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Queen's University, Belfast Northern Ireland, 14th–15th September 2023

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PROGRAM LISTING

ASO SYMPOSIA

14th September 2023

S01: Public Health Agency NI "Policy and Prevention" Whole Systems Approaches to Obesity Prevention

S02: Prevention and Treatment of obesity in Northern Ireland

MEMBER-LED SYMPOSIA

15th September

S03: The food insecurity and obesity paradox

S04: Stakeholder challenges in promoting a healthy weight at the population level.

S05: Maternal Obesity across the Reproductive Stages

S06: The school setting as an opportunity for achieving behaviour change.

AWARD SESSIONs

A01: Best Practice Award

A02: 3-Minute Thesis Competition

A03: Ken Clare Award for best PPIE in research

ORAL SESSIONS

14th September 2023

O1: Understanding prevention and mechanisms; families, children, and young people.

O2: Connecting the nations - obesity policy, prevention, and management.

15th September 2023

O3: Obesity Management and Lived Experience

O4: Diagnosis, Management and Co-Design of Obesity Services

POSTER SESSIONS

14th & 15th September 2023

ASO SYMPOSIA

S01: PUBLIC HEALTH AGENCY NI "POLICY AND PREVENTION"

S01-01 Whole Systems Approaches to Diet and Healthy Weight: A Scoping Review of Reviews

Gavin Breslin[1], Olujoke Afolashade Fakoya[2], Wendy Wills[2], Nigel Lloyd[2], Charis Bontoft[2], Amander Wellings[2], Sian Harding[2], John Jackson[2], Katherine Barrett[2], Adam P Wagner[3], Lisa Miners[3], Honey-Anne Greco[2], Katherine E Brown[2]

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This scoping review of reviews aimed to determine how Whole Systems Approaches (WSAs) to diet and healthy weight have been implemented nationally and internationally; what models or theories have been used to implement WSAs; how WSAs have been evaluated; if WSAs are effective; and to identify the contribution of the public and/or service users in the development of WSAs. Systematic searches were carried out using CINAHL, Scopus, PsycINFO (ProQuest), the Cochrane Library, and MEDLINE. Included review papers were those that focused on the application of a whole system approach to diet and/or healthy weight, and/or reported the theory/model used to implement or simulate this approach. Databases were searched from 1995 to March 2022 using a combination of text and Medical Subject Headings. Covidence software was used to screen titles and abstracts from the electronic databases and resolve conflicts. The results showed a total of 20,308 articles; after duplicate removal 7,690 unique title and abstracts were reviewed, and 110 articles were selected for full text review. On completion of full text review, 8 review articles were included for data extraction. Evaluations of WSAs were mainly process evaluations although health outcomes were assessed in some studies. Several conceptual frameworks or mathematical modelling approaches have been applied to WSAs for diet, healthy weight, and obesity to inform their planning or delivery, and to understand/map the associated systems. Common mathematical approaches included Agent Based Models or System Dynamic Modelling. Underlying both conceptual and mathematical models is an understanding how the elements of the complex systems impact each other to affect diet, healthy weight, and obesity. WSA implementations have reported some success in positively impacting health outcomes including reducing Body Mass Index, reducing sugary food intake, and increasing physical activity. Public and service-user involvement in WSAs was not widely reported. In conclusion, the application of WSA to diet and healthy weight shows promise, yet research is lagging behind implementation. Further robust evidence for using WSA to address diet and healthy weight is required, including incorporating process and outcome evaluations. Furthermore, the analysis of epidemiological data alongside

longitudinal process and outcome evaluation regarding the implementation of a WSA is required.

Disclosures: None.

S02: PREVENTION AND TREATMENT OF OBESITY IN NORTHERN IRELAND

S02-01 Implementation of a whole systems approach to obesity prevention in Northern Ireland

David Tumilty[1], Colette Brolly[1], Gerard Walls[1], Gavin Breslin[2], Mark Tully[3], Jennifer McGonagle[4], Orlagh Watters[5], Ian Weir[5], Caroline Hughes[6]

[1]Public Health Agency, Northern Ireland, [2]Queen's University Belfast, Northern Ireland, [3]Ulster University, Northern Ireland, [4]Food Standards Agency for Northern Ireland, [5]Sport Northern Ireland Sport NI, [6]Action Cancer Northern Ireland

The Department of Health in Northern Ireland is developing a new 10-year strategy on obesity prevention to replace 'A Fitter Future for All 2012–2022'. The Public Health Agency is tasked with implementation of the non-departmental actions from the Strategy. In leading this work, the PHA developed implementation plans regarding a whole systems approach under the auspices of the Regional Obesity Implementation Group and in line with evidence on the effectiveness of whole systems approaches to obesity prevention, which considered evidence from existing reviews as well as national and international case studies where a whole systems approach had been applied. The PHA, through a whole systems approach Task & Finish Group, adopted the Public Health England 6 phase model to implement a whole system approach in NI. To ensure collaborative gain was achieved, the PHA embedded this work within local Community Planning Partnerships, thereby grounding it in community and allowing it to be locally produced and locally owned, based on the knowledge and experience of local policy makers, practitioners, organisations, and community members. Following an expression of interest process, six local councils were successful in their application to become an early adopter site. Implementation will be phased based on readiness, with the first Council starting in January 2023 and the sixth council starting in January 2025. The first Council has developed clear governance and structures, obtained approval for implementation through the Community Planning Partnership, and undergone training. Wider stakeholder engagement then took place to look at Obesity locally and focus on areas of need. Next steps will include developing cause and effect maps along with plans to embed action on the ground. Two additional Councils are due to start in September 2023, two in January 2024 and one in January 2025. A learning community has been developed and facilitated by PHA and will involve all 6 Council areas from the outset so that expertise can be developed and learning shared as each of the phases are implemented. An expression of interest to the NIHR Public Health Intervention Responsive Studies Teams (PHIRST) programme was successful to evaluate the whole systems approach in NI, thereby embedding a fully funded PHIRST academic team to work in partnership with the PHA and the Councils to produce a robust and timely evaluation. Learning on the process and any subsequent action contained within plans will be shared at a future point.

Disclosures: None

MEMBER-LED SYMPOSIA

S03: THE FOOD INSECURITY AND OBESITY PARADOX

S03-01 Understanding lived experiences of navigating supermarket foodscapes and living on a low income: the FIO Food Project: the FIO Food project

Emma Hunter, Flora Douglas

Robert Gordon University, Aberdeen, Scotland

Despite being a public health priority for over 30 years, the prevalence of obesity in the UK remains high. Strategies to tackle obesity have typically focused on behaviour change at the individual level, ignoring wider health and social inequities that can increase an individual's risk of developing obesity and decrease responsiveness to interventions. Many people living on low incomes face food insecurity: the inability to afford or reliably access food that meets recommended nutritional requirements. Ultra processed foods, often high in fat, salt and sugar which tend to be cheaper than healthier alternatives can become a sensible economic choice, however, repeated consumption can present challenges for weight management. Interventions helping support the purchase and consumption of healthy food which move beyond individual responsibility to consider the existing socio-economic factors that contribute to weight gain and prevent weight reduction are required. Additionally, research suggests eating a healthy diet, in line government recommendations (i.e., the Eatwell Guide), would also bring about environmental benefits, through associated reductions in greenhouse gas emissions, helping tackle climate change. Individuals in high income countries purchase the majority of their food in supermarkets making this the ideal context for research into and the delivery of 'upstream', social and economic level interventions. By exploring the experiences of people living with obesity and food insecurity, when shopping in the supermarket environment, to help identify the instrumental factors and environmental cues that currently influence the purchase of healthy, environmentally sustainable food, this study aims to provide a starting point for intervention development. Semi-structured interviews and focus groups will be conducted to explore broad experiences of shopping, choice of retailer, the receipt of emergency food provision and its impact on purchasing behaviour and external influences, i.e., others they shop for. The ways in which people living with obesity and food insecurity believe supermarkets can help support them purchase healthy, environmentally sustainable food will also be examined. Interviews will be audio recorded and transcribed verbatim and data subject to thematic analysis. Findings will be used to inform intervention development as part of the FIO (Food Insecurity in People Living with Obesity) Food project.

Disclosures: None

S03-02 Understanding and overcoming the barriers to purchasing healthier, more sustainable food for people living with obesity and food insecurity: insights from the FIO-Food project

Rebecca Ann Stone[1], Adrian Brown[2], Charlotte Hardman[1], on behalf of the FIO-Food Team

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In the UK, obesity and poorer diet quality are disproportionately represented in groups experiencing socio-economic disadvantage, with current economic crises likely to exacerbate these inequalities. Lower-income households are at greater risk of food

insecurity (lack of consistent access to foods that are nutritious in quality and quantity), with food choices likely constrained by the affordability and availability of healthier more sustainable foods in local food environments. Food insecurity and obesity often co-occur yet little is known about how to support people living with obesity and food insecurity to make food choices in favour of health and sustainability. The retail food environment presents one fruitful avenue for intervention, since purchasing is an antecedent to consumption. However, how supermarkets can facilitate purchase of healthier, more sustainable food in people living with obesity and food insecurity remains unclear. It is also unclear what barriers this group may encounter when trying to purchase healthier, more sustainable food. Using an online survey (N = 600), adults residing in England or Scotland with a BMI of ≥30 kg/m2 self-reported on food insecurity, diet quality, and their experiences of shopping in a supermarket (online or in-store) for healthy and sustainable food. Results showed that food insecurity was associated with lower diet quality, and also with experiencing more barriers to purchasing healthy and sustainable food in the supermarket (e.g., price, variety of products, time, mental health). Supermarket interventions based on price were deemed to be most helpful in enabling healthier, more sustainable purchasing regardless of food insecurity. These findings highlight the unique difficulties faced by people living with obesity and food insecurity when shopping for heathier, more sustainable food, and also underscore the need for policy development relating to price and affordability at a population-level.

Disclosures: None

S03-03 Meta-analysis of associations between food insecurity, maternal obesity, gestational weight gain, and maternal and infant pregnancy health outcomes in high-income countries

Giang Nguyen[1], Zoë Bell[1,2], Gemma Andreae[1], Stephanie Scott[1,3], Letitia Sermin-Reed[1], Amelia A Lake[3,4], Nicola Heslehurst[1,3]

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Food insecurity (FI) is significantly associated with obesity and adverse health outcomes in the general population. This systematic review and meta-analysis (PROSPERO: CRD42022311669) explored associations between women experiencing FI in pregnancy, and maternal obesity, gestational weight gain, and pregnancy health outcomes for both mothers and infants.

Searches included seven databases (MEDLINE, Embase, Scopus, Web of Science, PsychInfo, ASSIA, CINAHL) and grey literature, reference lists, citations, and contacting authors and completed in April 2023. We included studies in high-income countries (HICs) reporting data on food insecurity in pregnancy from Jan 1, 2008, onwards. Screening, data extraction, and quality assessment were carried out by two authors independently. Random effects meta-analysis was performed when data were suitable for pooling, otherwise narrative synthesis was conducted. Searches identified 10,515 results; 27 studies (n = 87,850 women) included: 26 from North America, 1 from the UK. Meta-analysis showed women experiencing FI had significantly reduced gestational weight gain (GWG) (MD −0.37 kg 95%CI −0.58, −0.17), increased odds of maternal obesity (OR 1.53 95%CI 1.39, 1.66), inadequate GWG (OR 1.16 95%CI 1.05, 1.28), high stress level (OR 4.07, 95%CI 1.22–13.55), gestational diabetes (OR 1.63, 95%CI 1.36–1.95) and preterm delivery (OR 1.21, 95%CI 1.00–1.47). There was no statistically significant association with maternal underweight (OR 1.12 95%CI 0.89, 1.34) or overweight (OR 1.18 95%CI 0.86, 1.50), excessive GWG (OR 1.04 95% CI 0.96, 1.13), small for gestational age (OR 1.14, 95%CI 0.72–1.80), large for gestational age (OR 0.90, 95%CI 0.66–1.22) or admission to neonatal intensive care unit (OR 2.01, 95%CI 0.85–4.78). Narrative synthesis showed inconsistent data for diet outcomes, with some evidence of reduced vitamin E and diet quality, and increased red/processed meat consumption. FI was associated with dental problems, maternal serum concentration of perfluoro-octane sulfonate, pre-eclampsia, depression and anxiety, but not other organohalogen chemicals, hypertension, caesarean delivery, assisted delivery, postpartum haemorrhage, hospital admissions, lengths of stay, congenital anomalies, or neonatal morbidity. Mixed associations were reported for mood disorders and community measures.

Further research in other HICs is needed to understand the impacts of FI and maternal obesity and pregnancy health, especially those without embedded interventions in place, to inform policy and care requirements.

Disclosures: None.

S03-04 Underlying mechanisms of food insecurity in pregnancy and the impact on maternal weight, fetal development and childhood obesity: from social to biological

Zoë Bell

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Food insecurity exists when an individual struggles to afford or access sufficient healthy food in socially acceptable ways. It is a well-established driver of obesity in high-income countries, labelled a paradox due to assumptions that hunger equals weight loss. The current UK context is one of both increasing food insecurity and inequalities in obesity prevalence. Drivers of food insecurity include poverty, unemployment and low-income, which have increased since the 2008 global financial crises, and more recently increased food and fuel costs due to Covid-19, the invasion of Ukraine, and cost-of-living crisis. These drivers influence interactions with obesogenic environments, impacting the most vulnerable in our society, with an increasing reliance on voluntary systems such as food banks for support. So is the relationship between food insecurity and obesity a paradox? To explore this requires understanding the mechanisms linking food insecurity and weight which fall into two broad categories: behavioural (e.g., substitution hypothesis, cyclical nature) and physiological (e.g., DoHAD, insurance hypothesis, chronic stress).

Disclosures: None

S03-05 Women's experiences of food insecurity during pregnancy in high income countries: a qualitative systematic review

Steph Scott[1], Lucy Clark[1], Gina Nguyen[1], Zoe Bell[2], Fiona McKay[3], Julia Zinga[3], Paige van der Pligt[3], Nicola Heslehurst[1]

[1]Newcastle University, UK [2]King's College London, UK [3]Deakin University, Australia

Since the 2008 global financial crisis, there has been a rise in the number of people experiencing food insecurity. Pregnant women are particularly vulnerable to food insecurity as their financial and nutritional needs increase during pregnancy. Experiencing food insecurity in pregnancy has been linked to many adverse health outcomes, such as having: obesity, clinical complications throughout pregnancy, low birth weight, increased pregnancy-related mortalities and poor mental health. This systematic review of qualitative studies focuses on the experiences of pregnant women who are food insecure in high income countries and how it affects their nutritional health and wellbeing. Six electronic databases (Medline,

Scopus, Web of Science, EMBASE, CINAHL and ASSIA), were searched from 1 January 2008 to 5th April 2023, supplemented by searches of grey literature databases, relevant websites, examination of reference lists and citation searches. We included studies that focused on the experiences of pregnant women with food insecurity, from any discipline or theoretical tradition that used qualitative methods, and which included data collected from 2008 onwards in high-income countries as defined by World Bank. Title/abstract and full-text screening were conducted by two reviewers independently, with conflicts resolved by discussion or a third reviewer. Study selection follows the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) checklist. Synthesis will be guided by a thematic synthesis approach. We identified 14,442 unique records; with 81 studies assessed at full text stage. Full text screening will be completed end of May 2023. Next stages will include: reference and citation searches, data extraction and quality appraisal. Data will be synthesised thematically using the Thomas and Harden approach. The completion date for the review is end of August 2023.

Disclosures: None.

S04: STAKEHOLDER CHALLENGES IN PROMOTING A HEALTHY WEIGHT AT THE POPULATION LEVEL

S04-01 Finding a constructive response to diverging views of the National Child Measurement Programme in England

Fiona Gillison

University of Bath, Bath, UK

Across the UK we need to address the dual challenges of rising rates of childhood obesity alongside rising rates of poor mental health and wellbeing, reflected in a recent upward trend in weight loss attempts in children and adolescents. The National Child Measurement Programme (NCMP) in England (and other national measurement programmes) provide excellent data on the prevalence of childhood obesity but have been criticised for failing to adequately consider the potential unintended negative consequences on wellbeing. The aim of this presentation is to provide an overview of the research conducted on the impact of the NCMP on parents and children and explore different interpretations of these findings.

A growing number of studies report on the behavioural and psychosocial outcomes of the NCMP, using a range of different research designs, outcome measures and scale. Many are limited by a low response rate, particularly among families of children classified as having overweight. By the nature of the topic, we lack definitive trials of the impact of a one-off weight measurement such as the NCMP, and it can be hard to separate the impact of measurement and feedback from the exposure children and parents have to information and commentary about weight from other sources. The interpretation of some published studies has also for working from, and failing to challenge the assumption that the benefits of the NCMP and similar schemes outweigh the potential risks. We will reflect on these points to explore why and how some of the published evidence has been used simultaneously to both support and oppose the current model of practice.

To illustrate how people and organisations with different perspectives can be brought together to ensure the best possible outcomes for children, we will present the example of our experience of a recent modified Delphi study undertaken as part of the process of developing guidance for parents on talking to children about weight. This provides a worked example of an occasion when points of agreement and tension were aired and negotiated to find a common acceptable approach.

Disclosures: None

S04-02 Exploring the tension between eating disorders and weight management services

Jordan R. Marwood, Louisa J. Ells

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Disordered eating is common in people living with obesity, and while there is growing awareness of the severity of this issue, there continues to be a lack of appropriate support. Some reasons for this include underfunded and under resourced eating disorder services, and an historic focus on eating disorders associated with underweight. However, there are also systemic entrenched differences in the philosophies and working practices of eating disorder and weight management researchers and practitioners, for example views on the effectiveness of weight management attempts and their role in eating disorder risk, and the suitability of programmes such as the NCMP. These differences have yet to be examined, but may impact the development and implementation of appropriate support for people living with obesity and disordered eating. This talk will present initial findings from an ongoing mixed-methods project exploring perceived barriers and facilitators to developing shared working across obesity and eating disorder research and practice. Participants will be researchers and practitioners working within the fields of obesity and/or eating disorders and data will be collected using a survey followed by interviews; participants who completed the survey will be asked if they are willing to take part in a semi-structured 1:1 interview, conducted online, in order to examine some of the key themes from the survey in more detail (approximately $n = 8$, with 2 participants from each field and discipline). Closed questions from the survey data will be summarised and presented descriptively. Open questions from the survey and interview data will be analysed using thematic/content analysis. PPIE will be integral to the project and will be used to inform the question development and to interpret findings. The presentation will explore findings in relation to the perception of causes of obesity/disordered eating and how the relationship between these conditions is conceptualised by researchers and clinicians. The presentation will invite audience participation to consider the next steps for research, and integration with policy to bridge the gap between these fields.

