviours. Perceptions theme: Children had various taste and texture preferences for the beans. Children generally preferred consuming the beans within a meal rather than in isolation, preferably within meals already liked and familiar to children. Children enjoyed the educational activities within the intervention). Children overall desired more taster-based experiences with beans rather than an offer of selecting the bean-based meals at lunchtime. Additionally, children with packed lunches expressed desire for more bean tasting opportunities than the limited opportunities they had in this current project, which taster-based experiences would afford more easily than just the bean-based school meal offer. Impact theme: In general, children recalled learnings about different beans, where they are grown, and the impact beans can health on health and environment. Familiarity, liking and willingness to taste the beans and bean-based meals varied across the children, however some children recognised the importance of being curious and willing to try new and unfamiliar foods to discover their likes/dislikes, and be willing to retry previously disliked foods to discover changing food preferences. Some children however maintained reluctance to try new foods. These findings show children's receptivity to learning about topics related to health and wellbeing when they are fun/engaging, and children are generally willing to try novel foods when offered in stimulating ways. BeanMeals showed evidence of impact through building curiosity, familiarity and willingness to try new foods. Future interventions would benefit from longer exposure periods to increase the changes of positive eating behaviour outcomes such as more consistent liking and consumption of novel foods.

Declarations: CAH declares research funding from the American Beverage Association (paid to institution), primary supervision on a PhD studentship funded by Coca-Cola, and personal honoraria from International Sweeteners Association and International Food Information Council for work unrelated to the submitted abstract. NB and JI reports no conflicts of interest.

P17 Evidence-based optimisation of PROGROUP, a group-based intervention for people living with severe obesity: Understanding fidelity to delivery and the patient experience

Lily Hawkins[1], Dawn Swancutt[2], Shokraneh Moghadam[1], Rod Sheaff[2], Jonathan Pinkney[2], Mark Tarrant[2], Jenny Lloyd[1], & The PROGROUP Study Team[2]

[1]University of Exeter, [2]University of Plymouth: Individuals referred to specialist weight management programmes face significant waiting times, possible worsening co-morbidities, and stigma. Group-based interventions offer a potentially efficient treatment option and provide numerous benefits for patients, such as support and a sense of shared social identity. The PROGROUP intervention aims to manage group processes and shared social identity to support behaviour change for people living with severe obesity. Data from the PROGROUP feasibility randomised controlled trial (fRCT) was used to assess fidelity of delivery to PROGROUP principles and patient experiences, to optimise the intervention and training in preparation for the definitive trial. Three specialist UK NHS weight management services participated in a feasibility trial, involving five facilitators and 94 patients with severe obesity (defined as BMI ≥40 kg/m^2 or 35 kg/m^2 with comorbidities). A mixed-methods realist process evaluation used data from 12 patient and five facilitator interviews, 35 hours of audio and six hours of video data of group sessions, two checklists, and a group processes questionnaire to assess fidelity of delivery and patients' experience of the PROGROUP intervention. Evidence demonstrated that sessions were too content heavy and hindered flexible delivery in accordance with PROGROUP principles. Facilitators felt that some educational content was unnecessary for people living with severe obesity and content contributing to a positive group environment was sometimes overlooked due to time constraints. Patients reported that they valued the behavioural change and psychological-based activities of group sessions. In response to these findings, the intervention content and training programme were revised to ensure better balance between educational material and group activities, with greater emphasis placed on activities that supported group empowerment and ownership, as well as managing group processes within training. The success of group-based interventions relies on the facilitator addressing the group's needs and creating conditions for a shared social identity and sense of ownership to develop. For patients with severe obesity, there was a desire for more focus on the psychological and behavioural aspects of living with severe obesity over educational content. Facilitator training aims to develop the skills of bringing the group together, using a format that is feasible and acceptable to healthcare staff.

Declarations: None

P18 The effectiveness of family-based weight loss interventions for weight loss/dietary and physical activity related behaviour change for mothers with overweight or obesity: Protocol for Systematic review

Mai Haiba[123], David French[1], Nia Coupe[1], Michelle Harvie[123]

[1]University of Manchester, [2]NIHR Manchester Biomedical Research Centre, [3]Manchester University NHS Foundation Trust: Many mothers encounter challenges in maintaining a healthy weight associated with limited time and competing priorities of childcare responsibilities, full time work or study, catering for the dietary

requests of their children and family which can have a negative impact on the home food environment and lack of social support from family members can also oppose weight loss efforts. Family interventions have demonstrated efficacy for managing weight/behaviour change amongst children with obesity. We are undertaking a systematic review to explore the role of family-based weight loss interventions targeting mothers with overweight or obesity and possible successful components to inform future interventions. We will search the following data bases : Embase, APA psych and EBSCO CINAHL. Studies included should be randomised control trials of family-based weight loss/behaviour change interventions targeting women who have caring responsibilities for children within the same household with a body mass index (BMI) of ≥25 kg/m^2, or ≥23 kg/m^2 for those from high-risk ethnic groups. The comparator group will be a weight loss/behaviour change intervention targeting parents only or any control (wait list/minimal intervention). Titles will be scanned by first reviewer then abstract scan will be conducted independently by the first and second reviewers followed by a full text screen. In case of disagreement, the opinion of a third or fourth reviewer will be sought. Data extraction will focus on weight outcomes of the mothers as the primary outcome, presented as weighted mean differences (WMD) with 95% confidence intervals. Secondary outcomes include weight outcomes for other family members, dietary and physical activity related behaviour change outcomes as well as outcomes related to family dynamics and relationships. A meta-analysis will be conducted following I square statistic test of heterogeneity ≤50%. The results would be utilised to inform the design of a family-based weight loss intervention for women at risk of breast cancer. The protocol is published on PROSPERO (CRD42024537118)

Declarations: None

P19 A quality improvement project on the prescribing and monitoring of Orlistat in the management of obesity in primary care

Barkatullah Sahibzada[1]

[1]NHS Dumfries and Galloway: Obesity is a significant risk factor for severe health conditions, including heart attacks and strokes. According to NICE and SIGN guidelines, orlistat can be considered as part of the obesity management plan for patients with a Body Mass Index (BMI) of at least 30 kg/m^2, or 28 kg/m^2 if additional risk factors are present. To continue Orlistat treatment, patients are required to achieve a minimum weight loss of 5% within three months of initiation. Regular follow-up appointments are essential to monitor the effectiveness of the treatment and ensure ongoing progress. This project included all 21 patients in the practice prescribed Orlistat. The primary aim was to ensure BMI checks before prescribing and to conduct 3-month and annual reviews. PDSA cycles were employed to introduce several improvements: a standardised prescribing flowchart, a recall system for scheduling reviews, and an integrated EMIS template for recording BMI and review dates, which automatically added patients to the recall system. Additionally, delivering educational sessions for staff and developing patient information leaflets helped raise awareness about the importance of monitoring and reviews in Orlistat treatment. Baseline data revealed that only 58% of patients were initiated on Orlistat appropriately, with just 38% having a 3-month review and 25% having an annual review. After implementing the changes, 8 patients were discontinued from Orlistat, 88% of whom had been using it inappropriately for over 6 years. The 3-month and annual review rates both improved to 80%. Overall, the project successfully increased appropriate prescribing and monitoring of Orlistat from 23% to 90% in five months. Staff education, coupled with a recall system integrated within the IT system and simple flowcharts, effectively reduced waste, enhanced compliance with national guidelines, and minimised patient harm.

Declarations: None

P20 The PROGROUP Randomised Controlled Trial reveals variability in provision, heterogeneity of design, and research readiness of UK Tier 3 services

Jeanette Sanders[1]*, Wendy Ingram*[1]*, Dawn Swancutt*[1]*, Mark Tarrant*[1]*, Jonathan Pinkney*[1]

[1]University of Plymouth: The PROGROUP study "How are treatment outcomes for people with severe obesity ImPROved by GROUP-based behavioural intervention?" investigates optimisation of behaviour change delivery in Specialist Weight Management Services (SWMS), effectiveness and cost-effectiveness. Implementing findings from an initial feasibility Randomised Controlled Trial (RCT), the full multicentre, individually randomised RCT involves facilitated group intervention (PROGROUP), based on social identity theory and principles of behaviour change, delivered in-person versus the comparator of Usual one-to-one Care (consistent with NICE CG189 principles). We describe current SWMS and their research readiness. Potentially eligible services were identified through; 15 Clinical Research Networks in England, and their equivalents in Wales, Scotland and Northern Ireland, Association for the Study of Obesity, the Getting-Right-First-Time (GRIFT) survey, and we undertook additional checks with NHS England, the British Dietetic Association and our own contact. 67 potential sites described as SWMS were identified 48 responded to approaches. Service leads were consulted for service descriptions and potential eligibility. All services expressed interest in the trial (100%). However, 83% of responders were excluded by multiple factors including; failure of service to meet an appropriate definition of SWMS; planning uncertainties and reconfigurations; recommissioning and decommissioning; insufficient size and referrals to meet recruitment targets; insufficient staffing; inability to accommodate in-person group sessions; primary reliance on virtual delivery; primary function as bariatric surgery triage services; existing group-based Usual Care; and inexperience with research. In the current RCT, seven SWMS are recruited, meeting eligibility criteria and in the process of opening. These sites have large capacity, clinical and research experience, and represent a mix of urban, rural, socioeconomic and population diversity. In conclusion, there is little research on behavioural intervention design and delivery with or without adjunctive pharmacology in the SWMS setting, and SWMS provision is highly variable. There is a need to identify the most effective intervention design and delivery. While there are some high quality research-ready SWMS, numbers with the experience and capacity to accommodate Health Service Research are very limited. There is a need to expand research activity and trials in SWMS.

Declarations: None

P22 Co-designing a weight-neutral health intervention in Denmark

Catharina Thiel Sandholdt[1]*, Rasmus Køster-Rasmussen*[1]*, Lene Bomholt Meyer*[1]*, Ann-Kathrin Lindahl Christiansen*[1]*, Guðrún Ágústa Sigurðardóttir*[1]*, Emma Katrine Frøhlke Steinbo*[1]*, Frans Boch Waldorff*[1]

[1]University of Copenhagen: Systematic evaluations find that weight loss-focused lifestyle interventions are mostly ineffective in achieving clinically meaningful long-term weight reduction or reduction in cardiovascular events or mortality. Furthermore, studies point towards that weight loss interventions may come with adverse consequences and contribute to weight stigma. More comprehensive approaches to health are therefore relevant

to develop and explore and here weight-neutral health (WNH) can be a relevant framework. WNH promotes size diversity, intuitive eating, and enjoyable physical activity with no aim of weight reduction. This poster presents the co-design process for developing a weight-neutral health intervention (WIN) that will be tested for feasibility in 2025. The co-design development process followed the MRC framework for complex interventions and applied methods from Human-Centered Design to organise the process. Stakeholders in five municipalities, 15 professionals working with weight neutral health and 16 people with lived experience contributed through workshops, interviews, and informal dialogue. A novel approach to formative evaluation was introduced through a buddy letter system. Based on the process we have developed a group-based intervention with basic and optional activities. The intervention will aim to reduce weight-stigma, promote intuitive eating and increase body awareness and physical movement. A co-design process is a valuable approach for including relevant stakeholders in an intervention development. The process has qualified the intervention set-up and components. We look forward to present and discuss the development process on how we have developed the WNH-intervention.

Declarations: None

P23 Body weight reduction in women treated with tirzepatide by menopausal stage: A post hoc analysis from the SURMOUNT program

Andreea Ciudin Mihai[1], Adam Stefanski[2], Luis-Emilio García-Pérez[2], Donna Mojdami[2], Irina Jouravskaya[2], Sirel Gurbuz[2], Rebecca Taylor[2], Julia P. Dunn[2], Alun Lloyd Davies[2]

[1]Barcelona Campus Hospitalari, [2]Eli Lilly and Company: In the SURMOUNT (SM) clinical trial programme, tirzepatide-treatment resulted in substantial and clinically meaningful bodyweight (BW) reductions in people living with overweight and obesity. This post-hoc analysis evaluated the effect of tirzepatide-treatment on BW in women according to menopause stage. Women with obesity (BMI ≥ 30 kg/m^2) or overweight (BMI ≥ 27 kg/m^2 with at least one weight-related comorbid condition, excluding type 1 or type 2 diabetes) from SM-1, -3 and -4 were randomised to tirzepatide (SM-1: 5, 10 or 15 mg; SM-3 and −4: maximum tolerated dose [MTD] of 10 or 15 mg) or placebo. The tirzepatide 15 mg or MTD treatment arms from each study were included in this analysis. Participants were categorised as having "pre-menopause" (aged < 45 yrs without any indication of menopause), "peri-menopause" (aged 40-54yrs with evidence for menopause but not satisfying criteria for post-menopause or 45–54 yrs with no evidence for menopause) or "post-menopause" (aged ≥ 40yrs with documented medical history indicating menopause/bilateral oophorectomy (BO)/follicle-stimulating hormone ≥40 mIU/mL without HRT/ ≥ 55 yrs without HRT, or BO). Premature or artificial menopause, or Mayer-Rokitansky-Küster-Hauser syndrome were excluded from this analysis, as was one participant <40 yrs with BO. Change in BW and waist circumference (WC) and the proportion of participants achieving weight reduction thresholds (≥5%, ≥10%, ≥15%, ≥20%, and ≥25%) were assessed at the primary endpoint of 72-weeks (SM-1 and -3) and 88-weeks (SM-4). Reductions from baseline in BW ranging from 22–29% and WC ranging from 15 to 26 cm were significant in all menopausal status subgroups with tirzepatide and were significantly greater vs placebo ($p < 0.001$ all). The proportion of participants who achieved BW loss ≥5% was 96–100% with tirzepatide vs 6–78% with placebo across subgroups. Furthermore, 63–89% and 37–74% of participants achieved BW loss ≥20% and ≥25% with tirzepatide, respectively. Overall, a significantly greater proportion of participants from all tirzepatide-treated subgroups exceeded all BW loss thresholds vs placebo. In this post hoc analysis, women living with obesity or overweight and without type 2 diabetes treated with tirzepatide demonstrated significant BW and WC reductions vs placebo, irrespective of stage of menopausal transition.

Declarations: ACM reports honoraria from AstraZeneca, Boehringer Ingelheim, Eli Lilly and Company, Esteve, and Novo Nordisk for scientific talks, advisory board sessions, attendance to congresses and is a member of the DMC for Boehringer Ingelheim clinical trials in obesity.

LEGP, AS, DM, RT, SG, ALD and JPD are employees and shareholders of Eli Lilly and Company.

P24 Early weight loss and reported gastrointestinal adverse events in tirzepatide-treated participants in the SURMOUNT 1-2 trials

Alexander Kokkinos[1], Tina Thethi[2], Dachuang Cao[3], Adam Stefanski[3], Clare Lee[3], Lisa M. Neff[3], Casey J. Mast[3], Angel Rodriguez[3], Amy Bartee[3], Simon Coates[4]

[1]National and Kapodistrian University of Athens, [2]AdventHealth, USA, [3]Eli Lilly and Company: The objective of this analysis was to assess whether greater early weight loss was associated with higher incidences of nausea, vomiting, or diarrhoea (NVD) in participants treated with tirzepatide (TZP) in SURMOUNT-1 (SM-1) and SURMOUNT-2 (SM-2). Post hoc analyses included 1775 TZP-treated participants with obesity or overweight with at least one weight related complication in SM-1 and 609 TZP-treated participants with obesity or overweight and type 2 diabetes in SM-2. Participants were categorised as either early responders (≥5% weight reduction at Week-8) or non-early responders (<5% weight reduction at Week-8). Analyses used the efficacy estimand (randomised participants receiving ≥1 dose of study drug excluding off-treatment data). In SM-1, early responders ($n = 1103$;62.1%) achieved a significantly greater percent body weight reduction compared to non-early responders ($n = 672$;37.9%) from baseline to Week-8 (-7.9% vs. -3.1%, $p < 0.001$) and from baseline to Week-72 (-23.3% vs. -14.6%, $p < 0.001$). During Weeks 0-8, 24.2% of early responders reported mild, 6.4% moderate, and 0.5% severe NVD vs. non-early responders (17.9% mild, 4.5% moderate, and 0.9% severe NVD). The majority of NVD observed during SM-1 were mild to moderate in severity and were reported more frequently during the dose escalation period, with a gradual reduction in incidence in both groups over the course of the study. In SM-2, early responders ($n = 247$;40.6%) again achieved a significantly greater percent body weight reduction compared to non-early responders ($n = 362$;59.4%) from baseline to Week-8 (-7.1% vs. -2.5%, $p < 0.001$) and from baseline to Week-72 (-20.0% vs. -10.8%, $p < 0.001$). During Weeks 0-8, 17.4% of early responders reported mild, 4.5% moderate, and 0% severe NVD vs. non-early responders (13.3% mild, 2.5% moderate, and 0.8% severe NVD). Incidence and distribution of NVD in SM-2 was consistent with what was observed for SM-1. In SM-1 and SM-2, participants treated with TZP reported generally mild to moderate NVD more frequently during the first 8-weeks, regardless of the early weight loss category. The incidence of events decreased over the course of the studies and was in general comparable between early and non-early responders, suggesting no meaningful differences in gastrointestinal tolerability of TZP regardless of the early response or the weight reduction over time.

Declarations: Alexander Kokkinos reports having received research grants from Novo Nordisk, Pharmaserve Lilly, and ELPEN Pharma, serving on advisory boards for Novo Nordisk, Pharmaserve Lilly, Sanofi, and Boehringer-Ingelheim, as well as receiving honoraria for lectures from Novo Nordisk, Pharmaserve Lilly, Astra Zeneca, MSD, Sanofi, Bausch Health, Ethicon, Galenica Pharma, and Epsilon Health. Tina Thethi has worked with Novo Nordisk,

Bayer and Elli Lilly. Dachuang Cao, Adam Stefanski, Clare Lee, Lisa Neff, Casey Mast, Angel Rodriguez, Amy Bartee are employees and shareholders of Eli Lilly and Company.

P25 Challenges in obesity management and psychosocial impact: a real-world perspective among people with obesity and their physicians

Swarna Khare[1], Esther Artime[12], Sarah Zimner-Rapuch[3], Josefine Redig[4], Caragh Flannery[5], Victoria Higgins[6], Andrea Leith[6], Tamara Mensah[6], Simon Coates[7]

[1]Eli Lilly and Company, Bracknell, UK, [2]Eli Lilly and Company, Alcobendas, Spain, [3]Eli Lilly and Company, Neuilly sur Seine, France, [4]Eli Lilly and Company, Stockholm, Sweden, [5]Eli Lilly and Company, Cork, Ireland, [6]Adelphi Real World, Bollington, UK, [7]Eli Lilly and Company, Basingstoke, UK: This study aims to explore People with obesity (PwO) and healthcare providers'/physicians' (HCP) perceptions of unmet needs in obesity management and the psychosocial impact for PwO. Data were drawn from the Adelphi Real World Obesity Disease Specific Programme™, a real-world, cross-sectional survey of HCP and their consulting PwO, conducted in Brazil, Canada, China, Japan, Kingdom of Saudi Arabia (KSA) and United Arab Emirates between April-December 2022. HCP reported demographics, clinical characteristics, and weight management approaches for 3-8 consecutive qualifying PwO who completed a voluntary questionnaire providing demographics and psychosocial impact. Analyses were descriptive. Total of 431 HCP provided data on 2839 PwO. 55% of PwO were female (n = 1571), mean ± SD age 43 ± 13.5 years (n = 2837), BMI 33 ± 7.0 (n = 2837), from BMI 31 ± 4.3 in China (n = 801) to 36 ± 7.7 in Canada (n = 197), and 2 ± 1.8 comorbidities (n = 2839), from 2 ± 1.1 in KSA (n = 200) to 3 ± 2.2 in Canada (n = 199). Current weight management approaches included a diet (87%, n = 2479) and physical activity (74%, n = 2088) varying by country. HCP reported 4 ± 4.1 weight loss (WL) attempts for PwO in the last 3 years (n = 1780), with 26% having ≥5 attempts (n = 456) and slow WL journey for PwO (44%, n = 480), with ~20% of PwO never losing weight in Canada (n = 16), China (n = 94), and Japan (n = 39). 68% of their PwO had a weight target (n = 1937), with 99% not reaching it to date (n = 1925). HCP were not satisfied with current weight of PwO, believing that 74% could achieve a lower weight (n = 2093). 1,643 PwO provided self-reported data, (58% female, n = 950; mean ± SD age 41 ± 13.0 years, n = 1640). PwO reported struggling with weight for 64 ± 87.1 months (n = 1604) with 6 ± 4.9 WL attempts (n = 823). While 74% of PwO felt their HCP explained their weight management plan (n = 1193/1614), 43% said would like to learn more (n = 679/1582). 54% of PwO reported other people made them feel ashamed about their weight (n = 887), and 66% (n = 1083) and 53% (n = 873) reported bother or embarrassment about their weight. Despite numerous WL attempts, HCP reported that PwO had not reached WL goals, with most HCP not satisfied with the current weight of their consulting PwO. PwO-centered approaches are required to tackle this growing complex health issue.

Declarations: SK, EA, JR, SZR and CF are employees and minor stake/shareholders of Eli Lilly and Company. VH, AL and TM are employees of Adelphi Real World.

P26 Evolving behavioural intervention research for patients living with severe obesity: The PROGROUP feasibility trial

Dawn Swancutt[1], Jenny Lloyd[2], Rod Sheaff[1], Joanne Hosking[1], Wendy Ingram[1], Jeanette Saunders[1], Shokraneh Moghadam[2], Lily Hawkins[2], Laura Hollands[1], Mark Tarrant[1], Jonathan Pinkney[1]

[1]University of Plymouth, [2]University of Exeter: The PROGROUP behaviour change feasibility study was designed in 2019, at a time when fewer evidence-based options were available for people living with severe obesity. Waiting lists to access Specialist Tier 3 weight management services were common and service delivery of behavioural interventions varied throughout the country. Since then, pressures on services have escalated, hence findings from this research have become even more important to the many thousands of patients awaiting care. One aim of this feasibility trial was to assess the ability to conduct trial processes in preparation for a definitive national trial of effectiveness. A feasibility Randomised Controlled Trial of PROGROUP versus usual care, with parallel process evaluation and economic evaluation, was conducted in 2022/23. Of 99 consented participants at three participating sites, 94 were individually randomised 1:1 to receive the PROGROUP programme (in groups) or usual care provided by the service. Delivery fidelity, patient recruitment and retention and trial processes were assessed using mixed methods data, including session attendance, fidelity checklists, in-person observations (n = 10), video and audio recordings of session delivery (n = 40), patient questionnaires (n = 250 weekly and n = 71 outcome measure questionnaires), interviews (n = 33) and patient weight. Patient satisfaction with PROGROUP was high, although this was contingent on regular and consistent attendance by group members. Anxiety during sessions was low and participants reported high levels of understanding how to perform strategies discussed during sessions. There was strong evidence that feeling safe, understood, and supported was key to patient engagement and that a shared social identity emerged which potentially contributed to behaviour change. Fifty-eight (62%) participants had weight measured at 6 months, and fifty-two at 12 months. Findings enabled us to re-visit the protocol and sample size and develop guidance for efficiently screening and approaching potential participants to maximise recruitment and retention. Learning from the facilitator training programme led to further refinement, including shortening its length, use of online self-directed learning and greater emphasis on group facilitation training. The trial was highly successful in identifying the key practical barriers and facilitators to running this study, and has enabled us to optimise and finetune the intervention and definitive trial plan.

Declarations: None

P27 A fat-rich preload before a carbohydrate-rich meal increases the peak postprandial insulin concentration in people without diabetes after sleeve gastrectomy: A randomised, crossover study

Dimitris Papamargaritis[1], Louisa Y Herring[2], Aikaterina Tziannou[1], Alice E Thackray[3], David Bowrey[4], Jenny Abraham[5], Vinod Menon[5], Oluwaseun Anyiam[6], Iskandar Idris[6], David J Stensel[3], David R Webb[1], Tom Yates[1], Melanie J Davies[1]

[1]University of Leicester, [2]Leicester General Hospital, [3]Loughborough University, [4]University Hospitals of Leicester NHS Trust, [5]University Hospitals Coventry & Warwickshire NHS Trust, [6]University Hospital of Derby and Burton Foundation Trust: Post-bariatric surgery hypoglycaemia (PBH) can occur after sleeve gastrectomy (SG). The main mechanism of PBH after SG appears to be accelerated gastric emptying, leading to rapid glucose absorption and high peak glucose and insulin concentrations. Consumption of carbohydrate-free, fat-rich preloads (30' before a meal) reduces the postprandial glucose and insulin levels in people who have not undergone bariatric surgery, through reduced gastric emptying rate. If this also applies after SG, a fat-rich preload could become a potential treatment option for PBH post-SG. Our study investigated the effect of a fat-rich preload on postprandial glucose homoeostasis in people without diabetes after SG. Ten adults ≥1 year post-SG (without a PBH diagnosis) were randomised to either (a) a fat-rich

preload (28g of brazil nuts: 20g fat, 5g protein, <1g carbohydrates) consumed 30′ before a standardised, carbohydrate-rich, mixed meal tolerance test (MMTT, Fortisip, 330kcal, 49% carbohydrates, 35% fat, 16% protein); followed by MMTT with water preload (≥1 week later) or (b) vice versa, in a cross-over study design. Blood samples for glucose, insulin, c-peptide and glucagon-like peptide-1 (GLP-1) analysis were collected before the fat-rich preload (-30′), -15′, before the MMTT (pre-meal, 0′) and 15′,30′,45′,60′,90′,120′,150′ and 180′ post-MMTT. The primary outcome was the difference in plasma nadir glucose post-MMTT between the two treatment periods. Secondary outcomes included differences in the area under the curve(AUC) (-30′ to 180′), pre-MMTT and peak glucose, insulin, c-peptide and GLP-1 concentrations. The fat-rich preload did not affect the nadir glucose after the MMTT compared with water preload, (3.76 vs 3.79 mmol/l; 95%CI: -0.38 to 0.32, $p = 0.85$), neither the pre-MMTT, nor peak or AUC(-30′ to 180′) glucose. However, peak insulin and c-peptide concentrations were higher during the MMTT with the fat-rich compared with water preload (134.1 vs 93.1 mIU/L, 95%CI: 2.9 to 79.1, $p = 0.04$ for insulin and 5541.7 vs 4331.7 pg/ml, 95%CI: 17.3 to 2403, $p = 0.04$ for c-peptide). Pre-meal insulin, c-peptide and GLP-1 concentrations were also higher with the fat-rich compared to water preload. In summary, a fat-rich preload before a MMTT did not affect nadir glucose in people without PBH post-SG, but it increased peak insulin and c-peptide levels.

Declarations: D Papamargaritis has acted as a speaker for Novo Nordisk and has received grants from Novo Nordisk, Novo Nordisk UK Research Foundation, Academy of Medical Sciences/Diabetes UK and the National Institute for Health and Care Research (NIHR). M J Davies has acted as consultant, advisory board member and speaker for Boehringer Ingelheim, Eli Lilly, Novo Nordisk and Sanofi, an advisory board member Lexicon, Pfizer, ShouTi Pharma Inc, AstraZeneca, Zealand Pharma and Medtronic and as a speaker for AstraZeneca, Napp Pharmaceuticals, Novartis and Amgen. M J Davies has received grants from AstraZeneca, Novo Nordisk, Boehringer Ingelheim, Janssen, Sanofi- Aventis and Eli Lilly.

P28 Assessing the evidence for health benefits of low-level weight loss: A systematic review

Disha Dhar[1], Jessica Packer[1], Semina Michalopoulou[1], Joana Cruz[1], Russell Viner[1], Oliver Mytton[1], Simon Russell[1]

[1]UCL: Individuals with excess weight face increased risks for physical and mental health conditions including cardiovascular disease, type-2 diabetes, various types of cancer, and anxiety and depression. Interventions targeting weight loss can improve health outcomes and prevent obesity-related co-morbidities but there is often a threshold of 5% body weight, which is thought to be clinically meaningful. The implications of achieving low-level weight loss i.e., less than 5% body weight remain poorly understood. We aimed to systematically review relevant literature and synthesise evidence that assessed the potential health benefits of losing less than 5% body weight. We searched six academic databases and included studies in any language, from any country, with no time constraints. We included any intervention studies that assessed the impact of low weight loss (defined as less than 5% body weight) on any measured health outcomes. 70 studies from 68 articles were identified, with study participants ranging from 14 to 10,742. A total of 137 health outcomes were assessed. Outcomes were broadly classified as metabolic markers ($n = 42$), cardiovascular markers ($n = 32$), anthropometric measures ($n = 19$), quality of life ($n = 10$), inflammatory biomarkers ($n = 10$), renal and hepatic markers ($n = 9$), psychosocial and behavioural measures ($n = 8$), pulmonary function ($n = 3$), total mortality ($n = 2$), ovulatory function ($n = 1$), and muscle strength ($n = 1$). According to the Critical Appraisal Skills Programme (CASP) checklist, the majority of studies had a moderate risk of bias. Typical issues were around randomisation methodology or reporting. Overall, 60% of studies found health improvements, 37% found no change or mixed results, and 3% found worsening of health outcomes. Studies that found health improvements included 87% of total participants ($n = 15,839$), but not all studies reported the number of participants by weight loss group (e.g., <5%) or the proportion of participants that reported health improvements. Our findings suggest that low-level weight loss of less than 5% can lead to various health benefits, despite not being considered clinically meaningful according to the traditional threshold of 5%.

Declarations: None

P29 Investigating parents' perceptions of children's categorical weight boundaries using a Method of Adjustment Task

Bethany J Ridley[1], Piers L Cornelissen[1], Kristofor McCarty[1], Robin S S Kramer[2], Martin J Tovee[1]

[1]Northumbria University, [2]University of Lincoln: Childhood overweight and obesity is a significant public health problem. Excess weight in childhood predicts negative physical and psychosocial sequelae over the lifespan, as weight status typically persists over time. Behavioural interventions can reduce childhood overweight and obesity, but uptake depends on recognition of the problem, and parents systematically underestimate their child's weight status. To determine where observers believe the boundaries for weight status fall within the BMI range, 128 parents took part in a between-subjects design Methods of Adjustment task in which the apparent BMI of male and female CGI bodies aged 4-5 and 10-11 could be gradually varied in one-centile steps. One group of participants were asked to select body sizes/shapes they believed embodied each of the NCMP defined weight categories (i.e., exemplars of each category) and the second group estimateded where each of the boundaries between the categories were located. The third condition determined whether participants' accuracy at this task improved by using terminology aimed at encouraging positive action by parents, as opposed to NCMP terminology. Our results suggest the perceived categorical boundaries do not match those used by the NHS. The range of responses is compressed, so that the position of healthy-overweight boundary and the overweight-very overweight boundary is shifted lower and underweight-healthy weight boundary is shifted higher. Consistent with these judgements, the position of the exemplars in the BMI range falls between the corresponding perceived boundaries. Furthermore, although we expected that using terminology focused on action would overcome the shortcomings of labelling children with potentially stigmatising descriptors, we instead found the reverse effect. Using the action terms, participants were less willing to apply them when asked to judge a child as over or underweight. We therefore suggested that the child's body size must be significantly within that unhealthy category for our participants to judge that their weight had reached the point that they required an active weight intervention. This suggests that there is a significant difference between what people believe is an unhealthy weight and what is medically unhealthy, and that future public health campaigns need to target this issue.

Declarations: None

P31 Mapping obesity care pathways and healthcare resource use in England: an observational real-world evidence study

Alexander Dimitri Miras[1], Silvia Capucci[2], Sylwia Migas[3], Bozydar Wrona[3], Liwei Zhao[4], Johann Castañeda-Sanabria[5], Sam Bailey[6], Lise M Hagelund[7], Anette Varbo[2], Vasileios Antavalis[6], Camilla S Morgen[2]

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Mölndal, Sweden, [5]IQVIA, Courbevoie, France, [6]Novo Nordisk, Gatwick, UK, [7]Novo Nordisk, Copenhagen, Denmark: Adult obesity is associated with significant burden and morbidity. Understanding of specialist obesity care pathways and healthcare resource utilisation in England remains limited. We conducted a retrospective observational study in adult patients with obesity (body mass index [BMI] ≥ 30 kg/m^2) attending specialised healthcare services for obesity management in England. The study aimed to map: firstly, patient characteristics and obesity-related complications when entering specialist obesity care; secondly, pathways of treatments, including lifestyle advice, pharmacological interventions and bariatric surgery; thirdly, interactions with healthcare professionals; and fourthly, the economic burden, including treatment and complications. Data from two regionally representative electronic medical records databases were used: the North-West London (NWL) Discover Dataset (N = 1698) and the Greater Manchester Salford Integrated Record (SIR, N = 561), spanning 1 January 2015 to 31 December 2019, with a median follow-up of 2.4 and 3.0 years, respectively. Median age of patients was 52 (NWL) and 55 (SIR) years and 64% (NWL) and 61% (SIR) were female. Median BMI was 39.3 kg/m^2 (NWL) and 35.7 kg/m^2 (SIR), with 49% (NWL) and 34% (SIR) patients with a BMI ≥ 40 kg/m^2. The most common obesity-related complications were hypertension (NWL = 38%, SIR = 34%), type 2 diabetes (NWL = 34%, SIR = 22%), asthma (NWL = 21%, SIR = 21%), and musculoskeletal pain (NWL = 16%, SIR = 27%). Lifestyle advice was the most reported intervention (NWL = 47%, SIR = 46%). Orlistat, the only pharmacological intervention recommended by NICE guidelines during the study, was reported in 7.3–12% of patients with a median time to first orlistat prescription of 202 days in NWL and 160 days in SIR. Gastric bypass was observed in 8.4% and 3.6% in NWL and SIR, respectively, and sleeve gastrectomy in 5.9% and 1.4%, with the highest proportions seen in patients with BMI ≥ 40 kg/m^2. Throughout follow-up, primary care was the most frequent healthcare setting, with a median of 28 encounters in NWL and 78 in SIR. The highest annualised costs per person were attributed to incident myocardial infarction (NWL = £2285, SIR = £2194), incident stroke (NWL = £3005, SIR = £1550), chronic heart failure (NWL = £2390, SIR = £2085), and diabetic foot (NWL = £4392, SIR = £1935). Substantial proportions (60–90%) of patients had not transitioned to lower BMI classes after 8 months of follow-up.

Declarations: ADM has received research funding from the MRC, NIHR, Jon Moulton Charitable Foundation, Anabio, Fractyl, Boehringer Ingelheim, Gila, Randox, and Novo Nordisk. ADM has received honoraria for lectures and presentations from Novo Nordisk, Astra Zeneca, Currax Pharmaceuticals, Boehringer Ingelheim, Screen Health, GI Dynamics, Algorithm, Eli Lilly, Ethicon, and Medtronic. ADM is a shareholder in the Beyond BMI clinic, which provides clinical obesity care. SC, SB, LMH, AV, VA, CSM are employees of Novo Nordisk, the sponsor of the study. CSM and AV are shareholders of Novo Nordisk. SM is an employee of NWEH and BW was an employee of NWEH at the time of study conduct, which was responsible for the acquisition, analysis, and interpretation of data in the study. LZ and JCS are employees of IQVIA, which is the contract research organisation for implementing the study.