Disclosures: None.

S04 -03 Whole Systems Approaches to Obesity: Regional reflections on policy implementation

Nicola Corrigan

Office Health Improvement and Disparities Yorkshire and Humber Region

"….at least 14 strategies, 689 policies and 10 targets, and at least 14 key institutions and agencies variously created and abolished"ran a report in the Guardian, based on findings by the Institute for Government.

Working in the field of Obesity in Public Health we are wrestling with issues such as:

- How can we reconcile public health policy, designed for population level impact, with impact on the individual?
- How can we support stakeholders to support the health and wellbeing outcomes of their populations in the face of conflicting and competing research and evidence?

- How do we ensure that we prioritise reaching those populations experiencing the highest inequalities in health outcomes?

Using the example of a region of England this talk will share personal reflections of the population-based attempts to address increasing prevalence of excess weight and obesity. Drawing on local case study examples of a range approaches, including whole systems, to illustrate the conflict that funding, partnerships, and ideology can have in this space. Also looking at how research and practice collaborations can support the development of the evidence base to incorporate emerging ideas and theories on how best to address the resultant mental and physical health outcomes.

Disclosures: None

S05: MATERNAL OBESITY ACROSS THE REPRODUCTIVE STAGES

S05-01 Inequalities in preconception overweight and obesity among pregnant women in England: findings from the national Maternity Services Dataset

Danielle Schoenaker[1,2], Judith Stephenson[3], Helen Smith[4], Helen Duncan[4], Keith M Godfrey[1,2,5], Mary Barker[1], Nisreen A Alwan[1,2,5]

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Preconception overweight and obesity can have significant adverse transgenerational health impacts, including increased risk of infertility, pregnancy complications and offspring obesity and chronic metabolic conditions. This study aimed to describe socio-demographic differences in preconception overweight and obesity among pregnant women in England. Among 652,880 women who had a first antenatal (booking) appointment recorded in the national Maternity Services Dataset between April 2018 and March 2019, 496,331 (76.0%) had valid data on BMI and were included in analysis. Height and weight were self-reported or measured and included if women had their appointment <14 weeks gestation when BMI is likely unaffected by pregnancy-related weight gain. Women's age was based on date of birth, ethnicity was self-reported, and level of deprivation was based on postcode and expressed as the Index of Multiple Deprivation. Descriptive analyses examined differences in overweight (BMI 25.0–29.9 kg/m2) and obesity (≥30.0 kg/m2) prevalence by age, ethnicity and level of deprivation (quintiles). Proportions and 95% confidence intervals (CI) were estimated, and mutually adjusted for socio-demographic characteristics and previous pregnancy. Women included in the analysis had a mean age of 30y (SD 5.6), a median gestational age of 9 weeks and 3 days at booking (interquartile range 59–75) and 36.4% were pregnant for the first time. One in two women (50.3%) had overweight (28.0%) or obesity (22.3%). Overweight was least prevalent in women aged <20y (22.3%, 95% CI 20.6–24.0) which increased to 30.8% (29.9–31.6) among women aged ≥40y. The prevalence of obesity did not show a trend across age. Both overweight (33.8, 32.9–34.8) and obesity (29.8, 29.0–30.7) were most prevalent among women of black ethnicity. The proportion of women with overweight did not differ by level of deprivation, while the prevalence of obesity substantially increased from 17.0% (16.6–17.4) (least deprived area) to 28.9% (28.5–29.2) (most deprived). These findings identify an urgent need for public health interventions to support women of reproductive age to prevent and manage overweight and progression to obesity. The mixed pattern of socio-demographic differences suggests tailored efforts may be needed to reduce transgenerational inequalities in overweight, obesity and the associated health, social and economic impact.

Disclosures: None.

S05-02 Preconception health behaviours among women with obesity in Northern Ireland: an analysis of a national maternity dataset 2011-2021

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[1]Queen's University Belfast, Belfast UK [2]University Hospitals Bristol NHS Foundation Trust, Bristol UK [3]University of Southampton, Southampton UK

Living with obesity can give rise to unique reproductive challenges and compromise preconception health, defined as the overall health of non-pregnant individuals of childbearing age (15–49 years). Folic acid supplementation is a key preconception health behaviour, and women with obesity are recommended a higher dose (5 mg/day) to reduce the risk of fetal complications. This study aimed to explore 1) trends in Body Mass Index (BMI) in the preconception and early pregnancy period in Northern Ireland (NI), and 2) the prevalence of folic acid supplementation across BMI categories.

Anonymised national data routinely collected in the Northern Ireland Maternity System (NIMATS) dataset were accessed. Multiple linear regressions explored trends in BMI between January 2011 and December 2021 and $\chi 2$ tests explored associations between BMI categories and self-reported folic acid supplementation between December 2014 and December 2021.

The analyses included a total of 255117 pregnancies, with missing data addressed per variable. The percentage of women entering pregnancy with a healthy BMI decreased between 2011 and 2021 (48.65%, n = 12144, and 39.55%, n = 4316, respectively), while the percentage of women with obesity increased over the same period (18.11%, n = 4520, and 27.36%, n = 2986, respectively). Regression models exploring BMI trends were statistically significant ($p < 0.001$) in both the unadjusted model and the model adjusted for age, deprivation and number of previous births, suggesting an average increase of ~1 unit of BMI per calendar year in women entering pregnancy.

In the whole sample, folic acid supplementation was mostly initiated after conception (59.03%, n = 86319), with only 33.01% (n = 48267) and 4.53% (n = 6628) of pregnancies being supplemented with 400 mcg and 5 mg before conception, respectively. Among women living with obesity, the recommended preconception supplementation of 5 mg of folic acid was low (8.74%, n = 2990). A further 23.87% (n = 8168) of pregnancies from women with obesity were supplemented with 400 mcg of folic acid before conception.

Overall, analyses demonstrated an increased number of women entering pregnancy with an elevated BMI and suboptimal preconception folic acid supplementation, particularly at the recommended dosage for women with obesity. This study highlights the need to optimise preconception health in NI, including among women living with obesity.

Disclosures: None.

S05-03 Pre- and post-migration influences on overweight and obesity in African migrant women and nutrition support needs in pregnancy

Lem Ngongalah

Newcastle University

Black women have a higher prevalence of overweight and obesity, increasing their risk of pregnancy-related complications and

mortality. Dietary behaviours significantly impact maternal and child health during pregnancy. Upon migration to high-income countries, African women tend to adopt a bicultural dietary approach, combining Westernized and traditional African behaviours. Traditional African diets are often rich in whole grains, legumes, fruits, and vegetables, which offer overall health benefits and may help prevent chronic diseases. Preserving traditional dietary practices also provides a sense of cultural identity and promotes social cohesion. However, some traditional African diets can be energy dense and high in unhealthy fats and sugars, contributing to overweight and obesity. Meanwhile, Westernized food environments in high-income countries characterized by easy access to processed and fast foods can lead to the adoption of less healthy eating habits, which can have serious implications for maternal and child health.

Resources like the Eatwell guide and midwife support are available to promote healthy eating during pregnancy. However, these are typically centered around traditional British foods and may not reflect the dietary habits or needs of African women. Findings from African migrant women in England highlight pre- and post-migration factors influencing their dietary and weight management needs during pregnancy. These include challenges in adapting to a new food and living environment, cultural restrictions on eating behaviors, differing perceptions of healthy weights, and reduced social support. The women also struggle to relate to dietary recommendations from the Eatwell guide, as examples provided differ from their familiar meals. Identifying food groups, especially in African dishes with unfamiliar English names, poses additional challenges. Women tend to rely on advice from friends, relatives, and the internet, which are not always trustworthy and could lead to further health risks. The delivery of dietary advice through leaflets is also seen as inconvenient and time-consuming. To address these challenges, my fellowship project aims to adapt the Eatwell guide to incorporate the unique needs of African women, considering their cultural and migrant backgrounds. Culturally sensitive support can help African migrant women achieve healthy diets and weights during pregnancy, ultimately improving maternal and child health outcomes.

Disclosures: None

S05-04 Reduced carbohydrate intervention for the management of obesity and reduction of gestational diabetes (RECORD): a feasibility study

Moscho Michalopoulou[1,2], Susan A Jebb[1,2], Lucy H Mackillop[1,2], Pamela Dyson[1,2], Jane E Hirst[1,2], Amy Wire[2], Nerys M Astbury[1,2]

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Carrying or gaining excessive weight during pregnancy increases the risk of gestational diabetes mellitus (GDM). Low-carbohydrate diets have shown promise for blood glucose and weight control in people with type 2 diabetes, but there is no evidence to support their use in pregnancy. Here we report results from a feasibility trial delivering a moderately reduced-carbohydrate intervention, designed to help prevent GDM. Fifty-one women who were pregnant <20 weeks' gestation, with body mass index ≥30 kg/m2, and a negative baseline oral glucose tolerance test (OGTT), were randomised 2:1 to a moderately reduced-carbohydrate diet or control (usual care). The dietary plan aimed to provide 130–150 g of total carbohydrate/day. The programme combined a 30-minute consultation by a healthcare professional, with structured written information, supplemented by up to six 10–15-minute telephone sessions for support as needed. The feasibility outcomes were: 1) adoption of the reduced-carbohydrate advice by the intervention group at 24–28 weeks' gestation, and 2) retention of all participants, assessed by completion of a second OGTT at 24–28 weeks' gestation. Secondary outcomes included incidence of GDM, change in markers of glycaemic control, gestational weight gain (GWG), total carbohydrate and energy intake. Process outcomes examined resource and management issues. Exploratory outcomes included further dietary changes, quality of life, maternal and neonatal outcomes, and qualitative measures. Forty-nine of 51 participants attended the 24–28-week OGTT, a retention rate of 96% (95% CI 86.8% to 98.9%). In the intervention group, total carbohydrate intake at follow-up was 190.4 (95% CI 162.5 to 215.6) g/day, an adjusted reduction of −24.6 (95% CI −51.5 to 2.4) g/day, from baseline. Potentially favourable effects of the intervention were observed with regards to blood glucose control, GWG, and blood pressure, compared to control, however, the study was not powered to detect significant differences in these. The intervention was acceptable, but some participants reported barriers to sustained adherence, mainly pertaining to competing priorities. In conclusion, retention was high, suggesting the study processes are feasible, but the reduction in carbohydrate intake in the intervention group was small, and did not meet pre-specified progression criteria, limiting the likelihood of achieving the desired goal to prevent GDM.

Disclosures: Lucy H Mackillop is a part-time employee of EMIS Group plc.

S05-05 Supporting weight management in the postpartum period: changes in self-regulatory behaviours in the Supporting MumS (SMS) pilot study

Dunla Gallagher[1], Stephan U Dombrowski[2], Caroline McGirr[1], Ciara Rooney[1], Pat Hoddinott[3], Annie S Anderson[4], Chris R Cardwell[1], Lauren Edge[1], Caroline Free[5], Emma Hoey[1], Valerie A Holmes[1], Frank Kee[1], Halla Kiyan Iqbal[1], Emma McIntosh[6], Camilla Somers[6], Ian S Young[1], Jayne V Woodside[1] and Michelle C McKinley[1]

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Weight management interventions that are sensitive to the needs of women in the postpartum period are needed, and those that combine diet and activity behaviour change and include self-regulatory behaviour change techniques (BCTs) are more likely to be successful. The SMS pilot study examined the feasibility and acceptability of an automated, 12-month, bi-directional, text-messaging intervention to support postpartum diet, activity and weight management, compared with an active control delivering child development messages. This presentation will describe change in self-regulatory behaviours, in terms of enactment of BCTs, relating to the intervention theory and how this related to intervention engagement.

This two-arm pilot randomised controlled trial recruited women in Northern Ireland, within two years of giving birth, with a BMI ≥ 25 kg/m2, through community groups. Mediators of behaviour change were measured using questionnaires at 0, 3, 6, 9 and 12 months. Intervention engagement was assessed via responses to the two-way text messages incorporated into the library of text messages and engagement classified as high or low based on the median response rate. Secondary data analysis using descriptive statistics examined between-groups differences in mediator change, relative to baseline, across study timepoints, and according to engagement (low vs high) in the intervention group.

One hundred women were randomised (intervention: 51; control: 49). Between 0 and 12 months, the intervention group, compared with the control group, shows greater increase in the proportion of women: 1) weighing themselves weekly (+26% vs

+4%); 2) self-monitoring dietary intake (+2% vs −11%); 3) setting goals for food and drink (+22% vs −9%); and 4) planning a healthy diet (+25% vs +2%) and planning physical activity (+17% vs +5%), respectively. At 12 months, high versus low engagers with the intervention were more likely to: 1) weigh themselves weekly (94.2% vs 56.3%); 2) self-monitor dietary intake (33.3% vs 16.7%); and 3) set food and drink goals (53.3% vs 50%).

The intervention supports positive changes in self-regulatory behaviours which are more pronounced for those with the highest intervention engagement. Women in the intervention group enact key BCTs in the messages, indicating that the intervention is working as anticipated in the logic model.

Disclosures: Emma McIntosh is a member of the National Institute for Health Research (NIHR) Public Health Research (PHR) Funding Board. Ian S Young was a member of the Health Technology Assessment (HTA) National Stakeholder Advisory Group (2015 to present). Frank Kee was a member of the NIHR PHR Research Funding Board and PHR Prioritisation Group (2009–19). Dunla Gallagher received funding from Slimming World (Miles-Bramwell Executive Services Ltd, Alfreton, UK) for work conducted prior to her involvement in this study.

S06: THE SCHOOL SETTING AS AN OPPORTUNITY FOR ACHIEVING BEHAVIOUR CHANGE

S05-01 Food consumption at break and lunch times in schools: a comparison of nutritional intake from school-provided foods vs. foods brought into school

Marie Murphy, Miranda Pallan, Nathanael Leaf, Peymane Adab

University of Birmingham, Birmingham, UK

Many UK adolescents have poor diet quality with high intakes free sugar and energy-dense foods, and low intakes of fruit and vegetables (FV) and fibre. Food consumed in school is viewed as a key mechanism for improving dietary quality in this age-group. There is evidence from primary schools that nutrient intakes are healthier in children consuming a school-provided lunch compared with a home-packed lunch. In secondary schools, the evidence is less clear and suggests that pupils consuming school-provided lunches have high intakes of foods low in nutritional quality. In addition to lunch, breaktime food provision is commonplace in secondary schools, but less is known about nutritional intake at breaktime. We examined nutritional intake in pupils consuming school-provided food vs food brought into school at break and lunchtimes to inform future strategies for secondary school food provision. We conducted a secondary analysis of 24-hour dietary recall data collected from 2,273 pupils aged 11–15 years across 36 secondary schools in the Midlands as part of the FUEL study. For breaktime and lunchtime separately we grouped participants into those having: school-provided food; food they had brought into school; and a mixture of both. We compared intakes of energy, free sugars, fat, fibre, sodium, FV, confectionery and sugar-sweetened beverages (SSB) across these groups. 1257 (55%) and 2098 (92%) pupils consumed some foods/drinks at break and lunchtime respectively. In unadjusted comparisons at lunchtime, compared with pupils having school-provided food, those bringing in food had higher intakes of all nutrients/food groups explored. At breaktime, compared with pupils having school-provided food, those having food from elsewhere had lower intakes of energy (239.0 kcal vs 301.6 kcal), free sugar (13.0 g vs 13.3 g) and fat (9.9 g vs 13.2 g), and higher intakes of fibre (2.2 g vs 2.0 g), sodium (256.5 vs 234.8), FV portions (0.43 vs 0.38), confectionery (9.2 g vs 7.1 g) and SSB (36.5 ml vs 31.7 ml). At breaktime pupils having food/drinks from both school and elsewhere had the highest intakes of energy (324.6 kcal), free sugar (19.7 g), FV (0.54 portions) and SSB (46.4 ml). These comparisons suggest that future school food improvement should include a focus on the breaktime offer. FUEL study registration: https://doi.org/10.1186/ISRCTN68757496

Disclosures: Peymane Adab is Chair of the NIHR Public Health Research Programme Funding Committee and Deputy Director of the NIHR School of Public Health Research.

S06-02 Factors driving food choice in a secondary school food setting: mapping the system

Niamh O'Kane, Ruth Hunter, Desiree Schliemann, Leandro Garcia, Jayne Woodside

Queen's University Belfast

Poor diet quality in childhood and adolescence is a global public health concern. Schools can act as an important potential setting for the improvement of diet quality, and the reduction of inequalities. Whole-school approaches are recommended in literature, however, the complexity of the school system can create difficulties in successfully implementing whole-school approaches. This study aimed to apply a systems lens to the secondary school food system, to understand what factors are driving food choice.

Participatory methods were used with a range of school stakeholders to co-produce a systems map of factors driving food choice in the secondary school food system. An online survey gathered an initial list of factors, and a group model building workshop was conducted to establish relationships between these factors. Two school workshops with school pupils captured the views from pupils and gathered their feedback on the map. The map then underwent final refinement by the research team and all stakeholders were offered an opportunity to provide feedback on the final version of the map.

The systems map contained 24 factors with 43 relationships between them, each factor falling into one of six themes: catering and procurement, school leadership and governance, the priority of food within schools, social experience, behaviours and attitudes, the food space and experience in school and financial. The map demonstrates how each of the factors interact with each other (including direction of influence).

The systems map provides a visualisation of the complex secondary school food system and can be used by stakeholders in the design and evaluation of whole-school, multi-component interventions and programmes targeting food choice in secondary schools.

Disclosures: None

S06-03 Applying the Integrated Sustainability Framework to explore the long-term sustainability of nutrition education programs in schools: A systematic review

Leila Fathi[1], Jacqueline Walker[1,2], Clare Dix[1], Jessica Cartwright[1], Suné Joubert[1], Kerri Carmichael[1], Yu-Shan Huang[1], Robyn Littlewood[1,2], Helen Truby[1]

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It is vital that schools have structures in place that support children's health and offer social and physical opportunities for behaviour change. School-based nutrition programs can improve students' nutrition and and reduce the risk of developing obesity, however, most programs are abandoned within two years of implementation, which does not optimise investments of funding

and resources. This review aimed to identify and synthesise the enablers and barriers that influence the long-term (≥2 years) sustainment of school-based nutrition programs.