P32 Systematic review of evidence that environmental contaminant exposure impedes weight loss and glycaemic control during calorie-restricted diets in humans

Kimberley Bennett[1], Calum Sutherland[2], Anne Savage[1]

[1]Abertay University, [2]Dundee University: Chemical exposure has been linked to obesity and type 2 diabetes (T2DM) development and thus may also limit success of weight loss diets for obesity and diabetes management. We aimed to determine the strength and quality of existing evidence for an effect of environmental chemical exposure on mass loss and glycaemic control during diet-induced weight management in humans. We systematically searched PubMed, Web of Knowledge, and Scopus. Study selection, screening and data extraction followed preferred reporting items for systematic review and meta analysis (PRISMA) guidelines. The protocol is registered in PROSPERO (CRD42022339993). Independent selection and screening were performed by 2 evaluators. Risk of bias was performed using a modified ROBINS-I tool. We retrieved 178 unique records from databases, and 34 from citing and cited papers. Six papers directly examined impacts of environmental contaminant exposure on diet-induced weight loss and/or glycaemic control in humans. Only one targeted people with T2DM and the remainder were people who had BMI of >25, or had signed up for a weight loss app, who had a wider range of reported BMI. One paper linked phthalates and parabens, but not bisphenols, with slower fat loss. Two showed per- and polyfluoroalkyl substances (PFAS) were not associated with mass loss, but with faster subsequent mass regain. One explored BMI improvements in relation to air pollutants. Two papers reported weight loss-induced elevation in plasma organochlorines associated with altered glycaemic control. There were insufficient papers on any one contaminant group to perform meta-analyses. Risk of bias was moderate to serious, primarily from potential for deviation from intended diet, and statistics and reporting. Human studies align with preclinical data and suggest some chemical groups, especially PCB and PFAS, could impair management of body mass and glucose control, but the evidence is sparse and at high risk of bias. Links with air pollution were least convincing due to small effect size, self-reported data and exposure estimates. Studies robustly addressing whether chemical exposure can impair weight loss and resumption of glycaemic control are urgently needed to help determine whether exposure history should be considered when delivering care for people with obesity and T2DM.

Declarations: None

P33 Time for Change: How can we achieve integrated care for those living with serious mental illness and obesity?

Jo Howe[1], Maura MacPhee[2], Geoff Wong[3], Hafsah Habib[1], Ian Maidment[1]

[1]Aston University, [2]University of British Columbia, [3]University of Oxford: Antipsychotic medications are used to treat serious mental illness (SMI). However, they are associated with significant and rapid weight gain. Obesity rates for people living with SMI are double the general population, contributing to the development of life-limiting physical health conditions such as diabetes and cardiovascular disease. Research into obesity prevention and management for people living with SMI is limited. This focus is on the unintended consequences of the siloed nature of mental health services for service users living with SMI and obesity, their family carers, and staff providing their mental health care. This work presents primary data from the NIHR-funded RESOLVE project. RESOLVE is a realist research project aiming to identify contexts and mechanisms influencing outcomes for people living with SMI by aiming to understand the following question: "what works for whom in what circumstances and why?" Forty-seven interviews have currently been conducted with service users, family carers, and healthcare professionals involved in the care of those living with obesity and taking antipsychotic medication. Building on a realist review, programme theories and associated context-mechanism-outcome configurations are being refined and developed with practitioner and lived experience input. There are significant unmet needs for service users living with SMI and obesity and weight gain, their family carers, and the healthcare

staff. Service users and family carers report feeling abandoned with little support, advice, or interventions to help prevent or manage obesity. Alongside a lack of resources, mental health staff report possessing insufficient knowledge, skills, or confidence about physical health conditions including obesity to effectively manage weight gain in people living with SMI. Discussions about weight management are also stymied due to stigma, shame, uncertainty about effective management strategies, and fear of non-adherence with antipsychotic medication. The configuration and siloed nature of current mental health services serves to further exacerbate the unmet needs for people living with SMI and obesity. Integrating physical health staff within existing mental health services and training staff to provide holistic support and care could help minimise the impact of antipsychotic medication-related weight gain.

Declarations: None

P34 Varying optimal power for height-standardisation of childhood weight, fat mass and fat free mass across the obesity epidemic

Mohammed T Hudda[1], Julie Aarestrup[2], Christopher G Owen[3], Jennifer L Baker[2], Peter H Whincup[3]

[1]Dasman Diabetes Institute, Kuwait City, [2]Copenhagen University Hospital - Bispebjerg and Frederiksberg, [3]St George's University of London, [4]Openhagen University Hospital - Bispebjerg and Frederiksberg: Childhood adiposity markers can be standardised for height in the form of indices (marker/heightp) to make meaningful comparisons of adiposity patterns within- and between-individuals of differing heights. P must be constant across age for within-person assessments and across sex and birth year for between-individual comparisons. We investigated whether height powers for childhood weight and fat mass (FM) differ by birth year, sex, or age. Population-based cross-sectional study of 391,801 schoolchildren aged 7y, 10y and 13y, born between 1930 and 1996, from the Copenhagen School Health Records Register. Sex- and age-specific estimates of the height powers for weight and FM (and the corresponding 95% confidence intervals [95%CI]) were obtained using log-log regression, stratified by decade of birth. For weight, amongst children born 1930-39, optimal height powers at 7y were 2.20 (95%CI:2.19-2.22) for boys and 2.28 (95%CI:2.26-2.30) for girls. This increased with birth year to 2.82 (95%CI:2.76-2.87) and 2.92 (95%CI:2.87-2.97) for boys and girls born in 1990-96 respectively. For FM, amongst those born 1930-39, powers at 7y were 2.46 (95%CI:2.42-2.51) and 2.58 (95% CI:2.53-2.63) for boys and girls respectively and increased with birth year reaching 3.89 (95%CI:3.75-4.02) and 3.93 (95%CI:3.80-4.06) for boys and girls born 1990-96 respectively. Powers within birth cohort groups for weight and FM were higher at 10y than at 7y, though similar increases across groups were observed at both ages. At 13y, height powers for weight and FM initially increased with birth year before declining from the 1970/80s. Due to increases in the standard deviation of weight and FM during the obesity epidemic, optimal height powers needed to standardise childhood weight and FM vary by birth year. Sex and age differences were also observed. Adiposity indices using a uniform height power mean different things for different birth cohort groups, sexes, and ages thus should be interpreted with caution. Alternative methods to account for height in epidemiological analyses are needed.

Declarations: JLB has received consulting fees from Novo Nordisk A/S.

P34 Development of a new group-based behaviour change programme for people living with severe obesity: The PROGROUP intervention

Shokraneh Moghadam[1], Lily Hawkins[1], Laura Hollands[2], Dawn Swancutt[2], Rod Sheaff[2], Jenny Lloyd[1], Jonathan Pinkney[2], Mark Tarrant[2]

[1]University of Exeter, [2]University of Plymouth: In the UK, approximately five million adults are living with severe obesity, with urgent demand for effective treatments. Group-based programmes could offer a cost and time effective method for delivering obesity care, with potential to provide a valuable treatment context for people living with obesity to change behaviour through forming meaningful social connections and shared social identity. However, treatment options for people living with obesity are variable and of uncertain effectiveness, with little detail on the behaviour change content necessary for improved health outcomes. This study aims to provide a systematic approach to developing and detailing the behaviour change content of a theory and evidence-based group intervention for people living with severe obesity (PROGROUP). Intervention development was guided by three key phases. First, a sub-group of the research team carried out a prioritisation process in collaboration with stakeholders, including behaviour change experts, clinicians, and a former patient to prioritise determinants from the Foresight Obesity Map System for the intervention to address. Second, a separate sub-group identified the target behaviours to address the determinants from the first phase, and the intervention components for delivery. The Behaviour Change Technique (BCT) Taxonomy (version 1) was used to systematically detail the intervention. The intervention's BCTs were also informed by commonly employed BCTs in published and unpublished weight management service material. Uniquely, BCTs were operationalised for group delivery, with a focus on the specific facilitator strategies for promoting and managing shared social identity amongst the patient group. Lastly, the intervention was fully manualised. Overall, behaviour change clusters commonly applied in PROGROUP included Goals and Planning, and Shaping Knowledge. The core intervention content focused on one or more components of dietary behaviours, social and/or individual psychology, and physical/recreational activity. In summary, PROGROUP contains key behavioural techniques to support behaviour change amongst people living with obesity, in a way which builds and reinforces patients' shared social identity as group members. The systematic approach employed to develop and report the behaviour change content of PROGROUP is transferable to the development and reporting of other weight management programmes for people living with obesity and potentially for other health conditions.

Declarations: None

P35 "It seems I don't fit in anyone's boxes ": Autistic people's lived experiences of eating and weight stigma

Elizabeth H. Evans[1], Charlie Greenall[1], Keren MacLennan[1]

[1]Durham University: Eating difficulties are common for people with autistim, who are disproportionately likely to experience nutritional deficiencies and higher weights. This under-researched area has so far focused primarily on anorexia nervosa. However, to thoroughly understand the impact and complexity of Autistic eating and weight challenges, it is essential to investigate this across the broader Autistic community, and include the currently under-represented perspectives and experiences of Autistic people. We therefore used qualitative methods to characterise Autistic people's experiences of eating and weight stigma. Thirteen adults with autism (two men, two non-binary, nine women; 18-57 years) participated in three one-hour serial online focus groups (communicating verbally or via text chat). Ten participants reported a history of eating distress/difficulties. A researcher with autism facilitated discussions using a semi-structured topic guide. Data were transcribed then analysed using reflexive thematic analysis. We developed six themes. First, Eating and the Senses: preferences or aversions for tastes/textures and interoceptive awareness

influenced the range of foods eaten, and over- or under-eating. Second, Executive Demands of Eating: eating was affected by executive function challenges related to planning, procuring, and preparing food. Third, Emotional Influences on Eating: over- or under- eating was a way to regulate emotions. Fourth, Life Stages and Transitions: eating experiences evolved and adapted across time and in response to life changes. Fifth, Social Influences: interpersonal factors shaped eating, including weight bias and pressure from others to eat in a more 'neurotypical' manner. Sixth, Support for Eating: participants used adjustments and accommodations to meet their needs and eat comfortably. Within this theme, participants who sought professional support for eating encountered barriers and stigmatisation. Those with disordered eating at higher weights were offered unsuitable group-based weight loss provision and excluded from eating disorder treatment due to their autism and weight. Conversely, participants seeking support with low weight received eating disorder diagnoses despite autism better explaining their eating behaviour. This research reveals the complexity inherent in people with autism's eating, including challenges and functional adaptations. It also highlights the multiple stigmatisations participants experienced in social and clinical contexts and the need to better tailor eating support to the needs of the Autistic community.

Declarations: None

P36 Supporting an NHS Specialist Weight Management Service (SWMS) with a Digital Weight Management Intervention: A Pilot Service Evaluation

Lucie Haines[1], Michael Whitman[1], Rebecca Richards[1]

[1]Second Nature, London, UK: Digital weight management interventions (DWMIs) could improve access to NHS specialist weight management services (SWMS) for people living with obesity. However, real-world evidence evaluating the effectiveness, feasibility, and acceptability of DWMIs when integrated into existing NHS SWMS pathways is limited. This single-arm pilot evaluated the feasibility and acceptability of a 12-week DWMI in adults with obesity (BMI ≥ 30 kg/m², or ≥28 kg/m² with comorbidities) referred from an NHS tier 3 SWMS. The intervention aimed to improve participants' relationship with food and psychological well-being. Outcomes included psychological distress (CORE-OM), anxiety and depression (HADS), weight, diet, physical activity, satisfaction, and engagement. A qualitative interview was conducted with the referring SWMS lead. Quantitative data were analysed using descriptive statistics and qualitative data were analysed using thematic analysis. Thirteen participants (62% female, mean age 47 years, SD 11.8; baseline weight 136.7 kg, SD 33.7; BMI 49.9 kg/m², SD 13.2) were enroled. Nine (69%) completed the intervention, with 89% attending all video calls and 56% attending all in-app check-ins. Four out of six reported improved CORE-OM scores (mean change 0.3; SD = 0.9), reducing the number of participants experiencing clinically significant psychological distress (CORE-OM > 1) from 4 to 2. Five out of six participants reported improvements in anxiety (mean reduction 3.3, SD 6.40) and depression (mean reduction 4.8, SD 5.5), with clinically significant cases (HADS > 8) decreasing from 5 to 2 for anxiety and 5 to 1 for depression. Three out of six participants reported improved diet and physical activity. Six participants reported a mean weight loss of 6.3 kg (SD 8.1) or 4.8% (SD 5.8). Mean satisfaction was 9.17/10 (SD 2.0), with health coach calls and educational content rated most useful. The SWMS lead highlighted increased access and flexibility, and reduced waiting times and travel costs as benefits of the intervention. This pilot service evaluation suggests DWMIs have potential to support NHS SWMS patients in improving psychological well-being and weight loss. Further research with a larger sample is needed.

Declarations: LH, MW and RR are employees of Second Nature Healthy Habits Ltd.

P37 Effectiveness and implementation of lower-intensity weight management interventions delivered by the non-specialist workforce in postnatal women: a mixed-methods systematic review

Mackenzie Fong[1,2,3], Ryan Kenny[1,4,5], Katie Thomson[1,2,3,4,5], Amrita Jesurasa[6], Maddey Patterson[1,2,3], Amber Lavans[6], Letitia Sermin-Reed[1,2,3], Giang Nguyen[1,3], Maria Raisa Jessica Aquino[1,3], Emer Cullen[1], Hannah O'Keefe[1,4,5], Malcolm Moffatt[1,3], Nicola Heslehurst[1,3]

[1]Newcastle University, Newcastle-upon-Tyne, UK, [2]NIHR Applied Research Collaboration (ARC) North East and North Cumbria [3]Fuse, the Centre for translational Research in Public Health, [4]NIHR Innovation Observatory, Newcastle University, [5]Evidence Synthesis Group, Newcastle University, [6]Primary Care Division, Public Health Wales, Cardiff, UK: High-intensity, structured postnatal weight management interventions are shown to be beneficial for postnatal weight loss, particularly when they combine diet and physical activity and target women living with overweight and obesity. However, there is limited evidence on the effectiveness of lower-intensity interventions delivered by the non-specialist workforce that could potentially be embedded into routine primary care and community care contacts. This mixed-methods systematic review (PROSPERO: CRD42022371828) aimed to explore the effectiveness, implementation, and experiences of lower-intensity weight management support delivered by the non-specialist workforce. Searches included nine databases, grey literature and citation chaining (completed June 2023). Risk of bias was assessed using the Joanna Briggs Institute appraisal tools. Screening, data extraction and risk of bias assessments were performed in duplicate. Quantitative and qualitative studies reporting the effectiveness of interventions on women's weight-related outcomes, diet, and physical activity behaviours up to 5-year postnatal were included, as well as reports of intervention implementation and experiences. PRISMA guidelines were followed, and narrative methods were used to synthesise outcomes. Searches resulted in 15,455 results; seven unique studies described in 11 reports were included (n = 2 in the Netherlands, and n = 1 each in the United Kingdom, Germany, Taiwan, Finland, and the United States). All studies reported weight-related outcomes. Four studies reported diet, physical activity, intervention implementation and process outcomes. Two reported intervention acceptability and experiences. There were mixed effects for weight-related outcomes: three studies reported positive impact on weight reduction and four reported no difference between intervention and control groups. No effect or mixed effects were found for physical activity or diet outcomes. Findings from qualitative studies suggest that interventions were generally perceived as acceptable. Overall, lower-intensity interventions initiated within 6 to 12 months after pregnancy delivered during routine healthcare appointments show promise. However, studies reported limited UK data, had short duration, and the lack of qualitative process evaluations identifies an evidence gap warranting further research.

Declarations: None.

P38 Emotional Eating interventions for adults living with overweight and obesity: A systematic review and meta-analysis of behaviour change techniques

Dawn Power[1], Andrew Jones[2], Chris Keysworth[3], Pooja Dhir[1], Alex Griffiths[1], Kaydee Shepherd[1], Jo Smith[4], Gemma Traviss-Turner[3], Jamie Matu[1], Louisa Ells[1]

[1]Leeds Beckett University, [2]Liverpool John Moores University, [3]University of Leeds, [4]Teesside University: Evidence suggests

emotional eating (EE) is a barrier to long term success of weight loss interventions. Psychological interventions targeting EE appear to reduce EE scores and weight (kg)(2), however it is not known which components of interventions are effective. This systematic review and meta-analysis aimed to establish which behaviour change techniques (BCTs)(3) are effective in reducing EE score and weight. This is an update of a review published in 2023, therefore searches of CINAHL, PsycINFO, MEDLINE, and EMBASE were run between 01 January 2022 and April 2023. Studies of EE interventions for adults with BMI >25 kg/m^2, were considered for inclusion. Data screening, extraction, BCT coding and quality appraisal were completed using TIDieR, Behaviour Change Taxonomy and either CASP RCT or JBI Quasi-experimental tool, depending on study design. A narrative synthesis and random effects multi-level meta-analysis was completed to analyse data. 6729 participants across 47 studies are included in this review. Psychological interventions consisted of a combination of second and third wave cognitive behavioural therapeutic approaches to managing EE. Forty-two effect sizes contributed to the pooled effect on EE (SMD = −0.99 [95% CI: −0.73 to −1.25], p < 0.001). Thirty-two effect sizes contributed to the effect of pooled interventions on weight (−4.09 kg [95% CI: −2.76 to −5.43 kg]). Six BCTs demonstrated notable efficacy to both weight and EE: 'incompatible beliefs', 'goal setting outcome'. 'review outcome goals', 'remove stimulus' 'feedback on behaviour' and 'pros/cons'. BCTs related to identity, values and self-regulation appeared to be associated with significant reductions to weight and EE score. A GRADE assessment found low certainty of evidence, due to high heterogeneity. Further testing of BCTs highlighted in this review is needed. Weight management services could consider screening patients for the presence of EE so interventions can be tailored to individual need. Interventions targeting EE should consider incorporating the BCTs identified in this review as effective.