Four databases (PubMed, Cochrane Library, Embase and Scopus) were searched to identify studies reporting on the international literature relating to food and nutrition programs aimed at school aged (5–14 years) children that had been running for ≥2 years (combined intervention and follow-up period). Eligible studies were analysed using the Integrated Sustainability Framework, which involved deductive coding of program enablers and barriers. A quality assessment was completed, using the Mixed-Methods Appraisal Tool and the Preferred Reporting Items for Systematic Reviews and Meta-Analyses guidelines.

From the 7366 articles identified, 13 studies (seven qualitative, five mixed methods and one quantitative descriptive) were included, from which the enablers and barriers of 11 different nutrition-related programs were analysed. Thirty-four factors across the five domains of the Integrated Sustainability Framework were identified that influenced the sustained implementation of programs. The most common barrier was a lack of organisational readiness and resources, whereas the most common enabler was having adequate external partnerships and a supportive environment.

These findings have application during the initiation and implementation phases of school-based nutrition programs. Paying attention to the 'outer contextual factors' of the ISF including the establishment and maintenance of robust relationships across whole of government systems, local institutions and funding bodies are crucial factors for program sustainment.

Disclosures: None

AWARD SESSIONS

A01 BEST PRACTICE AWARD 2023

Overview of a Tier 3 integrated adult weight management pathway supporting pre-bariatric weight loss and its impact on improving patient's nutritional intake and psychological well-being

Ranjana Babber, Sophie Edwards, Paul Gately

More Life (Ltd) UK

The rationale for More Life UK's integrated adult weight management programme supporting pre-bariatric weight loss in adults with obesity is based on NICE Guidance CG 189. The guidance mandates that the patients referred for bariatric surgery should receive and complies with Tier 3 weight management service, and MDT at Tier 3 to ensure assessment of all evidence in terms of attendance and achievement of clinically significant weight loss. Our integrated pathway for bariatric referral highlights an evidence-based 12-month curriculum based on CBT, education and coaching on heathy eating and active lifestyle, provision of information on eligibility criteria for bariatric surgery, offers/signposting for bariatric information sessions and a thorough MDT review to select those who will stand to benefit most from the surgery.

For the service year October 2021- September 2022, a total of 104 bariatric referrals were forwarded by More Life Greater Manchester contract to a local Tier 4 service. The demographic profile of these referrals indicated that 85% were female, majority White British (91%) and mean age of 44.3 years (SD 9.4). 19% of the patients had a diagnosis of type 2 diabetes mellitus. The findings of this service evaluation indicated an achievement of clinically significant mean weight loss of 12.2 kg (SD 5.9) corresponding to a substantial shift in mean BMI (50.8 kg/m2 to 46.7 kg/m2). The nutritional intake status assessed using a questionnaire, demonstrated an improvement from initial score of 8 to 11.4 (maximum achievable score 14). A positive shift for achievement of 5-A-day was observed as it improved from 23% to 63%. The mean score for PHQ-9 and GAD-7 as reported by a pre and post-questionnaire suggested a clinically significant improvement in psychological well-being as mean pre-score for PHQ 9, 13.5 (SD 6.8) to post score of 5.5 (SD 5.1) and pre scores for GAD-7 shifted from 9.2 (SD 6.2) to mean 4.5 (SD 4.8). Thus, such integrated and collaborative bariatric referral pathways at tier 3 service are relevant to select appropriate patients, facilitate understanding of key information on bariatric surgery and achievement of healthy lifestyle, that could be vital for long term weight maintenance, post- bariatric surgery.

Disclosures: All authors are employed by More Life UK

A02: 3-MINUTE THESIS COMPETITION

A02-01 Is obesity more likely among children sharing a household with an older child with obesity?

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We used a dynamic method of identifying household members from Electronic Health Records (EHRs) linked to National Child Measurement Programme (NCMP) data to estimate the likelihood of children with obesity sharing a household with an older child with obesity, accounting for individual and household characteristics.

We included 126,829 NCMP participants in four London boroughs and assigned households from encrypted Unique Property reference Numbers (UPRNs) at NCMP date for 115,466 (91%). We categorised the ethnic-adjusted body mass index of the youngest and oldest household child (underweight/healthy weight<91st, ≥91st to <98th overweight, obesity≥98th centile) and explored associations of the youngest child's weight status with: oldest child's weight status, number of household children (two, three or ≥4), youngest child's sex, ethnicity and school year of NCMP participation (reception or year 6). We estimated adjusted odds ratios (aOR) and 95% confidence intervals (CI) of obesity in the youngest child.

19,702 UPRNs were shared by two or more NCMP participants (youngest children: 51.2% male, 69.5% reception). 10.4% of youngest (95% CI: 10.0,10.9) and 13.0% of oldest (12.5,14.3) children were living with obesity. One third of youngest children with obesity shared a household with another child with obesity (33.2%; 31.2,35.2), compared with 9.2% (8.8,9.7) of those with a healthy weight. Youngest children living with an older child with a BMI considered overweight (aOR: 2.33; 95% CI: 2.06,2.64) or obese (4.59, 4.10,5.14), those from South Asian ethnic backgrounds (1.89; 1.64,2.19) or taking part in NCMP in year 6 (2.21; 2.00,2.43) were more likely, and girls (0.73; 0.67,0.81), children living with just one other child (0.87; 0.77,0.98) and from Black ethnic backgrounds (0.78; 0.66,0.93) less likely, to be living with obesity.

Linked EHRs can provide novel insights into the shared weight status of children sharing the same household. Further qualitative research is needed to understand how household food practices may vary by other household characteristics to improve our understanding of how the home environment influences childhood obesity.

Disclosures: None.

A02-02 The Long Road to Sustained Implementation of School Nutrition Programs: Qualitative Perspectives from International Stakeholders

Leila Fathi[1], Danyu Yang[1], Mark Robinson[1], Jacqueline Walker[1,2], Robyn Littlewood[1,2], Helen Truby[1]

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Schools are ideal settings for supporting children to establish healthier dietary habits, through food and nutrition programs. However, most programs cease implementation within two years. Having a better understanding of the determinants of sustainability can help maximise the funding spent on the development of school-based nutrition programs and allow time for program benefits to be achieved and evaluated. The aim of this study is to explore how international school-based food and nutrition programs can successfully manage long-term implementation, using the Consolidated Framework for Implementation Research (CFIR).

Purposive and snowball sampling were used to recruit experts. Experts were identified as being influential in sustaining school-based food and nutrition programs for two years or longer. Semi-structured interviews were conducted with participants via Zoom. Interviews were transcribed verbatim and coded deductively by applying the CFIR constructs. Coding was conducted independently by two researchers and confirmed through discussion. Additional inductive codes were ascertained via discussion until consensus was reached. Thematic analysis of the coding helped to inform the development of themes.

Interviews were conducted with eleven stakeholders (academics, researchers, members of government and an agency representative) from Australia, Canada, England, Italy, New Zealand, Northern Ireland and the United States of America. Forty-one deductive codes and sixteen inductive codes identified six main themes: 1) funding and integrity of its source; 2) political landscape; 3) nutrition policies and their monitoring; 4) involvement of community actors; 5) adaptability of program; 6) effective program evaluation. Themes related mostly to the 'outer setting' and 'process' domains of the CFIR.

Successful long-term implementation of school-based food and nutrition programs require careful consideration of the broader environmental influences. Relationships need to be strengthened across the whole government, local organisations and community sector. Monitoring and evaluation processes are also required to drive consistent support from internal and external leadership.

Disclosures: None.

A02-03 Evidence from a rapid review to identify high fat, sugar, salt food tax options for the Health Economic Analysis incorporating effects on Labour outcomes, Households, Environment and Inequalities (HEALTHEI) Project

Natalie Connor[1], Helen Moore[1], Andrea Burrows[1], Penny Breeze[2], Christian Reynolds[3], Claire O'Malley[1], Jane Snell[3], Amelia Lake[1]

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Excess consumption of calories in the UK leads to obesity, which is a cause of diabetes and cardiovascular disease. Unhealthy diets, in which people eat excess food High in Fat, Sugar and Salt (HFSS), are causing ill health and are an influential factor in creating health inequalities. The HEALTHEI project explores which HFSS food taxes would have the greatest benefits to health, labour and work outcomes, household expenditure, environmental sustainability and inequalities within the UK food system. We present the first component of Work Package 1: a rapid review of published evidence. A systematic rapid review approach examined published evidence around HFSS taxation options for food and non-alcoholic beverages. A pre-planned framework ensured a systematic approach. A search strategy was designed a priori and adapted for use on PubMed, HMIC, Scopus, Google, Mintel/Mintel Food and Drink, and Business Source Premier Ultimate. Databases were searched for papers published between January 2010 and December 2022. Papers were included if based in high-income countries and published in English. Screening of titles and abstracts, then full text of papers was performed by the WP1 team. Reference lists of relevant systematic reviews were also hand-searched. A standardised data extraction template was developed and evidence from the included papers was extracted by the WP1 team under themes for effectiveness, costs/unintended consequences, and barriers to implementation. Data quality of papers was also assessed. Six categories of tax options were identified by the rapid review; high fat, high sugar, high salt, "junk-food", sugar-sweetened-beverages, and meats plus sugar-sweetened-beverages, all of which had a broadly positive impact on consumption and health. An infographic was developed to concisely communicate the review findings. Five core rationales for food taxes also emerged (Change Consumption, Reduce/Prevent Harm, Change Product Affordability, Raise Revenue, and Industry Impact). The review demonstrated that there is a need to develop an impactful food tax option that incorporates a multitude of rationales, however, no obvious contender emerged from the review. The results of the review will be synthesised with evidence from stakeholder workshops and media analysis to understand the feasibility, impact and logistics of implementing a future food tax.

Disclosures: None.

A02-04 Factors associated with continued participation and maintenance of weight loss: a longitudinal evaluation of four years of the annual community-based 'Ferry Fit' intervention

Erin B McGrattan, Laura McGowan, Ruth F Hunter, Helen G Coleman on behalf of the Ferry Fit Challenge committee

Queen's University Belfast, Belfast, UK

Overweight/obesity, and physical inactivity, are major public health issues worldwide. Many interventions have enabled short-term weight loss and/or increased physical activity levels, but there is a lack of evidence for long-term maintenance of these changes. The aim of this secondary data analysis study was to evaluate the factors associated with continued participation and maintenance of weight loss in the community-based 'Ferry Fit' intervention.

The Ferry Fit Challenge is a nine-week community-based weight loss and physical activity intervention based in a rural setting in County Down, Northern Ireland that ran annually between 2016–2019. Participants self-reported demographic, health and lifestyle information at baseline, with anthropometric factors measured at weekly weigh-in nights. Data cleaning and statistical analysis was conducted using Microsoft Excel and Stata software. Participants were classified as (i) Continuous - participated in Ferry Fit for at least three consecutive years within the four-year timeframe, or the most recent two consecutive years (i.e., 2018 and 2019); (ii) 'One-off' - participated only once; or (iii) Sporadic - all other combinations of participants, i.e., may have joined in 2016 and then again in 2018, etc.

Of 438 individuals who participated in the Ferry Fit Challenge for at least 1 year, 34%, 19% and 47% were classified as

continuous, 'one-off' or sporadic participants, respectively. The majority of all participants (77%) were female. Participants aged 40–49 years were more likely to be continuous participants, and <30 year olds more likely to be 'one-off' participants ($p < 0.001$). Continuous participants did not differ from 'one-off' or sporadic participants according to sex, smoking status, co-morbidities, baseline anthropometrics or baseline exercise frequency. Achievement of short-term weight loss each year was evident, but there was limited evidence that weight reduction was maintained year-on-year among continuous participants. For example, the mean body mass index at Year 1 start was 30.1, declining to 28.8 by Year 1 end but increasing to 30.4 by Year 2 start.

Approximately one third of individuals maintained continuous annual participation in this community-based intervention, and this proportion was higher in individuals aged 40–49 years. Whether this leads to long-term maintenance of weight loss remains unclear.

Disclosures: None

A02-05 Do appetitive traits impact success in tier three weight management services?

Stacey Boardman[1], Dr Rebecca Beeken[1], Dr Alison Fildes[1], Dr Anuradha Menon[2]

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Appetitive traits are stable, genetically determined predispositions towards food, which can be influenced by people's environments. Understanding the appetitive traits of people engaged in weight management, and whether these traits are associated with weight loss success could contribute to the development of tailored interventions. This study used a mixed-methods design to explore: 1) the appetitive traits of adults accessing a Specialist Weight Management Tier Three Service; 2) whether appetitive traits were related to a weight loss of 5% of total body weight or more; and, 3) participants' own experiences of their appetitive traits during weight management. Participants ($n = 75$) completed the Adult Eating Behaviour Questionnaire (AEBQ) and provided demographic and weight history data. Measurements of weight at baseline and follow-up (mean 28 weeks post-baseline) were obtained from participants' medical records. Logistic regression analyses explored associations between five appetitive traits (Food Responsiveness, Satiety Responsiveness, Slowness in Eating, Emotional Over-Eating and Emotional Under-Eating) and whether 5% weight loss was achieved. After controlling for demographics, weight history and time since baseline, Satiety Responsiveness and Slowness in Eating were associated with weight loss success. Individuals who were more satiety responsive, and individuals with a slower speed of eating were more likely to achieve 5% weight loss or more (OR 3.15; 95% CI [1.38,7.16]) and OR 1.93; 95% CI[1.02,3.68] respectively). A sub-sample of participants ($n = 22$) participated in recorded telephone interviews about their experiences and a reflexive thematic analysis of this data is underway. This is the first study to explore the appetitive traits of people accessing a UK weight management service, and to identify a relationship between appetitive traits and weight loss success. Results must be interpreted cautiously given the small sample, but the findings suggest that individual variation in responsiveness to internal feelings of satiety, and a slower speed of eating may be determinants of weight loss success. Future research should further explore the influence of appetitive traits on weight management, including the potential for tailored interventions to support individuals with more avid appetites.

Disclosures: None.

A03: KEN CLARE AWARD FOR BEST PPIE IN RESEARCH

Integrating and evaluating PPI within a co-development project to design the novel weight-management intervention 'AIM2Change', both for and with young people

Elanor C. Hinton[1], Gail Thornton[2], Rhys Courtney-Tucker[2], Lucia Stancheris[2], Jennifer S. Cox[1], Aidan Searle[1], Julian P. Hamilton-Shield[1]

[1]National Institute for Health Research Bristol Biomedical Research Centre Diet and Physical Activity Theme, University of Bristol, Bristol, UK [2]PPI Representative, UK

A recent review of families' experiences of a paediatric weight-management clinic in Bristol revealed that, for patients who had not lost weight, complex lives and an external locus of control resulted in young people (YP) and parents feeling they lacked ability to make meaningful change. To address this barrier, we have co-developed and designed an intervention, 'AIM2Change', based on Acceptance and Commitment therapy (ACT), with young people from the clinic.

We have held nine PPI sessions over the course of this research project, starting during the early design phase (three sessions with YP living with obesity, one with adults), beginning of the funded project (two sessions with YP living with obesity and parents), just before co-development started (two sessions with YP living with obesity) and most recently to plan the next feasibility trial (one session with three young people attending weight-management clinics in Southampton and Birmingham).

Key outcomes from the PPI sessions were detailed opinions on the age-appropriate participant information sheets, and that the young person should be allowed to choose whether they invited a parent or carer to join them in the co-development/therapy sessions. The YPAGs (Young Persons' Advisory Group) commented that they found our approach understandable and helpful, and gave valuable opinions regarding the delivery of the programme (e.g. number of sessions and online format). An insightful discussion was had regarding what outcomes to measure in the future trial. Input from the YPAG sessions has been incorporated into the Table of Changes, forming an integral part of the intervention development process. YPAG evaluated the PPI sessions using the 'CUBE', indicating they had a strong voice and that the team was willing to make changes to the plans based on their contributions.

Insights from the YPAG, alongside those of the ethnically and neuro-diverse young people taking part in the co-development process, have helped shape the AIM2Change intervention, enabling us to make changes to optimise the intervention's value for young people. A final meeting will incorporate the YPAG's views on the interpretation of our findings from this co-development study, to ensure publications and reports include their valuable and insightful contribution.

Disclosures: Dr Elanor Hinton also works part-time for Oxford Medical Products as a Clinical Studies Manager. This role is completely independent of the presented research.

ORAL SESSIONS

O1: UNDERSTANDING PREVENTION AND MECHANISMS; FAMILIES, CHILDREN, AND YOUNG PEOPLE

O1-01 Upstream approaches to reduce childhood obesity: A systematic review of low-agency environmental interventions

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Newcastle University, Newcastle-upon-Tyne, UK

Tackling childhood obesity requires a systems approach, including upstream interventions to address and change the obesogenic environment. Approaches suggested within government policy persist to rely on self-regulation that requires a high level of individual agency, potentially due to the evidence base being strongest at this level. The evaluation of upstream interventions that aim to change environments is required to supplement the evidence base. The aim of this systematic review was to evaluate the effectiveness of upstream and low agency environmental approaches to reduce obesity in children. The databases MEDLINE, Embase, and PsychINFO were searched in addition to internet sources, registries, citations and reference lists of included studies. Natural or quasi-experimental studies that investigated low-agency environmental interventions to reduce childhood obesity, which measured childhood obesity-related outcomes and included participants aged <18 years, were included. Risk of bias was assessed using the Effective Public Health Practice Project (EPHPP) tool. Narrative synthesis was conducted for analysis of the results. Of 2,769 articles identified, 24 were eligible for inclusion. Two studies were of weak quality, 12 were of moderate quality and 10 were of strong quality. Fifteen studies examined interventions that targeted the food environment and nine studies examined interventions that targeted physical activity environment. The majority were conducted in school settings (n = 17), followed by child day-care settings (n = 4) and the community and wider settings (n = 3). The majority (n = 15) of studies demonstrated some favourable effects of the intervention under investigation on childhood obesity outcomes. Overall, evidence indicates that upstream and low-agency interventions are effective in reducing childhood obesity, especially when delivered in a school setting. The generally long data collection time periods of the studies suggest the long-term effectiveness of such interventions. However, additional higher-quality research is needed for more robust conclusions. Policy-makers should also move beyond the school settings for the implementation of such interventions, and additional research using natural or quasi-experimental study designs in such settings is required. Future research should also investigate the effects of such interventions on inequalities in childhood obesity.

Disclosures: None

O1-02 Exploring adolescent food choice and autonomy in a deprived urban setting: A PhotoVoice study

Lucie Nield

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Adolescence is a time of change defined by increased autonomy and acquisition of new skills, including food and health practices. However, adolescence is experienced differently across socio-cultural contexts. Understanding drivers of food practice in adolescence is vital as these impact future health outcomes, including obesity, and can drive health inequality. This study investigates drivers of food choice behaviour in adolescents living in a deprived urban area of England, identifies the dominant drivers and their impact on health and wellbeing, and explores how adolescents from low SES groups understand and action autonomy in their food practices. PhotoVoice, a focussed ethnographical methodology where participants reflect on lived experience, was used to address the study aim. Participants (n = 21) were secondary school pupils aged 14–15 years, recruited from a school situated in an area of deprivation. Four overarching themes were developed from the qualitative data framework analysis: 1) Food preference and other determinants of food choice; 2) Concept, understanding and importance of health; 3) Developing autonomy, skills, and independence and 4) Role of community, friends, and family in food practices. The adolescents were developing autonomy in relation to their food practices, whilst navigating a complex web of factors which were, in part, determined by their social class location. Weight management was their key health focus, with participants describing a preference to eat less, rather than choose more nutritious foods. Participants found the main barriers to healthy eating were the perceived 'effort' of being healthy and additional time for preparing healthier food. Parents and schools highly influence food choices, with adolescents preferring a broad palate of takeaway and convenience foods.

Disclosures: None.

O1-03 Should we target grandparents to improve the diets of preschoolers?

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The early years are an important time in the development of eating habits and preferences, however children this age are failing to meet dietary recommendations. Grandparents are relied upon the most as informal caregivers of preschool aged children yet few have studied their role in shaping children's eating. Across three studies we explored whether grandparents who care for their preschool aged grandchildren would benefit from feeding support. In Study 1 we conducted a systematic mixed methods review to synthesise the research on grandparental dietary provision, feeding practices and feeding styles with preschool aged children. In study 2, an online questionnaire and 24-hour dietary recall was used to compare the feeding practices, feeding styles and dietary provision of 44 grandparents with 72 (unrelated) parents in the UK. In study 3, semi-structured interviews were conducted to determine the barriers and facilitators to engaging grandparents to promote healthy eating in their preschool aged grandchildren. Strategies to promote healthy eating in young children should be expanded to also target grandparents. Similarities between parent and grandparent feeding behaviours suggest the content of such strategies may not need to be adapted specifically for grandparents. Like parents, grandparents are providing meals high in saturated fat and sodium and providing less than the recommended amount of fruit and vegetables. Nevertheless, UK grandparents are using feeding practices that help to provide structure to, and promote autonomy in, children's eating. Although parents frequently describe grandparents as indulgent, this may not be true for grandparents that care for their grandchildren on a regular basis. Grandparents expressed a willingness to learn new information and an eagerness to provide a healthy diet to their grandchildren, however they may be a challenging group to engage as they perceive little need for feeding support. Grandparents spoke positively, and frequently, of learning from their grandchildren's parents, suggesting that an indirect approach could be used to convey recommendations to them. Future work should explore the feasibility and acceptability of using parents as a conduit for early years feeding guidance for grandparents.

Disclosures: None

O1-04 Piece by piece: building a precision public health program to address obesity in Queensland, Australia

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Obesity is slowing life expectancy growth across nations. Public health innovation is needed to integrate targeted prevention policies across the life course. Precision public health (PPH) uses real-world data (e.g., electronic medical records, social media) and digital technology to augment traditional public health approaches. There is a significant but unmet opportunity to translate the success of PPH to manage infectious diseases (e.g., COVID-19) into addressing chronic diseases such as obesity. The aim of this research program was to explore how real-world data can inform PPH for obesity using Queensland, Australia, as a test setting.

This research program adopted a pragmatic mixed-methods design across five phases (2021–2023). We conducted literature reviews (phase 1–2), co-design (phase 3–4) and population health informatics (phase 5) to achieve our aim. The setting was Queensland – a large state in Australia with a population of ~5 million. In partnership with the state public healthcare system, health promotion agency, and global academic institutions, we engaged public health practitioners, executives and managers, public health researchers, clinical informaticians, and allied health professionals to build an empirical foundation for PPH.

This program completed five phases (n = 28 participants) and found:

1. Globally, PPH initiatives to address obesity are emerging but require stronger translation to policy and practice (systematic review)
2. An evidence map of obesity data for PPH in Queensland revealed electronic medical records have the highest potential utility but are currently unused for decision-making (scoping review)
3. PPH to address obesity can be conceptually achieved across three 'horizons': digital workflows; population health analytics; new models of PPH (co-design)
4. Decision-makers in healthcare organisations need bigger and faster data to make confident prevention decisions for obesity (co-design)
5. A digital dashboard of obesity in Queensland can geographically heatmap obesity rates across time and place for ~1 million people in the state electronic medical record (population health informatics)

PPH is a rapidly emerging but nascent area that requires coordinated transdisciplinary effort to improve obesity policy and practice. Future research must improve reach and representativeness in data and integrate community voices from underserved settings.

Disclosures: None.

O1-05 Acceptability and perceived harm of calorie labelling and other obesity policies in UK adults with eating disorders and other mental health conditions

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This study assessed the acceptability and perceived harm of recently proposed UK public health policies to address obesity (i.e., mandatory calorie labelling, banning advertisements of unhealthy food and drinks online and before 9 pm on TV, and banning "buy one get one free" deals for unhealthy food and drinks) in adults with an eating disorder (ED) and other mental health conditions. We conducted an online survey, recruiting 1,273 participants with a self-reported doctor diagnosis of mental health condition (583 participants with an ED) from Prolific Academic and social media (September – November 2022). Multinomial logistic regression was used to compare the levels of perceptions of the policies between participants with and without an ED (but with other mental health conditions). Opinions on the potential effects of the policy on current ED symptoms were analysed using thematic qualitative analysis. We found no differences in the proportions of acceptability and perceived harm of the two policies on restricted marketing and price promotions of unhealthy food and drinks observed between participants with and without an ED. However, the proportion of support for the implementation of the mandatory calorie labelling policy was lower in participants with vs. without an ED (43% vs. 58%). Half of the participants with an ED (55%) also reported that calorie labelling may worsen their ED symptoms. Findings from multinomial logistic regression controlling for sociodemographic covariates (age, gender, ethnicity, education, household income) and body mass index category also indicated that participants with an ED were more likely to disagree with the implementation of the calorie labelling policy than their counterparts without an ED. However, participants with an ED (vs. without) agreed and disagreed (relative to neutral) that they would prefer to use a menu with calorie labelling when available. Some themes from the qualitative analysis showed that calorie labelling may provide harm (e.g., a gateway to relapse, negative effects on mood) and perceived benefits (e.g., feeling informed and reassured) for participants with an ED. Therefore, future studies are warranted to explore the potential benefits and how to mitigate the harm of calorie labelling in people with an ED.

Disclosures: None

O2: CONNECTING THE NATIONS - OBESITY POLICY, PREVENTION, AND MANAGEMENT

O2-01 The impact of the world's first regulatory intervention on child digital game time, homework time, and out-of-campus learning in China: a natural experiment evaluation of the ENERGISE study

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In 2021, the Chinese government introduced nationwide regulations to restrict the time that children (7–18 years) should spend on digital games, homework, and out-of-campus learning, to improve child health and wellbeing. This was the world's first regulatory intervention on child sedentary behaviour (SB). The impact of this intervention could have important research and policy implications globally. We evaluated the effect of this regulatory intervention on child SB.

With a pre-post natural experiment design, we used surveillance data collected by the Guangxi Autonomous Region authority from 9 to 18 years students, before (wave 1) and after (wave 2) the introduction of the regulatory intervention, for longgitudial analyses (n = 7,054) and repeated cross-sectional analyses (n = 99,947). The regionally representative data were collected using a multi-stage random sampling from 31 counties. Pre-post differences were analysed for self-reported total SB time and key SB outcomes (e.g. homework time, out- of- campus learning time, screen viewing time and electronic device use time), using multilevel models adjusted for relevant covariates. We also

explored subgroup differences by sex, stage of education, residency, and baseline weight status.

At wave 2, students reduced their total SB time by 13.8% (95% CI: −15.9 to −11.7%, approximately 46 minutes less) on average and spent significantly less time on homework (and were 2.8 times more likely to meet the standards set by the regulation, 95% CI: 2.47–1.14) and out-of-campus learning. Students also reduced their screen-viewing time by 6.4% (95%CI: −9.6 to −3.3%, approximately 10 minutes less), and were 20% more likely to meet international daily screen time recommendations (95% CI: 1.1 to 1.3). The reduction in homework and screen-viewing time was larger in secondary school students ($p < 0.0001$ for interaction) than in primary school students. We did not find an intervention effect on other outcomes. Population-level (repeated cross-sectional) analyses showed similar findings as the longitudinal (repeated) analyses.

The regulatory intervention has been effective in reducing total SB time among Chinese children and adolescents, mainly through reducing time spent on homework, out-of-campus learning and screen viewing. Similar but culturally appropriate regulatory interventions could be considered by policy makers in other countries.

Disclosures: None.

O2-02 Opinions on Obesity and Prevention in Scotland: A Focus Group Study

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Information and public discourse around obesity and the food environment is often dominated by numbers. In Scotland, we believe there is a knowledge gap for qualitative data and first-hand public opinion on the issues of diet and obesity prevention. Therefore, we carried out multiple focus groups with members of the Scottish public to hear about their experiences with these matters and whether they supported proposed healthy weight interventions. It is hoped this research will offer the chance to use personal experiences as a tool to advocate for prevention policies that can address high levels of overweight and obesity in Scotland.

A public survey was issued to identify key characteristics of individuals which were used to form a balanced focus group panel representative of the Scottish public. Three focus group sessions were carried out between November 2022 and March 2023. Each session covered different themes relating to diet, obesity and the food environment. During each session the panel was presented with evidence to help inform their discussions. Short polls were distributed to participants in the lead up to each session with the results used to prompt in-session responses. All panel discussion was transcribed in full and analysed using QDA Miner software to identify common themes.

Thematic analysis revealed that participants were largely able to agree on root issues relating to the food environment and how it contributes to dietary outcomes and obesity. However, disagreements were more obvious when discussing potential policy solutions. The presentation of relevant evidence within each session appeared to surprise some participants and influence their views, while others seemed less affected. The wide-range of mixed opinions across the panel strongly reflected the complexity of obesity and its causes.

The use of qualitative data to tell the stories of everyday people is a powerful tool which is arguably under-utilised by public health groups. This focus group research aims to fill a gap in the advocacy space for healthy diet and weight in Scotland. It also provides rare insight in understanding which areas of obesity prevention gain most public support and where further efforts are needed.

Disclosures: None.

O2-03 Local Levers for Diet and Healthy Weight in Scotland: Top evidence-backed opportunities

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A national roll out of the whole system approach (WSA) to diet and healthy weight is planned for 2023 in Scotland. Our objective was to develop guidance on effective local levers for diet and healthy weight in the Scottish context. This guidance will be integrated into a package of materials.

Local levers are actions available for local authorities, health boards, schools, and the private and third sectors to support community health by ensuring everyone can get affordable, healthy food and integrate safe and enjoyable physical activity into their daily lives. An emphasis was placed on addressing the social and commercial determinants of health given persistent health inequalities especially with regards to childhood obesity. Our approach involved reviewing existing reports of what works for obesity prevention – for example, from WHO and NICE. Many actions were excluded because they were beyond the scope of local authorities, such as taxation. Other actions were excluded because they focused on individual behaviour change.

Ultimately, seven levers were identified:

1. Restrict outdoor marketing of products high in fat, salt or sugar.
2. Utilise local planning to restrict licensing of takeaways within 800 m of schools and to avoid clustering of takeaways.
3. Strengthen public food procurement and provision standards.
4. Work with local food outlets to reduce calories on the menu through reformulation and offering smaller portion sizes.
5. Improve uptake of school meals by pursuing universal free school meals and improving the aesthetics of and social interactions in school dining areas.
6. Promote and support physical activity by following Public Health Scotland's systems-based approach to physical activity.
7. Protect, promote, and support breastfeeding.

It was recognised that no one of these levers alone will have a huge impact and that as many of the levers as feasible should be implemented in order to take advantage of synergies – for example, between levers #2, #4 and #5. In addition to the roll out of the WSA, the Good Food Nation (Scotland) Act 2022 presents an opportunity for local authorities and health boards to consider these levers in their Good Food Nation plans.

Disclosures: None

O2-04 Delivering the National Whole System Approach to Healthy Weight in Wales: Processes and practicalities

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Welsh Government has committed to improving healthy weight at a national level, through the 'Healthy Weight: Healthy Wales' 10-year strategy (2019). One of the 4 themes within the strategy is promoting leadership and enabling change through a whole

systems approach (WSA), promoting collaboration and involvement at all levels. Through the strategy, funding has been provided to deliver this approach at a national and local level. This abstract describes the method and early learnings of a WSA for Healthy Weight across Wales. Initially, regional and national system leads were established. System leads and PH Consultant leads networks were developed alongside a programme of training and development in systems thinking and delivering WSA. Assets were developed to support this approach, including an evidence-based 9 step process to guide local systems leads through the approach. The funding provided resource to coordinate this public health way of working across the Health Boards, as well as to take forward the approach at a national level. Nearly 30 Strategic System Engagement events have been held across Wales. At a National and Health Board level, priority subsystems are identifying levers for action around overweight and obesity, and the national evaluation framework to map progress is underway. Qualitative and quantitative data was collated from reports and meetings. Synthesis of data was undertaken using the key components of systems approaches as a framework for analysis. This approach helped identify the strengths and challenges to date. The early results suggest that capacity for a WSA has developed through engagement with senior stakeholders and organisations. In conclusion, Wales has applied a WSA to Healthy Weight at a national and regional level. This approach has significant advantages, including the creating of an enabling environment for stakeholder engagement and buy in; formal and informal learning opportunities; and opportunities to enable policy change. Communication channels have developed nationally and regionally, and system leadership is becoming increasingly established, creating a strong systems working approach. Challenges include maintaining momentum, engagement, capacity and focus on agreed priority systems and subsystems. Further challenges include effective evaluation to fully capture and communicate the system changes over time.

Disclosures: None

O2-05 Adaptation of the Canadian Adult Obesity Clinical Practice Guideline for Ireland

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The 2020 Canadian Adult Obesity Clinical Practice Guideline (CPG) was developed over 4 years through a systematic GRADEd and patient-orientated process. The CPG introduced a new obesity definition based on health not body size, incorporated lived experience, and addressed weight bias and stigma in healthcare systems. In 2021, the Association for the Study of Obesity on the Island of Ireland in conjunction with the National Clinical Programme for Obesity and the Irish Coalition for People Living with Obesity successfully bid to become the first European country to adapt the CPG.

A project co-ordinator, and research assistant were appointed and an Executive Committee with key stakeholders provided governance. The ADAPTE framework was used to ensure the adaptation was relevant, generalisable, and applicable in an Irish setting. The AGREE II and Tools 11, 13, 14 and 15 from the ADAPTE Toolkit were used to guide and quality-assure the adaptation. Sixty-five specialists with wide multidisciplinary and geographical representation, and ICPO representatives, volunteered their time and expertise to contextually adapt eighteen chapters.

Eighteen chapters and 80 recommendations were adapted over an 18-month period. Adaptations included alignment with the Irish model of care for obesity healthcare delivery e.g. the service levels where care is provided and the addition of psychological support before surgery, professional registrations in Ireland, adaptations for European Medicines Agency regulations, and consistency with existing guidance that is used in Ireland e.g. Food Safety Authority of Ireland guidance in relation to sarcopenia and weight loss in older adults, and British Obesity and Metabolic Surgery Society guidelines. There were also language adaptations and reference to 155 pieces of Irish obesity-related research. The adapted CPG was made available on the ASOI website with a summary published in a peer reviewed journal Obesity Facts1.

Adapting the CPG was feasible and reduced development time compared with creating de novo guidelines. The adaptation and implementation of the CPGs will support clinicians and policy makers in Ireland to provide high-quality, standardised, non-stigmatising care to people living with obesity, in line with the model of care for obesity.

1 https://doi.org/10.1159/000527131

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O3: OBESITY MANAGEMENT AND LIVED EXPERIENCE

O3-01 Experiences of a text message delivered behavioural weight management intervention (with or without financial incentives) for men living with obesity, and their co-morbid mental health problems

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The World Health Organisation estimates that around 650 million people worldwide are living with obesity and around 1 in 8 are living with a mental health condition. Obesity is associated with higher prevalence of depression and anxiety, and people with mental health conditions have an increased risk for obesity, diabetes and cardiovascular diseases compared to the general population. Behavioural Weight Management Interventions can improve physical and mental health (MH). The Game of Stones (GoS) Trial randomised men (n = 585) living with obesity in the UK into three groups: 1) receiving text messages plus financial incentives; 2) receiving texts only; 3) a waiting list control group. The primary outcome is weight loss at 12 months. The aim of this

qualitative study, embedded within the GoS process evaluation, is to better understand how living with MH problems and obesity can impact on men's experiences. Men took part in semi-structured interviews (n = 53) after completing their 12-month outcome assessment (30 men received texts and incentives; and 23 received texts only). Of the men interviewed, 13 self-reported a MH condition, while 13 had a Patient Health Questionnaire (PHQ-4) score ≥3 at baseline (suggesting the presence of anxiety and/or depression). Data were analysed thematically using the Framework Method. The analysis (ongoing) considers similarities and differences evident across the men's accounts whether living with or without MH problems. Early findings indicate differences in perspectives across several inter-related themes: 'the frequency, content and usefulness of the text messages'; 'weight loss targets and weight assessment appointments as motivators or stressors'; 'reflections on financial incentives for weight loss' and 'facilitators and barriers to behaviour change'. While men with MH conditions can be daunted by weight loss targets, describing weight assessment appointments as inducing fear of failure and potential feelings of shame or disappointment, others describe weight loss targets as motivating and weight assessment appointments as opportunities for encouragement and renewal of focus. This exploration of perspectives, from men with differing experiences of MH and wellbeing, offers insights for future development and implementation.