Declarations: None

P39 The Study of How Adiposity in Pregnancy has an Effect on outcomeS (SHAPES) Cohort: a comparison of BMI and anthropometric assessment of adiposity in early pregnancy to predict gestational diabetes (GDM) risk

Giang Nguyen[1], Raisa (Raya) Vinogradov[12], Theophile Bigirumurame[1], Susan Lennie[1], Rebecca Tothill[2], Sophie Fowler[2], Anna Boath[1], Janine Smith[3], Luke Vale[1], Dawn Teare[1], Louise Hayes[1], John Allotey[4], Nicola Heslehurst[1]

[1]Newcastle University, Newcastle upon Tyne, [2]Newcastle upon Tyne Hospitals NHS Foundation Trust, [3]Patient and Public Involvement Lead, Newcastle upon Tyne, UK, [4]University of Birmingham: Maternal obesity increases the risk of pregnancy complications, including gestational diabetes (GDM). National Institute for Health and Care Excellence (NICE) uses independent risk factors to identify women at risk of GDM that should be referred for routine GDM screening, including BMI ≥ 30 kg/m^2, ethnicity, family history, previous GDM or macrosomia. However, BMI is not a precise measure for predicting individual risk of GDM. The SHAPES cohort explores if ultrasound and anthropometric measures of adiposity can better predict obesity-related pregnancy risk than BMI (ISRCTN82185177). This interim analysis compared adiposity measures with BMI for GDM risk prediction. Pregnant women (n = 1450) were recruited at their first trimester ultrasound scan between April 2022 and April 2024. Early pregnancy adiposity measures included ultrasound measurements of fat (abdominal, preperitoneal visceral and subcutaneous), and anthropometry following International Society for the Advancement of Kinanthropometry protocols (waist, hip, arm, neck circumferences; skinfolds (subscapular, triceps, biceps, iliac crest, supraspinale); height; weight). GDM data from routine medical records were linked for 711 particpants with known pregnancy outcomes. Risk prediction analysis using area under the receiver operating characteristic curve (AUROC) was performed. As NICE guidelines indicate that BMI is not the only GDM risk factor, subgroup analysis was conducted excluding women with other independent risk factors for GDM (e.g., family history), leaving BMI ≥ 30 kg/m^2 as the only independent risk factor. 122/711 (17%) women were diagnosed with GDM, approximately half had a BMI ≥ 30 kg/m^2 (54.9%). BMI ≥ 30 kg/m^2 moderately predicted GDM risk in the full sample (AUROC 0.65, p < 0.0001), and the sub-group analysis where other independent risk factors were removed (0.64, p < 0.0001). Most adiposity measures individually showed better GDM risk prediction than BMI ≥ 30 kg/m^2. The greatest improvement was for models where BMI was combined with ultrasound-based abdominal visceral fat (0.74, p < 0.0001) or waist to height ratio (0.71, p < 0.0001). Current NICE BMI screening criteria for GDM missed half of the at-risk women, while other adiposity measures performed better when combined with BMI. Final analysis of the SHAPES cohort will compare ultrasound and anthropometry with BMI to assess their risk prediction performance for a range of maternal and infant pregnancy outcomes.

Declarations: None

P40 A UK-Based Specialist Children Weight Management Approach: Initial Outcomes from the Family Therapy Pathway

AB Sirin Ayva[1], Sophie Edwards[1], Nadine Heywood[1], Paul Gately[1], Kathryn Marshall[1]

[1]MoreLife UK: Today, nearly a third of children aged 2 to 15 are living with overweight or obesity which has an impact on both physical and mental health. MoreLife delivers tailored, evidence-based and psychologically-informed specialist child weight management services (SCWMS) in the UK. Children living with obesity need support in gaining self-esteem and self-acceptance and the higher risk of depression in children living with obesity or those who are overweight can be partially accounted for by their weight concerns, their perceived isolation from their peers and shame. Despite this, the majority of commissioned Specialist Child Management Services are highly medicalised, neglecting psychological support.MoreLife provides 6–9 sessions of 1-2-1 family therapy for families with complex medical, social and psychological needs to help them with healthy lifestyle changes to facilitate weight loss/maintenance. Weight, physical activity, diet and other lifestyle factors are monitored during the intervention, which lasts a year. Three families with children living with obesity and complex needs are presented in this evaluation. All three cases improved their physical activity levels and reduced their BMI. This evaluation indicates that family therapy is a clinically- and cost-effective way of supporting families of children with complex obesity. Feedback from families shows that families with complex needs benefit from therapy support and achieve behavioural changes whilst improving their parental skills, well-being and communication with their children. Future research is needed to assess the long-term impacts of family therapy and weight loss.

Declarations: None

P41 MoreLife UK Emotional Eating Group Intervention Pilot: Three Case Studies

AB Sirin Ayva[1], Sophie Edwards[1], Nadine Heywood[1], Paul Gately[1]

[1]MoreLife UK: Emotional eating is a common behaviour, often linked to mental health issues in those living with obesity. MoreLife UK provides weight management services across the UK and provides therapeutic support as part of their specialist

interventions. Evidence-based psychotherapeutic approaches to address emotional eating and weight management are limited, and MoreLife clients shared their difficulties in accessing those services. A significant proportion of clients struggle with emotional eating, which is a barrier to their weight loss. MoreLife clinicians (Counselling Psychologist, Dietitian) and therapists co-created a group-based programme with clients to help them eat emotionally and improve their relationship with food. The programme consisted of 8 weekly, 90-min sessions with 6–8 participants. The programme was offered to clients who were struggling with emotional eating and had symptoms of depression and/or anxiety. The participants of this pilot programme were invited to give feedback on their experiences of the programme via weekly feedback forms. They also provided written responses to our comprehensive Case Example questions. This pilot had five cohorts and 20 participants in total. Three clients volunteered to be case studies. All the other participants shared their feedback via a client feedback form. The clients who have volunteered to be case examples are also keen to attend the conference and discuss their experiences as 'people with lived experience'. This qualitative feedback adds to the limited literature on effectively treating emotional eating as part of a weight management programme. These case study examples emphasise the effectiveness of evidence-based psychotherapeutic approaches to address emotional eating and weight loss. The overall feedback highlights that this pilot programme effectively reduces emotional eating and improves the participants' emotion regulation skills. The feedback points to enhanced self-awareness, acceptance, self-monitoring, and mindfulness. Future research is needed to evaluate the long-term impacts of this programme.

Declarations: None

P42 Service evaluation of an emotional eating group intervention pilot for adult weight management programme in the UK

AB Sirin Ayva[1], Sophie Edwards[1], Nadine Heywood[1], Paul Gately[1]

[1]MoreLife UK: Emotional eating is a prevalent concept which is also related to some other mental health issues among people living with obesity (Wong et al., 2020). MoreLife UK provides weight management services across the UK and supports clients with individual therapy sessions to help them with their weight management journey. Group intervention is a valuable supportive environment for participants with the benefits of learning new skills, gaining new perspectives and anonymity (Yalom, 2005). MoreLife provides a Tier 3 programme to people living with obesity with a BMI > 35. Health professionals refer the clients to this programme. MoreLife clinicians (Counselling Psychologist, Health Psychologist, Dietitian) and therapists created the Emotional Eating Pilot Programme consisting of 8 weekly sessions with 6–8 participants. The duration of each session is 90 min to enable group discussion. The programme is offered to clients who are struggling with emotional eating and scoring high on PHQ and GAD-7 and is facilitated by a therapist. The questionnaires below are used to see the changes in emotional appetite, emotion regulation, depression and anxiety in participants. The Emotional Appetite Questionnaire (EMAQ), Difficulties in Emotion Regulation Scale (DERS 18), Generalised Anxiety Disorder Assessment (GAD-7), Patient Health Questionnaire (PHQ-9). This pilot had five cohorts and 21 completers in total. Analysis showed that the programme helped participants significantly reduce their positive ($Z = -2.094$, $p < 0.5$) and negative ($Z = -2.200$, $p < 0.5$) emotional appetite, reducing depression ($Z = -2.658$, $p < 0.5$) and anxiety ($Z = -2.360$, $p < 0.5$), emotion dysregulation scores ($Z = 2.278$, $p < 0.5$). This pilot programme outcomes show that the Emotional Eating Group programme is an efficient tool to help clients reduce their emotional eating significantly where, improving depression, anxiety and emotion regulation. The weight loss data is limited as the main intention was to focus on the psychological impacts of this programme. However, we invite all the completers to our monthly follow-up sessions to monitor their improvements and collect their weight data for future analysis.

Declarations: None

P43 Insights of Individuals Living with Obesity Completed an Adult Weight Management Programme in the UK

Rupy Kaur[1], AB Sirin Ayva[1], Sophie Edwards[1], Paul Gately[1]

[1]MoreLife UK: Participants living with obesity who engaged in a Tier 2 (T2) and Tier 3 (T3) Adult Weight Management (AWM) Programme are invited to take part in this service evaluation. Programme delivery includes psychologically informed topics such as managing emotions, adopting healthy habits, and nutrition topics. Regular weight updates are required to inform the progress of weight loss, as well as psychological assessments are taken at certain intervals which assess anxiety, low mood, and general well-being. The evaluation aims to gather qualitative feedback from clients who have completed the programme on the curriculum content, length of the programme, and delivery style (face-to-face, online, session structure, activities, facilitation style, etc.). The clinical team completed six 1:1 and four focus groups in this qualitative evaluation. One client was involved with this evaluation via email due to personal issues. In total, 17 clients participated. Gender: 87.5% Female | Mean Age: 53.8 All of the participants had complex medical and physical issues, and a couple of clients had additional psychological issues. All data received through interviews and email were computerised for further analysis. The following themes were found based on the transcripts' content analysis: 1) Group Setting, 2) Weight Loss Strategies, 3) Group support, 4) Post-Programme Support. The results highlight the importance of professional and group support in implementing a healthy lifestyle. One year support, which is the commissioning timeline for the weight management services across the UK, is not enough time for the clients. The clients highlight needing more specific support and personalised feedback to deal with their complex needs. Overall, they find the content and proposed techniques very useful during their weight management journey with MoreLife. These results are insightful to inform tenders and policymakers to shape public weight management services across the UK. Exploring digital ways of supporting clients with complex needs as a low-cost option should be considered by the commissioners.

Declarations: None

P44 Preliminary Findings of a Community Tier 2 Weight Management Service for Clients with Severe Mental Illnesses: Client Insights

AB Sirin Ayva[1], Emily Costelloe[1], Sophie Edwards[1], Paul Gately[1]

[1]MoreLife UK: Severe mental illness and obesity are each serious public health problems. Some of the effective medications for severe mental illnesses are associated with weight gain (McElroy, 2009). When using drugs with weight inducing effects, behavioural weight management services are recommended to manage weight. Previous studies show that group-based approaches are effective on reducing weight and the weight loss is correlated with number of sessions attended (Pendlebury, Haddad, & Dursun, 2005: Daumit et al. 2013: Lee et al. 2022). MoreLife is a nationwide weight management provider in the UK. Service users are either referred by healthcare professionals or using a self-referral path and inclusion criteria include BMI ≥ 30 kg/m^2 without co-morbidities (adjusted to 27.5 kg/m^2 for Black

African, African-Caribbean and Asian ethnic groups), BMI ≥ 25 kg/m² with one or more co-morbidities (adjusted to 23 kg/m² for Black Afri-can, African-Caribbean and Asian ethnic groups). The MoreLife programme offers yearlong support with weekly and monthly sessions to cover nutrition, dietetic, psychological and physical activity contents. MoreLife works collaboratively with a local mental health service to provide bespoke services to clients with severe mental illnesses in the area. Upon consultation with the local mental health professionals, who are heavily involved with the target population regarding their mental health, adjustments on the main curriculum and programme are agreed to address needs of this population. The targeted client population is individuals with a diagnosis of personality disorder and schizophrenia. The programme will be nine weekly sessions followed by monthly sessions delivered by the same practitioner. The sessions will take place in the community area which all the clients are familiar with. Their weight and wellbeing will be monitored before and after the programme. Qualitative data will be collected alongside a couple of 2 extensive case examples from this cohort. The sessions will start April 2024 and the data collection will end June 2024. Qualitative data will be transferred on the computer to be analysed with content analysis. Case examples will give deeper insights from the client experience with SMI in a group weight management programme.

Declarations: None

P45 Intensive weight loss intervention versus usual care for adults with obesity: The trial design of the LightCOM randomised trials

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[1]Copenhagen University Hospital - Hvidovre, [2]University of Copenhagen, [3]University of Oxford, [4]University of Copenhagen, [5]Research Unit for Dietary Studies (EEK) Parker Institute, Frederiksberg, Denmark, [6]University of Southern Denmark: New care pathways have emerged that offer specific treatments for obesity for particular groups of citizens living with obesity. However, there is a need for offering people living with obesity a new model of personalised combination of the available evidence-based interventions to improve health and quality of life. The Lighthouse Consortium on Obesity Management (LightCOM) will conduct three randomised trials to evaluate the effects on body weight, cardiometabolic health, quality of life, physical functioning and safety of an intensive weight loss (IWL) intervention for 104 weeks compared with the routine obesity care pathways in Denmark and the UK. The IWL intervention aims to provide and maintain ≥20% weight loss through an individualised programme of total meal replacement products, behavioural support, physical activity, combined if needed with pharmacotherapy licensed for the treatment of obesity. Health economic analysis will examine cost–effectiveness and a process evaluation and implementation research will optimise the IWL intervention if proven to be cost-effective. The three trials differ in terms of participants, primary and secondary outcomes, and treatment comparators, reflecting differences in existing obesity management. LightCARE (NCT06321432) will include 400 adults (age 18–60 years) with obesity (BMI ≥ 30 kg/m² and ≥35 kg/m² without comorbidities) while LightWAY (NCT06321458) will include 600 adults with severe and complex obesity (BMI ≥ 35 kg/m² with at least one adiposity-related chronic disease). In both trials, participants will be randomised 1:1 to the IWL intervention or usual care. LightBAR (NCT06309238) will include 500 patients eligible for bariatric surgery, randomised 1:1 to the IWL intervention or bariatric surgery (gastric bypass or sleeve gastrectomy). Primary and secondary outcomes include body weight, metabolic syndrome Z-score, 4-m gait speed test, and SF-36 mental component score. In Denmark the IWL intervention is delivered through a specialised municipality-based hub combining in-person and remote visits. In the UK a private healthcare provider will deliver the IWL remotely. All three trials began in Denmark in April 2024 and is expected to begin in the UK in September 2024. The results of the trials are anticipated in the spring of 2028. LightCOM (regionh.dk/lightcom/uk) is supported by the Novo Nordisk Foundation (Grant number: NNF22SA0080921). Declarations: Carsten Dirksen has on behalf of his institution received research funding from the Novo Nordisk Foundation (no personal fees), including being the main applicant and chief investigator for the Lighthouse Consortium on Obesity Management (LightCOM, NNF22SA0080921). Further, he has served as consultant, advisory board member, lecturer, and chairperson (both paid and unpaid activities) for Novo Nordisk A/S, Novo Nordisk Denmark A/S, Novo Nordisk France, and AstraZeneca A/S, and he has received support for attending meetings from Novo Nordisk Denmark A/S.

P46 Impact of once-weekly subcutaneous semaglutide 2.4 mg on metabolic syndrome in the 2-year, randomised controlled STEP 5 trial

Helen Ashby[1], Meena Bhatta[2], Thomas Holst-Hansen[2], Kristian Kandler[2], Georgia Rigas[3], W. Timothy Garvey[4]

[1]Dudley Group Hospitals NHS Foundation Trust, [2]Novo Nordisk A/S, [3]St George Private Hospital, [4]University of Alabama at Birmingham: Obesity is a key driver of metabolic syndrome (MetS). In STEP 5 (NCT03693430), treatment with once-weekly subcutaneous semaglutide 2.4 mg resulted in 15.2% weight loss after 104 weeks vs 2.6% with placebo. This STEP 5 post hoc analysis investigated the effect of 2 years' semaglutide treatment vs placebo on MetS. Adults with overweight/obesity (BMI ≥ 30 kg/m², or ≥27 kg/m² with ≥1 weight-related comorbidity), without diabetes (n = 304) were randomised 1:1 to semaglutide 2.4 mg or placebo for 104 weeks. We assessed MetS prevalence at baseline and weeks 52 and 104, and weight loss from baseline to week 104 (<10%/ ≥ 10%). MetS was defined as the presence of ≥3 National Cholesterol Education Program Adult Treatment Panel III criteria. Results were based on observed data from the in-trial period. P values were from chi-square tests of proportions (not adjusted for multiplicity). At baseline, 89 participants had MetS in the semaglutide group and 79 in the placebo group. The proportions of participants with remission of MetS were significantly greater ($p < 0.01$) with semaglutide vs placebo at week 52 (59% vs 27%) and week 104 (57% vs 22%). Similarly, the proportions of participants (without MetS at baseline) who developed MetS were significantly lower ($p < 0.01$) with semaglutide vs placebo at week 52 (2% vs 23%) and week 104 (7% vs 26%). Semaglutide led to a higher rate of MetS remission in participants with <10% weight loss than placebo at both 52 weeks (58% vs 25%) and 104 weeks (39% vs 15%). Weight loss of ≥10% led to higher MetS remission rates, which were similar in semaglutide- and placebo-treated participants (52 weeks: 63% vs 67%, respectively; 104 weeks: 71% vs 83%, respectively). Similar proportions of participants with <10% weight loss developed MetS by week 104 (semaglutide: 24%; placebo: 29%); no participants in the semaglutide group with ≥10% weight loss developed MetS by week 104, vs 11% in the placebo group. Overall, a greater proportion of participants treated with once-weekly subcutaneous semaglutide 2.4 mg achieved remission of MetS, and fewer developed incident MetS, compared with placebo. These benefits were maintained over 2 years of semaglutide treatment.