Disclosures: None

O3-02 Practitioner training needs for delivering group-based care in specialist weight management services in the UK: Learnings from the PROGROUP feasibility trial

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Healthcare professionals need a comprehensive skillset to deliver care in specialist weight management services. Evidence suggests that group-based programmes could be an effective strategy for supporting people living with obesity, as they have the potential to improve motivation and capability to change behaviour, as well as providing basis to form meaningful connections. However, training requirements to deliver this type of care are not yet defined. Therefore, identifying and addressing practitioner training needs is essential to improve the likelihood of successful service and health outcomes. Our project aimed to assess the extent to which the PROGROUP training programme met practitioner needs to deliver specialist weight management group-based care, as part of a feasibility randomised controlled trial. Five healthcare professionals and behaviour change experts from well-established specialist weight management services and institutions across the UK participated in a 4-day remote training package. The content of the training package was driven by evidence, psychological theory, and expert practitioner experience. Healthcare professionals were interviewed to elicit feedback about their experience of training. Inductive thematic analysis was carried out using the Framework approach to data management. Overall, healthcare professionals greatly valued walk-through practice examples with the trainers, as well as the opportunity to share and exchange ideas with fellow practitioners, as this gave them the opportunity to rehearse skills, ask questions, and discuss solutions to common challenges. Healthcare professionals showed strong preference for time efficient and self-directed training, due to busy work and life schedules. More guidance about managing processes that occur within a group, as well the delivery of behavioural components to a group, were needed to improve practitioner training experience. In conclusion, practitioners require thorough guidance on group management skills as well the delivery of behavioural components within groups. Flexible learning options are also highly valued. The PROGROUP training package is currently being optimised to address practitioner needs by adopting an online, modular and self-directed approach to training, with the addition of two online workshops to introduce the programme and consolidate learnings.

Disclosures: None.

O3-03 Clinical effectiveness of integrating a pragmatic pathway for prescribing liraglutide 3.0 mg in specialist weight management services (STRIVE study): a multicentre, open-label, parallel-group, randomized controlled trial

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A clinically effective and cost-effective prescribing pathway for liraglutide 3 mg may improve treatment access for people with severe and complex obesity. We therefore conducted a phase four, open label, real world, randomised controlled trial assessing the clinical effectiveness of a targeted prescribing pathway for liraglutide 3 mg with multiple stopping rules as adjunct to standard care in specialist weight management services (SWMS) vs standard SWMS care alone at 52 and 104 weeks (ClinicalTrials.gov:NCT03036800). The trial enrolled adults with BMI ≥ 35 kg/m2 plus prediabetes, diabetes, hypertension or sleep apnoea from five SWMS in Ireland and UK. Participants were randomly allocated (2:1, stratified by centre and BMI) to a targeted prescribing pathway for liraglutide 3 mg with stopping rules at 16 (≥5% weight loss, WL), 32 (≥10% WL) and 52 weeks (≥15% WL) plus SWMS care (intervention) or to SWMS care alone (control). The primary outcome was ≥15% WL at 52 weeks (complete cases analysis). Overall, 392 participants randomized (260 intervention; 132 control) and 294 (201 intervention; 93 control) were included in the 52 weeks primary analysis. Majority of participants was White (86.5%) and female (64.3%), with mean age 51.3 years and mean BMI 45.99 kg/m^2. A greater proportion of participants at the intervention group achieved WL ≥ 15% at 52 weeks compared to controls [51/201 (25.4%) vs 6/93 (6.5%); odds ratio 5.18; 95% CI 2.09, 12.88; $p < 0.001$]. Of those achieved ≥15% weight loss at 52 weeks with the targeted prescribing pathway for liraglutide 3 mg, 54.8% maintained ≥10% WL at 104 weeks. Mean %WL at 52 weeks was −8.13% with the intervention vs −2.67% at the control group and −5.18% vs −1.21% at 104 weeks respectively. Greater improvements were observed in waist circumference, HbA1c and some quality of life parameters in the intervention group. No new safety signals observed. In summary, a targeted prescribing pathway for liraglutide 3 mg with multiple stopping rules is effective in helping more people with severe and complex obesity achieve ≥15% WL at 52 weeks than standard care alone. Directing the long-term liraglutide 3 mg use to people achieving ≥15% WL with this prescribing pathway may optimise the cost-effectiveness of medication use.

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McGowan B: Shareholder of Reset Health and serves on advisory board for Pfizer, NovoNordisk, Lilly, Johnson and Johnson. Educational grant from NovoNordisk and educational consultancies for NovoNordisk, Sanofi-Aventis, Biogen and Lilly. O'Shea D: Honoraria as a speaker for NovoNordisk, AstraZeneca, Sanofi-Aventis and Lilly. Webb DR: Honoraria as a speaker for AstraZeneca, Sanofi-Aventis, and Lilly, and received research funding support from NovoNordisk. Wilding JPH: Consultancy / advisory board work contracted via the University of Liverpool (no personal payment) for AstraZeneca, Boehringer Ingelheim, Lilly, Napp, NovoNordisk, Mundipharma, Rhythm Pharmaceuticals, Sanofi, Saniona, Tern, Shionogi & Ysopia. Named grantholder (at University of Liverpool) for research grants for clinical trials from AstraZeneca and NovoNordisk. Personal lecture fees from AstraZeneca, Boehringer Ingelheim, Napp, NovoNordisk and Rhythm in relation to lectures about diabetes and/or obesity. le Roux CW: Grants from the Irish Research Council, Science Foundation Ireland, Anabio, and the Health Research Board. He serves on the advisory boards of NovoNordisk, Herbalife, GI Dynamics, Eli Lilly, Johnson & Johnson, Sanofi Aventis, AstraZeneca, Janssen, Bristol-Myers Squibb, Glia, and Boehringer Ingelheim. Member of the Irish Society for Nutrition and Metabolism outside the area of work commented on here. Chief medical officer and director of the Medical Device Division of Keyron since January, 2011. Both are unremunerated positions. Davies MJ: Consultancy, advisory board member and speaker for Boehringer Ingelheim, Lilly, NovoNordisk and Sanofi, an advisory board member and speaker for AstraZeneca, an advisory board member for Janssen, Lexicon, Pfizer and ShouTi Pharma Inc, a speaker for Napp Pharmaceuticals, Novartis and Takeda Pharmaceuticals International Inc. and has received grants in support of investigator and investigator initiated trials from NovoNordisk, Sanofi Aventis, Lilly, Boehringer Ingelheim, Astrazeneca and Janssen.

O3-04 Effect of a long-term exercise intervention program on body composition and insulin resistance in patients with type 2 diabetes

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The beneficial effects of regular physical exercise on glycaemic control and resting systolic and diastolic blood pressure in patients with type 2 diabetes (T2D), are relatively well documented in the literature, namely in short (4 to 16 weeks) and medium (16 to 26 weeks) duration programs. Less consensuses exists about long-term exercise effects on body composition and insulin resistance, where the literature shows contradictory results. The present study aims to evaluate the effects of a long duration exercise intervention program on body composition and insulin resistance (HOMA-IR) in patients with T2D from a northeast Portuguese primary health care. Participated in this study 23 patients with T2D (15 women and 8 men; mean age of 63,7 ± 6,9 years). A long-term moderate-intensity training program (32 months) was implemented, mostly aerobic (walking at ±6 km·h-1 speed, water aerobics exercises), five times a week (4 land sessions and 1 aquatic session per week), with a 55 minutes duration per session. We made an assessment every 4 months, resulting in a total of 9 assessments throughout the duration of the experimental protocol. The data were analysed by hierarchical linear modelling. Between each assessment, we observed a significant effect of the training program on the reduction of body mass index (BMI) [−0.092 Kg·m2 (95% CI: −0,127; −0.057)], waist circumference (WC) [−0.403 cm (95% CI: −0.522; −0.283)], waist-hip ratio [−0.002 (95% CI: −0.002; −0.001)], sum of skinfolds [−0.179 mm (95% CI: −0.339; −0.019)], and insulin resistance (homeostasis model assessment insulin resistance – HOMA-IR) [−0,080 units (95% CI: −0.142; −0.019)]. We conclude that this supervised regular structured exercise program, when maintained over time, and if participants' assiduous adherence can be maintained, can be a useful and safe component of the therapy lifestyle to improve body composition and reduce insulin resistance. As a practical application, the incorporation of this type of supervised intervention, in association with nutritional and physical activity prescription at the level of health centres, may represent a relevant strategy in health promotion, namely as a primary and secondary prevention for T2D.

Disclosures: None

O3-05 Drug and Supplement Pharmacokinetic Changes following Bariatric Surgery; a Systematic Review and Meta-Analysis

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Bariatric and metabolic surgery is increasingly performed in the UK, as it remains the most effective treatment for severe obesity and associated comorbidities. However, little is known about the impact of these interventions on oral drug and supplement absorption.

To evaluate the impact of bariatric surgery on the pharmacokinetic (PK) parameters of orally administered drugs and supplements.

Systematic searches of bibliographic databases MEDLINE, EMBASE, CENTRAL, EudraCT, ClinicalTrials.gov, TOXNET, MedRvix, CINAHL and SCOPUS were conducted to identify relevant studies. Pooled effect estimates from different surgical procedures were calculated using a random-effects model.

Quantitative data were synthesised from 56 studies including a total of 1985 participants. Whilst 45 drugs and 8 supplements were evaluated across these studies, heterogeneity and missing information on surgery type reduced the scope of the meta-analysis to the following drugs and supplements: atorvastatin, paracetamol, omeprazole, midazolam, vitamin D, calcium, zinc and iron supplements, with data variability on drug/supplement dose and formulation, time point of post-operative sampling, and consideration of weight loss persisting as potential confounders of data interpretation. The remaining 41 drugs and 4 supplements were included in a systematic review. There were no significant differences in PK parameters post-surgery for the drugs atorvastatin and omeprazole, and supplements calcium, ferritin and zinc. Paracetamol showed reduced clearance (mean difference (MD) = −15.56 L/hr, p = 0.0002, I2 = 67%), increased maximal concentration (MD = 4.78□g/ml, p = 0.006, I2 = 92%) and

increased terminal elimination half-life (MD = 0.49 hr, p < 0.0001, I2 = 3%) post-surgery. 25OH-vitD concentration significantly increased post-operatively on oral supplementation (MD = 6.38 ng/ml, p < 0.0001, I2 = 98%). Overall, 18 of the 53 drugs and supplements in this meta-analysis and systematic review showed post-operative changes in PK parameters.

Our study demonstrates significant heterogeneity in practice and could not reach conclusive findings for most PK parameters. There is urgent need for well-designed prospective studies to inform best practice and enhance patient healthcare and safety.

Disclosures: None.

O4: DIAGNOSIS, MANAGEMENT AND CO-DESIGN OF OBESITY SERVICES

O4-01 Co-Designing and Refining a Home-Based Exercise Programme for Adults Living with Overweight and Obesity: Insight from People with Lived Experience

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Undertaking home-based exercise should be a positive, health enhancing, lifestyle behaviour, particularly for adults living with overweight and obesity. However, exercise programmes are seldom designed in collaboration with people with lived experience of overweight and obesity, potentially limiting adherence, efficacy and effectiveness. Considering the continued rise in the prevalence of people living with overweight and obesity, developing effective exercise programmes is becoming increasingly important. This study aims to further refine and tailor a co-designed, home-based exercise programme for adults living with overweight and obesity, by gleaning insight and feedback from people with lived experience. Concurrently, identifying programme strengths and further improvements from participants with and without involvement in the preceding programme design stage. Following institutional ethics approval, two focus groups with 13 total participants (in person n = 6 and virtual n = 7) were conducted, facilitated by SP and DB. Both focus group discussions were recorded and transcribed verbatim upon completion. Following reflection and discussion by the research team, three key priorities for home-based exercise programme design, development and alteration, specifically for adults living with overweight and obesity, were identified. These were further supported by additional pertinent findings, with corresponding participant quotes, and resulting home-based exercise programme alterations. The key priorities identified were 'individualisation': a person-centred programme was a non-negotiable aspect of the design. 'Motivation': the integration of motivational programme features was an important influencer in engaging and adhering to a home-based exercise programme. 'More than just weight loss': a desire for focus on alternative programme characteristics and benefits, wider than solely numerical weight loss. These priorities have led to further programme refinement, in an effort to ensure the final intervention is needs sensitive and grounded in lived experience. Following development completion and pilot testing, the home-based exercise programme will be assessed using a feasibility randomised controlled trial design. As a result, we hope that researchers can better develop and refine population specific exercise programmes, by engaging with people with lived experience and creating facilitative opportunities for their voices to be heard and acted upon.

Disclosures: None.

O4-02 Co-Design of a University Workplace Digital Health Portal for Preconception, Pregnant, and Postpartum Women

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Rising numbers of women are entering pregnancy with overweight and obesity, gaining excess weight during pregnancy, and retaining weight postpartum. Workplaces, including educational institutions, are opportune locations to engage preconception women in obesity prevention and health promotion. Digital health interventions for preconception, pregnant, and postpartum (PPP) women have shown promise in community service workplace and healthcare contexts. Using an Intervention Mapping approach, we aimed to co-design and assess the feasibility of a contextualised university workplace portal to promote the health practices and wellbeing of PPP working women. Development consisted of 1) a needs assessment including a systematic review, context definition, a work and wellbeing survey (n = 241), five semi-structured focus groups with 25 women employees, and an environmental assessment conducted at 10 worksites within the university to determine the availability of resources to support the health and transition to parenthood of women during the PPP periods; 2) formation of a design group and an advisory group; 3) a series of online co-design activities to identify determinants and project goals, discuss multi-level strategies for change, and specify portal design and content; and 4) portal production and feasibility testing. Needs assessment participants described contextual enablers and barriers to engaging in health practices and their wellbeing, including the physical work environment, workplace culture, the job role (i.e., working in academia and insecure contracts), and leadership. Design group participants stressed the importance of not 'reinventing the wheel' when it came to incorporating existing wellbeing resources into the portal, as well including a manager toolkit and wellbeing calendar. While design group participants appreciated the value of content relating to their health practices, they did not wish to have an overall focus on weight. The resulting portal includes guides, links to evidence-based information, goal-setting features, workplace policies and procedures, infographics, and videos (e.g., women in research) for employees and managers. Further research is required to determine 1) the impact of the portal and accompanying recommended organisation-level strategies in positively influencing the health practices and wellbeing of PPP women employees and 2) the core and context-specific components of digital health interventions for PPP women.

Disclosures: None.

O4-02 The Elephant in the Room: Discussing Weight Gain, Addressing Stigmas in Severe Mental Illness

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Antipsychotic medication is a key treatment for severe mental illness (SMI). These medications are associated with a range of

side-effects, one of which is weight gain. Obesity rates in SMI are double the general population and contribute to serious, life-limiting physical health conditions, such as heart disease and diabetes. Although obesity is life-limiting, there is relatively limited research on obesity management for people living with SMI in the "real world". This presentation will address the realist question: What, how, when, and why should practitioners address weight gain with service users (SUs) with SMI?

RESOLVE is a 28-month long research study, currently underway, using secondary data from literature and primary data from realist interviews with service users (SUs) living with SMI and antipsychotic-related weight gain, practitioners who treat SUs with SMI, and carers of SUs with SMI who have experienced antipsychotic weight gain. Primary data are from interviews purposively sampled with participants recruited from five NHS Trusts in England, social media, professional networks, and the McPin Foundation (a charity working in SMI and co-applicant on RESOLVE). A programme theory and context-mechanism-outcome configurations are being co-produced by researchers and an advisory group of stakeholder representatives.

Preliminary findings indicate disjointed, siloed services for physical and mental health, resulting in barriers for SUs with SMI accessing obesity management care. Internalised stigma associated with SMI and obesity hinders the ability of SUs to initiate discussions about weight gain. SU's preferences are for frequent conversations about weight to be initiated by their trusted mental health practitioners in respectful and non-judgmental ways. However, interviews with practitioners indicate this is an area where they lack the appropriate skills and confidence to have these "difficult conversations" related to weight gain.

The stigma associated with SMI and obesity may prevent timely and effective interventions for this population; a population that requires additional practitioner support to effectively manage weight gain. A potential practice implication could include training in obesity management for staff working within mental health services to enable them to feel more confident conducting "difficult conversations" with service users and carers.

Disclosures: None

O4-03 The Healthy Habits in Pregnancy and Beyond (HHIPBe) pilot RCT: A habit-based behavioural intervention for pregnant women with overweight and obesity on the Island of Ireland

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In the United Kingdom and Ireland, more than half of pregnant women have overweight or obesity at their first routine antenatal appointment. There is limited support for weight management available during pregnancy. This study aimed to test the feasibility and acceptability of delivering a brief, habit-based intervention, 'Healthy Habits in Pregnancy and Beyond (HHIPBe)', to pregnant women with overweight or obesity during routine antenatal care in Northern Ireland (NI) and Republic of Ireland (ROI).

The HHIPBe intervention was developed based on the Ten Top Tips for a Healthy Weight (10TT) intervention, which was adapted for pregnancy to improve nutrition and physical activity behaviours, and aid weight management. Participants (with BMI 25–38 kg/m2) were recruited in early pregnancy (10–14 weeks) from three sites (NI = 2; ROI = 1) and randomised to the HHIPBe intervention (receiving a 15–20-minute intervention, supported by a leaflet, logbook and app, plus routine antenatal care) or the control group (receiving routine antenatal care). Data, including weight, was collected at baseline, 36-weeks gestation and 6-weeks postpartum. Habit formation for 13 health-promoting food and activity related behaviours was assessed in the intervention group, using participant-reported frequencies of carrying out the behaviours and the 'Self-Report Behavioural Automaticity Index (SRBAI)'.

Twenty-five women were recruited into the HHIPBe study. At baseline, the average weight in the control and intervention group was 74.7 ± 7.0 and 86.5 ± 18.2 (kg; mean ± SD), respectively. At 36-weeks gestation, 45.5% of the control group and 30.8% of the intervention group had gestational weight gain above the Institute of Medicine recommendations.

Between baseline and 36-weeks gestation, there was an increase in behaviour frequency and SRBAI scores reported by the intervention group for the majority of the 13 behaviours; in particular 'keeping track', 'prepare shopping list' and 'avoiding large portions'. At 6-weeks postpartum, the frequency and automaticity of behaviours remained higher, or similar, to baseline (except for 'choose reduced fat food').

Data supports positive trends in the adoption of healthy behaviours during pregnancy, continuing into the early postpartum period. The similar trends in frequency and automaticity suggest that habit formation may be a potential mechanism for the increase in health-promoting behaviours.

Disclosures: None.

O4-04 "Victim blaming and public shaming" or "vital awareness raising"? A mixed-methods study of public interpretations of a UK cancer-prevention campaign which equated obesity and smoking

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In 2019, a UK cancer research charity aimed to raise awareness of the link between obesity and cancer with billboard advertisements designed to resemble cigarette packets stating, "obesity is a cause of cancer too". The campaign ignited a media debate about the ethics and efficacy of this public health framing. Little is known about the public interpretation of campaigns framing obesity in this way. Consequently, this quantitative, experimental between-groups study examined whether adult participants (N = 414) who viewed and answered memory recall questions about the obesity-focused billboards reported greater post-exposure weight stigma than those who viewed a non-obesity related campaign. A subset of participants (n = 138) provided qualitative responses regarding perceived risks, benefits, and overall acceptability of the obesity-focused campaign. Quantitative data showed that participants who had viewed the obesity-focused campaign did not differ in levels of weight stigma from participants who did not ($F(1,412 = 0.00$, $p = 0.99$). Descriptive thematic analysis of the qualitative data found that perceived potential benefits of the campaign included raising awareness of obesity risks, promoting healthy lifestyle, and improving health outcomes. However, many participants perceived no benefits and most considered it unlikely that benefits would be realised. Perceived potential risks included shame, stigmatisation, reduced self-esteem, and increased risk of mental health difficulties for people living with obesity. Participants were polarised but broadly

equally divided on whether the campaign's benefits outweighed its risks; few took a neutral stance. When comparing across quantitative and qualitative data, participants with a higher BMI were more likely to view the campaign as stigmatising ($r = 0.23$, $p = 0.01$) and were less likely to believe that it would educate the public ($r = -0.21$, $p = 0.02$). Participants with more stigmatising attitudes towards obesity were more likely to perceive the campaign as justified ($t(112) = 2.76$, $p = 0.003$). Overall, this controversial campaign provoked responses as mixed in our participants as it did in the surrounding media furore. Brief experimental exposure to the advertisement did not appear to increase weight stigma, but participants perceived increased stigma as a primary longer-term risk. Consensus was lacking on whether campaign risks outweighed benefits, but there was overall agreement that it was unlikely to reduce either obesity or cancer.

Disclosures: None

POSTER SESSIONS

P03 Developing and Monitoring Systemic, Multi-Duty Interventions for Malnutrition in All Its Forms in Southeast Asian Countries and China - Phase 1 of the SYSTAM CHINA SEACS International Consortium

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Southeast Asian countries (SEACs) and China are facing a high burden from malnutrition in all its forms (MIAIF, including obesity). Radical changes in the way that nutrition interventions are conceptualised, developed and evaluated are needed to act on shared drivers of MIAIF to maximise and sustain impact. Collaborating with the Consortium members [Ministry of Health (MoH) of SEA countries and China, and academics], the phase 1 of the SYSTAM CHINA SEACS aimed to 1) develop and pilot test culturally sensitive and cost-effective ways to apply established tools from the systems science to develop multi-duty and systemic interventions to reduce MIAIF in these low-and middle-income countries; and 2) identify and evaluate national nutrition surveillance programmes in SEACs and China, and assess whether these programmes can monitor and evaluate systemic nutrition interventions.

For the first goal, we developed, piloted and implemented three major sets of innovations to the traditional Group Model Building (GMB) process in a strategically selected Chinese city. Methodological adaptations enabled mapping of shared drivers of MIAIF in a single causal loop diagram. Procedural innovations included incorporating additional project engagement events surrounding GMB workshops to suit the Asian setting. Operational changes included developing 'hybrid' GMB activities to reduce travel and associated climate impact. For the second goal, we conducted a systematic scoping review using a combination of consultations with MoH nutrition officials and active searches of international databases, as well as established and purposively developed evaluation frameworks.

Our culturally adapted, innovative GMB process led to high engagement of, and wide support from, decision makers from diverse governmental departments, and co-identification and prioritisation of system-level drivers and intervention themes of MIAIF in the pilot city The scoping review identified 83 surveillance programmes in 19 countries. Monitoring of food environment for the purpose of controlling MIAIF and inter-sectoral partnerships and data connection mechanisms are commonly missing in these countries.

The Consortium countries are ready to apply the successfully piloted, innovative GMB process, and are planning focused research to expand the scope of monitoring to include food environment indicators and support building of inter-sectoral data collaboration mechanisms.

Disclosures: None.

P04 Mapping and evaluating national nutrition surveillance programmes in Southeast Asian countries and China: A systematic scoping review for the Systemic Actions to Reduce Malnutrition In All Its Forms in Southeast Asian Countries and China (SYSTAM CHINA-SEACS International Consortium) project

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Southeast Asian (SEA) countries, and China are facing a high burden of malnutrition in all its forms. There is a call for interventions that act on shared drivers of multiple forms of malnutrition and take a systems approach. Use of routinely collected data from long-term national or regional surveillance systems can effectively monitor and evaluate such interventions. However, a comprehensive, up-to-date, overview and evaluation of nutrition/health surveillance programmes led/funded by national health agencies in SEA and China is lacking. A systematic scoping review was conducted to identify and evaluate ongoing nutrition surveillance programmes, and assess whether these can monitor and evaluate multi-sectoral, double-duty, systemic nutrition interventions.

This review searched academic databases, grey literature, and consulted with national health officials iteratively using Arksey and O'Malley's six-stage framework. The literature search was not restricted by publication type nor publishing language. Member states of WHO SEA region, ASEAN and China were included. Three reviewers independently screened, selected, and extracted publications. In this review, a nutrition surveillance programme is defined as repeated collection, analysis, interpretation, and dissemination of primary data by national agencies on anthropometric, biochemical, behavioural and/or food environment/system indicators relating to nutrition. The identified programmes were mapped and evaluated against a purposively developed framework.

Eighty-three surveillance programmes in 19 countries were identified. Seventeen countries implemented a programme that

exclusively collects nutrition and/or dietary outcome indicators continuously/periodically. Seventeen countries incorporated internationally-linked survey programmes which vary in scope. There is lack of monitoring of food environment, wider food system indicators for the purpose of tackling overweight and obesity or other forms of malnutrition, and of nutrition in urban deprived areas. Elderly are generally missing from surveillance in 10 countries. While most surveillance systems collect high quality data through flexible, timely programmes, many are periodic and rely on external agency's support, which may compromise sustainability. There is an expressed common need to form inter-sectoral partnerships and data sharing/connecting mechanisms.

Future research and development should focus on widening the scope of surveillance to include malnutrition in all its forms among all population groups as well as food environment indicators, and support inter-sectoral data collaboration.

Disclosures: None.

P05 Sedentary time is independently related to adipose tissue insulin resistance in adults with or at risk of type 2 diabetes

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This cross-sectional study examined associations of device-measured sedentary time and moderate-to-vigorous physical activity (MVPA) with adipose tissue insulin resistance in people with or at high risk of type 2 diabetes (T2DM). A secondary aim was to explore whether relevant demographic (i.e. ethnicity and sex) and biological factors (i.e. age and body mass index [BMI]) mediated these associations.

Data were combined from six previous experimental studies (within our group) involving patients with T2DM or primary risk factors (median (IQR) age 66.2 (66.0–70.8) years, BMI 31.1 (28.0–34.4) kg.m-2, 62% male, n = 179). Adipose tissue insulin resistance was calculated as the product of fasted circulating insulin and non-esterified fatty acids (ADIPO-IR), while sedentary time and MVPA were determined from wrist-worn accelerometry. Generalised linear models examined associations of sedentary time and MVPA with ADIPO-IR with interaction terms added to explore the moderating influence of ethnicity (white European vs. south Asian), BMI, age, and sex. Two sensitivity analyses were performed: 1) removing participants taking statins and/or metformin, and 2) splitting the cohort into those with T2DM and those at high risk.

In finally-adjusted models, sedentary time was positively associated with ADIPO-IR, with every 30 min of sedentary time associated with a 1.80 (95% CI: 0.51 to 3.06; P = 0.006) unit higher ADIPO-IR. This relationship strengthened in interaction analyses as BMI increased (β = 3.48 [95%CI = 1.50 to 5.46], P = 0.005 in the upper BMI tertile [≥ 33.2 kg.m-2]). We conducted a further model adjusting for MVPA which revealed that sedentary time was positively associated with ADIPO-IR independent of MVPA (2.52 AU [1.05, 3.96]; P < 0.001). In contrast, MVPA was unrelated to ADIPO-IR. These results were consistent in the sensitivity analyses when excluding participants taking statins and/or metformin (n = 32), and when separating participants into those with T2DM (n = 126) and those at high risk (n = 147).

Sedentary time is positively related to adipose tissue insulin resistance in people with or at high risk of T2DM. This relationship strengthens as BMI increases and is independent of MVPA performed, which may help to explain established relationships between greater sedentary time, ectopic lipids, and hyperglycaemia.

Disclosures: None.

P06 A service evaluation of the barriers and facilitators for clinicians engaging patients in weight management conversations regarding lower limb arthritis

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Osteoarthritis (OA) is a degenerative joint disorder affecting weight-bearing and non-weight-bearing joints, causing pain and limited mobility. Obesity is a risk factor for osteoarthritis and NICE Guidelines specify that weight management and exercise are the first-line treatments for lower limb OA. Within the Solent Musculoskeletal team, there are barriers to having successful weight management conversations.

To understand healthcare professionals' experiences when discussing weight management with patients regarding lower limb OA. To identify barriers/facilitators and compare these to previously known barriers/facilitators. To categorise barriers/facilitators into themes and assess how we may overcome these barriers.

Physiotherapists and podiatrists were emailed a survey on 31 September about their experiences discussing weight management with patients with lower limb OA. 10 participants then attended in-depth follow-up interviews. Qualitative themes from the written questions in the survey and the interview transcripts were clarified and analysed by inductive thematic analysis.

35/185 clinicians completed the questionnaire. 34% (12/35) reported they were somewhat or not so confident approaching weight management conversations. 71% (25/35) reported having no training on how to approach these conversations. Barriers were identified as a lack of training, resources, private rooms, and time. Facilitators were identified as patient acceptance, clinician experience and clinician knowledge. Quotations from the questionnaire reveal conversations are harder when the patient struggles with "low mood" and easier when "linking their weight to their clinical condition". Quotations seen from the interviews include "In a big open room, I think people get a little bit embarrassed" and "I'm not aware of many good resources".

There is a need for further training or peer support for clinicians when approaching weight management conversations and more resources to support clinicians and educate patients. It would be beneficial to have a private room available to have these conversations in.

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Disclosures: None.

P08 Protocol for an umbrella review of systematic reviews of school-based nutrition interventions to determine outcomes used and their measurement tools

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Childhood obesity is a serious public health problem worldwide, with short and long-term health consequences. Poor diet is a

recognized risk factor in the development of childhood obesity. Many school-based nutrition interventions have aimed to improve diet quality in children and reduce childhood obesity. The outcomes targeted by school-based nutrition interventions vary, ranging from behaviours such as dietary intake and knowledge to longer term impacts such as anthropometric and metabolic measures, and are measured with different methods. The variation in outcomes and the methods by which these are measured makes it difficult to compare and synthesize the effectiveness of interventions and draw definitive conclusions. This protocol outlines the methodology for an umbrella review of systematic reviews to explore the range of outcomes and measurement tools used in studies of school-based nutrition interventions. The umbrella review will be conducted in keeping with the Preferred Reporting Items for Systematic Review and Meta-Analysis (PRISMA) and Preferred Reporting Items for Overviews of Reviews (PRIOR) guidelines. We will search MEDLINE, EMBASE, Cochrane Database of Systematic Reviews, PsycINFO, CINAHL, Web of Science and Scopus. Reviews will also be identified through grey literature and manual searching of reference lists. Systematic reviews with or without meta-analyses will be eligible if they (1) evaluated the effect of school-based nutrition interventions on diet, health, well-being or education; (2) included primary or secondary school-aged children; and (3) included studies with any comparative effectiveness design. Two reviewers will independently screen title and abstracts and resolve disagreements through discussion or consultation with a third reviewer, followed by full-text screening. Outcomes and their measurement methods will be extracted from eligible reviews and assigned to pre-established outcome domains. Outcome and domain frequencies will be estimated. A narrative synthesis without meta-analysis will be performed. This review will provide a comprehensive overview of outcomes and measurement tools used in evaluations of school-based nutrition interventions. The findings could serve as a foundation for the development of a core outcome set for use in studies of school-based nutrition interventions. This will support comparison and evidence synthesis in the field of school-based nutrition interventions.

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Disclosures: None

P09 Binge Eating Disorder Prevalence in an Irish Population Attending a Level 3 Obesity Service

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Binge Eating Disorder (BED) is characterized by a series of criteria. In 2013, DSM V criteria changed, reducing frequency and duration, and including severity.

International studies show BED occurs in obesity, but prevalence rates vary. The HSE Model of Care for Adult Obesity advises the Edmonton Obesity Staging System for determining the severity of obesity and guiding clinical decisions.

We aimed to establish the prevalence of BED using the new DSM V criteria, according to obesity complexity, in patients accessing a Level 3 Obesity Service in Ireland.

All patients accessing the service over a 12 month period underwent a baseline interview with a Clinical Psychologist using DSM-V diagnostic criteria to diagnose BED. Obesity complexity was established using EOSS following dietetic, medical, psychology, physiotherapy and nursing assessment. Approximately 6 months into treatment pathways, patients were re-assessed for BED status and their interest in bariatric surgery and obesity pharmacotherapy recorded. Statistical analysis was completed using Microsoft Office Excel 2016.

Baseline prevalence of BED was 25% (n43 out of n171 assessments). Severity of BED included 63% mild (n27), 21% moderate (n9), 9% severe (n4), and 0.05% extreme (n2). The majority (83.7%) with moderate to severe BED were EOSS 2 or 3. At 6 month follow-up 53% (n23) no longer met diagnostic criteria for BED. Of the 47% actively binge eating, 45% and 65% respectively were interested in bariatric surgery and/or pharmacotherapy.

BED prevalence in this Level 3 Obesity Service was below known rates of 30% under DSM 4 criteria. We showed a 53% abstinence rate consistent with the literature during initial treatment. The majority of the cohort living with BED are living with moderately complex obesity, which may be an indication for escalated obesity treatment. However, these treatments are controversial in active BED due to potential adverse effects. Developing service pathways to better support this cohort of individuals experiencing BED and complex obesity are needed.

Disclosures: None

P10 Motivational Interviewing (MI) within a Tier 3 Service -Real World Implementation

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Rising rates of obesity and associated challenges are well recognised. Existing services are challenged to deliver effective, sustainable care at scale. In the context of novel therapeutics, digital/virtual options and cost pressures, the quality of the consultation in effecting change is often overlooked. Here we describe our experiences of implementing MI -an evidence-based psychological method -within a complex Tier 3 service.

To implement and evaluate the impact of MI training for staff within a regional Tier 3 service.

An experienced trainer (JC) was commissioned to deliver MI training. The content was carefully designed to meet the needs of the service. An initial consultation period with key stakeholders enquired around the challenges, current skills and intended impact of training. Introduction to MI training was delivered virtually over 6×2 hour workshops, in which Tier 3 clinicians were introduced to specific MI skills and strategies to integrate into consultations. Case studies were presented and opportunities for practice provided. Key elements included using MI as a guiding style to promote an engaging conversation and strategies to elicit and strengthen intrinsic motivation. Following the training, JC delivered a consolidation workshop and supported service champions. To integrate MI within pathway redesign, she supported the development of tailored resources.

It is assumed clinicians already possess skills to navigate complex consultations, however this is often not the case. Staff frequently feel unskilled in change based discussions outside of using a traditional paternalistic model.

The training was well received and attended, given sessions were delivered at the end of a working day.

Staff acquired new skills rapidly and were able to use them immediately in consultations.

Patients responded well to this novel approach and the consultations became more engaging.

There were limitations of on-going skill development due to lack of continued resources.

MI is a skill set that is valuable in supporting Tier 3 clinicians to improve their consultations and engage in change based conversations. The empathic methods employed support

motivation to change. Training requires initial teaching and ongoing investment to increase staff efficacy.

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P12 Cultural, Religio- Specific Determinants of Obesity in Ghana

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Obesity is primarily linked to dietary choices and levels of physical activity. However, it is crucial to acknowledge the significant influence of cultural and religious practices, particularly in regions where these aspects hold substantial importance. In the context of Ghana, cultural and religious activities play a significant role in shaping individuals' lifestyles, impacting their eating habits and engagement in physical activities. This underscores the need to consider the cultural and religious dimensions when addressing the obesity epidemic in such regions. This is the first study to examine the relationship between religion, culture, and obesity and how identified factors affect obesity among the different religious and cultural groups in Ghana.

Data from the Ghana Obesity Survey (N = 6000), conducted in 2021 was used for the study. Logit models were fitted to identify the correlation between religion, culture (tribes and metropolises), and obesity while adjusting for other explanatory factors.

The study found that individuals practicing the Muslim faith in Ghana had an 11% higher likelihood of being overweight or obese compared to individuals of the Christian faith. A significant relationship was also found between culture and obesity with the Ga tribe having a 9% higher likelihood of being obese compared with the Akan tribe. Additionally, the direction of effect for metropolis of residence was consistent across religious groups with residents of Tamale, whether people of the Muslim or Christian faith, having a decreased likelihood (about 12%) of being overweight/obese compared with those of Kumasi. Regarding other explanatory variables, individuals with high incomes (GH 1000 and above) had a 14%–22% greater risk of being overweight or obese.

The study examined the relationship between culture, religion, and obesity in over 81% of Ghana's metropolises. The findings identified that religion and culture are key determinants of obesity is a significant contribution to the existing literature and provides a critical insight into an under-researched area in Ghana. The study recommends that culturally sensitive interventions be implemented and awareness about the impact of culture and religion on obesity be promoted. These can be crucial steps toward effective obesity prevention and management strategies in Ghana.