Declarations: HA:– received travel support from Novo Nordisk previously and been supported to attend the GOAL programme.

MB, THH, KK employee and shareholder of Novo Nordisk.

GR: consulting fees from Johnson & Johnson, Nestle HealthScience, Reshape HealthSciences, iNova Pharmaceuticals, NovoNordisk Pharmaceuticals, Novo Nordisk, Apollo-Endoscopy (previously known as Allergan); Medtronics (previously known as Covidien), and Eli Lilly; honoraria/speakers bureau from Reshape HealthSciences, iNova Pharmaceuticals, Novo Nordisk, W.L. Gore & Associates, Johnson & Johnson, Apollo-Endoscopy (previously known as Allergan), Medtronics (previously known as Covidien), MDbriefcase, International Medical Press, WedMD, Medscape Education, NSW Health, Australian Ministry of Health Aspire, Merck, Sharpe & Dohme, South Australian Postgraduate Medical Education Association, Western Australia Clinical Training & Evaluation Centre, Royal Australian College of General Practitioners, Boden Institute Medical Research Unit, and Sydney University; meeting support from Medtronics (previously known as Covidien) and Apollo-endosurgery (formerly Allergan Australia); educational grant (travel and conference registration fee) to attend an international obesity conferences from Novo Nordisk; advisory board from Novo Nordisk, Nestle HealthScience, iNova Pharmaceuticals, and Johnson & Johnson; leadership (paid/unpaid) for The Obesity Collective, Founding Chair, and Royal Australian College of General Practitioners Obesity Management Specific Interest Network; and receipt of equipment, materials, drugs, medical writing etc. from Nestle HealthScience, iNova Pharmaceuticals, and Novo Nordisk.

W. TG: consultant on advisory boards for Boehringer Ingelheim, Eli Lilly, Novo Nordisk, Pfizer, Fractyl Health, Alnylam Pharmaceuticals, Inogen, Zealand, Allurion, and Merck; site principal investigator for multicentre clinical trials sponsored by his university and funded by Novo Nordisk, Eli Lilly, Epitomee, Neurovalens, and Pfizer; consultant on advisory board for the Milken Foundation; member of Data Monitoring Committee for phase 3 clinical trials conducted by Boehringer-Ingelheim and Eli Lilly.

P47 Effect of weight loss interventions on the symptomatic burden and biomarkers of polycystic ovary syndrome: a systematic review and meta-analysis of randomised controlled trials

Jadine Scragg[1], Alice Hobson[1], Lia Willis[1], Kathryn Taylor[1], Sharon Dixon[1], Susan A Jebb[1]

[1]University of Oxford: Polycystic ovary syndrome (PCOS) is common in women of reproductive age and is associated with obesity. Clinical guidelines recommend weight loss, but the impact on the clinical manifestation of PCOS is unclear. To quantify the effect of weight loss interventions on symptom burden and clinical markers of PCOS, compared with lower intensity weight loss interventions and usual care. MEDLINE, Embase, PsycINFO, CINAHL, Cochrane, Web of Science and trial registry databases were searched from inception through February 2024. Randomised controlled trials of women with PCOS were included if they compared any intervention aiming to reduce weight against usual care, including lower intensity weight-loss interventions. Conversations with people with PCOS informed the selection of outcomes. Pairs of independent reviewers screened the studies, extracted the data, and assessed risk of bias. Outcomes included markers of glycaemic control (HOMA-IR, fasting insulin and glucose), hormonal markers (free androgen index and other sex hormones), gynaecological (menstrual frequency) and other symptoms of PCOS (hirsutism) and PCOS related quality of life. Pooled mean differences were obtained from random effects meta-analysis-with Knapp-Hartung adjustment. The Cochrane risk of bias 2 tool was used to assess the quality of evidence. 47 comparisons from thirty-eight studies with 2583 adult participants were included. Sixteen, 26 and five studies were judged at high, some or low risk of bias, respectively. Seventeen studies used behavioural programmes, 16 used GLP-1 receptor agonist medication, 4 used other types of weight-loss medications and 10 combined pharmacotherapy/behavioural intervention for weight-loss. Relative to the comparator, interventions were associated with greater weight loss (−3.41 kg, −4.09 to −2.72; $I^2 = 78\%$) and improvements in symptoms and biomarkers, including menstrual frequency (mean difference 1.9; 0.72 to 3.08, $I^2 = 63\%$), free androgen index (mean difference −1.16, −2.27 to −0.05; $I^2 = 59\%$), fasting insulin (−1.4, −2.11 to −0.67; $I^2 = 3\%$ and HOMA-IR (−0.43, −0.65 to −0.12; $I^2 = 19\%$), but not hirsutism, total testosterone, sex-hormone binding globulin, follicular stimulating hormone, luteinising hormone or quality of life. Weight loss programmes lead to improvements in some markers of PCOS and should be considered routinely as a treatment option for PCOS.

Declarations: None

P48 Parental peer support program (PPSP) for children living with severe obesity and attending the Complications of Excess Weight Clinic: the Nottingham experience

Hannah Bone[1], Frances Breed[1], Emma Woodward-Smith[1], James Law[1], Pooja Sachdev[1]

[1]East Midlands Complications of Excess Weight (CEW) Service: Positive outcomes have been shown for structured self-management education programmes in chronic health conditions in adults, including those delivered virtually. WHO recommendations on ending childhood obesity (1) recognise the importance of family-based interventions and improving nutrition literacy for parents and caregivers.The Complications of Excess Weight (CEW) service is a NHS England funded Tier 3 Paediatric Obesity pilot programme running in 21 clinics across England. A parent peer support program (PPSP) was developed and piloted in Nottingham to provide peer support and education. Criteria for attendance was parents of children aged ≤5 years attending the CEW service. The programme ran for 5 hourlong weekly sessions and aimed to increase parents' knowledge, skills, and confidence to aid self-management behaviours. Sessions were delivered by the CEW Dietitian and another team member virtually to minimise travel and time costs, and delivered at lunchtime to allow parents to attend during lunchbreaks and school hours. Topics covered included food groups, age-appropriate portions, reading food labels, increasing activity levels, reducing screen time and sleep hygiene. Behaviour change techniques were used throughout. Attendance was recorded for each session. A feedback questionnaire was completed at the end of the programme. Virtual delivery of the 5-week programme began in November 2023. 9 families were invited to attend, 55% (n = 5) stated they would like to attend. Of this 1 family did not attend any sessions. Of the four families who attended, children were aged 3–5 years old with a BMI z-score of 4.62–5.42. One family attended all 5 sessions, one 4 sessions and two families 3 sessions. Reasons for missed sessions included family holiday, a funeral and attending another healthcare appointment. 100% of families were 'likely' or 'very likely' to recommend attending PPSP to friends and family. When asked 'what impact has attending PPSP had on you understanding of living healthily' 100% of participants rated 'a lot'. Parents of CEW patients aged ≤5 years found the PPSP valuable. Allied healthcare professional feedback is being collated and combined with participant feedback that will inform future iterations of the programme.

Declarations: None

P49 Misaligned attitudes and perceptions among adolescents living with obesity, caregivers, and healthcare professionals: ACTION Teens Australia survey study

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[1]The University of Sydney, Sydney, Australia, [2]Novo Nordisk A/S, Sydney, Australia, [3]Perth Children's Hospital, Nedlands, Australia, [4]University of Queensland, Brisbane, Australia: The ACTION Teens study examined perceptions, attitudes, behaviours and potential barriers to effective obesity care among adolescents living with obesity, caregivers of adolescents and healthcare professionals (HCPs). ACTION Teens (NCT05013359) was an international, cross-sectional, online survey conducted in 10 countries in 2021. Data from 298 adolescents (aged 12–<18 years), 276 caregivers and 137 HCPs in Australia are reported. Among all adolescents surveyed (mean age: 14.8 years; 40% female), 83% believed their health was at least good and 52% were at least somewhat worried about their weight. Many adolescents defined successful weight loss as feeling better about oneself, having less depression/anxiety and having more interest in social activities (selected by 45%, 34% and 18%, respectively). Their top barrier to weight loss was lack of motivation (selected by 37%). Most adolescents (52%) reported making a weight-loss attempt within the past year, while 21% of caregivers reported an attempt by their child. Most adolescents indicated that they are responsible for initiating weight conversations with HCPs (62%), although fewer caregivers (51%) and HCPs (6%) indicated that adolescents are responsible. The most frequently reported barriers preventing adolescents from discussing weight with their HCP were discomfort initiating weight conversations and already knowing how to manage their weight (selected by 26% and 21%, respectively); 29% of adolescents reported no barriers. Overall, only 42% of adolescents had discussed weight with an HCP in the past year (n = 126/298); among this subset, 73% reported at least one positive feeling after their most recent discussion and 66% agreed that they trusted their HCP's weight-management advice. Despite generally positive feelings regarding weight-management conversations with HCPs, many adolescents reported not having discussed weight with their HCP. Discordance between adolescents, caregivers and HCPs regarding the adolescent's responsibility for initiating weight conversations suggests a need for improved communication strategies.

Declarations: Cathy Kwok received support from Novo Nordisk to attend and present this research at the Australian and New Zealand Obesity Society Annual Scientific Meeting 2023. Nicholas Bentley is an employee of Novo Nordisk. Jacqueline Curran is a Principal Investigator on a clinical trial funded by Novo Nordisk. Louise A. Baur reports consultancy fees from Novo Nordisk during the conduct of the study (for her role as a member of the ACTION Teens Steering Committee) and speaker fees from Novo Nordisk outside the submitted work. Natalie B. Lister and Helen Truby report no conflicts of interest.

P50 European Recommendations from Health Care Professionals and People Living with Obesity on Safe Practice for Bariatric and Metabolic Surgery Medical Tourism: A Modified Delphi Consensus Statement from EASO, IFSO-EC and ECPO

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[1]King's College London, UK, [2]St. Clara Hospital and University Hospital, Basel, Switzerland, [3]Irish Coalition for People Living with Obesity (ICPO), Dublin, Ireland, [4]St Columcille's and St Vincent's University Hospitals, Dublin, Ireland, [5]European Association for the Study of Obesity, Teddington, UK, [6]Obesity UK, Halifax, UK, [7]Universitat Autonoma de Barcelona, Barcelona, Spain, [8]Vienna Medical University, Vienna, Austria, [9]University of Leeds, UK, [10]St Vincent's University Hospital, Dublin and University College Dublin, Ireland, [11]University of Rome "Tor Vergata", Rome, Italy, [12]European Coalition for People living with Obesity, European Association for the Study of Obesity, Teddington, UK, [13]Whittington Hospital, London, UK, [14]Children's Health Ireland at Temple Street, Dublin, Ireland, [15]Istanbul University-Cerrahpaşa, Cerrahpaşa Medical Faculty, Istanbul, Turkey, [16]Guy's and St Thomas' NHS Foundation Trust, London, UK: Bariatric and metabolic surgery tourism (BMT) is becoming an increasingly popular route to treatment for patients living with obesity. Recent reports have highlighted that some patients travelling abroad for bariatric surgery have received inadequate care, fraudulent care, and, tragically, some cases have resulted in death. This study aimed to define consensus in Europe regarding safe practice in relation to BMT. The International Federation for the Surgery of Obesity and Metabolic Disorders, European Chapter (IFSO-EC), the European Association for the Study of Obesity (EASO), and the European Coalition for People Living with Obesity (ECPO) initiated a task force to delineate safe practice in BMT. Two expert European panels were convened, one of healthcare professionals (identified from EASO and IFSO-EC) and the other of patient representatives (identified from ECPO). The study utilised a modified Delphi consensus methodology and 135 questions were administered. Surveys were conducted anonymously online, and consensus was defined as ≥70% agreement. Themes analysed regarding BMT included: regulation, preoperative evaluation, operative care, post-operative care, advertising and online information. One hundred and nineteen healthcare professionals and 88 patient representatives took part from 24 countries. The healthcare professional panel included 66 bariatric surgeons (55.5%), 28 endocrinologists (23.5%), 18 dietitians (15.1%), 3 nurses (2.5%), 2 psychologists (1.7%), 1 general practitioner (0.8%) and 1 gastroenterologist (0.8%). Three questionnaire rounds were conducted for the healthcare professional panel and two questionnaire rounds were conducted for the patient representative panel. Consensus recommendations were given across all themes relevant to BMT. These included the need for the evaluation and management of psychological health, sleep apnoea, cardiovascular disease, liver health and for dietetic assessment. The recommendations covered the requirements for regulatory standards, including surgeon accreditation and procedural volume. They also included recommendations regarding patient education, standardised operative care, the provision of online information and follow-up. Through collaboration with healthcare professionals and patients living with obesity, we provide European recommendations regarding safe practice in relation to BMT. Further evaluation is required regarding outcomes following BMT. This data, alongside the Delphi consensus recommendations, will inform BMT clinical guideline development.

Declarations: VDK has served on advisory boards for Eli Lilly and Novo Nordisk. BM is a shareholder in Reset Health and also performs Advisory and educational work for Novo Nordisk and Advisory work for Lilly, Pfizer and Johnson & Johnson. KC is on the patient advisory board for Novo Nordisk, Boehringer Ingelheim and has consulting fees from Eli Lilly. He also declares lecture fees from Apollo Endo Surgery, Novo Nordisk and I&J Ethicon. KC is chair of ECPO, WLSinfo charity and director of Operations of Obesity UK.

P51 Implementing a complex intervention for obesity management—a process evaluation

Gritt Overbeck[1], Katrine Tranberg Jensen[1], Sofie Olsen[1], Rachael Drewery[2], Charlotte Albury[2], Paul Aveyard[2], Susanne Reventlow[1], Marius Brostrøm Kousgaard[1]

[1]University of Copenhagen, [2]Oxford University: The LightCOM project involves three randomised controlled trials in Denmark

and England investigating the effects of an intensive weight loss (IWL) intervention for obesity management. The IWL intervention combines dietary replacement, weight loss medication, and behavioural support. In the three trials, the IWL intervention will be delivered to three different target groups in two different settings (a hospital setting and a municipal setting). Alongside the effectiveness trials, a process evaluation will be conducted. The primary objectives of the process evaluation are to 1) assess fidelity of delivery, i.e., whether the IWL intervention is delivered in accordance with the protocol 2) explore how participants, relatives, and health professionals respond to and experience the intervention 3) identify the key enablers and barriers to implementing the intervention. The process evaluation will support the understanding and interpretation of the outcomes observed in the clinical trials and the overall assessment of the value and potential scalability, and transferability of the IWL intervention beyond the trial settings in Denmark and England. The evaluation will employ a mixed-methods approach, combining quantitative data on process indicators with qualitative data from interviews, video recordings, and participant observations. The study is carried out by researchers with different professional backgrounds from University of Copenhagen and Oxford University.

Declarations: None

P52 Provision and implementation of Local Authority Tier 2 weight management services in England following the introduction of additional government funding in 2021-22: a mixed-methods study

Mackenzie Fong[1], Lorraine McSweeney[2], Charlotte Rothwell[2], Claire Mathews[3], Scott Lloyd[4], Simon Barrett[2], Ashley Adamson[1]

[1]NIHR Applied Research Collaboration (North East and North Cumbria), [2]Newcastle University, [3]Office for Health Improvement and Disparities, [4]Public Health South Tees: The UK Government announced a new grant for Local Authorities in 2021/22 to increase community, tier 2 weight management services (WMS) for adults in England. Services had to be delivered at pace and scale while Local Authorities were also dealing with the Covid-19 pandemic. Service commissioners were encouraged to prioritise provision for higher-risk groups, namely: men, people living in more deprived areas, people from Black, Asian and Minority Ethnic groups, people living with severe mental illness and people living with physical and/or learning disabilities. We aimed to determine 1) the types of tier 2 WMS that were delivered through the grant and who could access them, and 2) the barriers and facilitators to service implementation focusing on services for higher-risk groups. To achieve Aim 1, we disseminated an e-survey to tier 2 WMS providers. Quantitative data were analysed using descriptive statistics and content analysis was applied to qualitative data. To achieve Aim 2, we used a multi-case study design involving eight tier 2 WMS providers who supported people from higher-risk groups. Within these cases, we interviewed service commissioners, providers, and trainers/deliverers. Interviews and framework analysis were informed by the Consolidated Framework for Implementation Research. We received 52 responses to the e-survey which represented 89 unique Local Authorities across England. Responses showed that services were of similar duration, format, and mode of delivery, but content and activities varied within and between services. Provision for higher-risk groups was indicated by 28% of responses. Case study findings drawn from 36 interviews highlighted common facilitators to implementation of tier 2 WMS for higher-risk groups, including: Having an effective WMS programme already in place at the time the grant was awarded; having sufficient time for outreach work and programme development to understand the specific needs of the services users from targeted groups; ensuring meeting venues are accessible in community settings; appreciating other benefits of the service (e.g., reduced social isolation) and not just focusing on weight-loss; facilitating peer support among service users. Findings can be used by tier 2 WMS providers and commissioners to enhance service implementation which may ultimately help achieve greater participant outcomes.