Disclosures: None

P13 Adapting to accommodate group sessions for people living with obesity – the service challenges and solutions from PROGROUP feasibility trial

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Increasing patient referral rates and longer waiting lists are prompting Specialist Weight Management Services to find alternative ways to meet their obligations. Group delivery of care is therefore becoming more attractive to service providers who may have historically only offered one-to-one patient appointments. To transfer to group-based care, new service management logistical issues arise which may pose barriers to implementation. As part of a feasibility randomised controlled trial, this study aimed to investigate the service-related changes that are required when moving from one-to-one to group-based care. Qualitative data were collected at three well established Specialist Weight Management Services across the UK as part of the trial. In-depth interviews with service managers at each site were contrasted with observational data describing how one-to-one care was usually provided. Data was synthesised into case studies across sites using the framework analysis approach to formulate key learnings. The study found that in setting up group-based care, three key areas differed from one-to-one appointments: 1. Room logistics; ensuring enough appropriate chairs, space between chairs, and access to accommodate the group of patients adequately, 2. Session scheduling; balancing the needs of patients and the clinic resources for recurring visits (especially for patients in rural areas), 3. Patient preparation for the group; managing patient expectations of the group sessions. Solutions identified by sites included liaising with other hospital departments, such a physiotherapy, to gain access to rooms and equipment; using Saturday appointments when more rooms are available and patients may be more able to attend; initiating dedicated clinics for collecting baseline measures outside group setting; and contacting patients by phone before the group to help manage expectations and maintain engagement with the programme. Group-based care may enable services to see more patients with less staff time, and hence more effectively manage their caseload. This format also maximises patient-service contact time and offers patients opportunities for social interactions before and during session. Our study concluded that when adopting this format for the first time, attending to room planning, scheduling, and managing patient expectations ensured success in overcoming logistical barriers to implementing group-based care.

Disclosures: None

P14 Patient engagement with a group-based specialist weight management programme: Observations from the PROGROUP feasibility randomised controlled trial

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Severe obesity is a complex condition influenced by psychological, social, and environmental factors. Apart from bariatric surgery, which very few people living with severe obesity choose, treatment options are variable and of uncertain effectiveness. Group based programmes, whilst relieving pressure on services, can be used to achieve better outcomes for patients if facilitation focuses on creating a shared social identity, known to enhance the effectiveness of behaviour change techniques. PROGROUP is an example of such a programme. The aim of the presentation is to evidence programme engagement in relation to the PROGROUP mechanisms of action. Forty-seven participants were randomised to receive PROGROUP (four groups; 3 sites). As part of the embedded realist process evaluation, questionnaire (n = 37) and interview data (n = 12) was collected from intervention participants to ascertain and understand engagement with PROGROUP. Interviews ensured a range of demographic factors and engagement levels. Interviews were analysed using inductive thematic analysis, with the Framework approach being used to organise and code the data. Questionnaire data showed a good level of satisfaction with

PROGROUP overall (median scores 4/5 across sites). In addition, 89% (16/18) of participants reported having contact with other group members outside of scheduled sessions compared to 33% (11/33) for control participants. PROGROUP participants reported a range of lifestyle behaviour change attributed to receiving the group-based programme. Themes relating to patient engagement emerging from the interview data included learning and awareness, feeling comfortable and safe, sharing information with significant others and use of programme materials/behaviour change strategies during and beyond the programme. Linked mechanisms of action included shared experience and physical identity, connecting to group members, facilitator behaviour and family context. To conclude, group based interventions are increasingly used to deliver behaviour change in healthcare, however, how best to deliver and standardise this care to maximum effect requires more UK-centred evaluation and clearer delineation of group delivery components. Data from the PROGROUP feasibility trial demonstrates how active development of a positive group dynamic and connection between group members through targeted facilitation can increase engagement with strategies to manage weight within, outside and beyond the programme.

Disclosures: None.

P15 Exploring the use of service design workshops as a collaborative approach to designing a community Weight Management Service for Children and Young People

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The Specialist Community Weight Management Service for Children & Young People (CYP) is a new HSE initiative to manage overweight and obesity in CYP. Two multidisciplinary teams (MDT) are funded via the Sláintecare Healthy Communities initiative to deliver this service. The HSE Obesity National Clinical Programme led the service design using the concept of design workshops to foster MDT collaboration from relevant stakeholders and to ensure the patient voice was included.

To co-design a specialist community CYP weight management service using service design workshop's.

Parents and healthcare professionals (HCP) from a broad range of clinical disciplines, working with children and young people with overweight and obesity attended the workshops. Each workshop had unique aims and objectives related to service design with each workshop informing the structure of the next.

The nominal group technique (NGT) (1) was used to facilitate group discussion and identify priority needs for implementing the service and to disentangle parent and HCP perceived obstacle's that impede service user participation and engagement. These needs were mapped to shape next iteration of service design process.

To date, six workshops have been conducted with parents (27), Dietitians (4), Physiotherapists (2), Clinical Psychologists (2), Occupational Therapists (1), Nursing (4), Paediatricians (2), Community Medical Doctors (2), Social Care workers (1), Child Development Officers (1), Service Implementation Leads (1) and Senior management (2) attending each one.

Workshops fostered a collaborative approach and raised awareness of potential challenges (engagement, high programme attrition, multidisciplinary skills and expertise, oversubscription) and opportunities (focusing on non-weight outcomes, flexibility of the service by meeting families where they are at, building symbiotic relationships with other specialist community services, inclusion of Occupational Therapists and Social Care workers in the team, using social media to promote the service)

These insights were used to develop co-created service design documents and supporting guidelines, information material for families and referrers and communications strategy.

Design workshops are one way to improve service design by bringing elements that may not have otherwise been considered. The benefits of a workshop depend on involving the right mix of participants, including the parent's voice.

Disclosures: None

P16 Exploring the association between weight tracking frequency on a mobile application supporting intermittent fasting and weight loss: a retrospective analysis

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This study explores the correlation between the frequency of weight tracking and weight loss in users of a mobile application which supports intermittent fasting alongside self-monitoring of food, fluid and physical activity. Users were divided into groups based on their weight tracking frequency: once per month, once every two weeks, once per week, twice per week, and three or more times per week. The study spanned three observation periods of 12 weeks, 26 weeks, and 52 weeks, and considered adults living with overweight or obesity. The cohorts included 15,345 users in the first observation period, 6,580 in the second, and 2,787 in the third, all of whom met the inclusion criteria of at least one weight track per month. Statistical analysis was performed using the Kruskal-Wallis H-test, followed by Dunn's test with Bonferroni correction. The results demonstrated a positive correlation between weight tracking frequency and weight loss. At 12 weeks, mean weight loss ranged from 1.62% for the group tracking weight once per month to 6.49% for the group tracking weight three or more times per week. Similar trends were observed at 26 weeks and 52 weeks. Statistically significant differences in weight loss were found between all groups of weighing frequency across all timepoints, except between the twice per week and three or more times per week groups, and additionally between the once per week and twice per week groups in the 52-week observation period. The study concludes that while the total number of weight tracks is associated with weight loss, weighing more than twice a week does not yield significantly better results than weighing twice a week. By 52 weeks, there is no additional benefit to weighing more than once per week. The 26-week mark emerged as a critical period for weight loss performance, after which users tended to maintain their weight loss rather than continue to lose weight. This study provides valuable insights into the role of regular weight tracking in weight management, particularly in the context of intermittent fasting, and could help to inform the design of digital weight management interventions.

Disclosures: All authors are employees of Simple Life Apps Inc.

P17 Baseline dietary intake of adults with overweight and obesity at risk of cardiovascular disease, assessed by the Prime Diet Quality Score, on the island of Ireland – the PAD-Q study

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Recent dietary guidelines to prevent cardiovascular disease (CVD) focus on food groups, dietary patterns, and diet quality. The PAD-

Q intervention aims to use a personalised feedback system to improve diet quality and therefore cardiometabolic health. The PAD-Q system was based on the Prime Diet Quality Score (PDQS), in conjunction with dietary biomarkers. Baseline dietary intake of PAD-Q study participants is explored here.

The PAD-Q study is a six-month, parallel, randomised, controlled, single-blinded intervention, being conducted at Queen's University Belfast and University College Dublin. Adults with BMI > 25 kg/m2, at risk of CVD, and with low PDQS score (≤21 out of 42) were recruited. Diet quality was assessed using the 21-item PDQS where frequencies of food group intake ranged from less than once/week to twice/day or more. Daily or weekly intake of food groups was determined and compared with current UK and ROI dietary guidelines.

The PAD-Q study recruited 149 participants (71% females). Mean (±SD) age was 49 ± 12 y. BMI classified 70.5% of the group with obesity. Total PDQS score at baseline was 16 ± 4 points. The sample had a low intake of fruit and vegetables, where only 7% reached an intake of at least 3 portions/day. Legumes were consumed once/week or less by 79% of the sample. No one met the five-a-day fruit and vegetable recommendation. Nuts were consumed daily by 4% of the sample. In terms of fish intake, 16% reached the minimum recommendation of 2 portions/week. Whole-milk dairy products were consumed by 50% of the sample on a daily basis. Intake of high-sugar foods/beverages was more than one portion/day in 52% of the sample. Processed meat and high-fat foods were consumed at least twice a week by 62% and 50% of the sample.

The main contributors to low diet quality in this population were low intakes of fish, nuts, legumes, fruit and vegetables, and high intakes of whole-milk dairy products, high-sugar foods, processed meat and high-fat foods. The efficiency of personalised dietary feedback systems to improve diet quality in this population will be determined in future analysis.

Disclosures: None.

P18 Acceptability and feasibility of an acceptance-based guided self-help programme for weight loss maintenance in adults who have previously completed a behavioural weight loss programme: the SWiM feasibility study

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Behavioural weight management interventions are effective in reducing weight, however this is typically regained within 3–5 years. Interventions based on Acceptance and Commitment Therapy (ACT) show promise for better long term outcomes, but have yet demonstrated scalability and cost-effectiveness. Digital, guided self-help programmes delivered by non-specialists could reduce cost and increase reach, but the feasibility of delivering ACT-based content in this format is unclear.

In this pragmatic, two-arm feasibility study, we recruited 61 people who recently completed a behavioural weight management intervention and randomised (2:1 allocation) to SWiM or control group. The SWiM programme includes 14 sessions that used ACT-based treatment to support weight loss maintenance; the programme was delivered via web platform with telephone support from trained non-specialist coaches. The control group received a leaflet about weight loss maintenance. At 3- and 6-months (mid- and post-intervention), we conducted semi-structured interviews with intervention (n = 18), control (n = 10), and withdrawn (n = 3) participants. We interviewed SWiM coaches (n = 2); coaches also completed a report form after each participant call. We used thematic analysis, guided by the MRC framework for process evaluations, to identify what did and did not work and why.

From baseline to 6-months, SWiM participants lost −2.15 (SD = 6.43) kg and control participants gained 2.17 (SD = 6.60) kg. In interviews, intervention participants reported learning new and reinforcing existing skills and strategies which supported behavioural changes that may influence weight management. They found SWiM content useful and easy to understand, with the coaches identified as an important component. The web platform had good usability, but participants experienced problems accessing the content from mobile devices. Control participants shared that they engaged with other weight management interventions during the study. Participants withdrew from the intervention for individual-reasons (e.g., stress, commitments) and study-/intervention-reasons (e.g., disliking intervention content, measurement pack too lengthy). The coaches felt well prepared and found the training and ongoing support to be comprehensive; they suggested including more content on ACT and Motivational Interviewing.

The SWiM programme appears acceptable and demonstrated potential to improve weight loss maintenance. We are refining the intervention based on the findings and developing a protocol for a definitive trial of cost-effectiveness.

Disclosures: AJH has consulted for Slimming World. CAH reports payment or honoraria from Ethicon, Novo Nordisk and International Medical Press for lectures, presentations, speakers bureaus, manuscript writing or educational events. JM is a Trustee for the Association of the Study of Obesity (unpaid role). ALA and SJG are chief investigators on two publicly funded trials where the intervention is provided by WW at no cost outside the submitted work. ALA is a member of the Scientific Advisory Board for WW.

P20 Association between age and change in body weight, body composition, energy intake, and eating behaviours during aerobic exercise training

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Older adults lose more weight during diet-based lifestyle interventions, possibly because of increased reductions in lean mass and food intake. However, it is not known if age is associated with weight and body composition change during exercise training. The primary aim of this analysis was to test if age was associated with changes in body weight and body composition during aerobic exercise training. A secondary aim was to test if age was associated with free-living energy intake and eating behaviours during the trial. In the Examination of Mechanisms of Exercise-Induced Weight Compensation (E-MECHANIC) study, participants randomised to an exercise condition completed one of two regimens, which differed based on energy expenditure: 8 kcals/kg/week (KKW) or 20 KKW. Body weight was measured, and DXA was used to assess body composition. Additionally, energy intake was examined through doubly labelled

water, and food cravings and food preferences were examined via questionnaires. In the statistical analysis, the 8 KKW and 20 KKW groups were combined, and Spearman correlation coefficients assessed the association between age and outcomes (significance threshold: $P < 0.05$). Data are mean ± SD unless noted otherwise. Overall, 110 participants with overweight or obesity (31.0 ± 4.5 kg/m2) and an age of 48.5 years (±11.7; range: 21–65) completed either exercise condition. During exercise training, body weight and fat mass significantly changed by −1.1 (±2.6) kg and −0.8 (±2.4) kg, respectively ($P < 0.01$), but lean mass was unchanged (−0.2 ± 1.3 kg; $P = 0.16$). Changes in weight ($\rho = 0.07$), fat mass ($\rho = 0.10$), and lean mass ($\rho = -0.06$) during training were not associated with age ($P \geq 0.30$). At baseline, age was negatively associated with energy intake ($\rho = -0.20$), food cravings ($\rho = -0.21$), and preference for fats ($\rho = -0.21$; $P \leq 0.04$). During training, however, age was not associated with change in energy intake ($\rho = -0.03$), food cravings ($\rho = -0.10$), and preference for fats ($\rho = 0.12$; $P \geq 0.21$). Increased age is associated with lower free-living energy intake, food cravings, and preference for fats. Yet, during six months of aerobic exercise training, age is not associated with weight, body composition, energy intake, and eating behaviour change.

Registration: ClinicalTrials.gov (NCT01264406).

Disclosures: None.

P21 How well do experiences of obesity in primary school predict experiencing obesity at age 14: Evidence from the Growing Up in Scotland Study

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There has been little progress in reducing childhood obesity over the past 20 years in Scotland. Identifying children at risk of developing obesity, and the timing at which risks are established, may be important for targeting interventions. We describe associations between overweight/obesity at age 4 years (the timing of national weight measurement programmes in Scotland and England) and 10 years (the timing of the second national weight measurement programme in England) with adolescent obesity.

The sample included 2238 children in the Growing Up in Scotland cohort, born 2004/5. Height and weight measurements at ages 4, 10, and 14 years were categorised into experiences of obesity using age and sex- standardised thresholds. We estimated how well BMI-status at 4 years, or combinations of BMI-status at 4 and 10 years, predict obesity at 14 years, stratified by area deprivation quintile and sex.

Prevalence of obesity among 14-year-olds was 21.7%. Of these children, only 29.1% also experienced obesity at age 4. Therefore, if interventions to reduce obesity are targeted at children who experienced obesity aged 4, we might expect 70.9% of children who go on to experience obesity at 14 to be missed. Additionally, 37.2% of the targeted 4-year-olds would not have experienced obesity aged 14 years, even without the intervention (unnecessarily targeted). In contrast, offering the intervention to children who experienced obesity at either 4 or 10 years old would cover 64.8% of children who go on to experience obesity, without an increase in unnecessary targeting (32.2%). Offering the intervention to children who experienced obesity at 4 and 10 years would substantially reduce the proportion of children unnecessarily targeted (to 14.2%), without a large reduction in sensitivity (25.3%) compared to the age 4 measure alone. Obesity experience in primary school is a less sensitive predictor of obesity at 14 years among children living in more compared to less deprived areas.

Targeting interventions using BMI-status at the start of primary school is likely to miss many children who are at risk of obesity in adolescence, particularly if these measurements are used in isolation, and especially in more deprived areas.

Disclosures: None.

P22 Obesity, psychological factors, and risk of developing seven non-communicable health conditions: evidence from longitudinal studies of UK and US older adults

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This study examined the role of psychological factors in explaining the prospective associations between obesity and risk of developing seven non-communicable health conditions (hypertension, heart disease, stroke, diabetes, arthritis, cancer, and memory-related disease). We used comparable longitudinal data of UK and US older adults (≥50 years) from the English Longitudinal Study of Ageing (ELSA) (baseline: Wave 4 – 2008/2009; $n = 8{,}127$) and the Health and Retirement Study (HRS) (baseline: Waves 9 and 10 – 2008/2010; $n = 12{,}477$) with up to 10-year follow-up period in each study. Baseline body mass index (BMI) assessed by trained interviewers was used to define obesity (BMI ≥ 30 kg/m2). We developed an index of psychological distress separately in each study by combining psychological factors (e.g., depressive symptoms, life satisfaction, loneliness) available in ELSA ($n = 7$) and HRS ($n = 15$) using exploratory factor analysis. Health conditions were defined based on a self-reported doctor diagnosis and/or other assessments (e.g., biomarker data). Longitudinal associations between obesity (vs. normal weight [BMI 18.5–24.9]), greater psychological distress, and the risk of developing health conditions were examined using Cox-proportional hazard regression models controlling for socio-demographic covariates (age, sex, ethnicity, marital status, education, employment status, household wealth). Mediation by the index of psychological distress was assessed using causal mediation analysis. Sensitivity analyses included fitting the cumulative incidence of health conditions as the outcome (minimum = 0; maximum = 7) and examining the mediating role of individual psychological factors. We found that obesity (vs. normal weight) was consistently associated with an increased risk of hypertension, heart disease, diabetes, and arthritis across studies. In both ELSA and HRS, greater psychological distress was associated with an increased risk of heart disease, stroke, arthritis, and memory-related disease. Findings from mediation analyses showed that the index of psychological distress and individual psychological measures did not mediate the associations between obesity and health conditions in both studies, including when health conditions were assessed as the cumulative incidence. Therefore, our findings indicated obesity and psychological factors may be independently associated with future health conditions; and no evidence of the associations between obesity and health conditions explained by psychological factors.

Disclosures: None.