Declarations: None

P53 Impact of England's obesity policies on children and young people: preliminary qualitative results

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[1]University College London, [2]Imperial College London: A range of public health policies are in place to tackle the increasing prevalence of overweight and obesity in England. It is essential that policies be evaluated in terms of their relative benefits (e.g., improving diet quality and reducing obesity) and unintended harms. There is concern that policies focusing on calorie restriction may inadvertently increase preoccupation with food and weight, leading to increases in disordered eating behaviours and cognitions among vulnerable groups, especially children and young people (CYP). The aim of this study was to explore the relative benefits and harms of obesity policies on children, as part of their overall environment. We focused on three policies: traffic light labelling (TLL), calories on menus and the National Child Measurement Programme (NCMP). Focus group discussions were conducted in primary and secondary schools in the southeast of England with children in Years 5–8 (aged 9–13 years). A four-part interview schedule was used to discuss: (i) food labelling and packaging, including TLL and Nutriscore; (ii) calories on menus; (iii) NCMP, (iv) the wider food environment. Interviews were transcribed and analysed using Framework Analysis. 16 focus groups were conducted across 4 schools ($n = 80$ CYP). In preliminary analysis, six themes were developed: (i) understanding and usefulness of TLL; (ii) understanding and impact of calories on menus; (iii) experiences of the NCMP; (iv) influence of social media on food choices and body image; (v) food marketing exposure and impact, (vi) family and teacher influence. Many children saw TLL and calorie information as not relevant to them, although several older participants suggested that displaying calories on menus could have negative impacts, including prompting compensatory behaviours. Some CYP who had experienced the NCMP felt the aims and procedures should be more clearly communicated to children. CYP described exposure to a wide range of engaging media and marketing, which influenced their food choices and promoted unrealistic body ideals. Preliminary findings suggest that elements of obesity policy may negatively impact some children, and that there is a need to consider more closely the ways in which social media and marketing exposure shape eating behaviours and body image related cognitions.

Declarations: None

P54 Association between nutrition claims and weight loss: insights from a Nutrition Score in a mobile application

Rodion Salimgaraev[1], Dimitri Nikogosov[1], Rosemary Huntriss[1]

[1]Simple.Life Apps, Inc.: A Nutrition Score (NS) was developed in a mobile application to promote weight loss (WL) while maintaining a balanced diet. The NS considers calorie density (CD), protein (P), fibre (F), sugar (S), saturated fats (SFA), unsaturated fats (UFA), calcium (Ca), and sodium (Na), providing claims for each nutrient contents: "High in…" and "Low in…". Positive claims include lowCD, highP, highF, lowS, lowSFA, highUFA, highCa, and lowNa. Eligible app users recorded their weight from 01.04.2023 to

30.05.2024 at least twice to evaluate WL within the 4th (W4), 8th (W8), and 12th (W12) weeks. They used the NS feature at least five times per week for 75% of the weeks in each period. The primary outcome was WL%. Positive claims shares were used as independent variables. Regression was adjusted for gender, age, fasting protocol, baseline BMI, and meal tracking frequency. The study included 15,565 users, with 13,708 at W4, 5,199 at W8, and 2,394 at W12. The average age was 53.2 years (SD: ±13.6), baseline BMI was 31.8 (±6.2) kg/m^2, and 63% were women. Meal logs received the following proportion of claims: highP—61.3%, lowS—58.5%, highF—47.4%, lowSFA—31.3%, highCa—19.0%, highUFA—13.8%, lowCD—11.0%. The lowNa claim had the highest cross-correlation and was excluded from regression. Median WL was −2.8% (IQR: −4.4, −1.4) at W4, −4.3% (−6.6, −2.5) at W8, and −5.5% (−8.4, −3.1) at W12. The highCa claim was not associated with WL at any period. The lowS claim was positively associated with WL at W4 and W8, but not at W12. All other claims were positively associated with WL at all time points. The lowCD claim had the largest effect at W4 and W8: each additional 10% of meals with this claim was associated with 0.187% and 0.366% more WL, respectively ($P < 0.0001$). At W12, the highUFA claim was the strongest predictor with 0.528% more WL per 10% increase. Most positive NS claims are associated with WL, with lowCD and highUFA being the strongest predictors. The impact of NS claims on other health aspects requires further investigation.

Declarations: None

P55 Secondary exploratory analyses from a randomized clinical trial of text messages with financial incentives for men living with obesity: behavioural, health and socio-economic considerations

Stephan Dombrowski[1], Claire Torrens[2], Alice MacLean[2], Catriona O'Dolan[2], Pat Hoddinott[2]

[1]University of New Brunswick, [2]University of Stirling: Generalisability of effective weight management interventions for underserved populations with low socio-economic status, poor mental health or physical health is important. The aim of this secondary analysis of the Game of Stones trial was to examine differences in weight outcomes at 12 months for men living with obesity randomised to a text messages with financial incentives group versus a control group, or to a text messages only versus a control group. The aim was to explore whether baseline socio-economic, co-morbidity and recruitment characteristics moderate intervention effectiveness. A three-group assessor-blind randomised controlled trial conducted July 2021–July 2023 in three UK areas: Belfast, Bristol and Glasgow. Participants were 585 men recruited through primary care, community settings and social media with a body mass index ≥30 kg/m^2. The text element of the intervention consisted of daily automated behavioural texts for 12 months. One group received these alongside financial incentives, with money 'lost' by not meeting verified weight loss goals. Pre-planned exploratory moderator analyses examined differences in weight change at 12 months from baseline (primary outcome) between the two intervention groups versus control group for: alcohol intake, social conditions (living status, relationship status, working status, education, financial strain, living with socio-economic disadvantage, perceived money and wealth, weight stigma), physical health status (living with diabetes, disability, co-morbidity, multiple long-term conditions), mental health status (living with a mental health condition, quality of life, wellbeing, EQ-5D-Anxiety and Depression, PHQ-4, WEMWBS) and recruitment channel. Analyses used binary logit regression. 54 semi-structured interviews, with men from the intervention groups, were conducted to explore experiences of the programme considering weight loss outcomes and context. Among men with obesity, a 12-month intervention consisting of text messaging with financial incentives resulted in modest but statistically significant weight loss, compared to control. There was no evidence of moderating effects of any of the pre-planned moderators. Men's engagement with and views of the text messages, weight loss goals and financial incentives had similarities irrespective of deprivation, mental or physical health status. The interventions had the same effectiveness compared to control for all men regardless of socio-economic, physical health, mental health or wellbeing status.

Declarations: None

P56 Development of the Malnutrition Screening Tool (MST) for assessment of obesity and undernutrition risk in people with severe mental illness: Findings from an evaluation in an English medium secure hospital

Gloria Rodriguez[1], Lucy McCarthy[2], Fiona McCullough[3]

[1]Leicestershire Partnership NHS Trust, [2]Nottinghamshire Healthcare NHS Foundation Trust, [3]University of Nottingham: The Malnutrition Universal Screening Tool (MUST) effectively assesses the risk of undernutrition. However, MUST does not score the level of risk from rapid weight gain or for existing overweight or obesity (hence BMI >20kg/m^2 has a nutritional risk of 0). The prevalence of obesity amongst the inpatient population in secure mental health settings is between 40%-50%, hence a challenge. In 2011, The St Andrews Nutrition Screening Instrument (SANSI) was validated for use in psychiatric settings to assess both undernutrition and obesity. However, MUST has remained the tool of choice in most psychiatric hospitals in the UK, possibly as it is less detailed and therefore quicker to complete. Importantly, neither MUST nor SANSI fully address the nutritional risks related to rapid weight gain or physical health co-morbidities as recommended in national guidance. This prompted the reported service evaluation project, with the aim to improve nutritional screening and obesity management through the development of the Malnutrition Screening Tool (MST). The work was carried out by a Registered Dietitian between November 2015 and April 2021, informed by national guidelines and included reference to co-morbidities (Step 1 - Weight change score; Step 2 - BMI score; Step 3 - Co-morbidities; Step 4 - Total score). To ensure MST was fit for purpose, focus groups with staff were used to influence its design, and a trial took place for three months; using three wards where nothing was changed and three, where MST was used. In total, data from 152 records was collected and analysed. The results showed MST was 84% effective at screening for possible risk of overweight or obesity, compared to 0% from the MUST; it was >79% reliable at highlighting the risk of obesity and allocating an accurate level of risk. Hence a change in practice has been recommended, which includes making MST available in electronic format. In future, the possibility of having pre-appointed 'nutritional screening leads' in each ward could help to implement the use of the MST, and re-evaluation of MST effectiveness to establish its formal validation.

Declarations: None

P57 Prevalence of, and effect of semaglutide on, features of non-alcoholic steatohepatitis in patients with obesity with and without type 2 diabetes: analysis of data from two randomised placebo-controlled trials using SomaSignal tests

Jorn Schattenberg[1], Henning Gronbaek[2], Iris Kliers[3], Steen Ladelund[3], Michelle Long[3], Sune Boris Nygard[3], Arun Sanyal[4], Melanie Davies[5]

[1]University Medical Center Mainz, [2]Aarhus University Hospital, [3]Novo Nordisk, [4] Commonwealth University School o Medicine, [5]University of Leicester: A targeted proteomics signature derived

from patients with histologically-defined NASH was developed with NASH CRN (SomaSignal tests) to relate the presence and severity of NASH components and changes over time. SomaSignal tests were applied to proteomics data from two weight-loss trials to characterise prevalence of NASH components at baseline and investigate the effect of semaglutide. STEP1 and STEP2 were phase 3a, randomised, placebo-controlled trials of OW SC semaglutide vs placebo for weight reduction in adults with overweight/obesity without (STEP1) or with (STEP2) T2D. Patients received treatment for 68 weeks. Prediction probabilities (PP) for NASH components at baseline were derived using SomaSignal models. The efficacy of semaglutide vs placebo was analysed as presence or absence of NASH components using a binary classifier derived from PP (PP > 0.5) at the end of the trial (EOT) and as odds ratios at EOT based on PPs directly. The SomaSignal categories included: steatosis grade 1–3 vs 0; lobular inflammation grade 2–3 vs 0–1; hepatocyte ballooning grade 1–2 vs 0; and fibrosis stage 2–4 vs 0–1. Based on SomaSignal classifiers, patients were characterised into NAFLD stages: NAFL (steatosis present but no other NASH components); indeterminate (some, not all, NASH components or fibrosis present); and NASH (steatosis, inflammation and ballooning (with or without fibrosis) present). Proteomics data were available for 1307/1961 and 643/1210 patients in STEP1 and STEP2. At baseline, 43% of STEP1 patients had steatosis and prevalence of other components was 5% or less. In STEP2, 72% of patients had steatosis, 15% had NASH and 12% had NASH with fibrosis. Odds of having each NASH component were significantly lower at EOT for patients who received semaglutide vs placebo, with dose-dependency trend in STEP2, using both PP and binary classification. Semaglutide was associated with significantly lower odds of having a more severe NAFLD stage after treatment vs. placebo. Steatosis is highly prevalent in overweight/obesity, with NASH likely present in 15% of patients with overweight/obesity and T2D. Semaglutide had a favourable effect on NASH components in the current analysis in populations with overweight/obesity, with and without T2D, as measured by SomaSignal models.

Declarations: Novo Nordisk was involved in the writing of this abstract and delivered the STEP1 and STEP2 trials.

P58 Understanding barriers in metabolic dysfunction-associated steatotic liver disease management: Insights from a multi-disciplinary survey of physicians in Europe | BARRIERS – MASLD

Lazarus JV[1], Alazawi W[2], Bugianesi E[3], Caussy C[4], Federici M[5], Romero-Gomez M[6], Schattenberg JM[7], Basuroy R[8], Estulin D[9], Castera L[110]

[1]University of Barcelona, [2]Queen Mary University of London, [3]University of Torino, [4]University and Lyon South Hospital, [5]University of Rome Tor Vegata, [6]University of Seville, [7]University Medical Center Mainz, [8]Novo Nordisk, Copenhagen, [9]Novo Nordisk, Zurich, [10]University of Paris: Management of MASLD and MASH remains challenging due to factors including disease awareness, availability of treatments, and lack of adoption and adherence to clinical practice guidelines. As a result, patients may not receive appropriate interventions such as lifestyle modifications, contributing to disease progression and increased risk of complications. This study aimed to identify insights and key challenges physicians face when managing MASH. A real-world, cross-sectional, quantitative survey was conducted from March–May 2023, among hepatologists/gastroenterologists with subspecialty in hepatology and metabolic physicians (MPs) who actively manage at least 30 patients with T2D and/or obesity per month (endocrinologists, GPs, family physicians and internal medicine physicians without a subspecialty in hepatology) in five European countries (France, Germany, Italy, Spain and UK). Participants completed an anonymous online survey, and descriptive statistics were used to analyse data. Among 250 hepatologists and 376 MPs, respondents cared for an average of 131 patients per month with or suspected to have MASLD/MASH. The majority of hepatologists (62%) and MPs (60%) reported patient comorbidities influenced MASH diagnosis. Hepatologists were predominantly influenced by availability of diagnostic methods (63%) followed by national guidelines (58%), whereas MPs were most influenced by availability (56%) and invasiveness (49%) of the diagnostic method. Hepatologists reported being more aware of EASL (2021) guidelines (55%) for diagnosing and treating/managing MASH, whereas MPs reported being aware of ADA guidelines (34%). Additionally, 11% of participants were not aware of any clinical guidelines for MASH. The factors most commonly preventing clinical guideline adoption in MASH diagnosis, treatment and management were patients refusing recommended treatments (44% hepatologists, 46% MPs), patients refusing recommended diagnostic tests (42% hepatologists, 45% MPs), invasiveness of recommended diagnostic tests (39% hepatologists, 43% MPs), and diagnostic tests availability (33% hepatologists, 47% MPs) (Fig. 1). This study found that physicians report multiple challenges associated with MASH and further highlights the different influences and approaches taken by physicians to diagnose, monitor, treat and manage patients with MASH. The findings emphasise the need for more definitive guidance and physician education to assist hepatologists and MPs treating MASH in adopting and adhering to clinical practice guidelines and non-interventional treatments and diagnostic tools.

Declarations: Novo Nordisk were involved in the facilitation and authorship of this project.

P59 Striving for 'good' as a family: the doing of collective healthy lives in East London, UK

Meredith Hawking[1]

[1]Queen Mary University of London: Families face much public health guidance about how best to collectively modify their behaviour to lead 'healthy' lives. In the UK, this guidance particularly targets households which include children identified as having excess weight through an obesity-related regime of normativity. However, health and weight related public health advice may conflict with a family's own normative notions of what it means to lead a healthy and happy life, and the lived realities of complex local social contexts that make up the local moral and ethical assemblage. In East London, many families are experiencing pressing challenges, including: poverty; a cost-of-living crisis; homelessness, poor quality housing and overcrowding; lack of accessible green space; and fuel and food insecurity. Yates-Doerr (2017) argues that health is not a property, instead it is a practice of negotiating between different types of goods and bads. This paper draws on qualitative data (interviews, photos, child drawings and diary entries) collected with families in East London boroughs about their everyday lives and household practices. Underpinned by empirical ethics, it describes the multiplicity of health related social normativities, or 'goods' related to child health and weight. Through analysis of illustrative 'ethical moments', I present how these are imagined/intended, enacted, prioritised and negotiated collectively in everyday practice. I explore how some child health related 'goods' come to be increasingly conflicting, incompatible, or de-prioritised for these families. Finally, I will discuss the process and potential of realising impact from empirical ethics work through engaging with local public health policymakers.

Declarations: None

P60 Differential secretion of active-GLP-1 and GIP in Good and Poor Responders to Sleeve Gastrectomy

Kavita Narula[1], Kleopatra Alexiadou[1], Khalefah Malallah[1], Anna Kowalka[1], Ahmed R Ahmed[2], Tricia M. Tan[1]

[1]Department of Metabolism, Digestion and Reproduction, Imperial College London, [2]Department of Surgery and Cancer, Imperial College Healthcare National Health Service Trust: Bariatric surgery, while effective for sustainable weight loss and diabetes remission, exhibits patient-to-patient variability. Gut hormones, implicated in post-surgical responses, warrant investigation to optimise long-term success and personalise treatment strategies. Enhanced postprandial GLP-1 levels post-bariatric surgery have been linked to its positive metabolic outcomes. However, there is scarce data on whether these hormone levels vary between individuals who respond well to surgery ('good responders') and those who do not ('poor responders'). Our previous findings showed no variation in PYY3-36 and PYY1-36 levels between these groups. This study aims to explore the potential differences in the secretion of active GLP-1 and GIP post-operatively between good and poor responders following Sleeve Gastrectomy (SG). This retrospective study included a cohort of seven good responders and fifteen poor responders to SG, categorised by percentage weight loss of 320% or <20% respectively, at screening compared to pre-operative weight. Patients were more than two years post-SG and were evaluated using a Mixed Meal Tolerance Test (MMT). Measurements included fasting glucose, insulin, and C-peptide levels, with active GLP-1 and GIP being quantified through magnetic bead multiplex immunoassay (Luminex). While weight loss delineated good from poor responders significantly ($p = 0.0021$), the comparative analysis revealed no notable difference in active GLP-1 secretion during the MMT. Interestingly, post-prandial GIP levels were increased in the poor responders group compared to the good responders ($p = 0.0066$). Our findings suggest that active GLP-1 levels during MMT do not appear to differ between good and poor responders post-SG. This challenges the preconception that GLP-1 levels correlate with metabolic improvement post-SG, indicating the need for a more nuanced understanding of individual gut hormone responses following bariatric surgery. Further studies may illuminate the role of GIP in the variance in surgery outcomes and guide tailored postoperative management strategies.

Declarations: None

P61 Similar weight loss with semaglutide regardless of diabetes and cardiometabolic parameters in individuals with non-alcoholic fatty liver disease

Matthew Armstrong[1], Takeshi Okanoue[2], Mads Sundby Palle[3], Anne-Sophie Sejling[3], Mohamed Tawfik[3], Michael Roden[4]

[1]Queen Elizabeth University Hopsital, [2]Saiseikai Suita Hospital, [3]Novo Nordisk, [4]Heinrich-Heine University and University Hospital: In the absence of any globally approved pharmacotherapy, current guidelines recommend lifestyle modification and weight loss in people with obesity and NAFLD including NASH. Semaglutdie, a GLP1 analogue indicated for management of body weight and T2D, is under investigation in NASH. However, T2D seems to reduce GLP-1 analogue-mediated weight loss in people with overweight/obesity. We evaluated the impact of T2D and other cardiometabolic parameters on weight loss in randomised control trials of SC semaglutide in NAFLD and including NASH. Data were taken from adults in NCT03357380 (NAFLD; semaglutide 0.4 mg or placebo OD for 72 weeks), NCT02970942 (NASH and fibrosis stage F1–3, semaglutide 0.1, 0.2, or 0.4 mg or placebo OD for 72 weeks), and NCT03987451 (NASH, F4 and compensated liver cirrhosis; semaglutide 2.4 mg or placebo OW for 48 weeks). This post-hoc analysis pooled data for semaglutide (0.4 mg OD and 2.4 mg OW), and placebo, with weight changes grouped by baseline T2D status (previously diagnosed or HBA1c > 6.5%, pre-T2D, or no T2D). Mean on-treatment changes from baseline to 1 year were used to derive estimated treatment differences (ETDs) and 95% confidence intervals for semaglutide vs. placebo. Impact of cardiometabolic factors including baseline fasting lipids, plasma glucose, diabetes duration and Homeostatic Model Assessment for Insulin Resitance (HOMA-IR) were assessed. Of the 300 participants included, 209 (70%) had T2D, 51 (17%) pre-T2D and 40 (13%) non-T2D. ETDs ranged from −9.8 kg in the pre-T2D group to -11.6 kg in the non-T2D group; there was no significant difference between the non-T2D vs pre-T2D, pre-T2D vs T2D, and Non-T2D vs T2D groups in terms of weight change. Weight change was not influenced by known diabetes duration or baseline HOMA-IR or glucose and lipid levels.Individuals with NAFLD including NASH treated with semaglutide had similar weight loss, and parameters of insulin resistance, and glucose and lipid metabolism, regardless of T2D status. Unlike previously reported differences in weight change in people with and without T2D, the presence of T2D did not influence efficacious weight loss with semaglutide; however, alternative explanations, such as hepatic steatosis, cannot be ruled out.

Declarations: Trials discussed were delivered by Novo Nordisk and Novo Nordisk has been involved in authorship for this abstract.

P62 Understanding service user experiences of accessing GLP-1 receptor agonists in the context of a tier 3 multidisciplinary weight management service: insights for service development

Gemma Budge[1], Dev Datta[1], Olivia Barnes[1], Megan Goodwin[2], Anne Govier[1], Rachael Smart[1], Helen Cordy[1], Hazel Barker[1], Mickey Brannigan[1]

[1]Cardiff and Vale University Health Board, [2]Cardiff University: There is a wealth of quantitative research investigating the efficacy and safety of GLP-1 receptor agonists for weight loss, however, to date qualitative research exploring the lived experiences of people with obesity accessing GLP-1 receptor agonists has been neglected. The service evaluation aimed to gather feedback from service users taking liraglutide, alongside a multidisciplinary package of care, under the Cardiff and Vale University Health Board Tier 3 Specialist Weight Management Service. A qualitative research design was utilised and a sample of 15 service users contributed their feedback via survey and interview methods. A thematic analysis enabled the following themes to be identified: The theme "Establishing a new lifestyle" demonstrates that through accessing liraglutide, alongside a package of multidisciplinary care, service users were able to establish a new way of living. This lifestyle change involved increased mobility, reduced physical health comorbidities and increased hope around their future health. The second theme "Coping with the changes" highlights that service users are navigating a complex process of psychological adjustment as part of their GLP-1 treatment. Service users reported struggling with unmet expectations around rate of weight loss, changes to body shape and anxiety around medication discontinuation. The third and fourth themes "Working with the multidisciplinary team" and "Valuing the role of clinical nurse specialist" highlight the importance of relational aspects of care. Service users benefitted from the compassionate approach taken by multidisciplinary staff and the holistic approach provided by their clinical nurse specialist. These themes also captured feedback on the importance of lifestyle change interventions, alongside GLP-1 treatment, in maximising outcomes. The results of this service evaluation demonstrate that service users can experience a broad range of physical, functional

and psychological improvements through accessing GLP-1 receptor agonists, in combination with multidisciplinary intervention. Furthermore, the results identify the challenging nature of psychological adjustment to GLP-1 treatment. This finding highlights the wisdom of current UK guidance that GLP-1 receptor agonists be prescribed within multidisciplinary weight loss teams. Future research priorities include the piloting of interventions addressing psychological adjustment to GLP-1 treatments and identification of service users most in need of these interventions.

Declarations: Applications were submitted to Novo Nordisk by Gemma Budge, Dev Datta and Mickey Brannigan for funding to attend the ASO UK Congress on Obesity 2024.

P64 Kingston Healthy Weight Clinic: design, development, and implementation of a NICE guidance compliant hospital based multidisciplinary weight management service

Koteshwara Muralidhara[1], Francesco Villa[1], Ioannis Gerogiannis[1], Henry Lewith[1], Sharief Sharaf[1], Zoey Barlow[1], Emanuela Leyton[1], Ye Kyaw[1], Vasha Kaur[1]

[1]Kingston Healthy Weight Clinic, Kingston Hospital NHS Foundation Trust: Kingston Healthy Weight Clinic is a newly set-up hospital-based specialist weight management service located at Kingston Hospital. Its goal is to provide medical and surgical weight loss options to people in areas served by the South West London Integrated Care Board and some adjoining parts of Surrey. The service was designed and developed by surgical and endocrinology clinical leads collaboratively with key stakeholders. It was designed as an equal access service for primary care and internal referrals, adhering to standardised and NICE guidance complaint referral. Operationally, the service is run by a multidisciplinary team of specialist nurses, dietitians, dedicated admin, anaesthesiologists, endocrinologists, and surgeons. The referrals are triaged by the specialist nurse who offers an assessment appointment. Patients seen in the Metabolic Assessment Clinic (MAC) are discussed in the weekly multidisciplinary team meeting using a structured format. Based on the MDT recommendations, patients are placed on the medical or surgical pathway for detailed discussion/initiation of treatments, while also receiving individualised support from specialist dieticians and psychologists as needed. Where needed, patients are referred for sleep studies. The Multidisciplinary Team meetings are held in a hybrid(physical-virtual) format, which facilitates learning opportunities from experienced colleagues from well-established bariatric services. In the three months since its launch, through well-publicised in-hospital and primary care events, the service has received nearly 300 referrals. Of these, 189(65%) were from primary care. Among the in-hospital referrals, 36(12%) were from Orthopaedics, and 19(6%) were from endocrinology. The rest were distributed among general surgery, gynaecology, fertility clinic, gastroenterology, and lipid clinics. Sixty-seven percent of the patients were Caucasian, while Asians made up 10%, Black patients 5%, mixed-race 2%, and others 10%. Seventy-three percent were women. The most common age group was 50-54 (18%), with an average age of 48 years for women and 53 years for men. Just over 70% of the referred patients had a BMI over 40. Among the 70 patients assessed in MAC, 22 had type 2 diabetes (31%). The volume and nature of referrals reflect the demand for the service and its value to the local population and the health care system.

Declarations: None

P65 Service user outcomes and experiences of a 12 session dialectical behavioural therapy group for emotional eating, in a level 3 weight management service

Gemma Budge[1], Hazel Barker[1], Rachael Smart[1], Anne Govier[1], Lis Smart[1], Orla Adams[1], Rachel Webb[1]

[1]Cardiff & Vale University Health Board: Emotional eating is defined as eating prompted by intense emotional experiences including anxiety, sadness, anger and loneliness. 80% of service users under the care of Cardiff and Vale University Health Board's Level 3 Weight Management Service experience moderate to severe emotional eating difficulties. This project aimed to pilot a 12 session dialectical behavioural therapy group for emotional eating to test effectiveness of this intervention and gather service user experience feedback. Dialectical behavioural therapy, is a third-wave form of cognitive-behavioural therapy, with a pre-existing evidence base in the treatment of emotion regulation difficulties. 24 service users accessing Cardiff and Vale University Health Board's Specialist Weight Management Service were recruited to participate in dialectical behavioural therapy groups for emotional eating. The group programme provided a therapeutic environment for participants to explore a range of coping skills, including mindful eating, distress tolerance, emotion regulation and interpersonal skills. Psychological outcome measures were utilised pre and post group to measure the impact of the intervention on service users eating behaviour and psychological wellbeing. Results indicated an 27% improvement in Emotional Eater Questionnaire scores, a 31% improvement in CORE-OM scores and a 22% improvement in Difficulties in Emotion Regulation Scale scores. Participants also experienced an average of 4 kg weight loss during the intervention. In addition, 100% of survey respondents recommended others facing similar challenges engage with this intervention. A thematic analysis of service user feedback revealed that service users valued peer support aspects, reported increased coping through use of the dialectical behavioural therapy skills, and indicated that follow-up care would be helpful. The results of this study demonstrate that dialectical behavioural therapy interventions can be effective in supporting service users living with obesity to reduce emotional eating behaviours, improve overall wellbeing and lose weight. Service user feedback indicated that dialectical behavioural therapy interventions in level 3 weight management service have high levels of acceptability. Further research is needed to investigate the effectiveness of dialectical behavioural therapy interventions for emotional eating across a larger sample. In addition, piloting follow-up care pathways could increase service user satisfaction and contribute to the maintenance of behaviour change.

Declarations: GB is fundedby Novo Nordisk to attend the UKCO2024.

P66 The implementation of a Nationally Enhanced Service Incentive for weight management: a longitudinal qualitative study of the perceptions and experiences of primary care staff on weight management

Anisa Hajizadeh[1], Rachna Begh[1], Kate Jolly[2], Susan A. Jebb[1], Paul Aveyard[1]

[1]University of Oxford, [2]University of Birmingham: In 2021 a Nationally Enhanced Service Incentive (NES) for weight management in primary care was rolled out in England. This paid GP practices £11.50 for every eligible referral they made to a weight management programme. We explored primary care staff's perceptions, experiences and attitudes toward the NES by conducting 37 semi-structured interviews with GPs, administrative staff and nurses preceding the introduction of the NES (May–September 2021) and 1-year later following its introduction (September–December 2022). Data were analysed using normalisation process theory. The NES for weight management solidified the position of staff already supportive of referring patients to weight management programmes. For staff less supportive of weight management services, the dissonance between the perceived lack of benefit of services and making referrals to services was reduced with referrals becoming more habitual.

Facilitators to implementation included the presence of a coherent national policy; having a 'champion' explain key aspects; and a financial incentive if framed as benefiting the practice at large. Barriers included a perception that primary care has been shouldered with a complex and difficult health crisis; a worry over workload burdens; and inefficient and unclear referral systems. The implementation of the NES was broadly welcomed and accepted by primary care staff. Interviewees expressed concerns around the acceptance of weight management policies in primary care, the provision of training to raise the topic of weight, and whether the responsibility of weight management fell with primary care, public health, or with the patient.

Declarations: PA and SAJ are investigators on two publicly funded trials in which Nestle have donated food products to support NHS treatment costs.

P67 Sticking Together with Change: outcomes and service user insights from a 6 session weight maintenance intervention, delivered in a level two weight management service

Gemma Budge[1], Hazel Barker[1], Olivia Barnes[1], Rachael Smart[1]

[1]Cardiff and Vale University Health Board: Weight maintenance interventions enable service users living with obesity to limit weight regain, maintain engagement in healthy eating behaviours, and continue exercise behaviours initiated during a preceding weight loss intervention. A systematic literature review revealed that effective weight maintenance interventions average 9 months in duration. A UK-wide NHS clinician survey indicated that, due to resource constraints, there are limited opportunities for service users to access weight maintenance interventions in levels 2 and 3 weight management services. This project aimed to develop and pilot an evidence-based, resource-efficient, weight maintenance intervention in Cardiff and Vale University Health Board's Level 2 Weight Management Service. A systematic literature review was utilised to develop a 3 month, group-based, weight maintenance intervention titled "Sticking Together with Change". The intervention comprised dietetic education, exercise education, and psychological intervention around weight stigma, stress management and tolerating the process of change. The group also provided opportunities for peer support. Eight participants were recruited to attend the group, and outcomes indicated an average weight loss of 3.5 kg during the course of the intervention. In addition, administration of the Weight Loss-Related Behaviour Self-Efficacy Scales indicated that following the intervention service users experienced increased confidence in their ability to engage in long term health promoting behaviours. This included increased confidence in long term healthy eating, exercise and weight loss itself. A thematic analysis of service user feedback indicated the value of accessing peer support, focussing on psychological aspects of change and recapping content from their weight loss intervention. 100% of survey respondents indicated that they would recommend this intervention to others. In combination, the quantitative and qualitative outcomes indicate the value of further piloting of the Sticking Together with Change intervention. A second pilot phase has been developed; over a 12 month pilot phase, 100 service users will be offered opportunity to attend a 3 month maintenance intervention, delivered as part of a rolling group format.

Declarations: GB is fundedby Novo Nordisk to attend the UKCO2024.

P68 Pilot Tier 3 Weight Management Service for Leicester, Leicestershire and Rutland: Onboarding and evaluation outcomes of the first 16 weeks

Franciskos Arsenyadis[1], Emma Redman[1], Ehtasham Ahmad[1], David Webb[1]

[1]Leicester Diabetes Centre, University Hospitals of Leicester NHS Trust, Leicester General Hospital & University of Leicester: There is significant variation in the design and delivery of Tier 3 (T3) weight management services (WMS) for complex obesity. Core functions include multidisciplinary care and cost-efficient prescription of approved pharmacotherapies. Robust outcomes reporting for person-centred T3 models incorporating newly approved medication intervention options are limited. Leicester, Leicestershire and Rutland (LLR) Integrated Care Board funded a 3-year pilot T3 WMS in 2023, specifically designed to provide a holistic WMS and satisfy unmet health needs. Strategies under evaluation include novel well-being approaches, peer social support networks and enhanced primary-secondary care working. Service capacity was based on 430 referrals in year one, 580 for year two. Service evaluation will inform development/continuation. This includes treatment/pathways, quality of life, service delivery outcomes and patient feedback. Here we describe onboarding and initial treatment pathway allocation. On acceptance (NICE-compliant referral criteria and previous weight loss attempt through Tier 2) to the service patients undertake holistic wellbeing assessment; consultant-led medical/medicines management (health and wellbeing clinical review), obesity pharmacotherapy, diet/behavioural change, bariatric surgery preparation, Low Energy Diet online tool (LENA), psychology or physical activity are discussed at point of GP referral and at MDT review. Demographics, medical and lifestyle characteristics are collected upon entry and throughout treatment via SystmOne. 585 referrals (79.1% of total referrals) from 111 primary care providers were accepted and 384 MDT reviews completed in the first 16 weeks. At GP referral 302 (51.6%) opted for pharmacotherapy, 79 (13.5%) diet, 6 (1%) physical activity, 27 (4.6%) psychology, 136 (23.2%) pre-bariatric assessment, 18 (3%) to LENA, 17 had missing data. Following well-being review and MDT 180 were allocated to pharmacotherapy/medical management, 102 diet, 56 physical activity, 82 psychology, 20 pre-bariatric assessment, 30 to LENA. Patient characteristics were: 77.3% female, 53.3% White European, mean age: 46.7 ± 12.4, mean bodyweight and body mass index: 128.5 ± 27.4 kg and 45.8 ± 8.5kg/m2, respectively. Referrals in the first 16 weeks exceeded numbers projected at two years. Preferred treatment on referral differed substantially to treatment allocation, highlighting the need for holistic assessment and careful medical management. Service assessment and pathways evaluation will be reviewed and updated throughout the lifespan of the pilot.

Declarations: None

P69 Enhancing Obesity Prevention in Urban Caribbean Communities: A Community-Based Approach to Culturally Adapting a Lifestyle Change Program in New York City

Alana Grathwohl-Karl[1,2], Michaela Noreik[1], Margrethe F. Horlyck-Romanovsky[2]

[1]Hochschule Niederrhein, University of Applied Sciences [2]City University of New York - Brooklyn College: Cultural tailoring of the CDC's PreventT2 curriculum, which includes elements targeting obesity, may increase its acceptability among high-risk immigrant populations. Given the high prevalence of Type 2 diabetes and obesity within Caribbean communities in New York City (NYC), there is a notable lack of research on culturally appropriate interventions. Consequently, the effectiveness of culturally adapted programmes that address both diabetes and obesity in this population has yet to be assessed.This study utilised a community-based participatory (CBPR) approach, conducting seven structured focus groups via Zoom with 13 English-speaking Caribbean adults in NYC, interested in diabetes prevention. Oral consent was secured. Sessions aimed to culturally adapt the CDC curriculum. Participants evaluated dietary, physical activity, and

coping strategy materials. Focus groups were recorded and transcribed for analysis using Dedoose. The analysis identified four primary themes: 1) Cultural specifics required for adapting the curriculum content, 2) Methods for coping with challenges, 3) Cultural values and health beliefs, and 4) Contextual barriers to behavioural change. Participants emphasised the need for texts, photographs, names, and case stories to reflect Caribbean culture, to portray people of African descent, and to reflect the true conditions of life in NYC. Additionally, the materials should incorporate elements characteristic of Caribbean dietary habits, social norms relevant to the immigrant experience, traditional Caribbean cultural practices, and prevailing health beliefs. Additionally, the adaptation of these materials should include culturally sensitive approaches that address issues related to body size perceptions and mental health stigma. The efficacy of CBPR is demonstrated in engaging Caribbean communities in NYC in lifestyle interventions. These communities are disproportionately affected by diabetes, and culturally tailored and effective interventions are urgently needed. Insights from cultural adaptations are instrumental in tailoring future obesity prevention strategies to the unique cultural norms of these communities, potentially enhancing global health intervention effectiveness.

Declarations: None

P71 Association of excess weight with clinical mental illness: a population-based cohort study of 11 million UK adults

Xue Dong[1], Xue Dong[2], Paul Aveyard[1], Paul Aveyard[3], Mika Kivimaki[4], Shanquan Chen[5], Joseph Firth[6], Min Gao[1], Min Gao[3]

[1]University of Oxford, [2]Peking University, [3]Warneford Hospital, [4]University College London, [5]London School of Hygiene & Tropical Medicine, [6]University of Manchester: Obesity is known to be strongly associated with worse mental health, but the clinical significance of this relationship remains unclear, particularly for serious mental illness. Experimental evidence suggests that immunemetabolic pathways might play a role, but it is unclear whether inflammation, diabetes, and cardiovascular diseases are the key factors and to what extent they contribute to this association. In this population-based cohort study, we used de-identified electronic health records from the Clinical Research Practice Datalink (CPRD) Aurum (covering 16% of the UK population) between 2000 and 2022. Outcomes were defined by diagnoses of mental illness, GP referrals to mental health services, or prescriptions of psychotropic medications. We identified patients diagnosed with mental illness via medical codes for depression, anxiety, eating disorders, bipolar disorder, schizophrenia, or other related psychotic disorders, as recorded in primary care. Individuals aged 18 years or older and had at least one BMI measurement ever recorded were included. Restricted cubic splines models were used to examine non-linear associations between BMI and mental illnesses. Cox proportional hazard models were used to estimate associations between BMI categories and mental illnesses, with assessment for the mediating effects of cardiometabolic disorders. The full study population included 11,078,622 adults (mean BMI 26.81 kg/m^2 [SD 5.5]). After adjusting for demographic characteristics, behavioural factors, and 16 comorbidities, BMI had a J-shaped association with all mental illnesses except anorexia nervosa, with the lowest risk occurring in the range of 21–25 kg/m^2. Compared with people of healthy weight, people with obesity had a higher risk of depression (hazard ratio [HR] 1.13; 95% CI 1.12–1.14), anxiety (1.02; 1.01–1.03), other specified feeding and eating disorders (1.05; 1.02–1.09), bipolar disorders(1.39; 1.35–1.43), schizophrenia(1.69; 1.64–1.74), and other psychosis disorders (1.33; 1.27–1.39). However, they had a lower risk of anorexia nervosa (0.56; 0.55–0.57) and bulimia nervosa (0.93; 0.87–0.99). Cardiovascular disease, diabetes, and hypertension significantly mediated these associations. BMI shows J-shaped associations with the risks of both common and serious mental illnesses, with strong clinical relevance. Cardiovascular disease, diabetes, and hypertension are the underlying mechanisms. This knowledge informs mental health awareness and indicates that targeting cardiometabolic health in people with obesity could help prevent future mental illness.

Declarations: None

P72 Real world outcomes of a personalised physical activity prescription via a digital therapeutic in users living with obesity, and implications for medical and surgical care pathways

Lou Atkinson[1], Stefanie Williams[2]

[1]EXI, [1]Aston University, [1]University of Warwick, [2]University of Hertfordshire: The benefits of physical activity (PA) for people living with obesity are shown to be significant, regardless of any weight loss, including improved cardiovascular health and mental health. Clinical guidelines specify that PA behaviour change support must be provided when GLP1 agonist obesity medication is prescribed, and research shows that PA behaviour change is associated with superior long term weight reduction from pharmaceutical treatments. Increased PA preceding and following bariatric surgery are both associated with better outcomes, including increased cardiorespiratory fitness, shorter hospital stay and greater weight loss. However, multiple co-morbidities, pain, fatigue, low self-efficacy and weight stigma are among the many barriers to PA behaviour change for people with obesity, and few clinicians working in obesity treatment are able to provide personalised PA programmes. Digital therapeutics have the potential to provide accessible, scalable PA behaviour change support for people with obesity, before, alongside and/or after medical and surgical treatments. EXI is a clinically validated PA prescription app for patients with one or more long term health conditions, including obesity. The app uses the latest evidence and medical guidelines to create a personalised, achievable plan based on the individual's unique health and activity data. When used as part of a clinical service, EXI also allows health care providers (HCPs) to track and support patients' progress via a secure data portal. Retrospective sub-group analysis of routinely collected data from users commencing EXI with a body mass index of 30 kg/m^2 or higher was undertaken, using repeated measures analysis of variance. Users' physical activity data from the week prior to commencing the EXI programme was retrieved from their smartphone data and used as baseline. Weekly activity minutes increased significantly at 6 weeks (by 132 min) and 12 weeks (by 82 min) compared to baseline. Additionally, weight (4.27 kg reduction), waist circumference (3.68 cm reduction) and blood pressure (3.3% reduction) all decreased significantly after 12 weeks compared to week 1. As an effective, low cost, accessible PA intervention, EXI can be integrated into medical and surgical treatments for obesity to enhance overall health and improve weight loss outcomes.

Declarations: Lou Atkinson is employed by EXI.

P73 A fall in risk without a risk of falls: How to lose fat while preserving muscle, bone and physical function

Franciskos Arsenyadis[1]

[1]Leicester Diabetes Centre, University Hospitals of Leicester NHS Trust, Leicester General Hospital & University of Leicester: The landmark DiRECT and DROPLET trials paved the wave for introducing low energy diet (LED) through meal replacement as a safe, fast and effective way for achieving weight loss in people living with obesity with or without type 2 diabetes. Weight loss in those living with excess adiposity offers great benefits for disease

management and prevention. However, not all intentional weight loss is desirable. Each attempt at bodyfat loss is accompanied by significant losses to lean mass and bone mineral density and the ratio of bodyfat to fat free mass loss may vary depending on factors such as age and sex. Reduction in bone mineral density and lean mass may link to increased risk of fractures and poor physical function in older adults achieving significant weight loss. It may also affect younger adults with significant cardiometabolic disease and phenotypes of accelerated metabolic aging, such as seen in young adults with type 2 diabetes. What interventions undertaken in conjunction with sustained energy deficit through LED can mediate the physiological response to energy restriction are not clearly defined. Titration of protein intake or addition of mixed aerobic and resistance training for example, may further aid improving body composition and cardiometabolic and respiratory health during weight loss, but the exact amounts or dosages needed to both a) preserve lean mass, bone mineral density and physical function/strength and b) offer an achievable intervention for people living with obesity, are not well described. This short talk will explore the most recent updates in the field of LED for weight loss and share initial trial findings of how combined LED and exercise interventions affect body composition and other relevant key physiological and metabolic outcomes.

Declarations: None

P74 A survey of obesity pharmacotherapy provision across the UK

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[1]Guys & St Thomas, London, [2]KIngs College, London, [3]University Hospital Derby, [4]All About Obesity: There is a wide variation in access to obesity services across the UK including a lack of Tier 2, Tier 3 and Tier 4 weight management services in some areas. Access to obesity treatments including diet and lifestyle, medications and bariatric surgery is linked to being able to access appropriate weight management services. With the introduction of newly approved pharmacotherapy for obesity, we aim to 1.shed light on the existing disparities in the availability and distribution of approved obesity pharmacotherapy across diverse regions, 2. Provide an interactive tool to enhance transparency regarding obesity pharmacotherapy access. A national survey, conducted by All About Obesity CIC in partnership with the Royal College of Physicians' obesity fellows programme is being conducted to reveal the current status of obesity pharmacotherapy provision throughout the UK. The comprehensive survey is currently underway across the 42 Integrated Care Systems (ICS) to identify the presence of tier 3 weight management services within the National Health Service (NHS). The questions in the survey seek to examine the nature of existing services, their features, and the extent of accessibility to new obesity pharmacotherapy treatments. By the survey response completion in June 2024, the gathered data will be synthesised and translated into an interactive map. This tool will enable individuals to conduct a postcode search to discern the types of services offered and the level of accessibility within their local communities as well as providing valuable insights to stakeholders within the healthcare system.

Declarations: None

P75 An evaluation of baseline PedsQL scores from two tier 3 paediatric weight management services

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[1]University Hospitals Bristol and Weston NHS Foundation Trust,[2]Alder Hey Children's Hospital, [3]NIHR Biomedical Research Centre (Nutrition Theme), University of Bristol: Paediatric Quality of Life Inventory 4.0(PedsQL) is a 23-item questionnaire completed by children and young people (CYP) and parents/carers, to measure health-related quality of life (HRQoL). It comprises four domains (Physical, Emotional, Social, School Functioning) and is scored 0–100: higher scores indicate better HRQoL. We report baseline PedsQL scores of CYP living with severe obesity under the care of two, tier 3 Complications of Excess Weight (CEW) services. Between March 2022–March 2024, new patients, and parents/carers, attending two CEW services were asked to complete PedsQL questionnaires. We compared scores for CYP and parents/carers by sex, body mass index (BMI) standard deviation score (SDS) and presence of comorbidities related to excess weight. 146 families completed questionnaires (81 female): CYP age range 5.3–13.5 years, mean BMI-SDS 3.51. Mean overall PedsQL scores of CYP (52.7) and parents/carers (49.7) were strongly correlated ($r^2 = 0.74$). CYP rated school functioning lowest (45.7), followed by emotional functioning (49.7), social functioning (55.6) and physical functioning highest (59.8). CYP mean overall scores were lower in females (49.8) than males (56.3). CYP overall score did not correlate with BMI-SDS ($r^2 = 0.00$). Neurodiversity impacted overall scores: autism spectrum disorder (with 45.3; without 55.5) and attention-deficit hyperactivity disorder (with 45.2; without 53.9). Those CYP living with depression (with 43.9; without 53.4) and anxiety (with 45.9; without 55.1) as expected had lower scores. CYP living with Metabolic-dysfunction Associated Steatotic Liver Disease (MASLD) overall scores (45.9) were lower than those without (54.4), as were those with obstructive sleep apnoea (OSA) (46.0 vs 53.7). Neither type 2 diabetes mellitus (T2DM), or hypertension affected scores. Overall, CYP and parent/carers report PedsQL scores far lower than data from both a healthy population (child-reported 83.9; parent/carer-reported 84.6) and many other chronic conditions (e.g., child-reported type 1 diabetes mellitus 80.4 and cancer 72.0). Females score lower than males, and those living with neurodiversity and mental health conditions had additionally reduced HRQoL. The presence of some obesity related complications (MASLD and OSA) associate with lower HRQoL. Quality of life of CYP attending CEW clinics is extremely poor and should be considered in the design of weight management interventions.

Declarations: None

P76 Public and Patient Involvement in a trial of remotely delivered weight management for people with Long Covid (ReDIRECT)

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[1]University of Glasgow, [2]Long Covid Scotland, [3]Counterweight Ltd.: Long COVID is a complex multi-symptom condition that can affect people following COVID-19 infection. Risk factors for long COVID include female sex, socioeconomic disadvantage, and raised body mass index (BMI). The ReDIRECT trial assessed whether home-delivered weight management could improve long COVID symptoms in people living with excess weight. Weight management programmes have been shown to reduce symptoms, such as fatigue, breathlessness, and pains in adults with excess body weight, and weight loss is recognised to have anti-inflammatory benefits for some people. Here, we discuss the role of Patient and Public Involvement (PPI) in the ReDIRECT trial. PPI was integrated throughout the project, with a lay co-applicant and another PPI member (both members of Long Covid Scotland) part of the study team. A designated University

of Glasgow (UoG) staff member coordinated PPI input throughout. In preparing the funding application, we conducted an online survey with 34 people with long COVID to gauge the acceptability of the intervention. Over 75% (n = 26) of people were very interested in the study and 85% (n = 30) of people prioritised the relief of fatigue and breathlessness symptoms. The UoG COVID PPI group (6 people) formed the basis of the PPI group for this project. Over 24 months, the group regularly provided advice relating to the intervention, recruitment, data collection and topics for questionnaires and qualitative interviews, as well as shaping dissemination activities, contributing to publications and an animation aimed at the general public. Most significantly, PPI input informed the novel use of a personalised primary outcome, whereby participants selected the major long COVID symptom they most wanted improved, from Fatigue, Breathlessness, Pain, Anxiety/Depression, and Other, assessed using validated questionnaires and a Visual Analogue Scale. Throughout, the impact of involvement was tracked using the Guidance for Reporting Involvement of Patients and the Public (GRIPP2) short form, including highlighting where patient perspectives influenced study decision-making. PPI can improve clinical trials at every stage, from conception to study focus to patient-centred outcomes, shaping analysis and dissemination. This is particularly important where there is limited knowledge about a disease and its treatment, as with emerging conditions like long COVID.

Declarations: NB is an employee and shareholder of Counterweight Ltd., subcontracted to the University of Glasgow to deliver the ReDIRECT intervention. AM is a member of Clinical Steering Committee for ARC Medical Inc. NS has received institutional grant support from AstraZeneca, Boehringer Ingelheim, Novartis, Roche Diagnostics and honoraria from Abbott Laboratories, Afimmune, Amgen, AstraZeneca, Boehringer Ingelheim, Eli Lilly, Hanmi Pharmaceuticals, Janssen, Merck Sharp & Dohme, Novartis, Novo Nordisk, Pfizer, Sanofi. ML has received lecturing fees from Novo Nordisk, Nestle, Oviva, Sanofi and is a medical advisor to Counterweight Ltd, with fees paid to the University of Glasgow.

P77 Does how we eat affect how much we eat? Associations between covertly measured eating behaviours and food intake over 24 hours in a controlled residential setting

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[1]Ulster University[2]University College Dublin, [3]Florida State University: Excess energy dense (ED)(kJ/g) food intake (1), higher eating rate (2), increased eating frequency (3) and eating later in the day (4) have all been linked with obesity, but findings are mixed and require clarification. The aim of this research was to investigate associations between eating behaviours and energy intake (EI) within a controlled residential setting in 65 participants (9 optimal weight, 15 overweight and 41 with obesity/severe obesity; age 44.3 ± 12.7 years, 44F, 21M). As part of a larger study(5) participants were assessed for 36 h (two-nights) and had ad lib access to a personalised menu (n54 foods) representing a range of macronutrient mix food groups (6). Eating behaviours were measured covertly and validated by CCTV. Study outcomes were 24-h EI(MJ), ED (kJ/g), % nutrient contribution to total EI, as well as size (g, kJ) speed (g/min; kJ/min), number(n) and duration (min) of eating occasions (>210 kJ separated by >5 min) and the timing of eating (epochs: 7–11 a.m., 11:01–3 p.m., 3:01–7 p.m., 7:01–11 p.m.). On the final morning, blood samples were collected before and 90 min after a standardised breakfast for the analysis of glicentin. Correlation analysis using Spearman's Rank showed weak positive associations between total EI and fasting glicentin ($r = 0.296$, $p = 0.024$), ED ($r = 0.364$, $p = 0.004$), and moderate associations with number ($r = 0.419$, $p = 0.001$) and size of eating occasions ($r = 0.415$, $p = 0.005$) as well as total weight of food consumed ($r = 0.634$, $p < 0.001$). Of note, there was a positive association between EI/eating occasion and a faster eating rate as expressed by [kJ/min ($r = 0.519$; $p < 0.001$)] but not g/min ($r = 0.276$, $p = 0.07$). There was also a stronger relationship between EI and lean mass ($r = 0.450$, $p < 0.001$) than bodyweight ($r = 0.291$, $p = 0.023$). These findings suggest that food portion size and increased eating frequency may be a more important drivers of EI than dietary ED, and that the rate of eating higher ED foods may be linked to consuming a higher energy meal. These findings are skewed towards individuals with obesity but if confirmed highlight a need for weight management programmes to strengthen strategies to improve portion control and to limit grazing behaviours. There is also a need for RCTs to determine if eating slower reduces EI.

Declarations: None

P78 The association between diabetes mellitus and different adiposity measures among adult men and women living in the UK: findings from the UK Biobank study

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[1]University of Oxford: Diabetes mellitus (DM) and adiposity are major public health concerns globally and, in the UK. Adiposity is a well-known risk factors of DM. Sarcopenic obesity has been emerged as an adiposity measure of public health interest because of its association with higher mortality and morbidity. Despite being a growing public health concern, research on the association of DM with adiposity indices is lacking. The overall objective of this study was to investigate the association between DM and different adiposity measures e.g., BMI, body fat percentage (BFP), trunk fat percentage (TFP) and sarcopenic obesity. We also explored the effect of age, sex, duration of diabetes and glycaemic control status on this association. This study analysed 471,647 adult men and women without comorbid chronic disease in the UK Biobank study, recruited between 2006 and 2010 (5). BMI was measured using body size, whereas BFP and TFP were measured using bioimpedance. Participants with low hand-grip strength and high BFP were considered as having sarcopenic obesity (4). We performed linear and logistic regression, respectively, for continuous (BMI, BFP and TFP) and categorical outcome (sarcopenic obesity). The regression models were adjusted for potential confounders (age, sex, ethnicity, education, smoking and alcohol consumption). Stratified analyses were also performed by age group, sex, duration of diabetes and glycaemic control status. The mean age of the study participants was 56.27 (±8.10) years, and a total of 23,380 participants had DM (5.0%). People living with diabetes had a 3.96 kg/m^2 higher BMI on average than the participants who did not have DM ($p < 0.001$). Diabetic patients also had 3.85% higher body fat and 3.92% higher trunk fat than their non-diabetic counterparts. On average, all the adiposity indices (BMI, BFP, and TFP) were lower among diabetic patients with longer duration of diabetes (>10 years) and uncontrolled diabetes compared to their non-diabetic counterparts. People living with diabtes also had 4.76 times higher odds of experiencing sarcopenic obesity ($p < 0.001$). Our study found different adiposity measures across different groups of patients with diabetes. Further studies adopting longitudinal design are recommended to understand how the adiposity measures change over time at various stages of diabetes.

Declarations: None.