P24 A structural equation approach for modeling metabolic syndrome status in an adult and older Northeast Portuguese population

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The metabolic syndrome (MetS) can be defined as a combination of interrelated major risk factors, which are direct predictors for cardiovascular and metabolic diseases. Specifically, central obesity, dysglycemia, dyslipidemia and hypertension are the risk factors considered for MetS diagnosis. The aim of this study was to analyze the weighting factors in the MetS status (3-, 4-, and 5-MetS components), using a structural equation modelling (SEM) approach. A cross-sectional, observational and retrospective analysis was conducted between January 2019 and December 2020 from patients' clinical records of two primary health care centres in Northeast Portugal. A total of 3,581 MetS individuals, ranged between 18–102 years, were analyzed using a structural equation model. Model's goodness-of-fit was confirmed by standardized root mean square residuals (SRMR) through a path-flow method with a two-step maximum likelihood approach. MetS was diagnosed using Joint Interim Statement (JIS) criteria. Confirmatory model had a good adjustement (SRMR = 0.0334), reporting the following links for weighting factors in MetS status: waist circumference (WC) ($\beta = 0.24$, 95% CI: 0.19–0.29, $p < 0.001$), fasting glucose (FG) ($\beta = 0.17$, 95% CI: 0.12– 0.22; $p < 0.001$), systolic blood pressure (SBP) ($\beta = 0.14$, 95% CI: 0.09–0.19; $p < 0.001$), dyastolic blood pressure (DBP) ($\beta = 0.06$, 95% CI: 0.01–0.11; $p < 0.001$), high-density lipoprotein cholesterol (HDL-c) ($\beta = 0.18$, 95% CI: 0.12–0.23; $p \geq 0.05$), and triglycerides (TG) ($\beta = 0.05$, 95% CI: 0–0.10; $p \geq 0.05$). Weighting factors with the greatest effect were WC, FG, SBP and DBP, whereas there were no significant effects for HDL and TG. The action of low-density lipoproteins and triglyceride-rich lipoproteins cannot be discarded in the accumulation of atheroma plaques, as well as in the relationship amongst atherosclerosis and major adverse cardiovascular events (MACE). Therefore, JIS definition has been widely discussed with the aim of adding better screening criterion to the MetS diagnosis such as waist-to-height ratio (WhtR), waist-to-hip ratio (WHR), mean arterial pressure (MAP) and low-density lipoproteins (LDL) levels. Futures multivariate models should include exercise-related variables such as frequency, intensity, time and type (FITT) principles.

Disclosures: None.

P25 Comparison of Body Mass Index (BMI), before and post COVID-19, across different age groups in the population of Northeast Portugal

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Body Mass Index (BMI) is a simple measure to roughly assess obesity. The aim of the study was to assess the progress of BMI across different age groups and compare BMI values obtained in the year 2019 (pre-COVID-19) with the year 2022 (post-COVID-19). The data were collected from patients' clinical records of 22,911 individuals of both sexes (0–98 years) from two healthcare centres. The age groups were as follows: under 10 years old, 10–13 years, 14–16 years, 17–19 years, 20–39 years, 40–59 years, 60–79 years, and 80 years. The comparison of BMI values between 2019 and 2022 in different age groups showed no significant changes, except for under 10 years old group ($t = 2.88$; $\Delta = 0.34$; $p = 0.004$). Therefore, we analysed the distribution of BMI values in 2022. There was a significant progressive increase for young individuals in 2022 [$F(3) = 79.60$, $p > 0.001$, $\eta 2 = 0.33$]. Also, a significant increase was verified for adults up to 80 years in 2022 [$F(3) = 55.60$, $p > 0.001$, $\eta 2 = 0.02$]. The mean values for BMI, in four age groups for the young individuals (<20 years old) were as follows: 16.7 ± 2.9 kg/m2 (n = 1050); 20.5 ± 4.6 kg/m2 (n = 200); 22.8 ± 5.2 kg/m2 (n = 209); 22.9 ± 4.5 kg/m2 (n = 175). In the adults (≥20 years old), the BMI values by age group were as follows, respectively: 26.0 ± 5.4 kg/m2 (n = 1338); 27.50 ± 4.22 kg/m2 (n = 2363); 27.78 ± 4.48 kg/m2 (n = 3276); 26.43 ± 4.34 kg/m2 (n = 870). The age group of over 79 years showed a decrease in the average BMI compared to the previous age group ($\Delta = -1.35$ kg/m2). In young individuals, BMI values were within the normal range, while in adults, they were above 25 and below 30 (overweight). BMI increased continuously across different age groups up to 79 years, and from 80 years, there was a decrease compared to the previous age group. There was only a 0.43 difference in the average BMI between the age group of over 79 years and the age group of 20–39 years. Therefore, we can speculate that BMI seems to be associated with longevity. Further the number of consultations decreased in these two healthcare centres from 2019 to 2022 with the greatest decrease in the last age group (−40%).

Disclosures: None.

P26 Household associations between child and adult weight: a cross-sectional quantile regression analysis of linked electronic health records from an ethnically diverse urban population

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Adults sharing households with young children play an important role in shaping their eating and activity habits. We investigated the strength of the relationship between the weight status of adults and children sharing households and its variation by Body Mass Index (BMI) for 5- and 11-year-old children.

We analysed National Child Measurement Programme records for 41,092 five- and 38,683 11-year-olds attending primary schools in four boroughs in north-east London, linked to their primary care records using pseudonymised NHS numbers. We linked household members using pseudonymised Unique Property Reference Numbers. The primary outcome was child ethnic-adjusted BMI z-score. The exposure was household weight status ('with obesity': ≥1adult with BMI ≥30 kg/m2; ' with overweight': ≥1adult with BMI 25–29.99 kg/m2; 'healthy': all adults BMI <25 kg/m2). We conducted multivariable quantile regression to estimate regression coefficients (95% Confidence Intervals [CI]) of child BMI z-score change at the 2nd, 50th, 91st and 98th quantile of the UK1990 reference distribution adjusting for child sex, ethnic group, household composition, number of children in household; area-level deprivation (developed in R).

13,091 (31.9%) and 21,080 (51.3%) five-year-olds and 11,489 (29.7%) and 22,106 (57.1%) 11-year-olds lived in households with overweight and obesity, respectively. Five-year-olds living in households with overweight and obesity had a BMI z-score increase of 0.15 [CI: 0.11–0.18] and 0.40 [0.38- 0.43] at the 50th quantile and 0.33 [0.25–0.40] and 0.85 [0.79–0.93] at the 98th quantile, respectively. The BMI z-score increase for 11-year-olds living in households with overweight and obesity was 0.34 [0.30-0.38] and 0.81 [0.77–0.86] at the 50th quantile and 0.35 [0.29–0.41] and 0.82 [0.76- 0.87] at the 98th quantile. The BMI z-score was increased in children from South Asian ethnic backgrounds, and those living in single-adult or single-child households.

Children sharing households with adults with unhealthy weights are more likely to live with unhealthy weight. This association was strongest for children in households with obesity and for 11- year-olds. Electronic health records can be used to identify households at high risk of child and adult obesity as a basis for evaluating the impact of adult-only household interventions on the weight status of children.

Disclosures: None.

P27 Subscapular skinfold thickness, but not other anthropometric and dual x-ray absorptiometry measured adiposity, is positively associated with the presence of age-related macular degeneration: a cross-sectional study from National Health and Nutrition Examination Survey 2005-2006

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Some studies have found an association between anthropometric measures of adiposity and age-related macular degeneration (AMD), but few studies have explored the disease association with imaging methods. This study aimed to explore the relationship between AMD status and dual X-ray absorptiometry (DEXA) among a representative sample of the United States population, and compare the disease association to anthropometric methods.

Using a representative sample in the National Health and Nutrition Examination Study 2005–2006 (n = 1,632), the differences in DEXA measures of fat mass across the body and around the waist (i.e., android), and relative fat distribution (e.g., percentage fat, android-to-total body ratio) were analysed between groups according to AMD status, namely, those with no AMD vs any AMD and those with no AMD vs early/intermediate AMD. The bivariate analyses across AMD status were similarly performed for anthropometric measures [i.e., body mass index, waist circumference and skinfold thickness of the shoulder and the tricep] and for potential confounders (i.e., demographics, lifestyle, clinical and other health-related variables). Any significant adiposity measures were further analysed using logistic regression, adjusting for potential confounders.

The participants in the sample were aged 40–69 years [median age (IQR) = 51(13)], were mainly female (52%) and mainly Caucasian(76.5%). Bivariate analysis indicated that having any or early/intermediate AMD was positively associated with android-to-total fat ratio and subscapular skinfold thickness (SSFT). Other anthropometric and DEXA-measured variables were not signficant. After controlling for age, gender and prescription of cholesterol-lowering medicine, only SSFT remained positively associated.

SSFT represents an independent risk factor for presence of AMD compared to other anthropometric and DEXA measurements. SSFT is an established method of measuring subcutaneous adiposity: subcutaneous fat may be more relevant in explaining the adiposity-AMD link due to physiological properties specific to the tissue.

Disclosures: None

P28 Trial Design of a Double-Blind, Randomized, Placebo-Controlled, Phase 3 Study of Setmelanotide in Patients With Hypothalamic Obesity

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Damage to the hypothalamus can impair the melanocortin signaling pathway and reduce energy expenditure, potentially leading to hypothalamic obesity (HO), a severe form of obesity with no current specific therapeutic option. Recently, the melanocortin-4 receptor agonist setmelanotide demonstrated reduction in weight and hunger for patients with HO in a Phase 2 trial. We describe the study design of a planned double-blind, randomized, placebo-controlled, Phase 3 trial of setmelanotide in patients with HO.

Approximately 120 patients will be enrolled across ≤35 sites globally. Eligibility criteria include age ≥4 years with documentation of acquired HO, weight gain before and/or with tumor treatment, and body mass index (BMI) ≥ 30 kg/m^2 (≥18 years) or BMI ≥95th percentile (≥4 to <18 years). Key exclusion criteria include diagnosis of syndromic obesity, weight or BMI loss >2% based on age in the prior 3 months, bariatric surgery within the past 2 years, glycated hemoglobin >11.0%, and glomerular filtration rate <30 mL/min/1.73 m^2. Patients will be randomized 2:1 and stratified by age to receive setmelanotide or placebo. Setmelanotide will be titrated over 2 to 8 weeks to a maximum daily dose of 1.5 to 3.0 mg based on age and weight. Treatment will continue for up to 60 weeks. The primary endpoint is the mean percent change in BMI after 52 weeks of treatment for setmelanotide versus placebo. Key secondary endpoints after 52 weeks are the proportion of patients aged ≥18 years with ≥5% reduction in BMI, proportion of patients aged <18 years with ≥0.2-point reduction in BMI Z score, and mean change in weekly average of the daily "most hunger" score in patients aged ≥12 years. Additional secondary endpoints include hunger-related, additional weight-related, and quality-of-life outcomes. Exploratory endpoints include change in physical activity, fatigue, Impacts of Hyperphagia score, caregiver health status, cardiometabolic parameters, and waist circumference. Safety will be assessed by the frequency and severity of adverse events.

This Phase 3 trial designed to assess the efficacy and safety of setmelanotide for weight loss and hunger reduction in patients ≥4 years of age with acquired HO is planned to initiate in early 2023.

Disclosures: CLR's institution has received research support from Rhythm Pharmaceuticals, Inc. AHS has received payments from Rhythm Pharmaceuticals, Inc. and Saniona for advisory boards and lectures. AHS's institution has received research support from Rhythm Pharmaceuticals, Inc. MG has received compensation for consulting and participation on advisory boards from Rhythm Pharmaceuticals, Inc. MG's institution has received funding for clinical trials from Rhythm Pharmaceuticals, Inc. JLM has received study funding from Rhythm Pharmaceuticals, Inc. GY, CS, and SM are employees of Rhythm Pharmaceuticals, Inc. and have company-awarded RSU and options. SEM received grants from Levo Therapeutics and the Doris Duke Charitable Foundation. SEM received honoraria for an Obesity Medicine Association lecture. SEM reports being a co-chair for the Endocrine Society Research Affairs Committee and a consultant for Rhythm Pharmaceuticals, Inc. and Saniona. MJA has received compensation for consulting, advisory board participation, and speaking engagements from Consynance, Endo Pharmaceutical, Pfizer, and Rhythm Pharmaceuticals, Inc. MJA's institution has received

research support from Ascendis, Levo Pharmaceuticals, Lumos, NovoNordisk, Rhythm Pharmaceuticals, Inc., Saniona, and Soleno.

P29 Setmelanotide in Patients With Heterozygous POMC, LEPR, SRC1, or SH2B1 Obesity: Design of EMANATE – A Placebo-Controlled Phase 3 Trial

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The melanocortin-4 receptor (MC4R) pathway regulates energy balance. Certain variants in genes upstream of MC4R, including LEPR, POMC, NCOA1 (encodes steroid receptor coactivator 1), PCSK1, and SH2B1, lead to impaired MC4R pathway signaling and rare genetic diseases of obesity. Although deficiencies resulting from these genetic variants differ in some clinical features, they are all characterized by hyperphagia (pathologic insatiable hunger) and early-onset obesity. Setmelanotide, an MC4R agonist, reduced body weight and hyperphagia after 3 months in patients with heterozygous POMC, PCSK1, LEPR, NCOA1, and SH2B1 variants in an earlier Phase 2 trial. In this trial, 34% of patients with heterozygous POMC, PCSK1, or LEPR variants; 30% with heterozygous NCOA1 variants; and 37% with heterozygous SH2B1 variants achieved ≥5% weight loss after 3 months of setmelanotide treatment.

EMANATE is a randomized, double-blind, placebo-controlled Phase 3 trial (NCT05093634) comprising 5 similar independent sub-studies based on genetic variants. Eligible patients aged 6 to 65 years must have history of hyperphagia and childhood obesity and have current obesity (aged ≥18 years, body mass index [BMI] ≥30 kg/m^2; aged 6–17 years, BMI ≥95th percentile). Patients must have a heterozygous genetic variant in POMC or PCSK1; heterozygous genetic variant in LEPR; homozygous, heterozygous, or compound heterozygous variant in NCOA1 or SH2B1 (including a chromosomal deletion of 16p11.2 including SH2B1); or heterozygous N221D variant in PCSK1. Patients with ≥2% weight loss in the prior 3 months; HbA1C > 10%; clinically significant pulmonary, cardiac, or oncologic disease; or history of significant liver or serious kidney disease are not eligible. Within each sub-study, patients will be randomized 1:1 to receive setmelanotide or placebo daily for 52 weeks. The primary outcome is mean change in body weight of setmelanotide-treated patients compared with placebo-treated patients. Safety will be assessed by frequency and severity of adverse events.

EMANATE is underway and began enrolling patients in early 2022. The planned enrollment is 560 patients. If successful, this placebo-controlled Phase 3 trial will support setmelanotide treatment for improvements in body weight–related measures and hunger in an expanded population of patients living with rare genetic diseases of obesity.

Disclosures: SF has no conflicts of interest to disclose. JA has received payments from Rhythm Pharmaceuticals, Inc. for advisory boards and lectures. EvdA's institution has received research support from Rhythm Pharmaceuticals, Inc. GY and OO are employees of Rhythm Pharmaceuticals, Inc. and have company-awarded RSU and options. CS is an employee of Rhythm Pharmaceuticals, Inc., has company-awarded RSU and options, and has received payments from Rhythm Pharmaceuticals, Inc. for advisory boards. MW has received payments from Rhythm Pharmaceuticals, Inc. for consultations and lectures.

P30 Clinical Characteristics of Variants in POMC, PCSK1, LEPR, NCOA1, and SH2B1

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The melanocortin-4 receptor (MC4R) pathway is an important regulator of energy balance and body weight. Several key genes are associated with the MC4R pathway, including POMC, PCSK1, LEPR, NCOA1, and SH2B1. These genes work in concert within the hypothalamus to regulate leptin signaling and activation of MC4R. However, the molecular mechanisms of these genes and the clinical characteristics of individuals with heterozygous variants in POMC, PCSK1, and LEPR, or heterozygous or biallelic variants in NCOA1 and SH2B1, may differ and thus affect individualized treatment strategies for these patients.

A nonsystematic literature search was conducted in PubMed of articles published through August 2022 with search strings to identify publications reporting on the etiology and clinical characteristics of patients with heterozygous variants in POMC, PCSK1, and LEPR or heterozygous or biallelic variants in NCOA1 and SH2B1. Abstracts of identified manuscripts were reviewed for relevance. Results were summarized narratively.

Published research suggests that heterozygous variants in POMC, PCSK1, and LEPR and deficiencies in SRC1 and SH2B1 are all associated with pathologic insatiable hunger (or hyperphagia) and early-onset, severe obesity. Patients with these variants and associated deficiencies also share commonalities in clinical manifestations beyond hyperphagia and early-onset, severe obesity, including hypogonadism and leptin and insulin resistance. A limitation of this analysis is the nonsystematic search approach. Current efforts to address the underlying hyperphagia and obesity associated with heterozygous variants in POMC, PCSK1, and LEPR and variants in NCOA1 and SH2B1 include targeting the MC4R pathway through the MC4R agonist setmelanotide. In Phase 2 clinical trials, administration of setmelanotide led to reduced hunger scores and body weight in patients with these variants.

This analysis of published literature supports the concept that individuals with heterozygous or biallelic variants in the MC4R pathway (POMC, PCSK1, LEPR, NCOA1, and SH2B1) share many common clinical characteristics related to early-onset obesity and hunger, as well as obesity-associated comorbidities.

Disclosures: JA has received payments from Rhythm Pharmaceuticals, Inc. for advisory boards and lectures. SF has no conflicts of interest to disclose. EvdA's institution has received research support from Rhythm Pharmaceuticals, Inc. SM is an employee of and stockholder in Rhythm Pharmaceuticals, Inc. PK has received payments from Rhythm Pharmaceuticals, Inc. for safety boards. KC has received payments from Ysopia, Integrative Phenomics, and Confo-therapeutics for scientific collaboration. MW has received

payments from Rhythm Pharmaceuticals, Inc. for consultations and lectures.

P31 Protocol for the PROMISE CARE Study: Improving the long-term care of patients who have had bariatric surgery

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Bariatric surgery is recognised as a clinically and cost-effective management option for severe/complex obesity and can lead to significant health benefits. The National Institute of Health and Care Excellence recommends follow-up care in a bariatric surgery unit for the first two years post-surgery, followed by lifelong follow-up in primary care within a shared care model.

However, research suggests that long-term follow-up care is not being delivered and GPs lack confidence in managing patients post-bariatric surgery. The delivery of long-term post-bariatric surgery care is challenging, and it is unclear how, where or by whom long-term care should be delivered, including patients' preferences. There are uncertainties that need to be better understood to design and test a future intervention to improve care, including:

- inconsistent availability of weight management services
- healthcare professional training needs
- role of self-management
- healthcare capacity
- variation/complexity in patient's needs.

The PROMISE CARE study seeks to gain a comprehensive understanding of the issues involved in delivering long-term care post-bariatric surgery including barriers and enablers to effective care and stakeholder views. The study will consist of three main work packages. These will include semi-structured interviews informed by behavioural theory with healthcare professionals as well as remote stakeholder workshops to develop a system map of the current issues in post-bariatric care incorporating different stakeholder perspectives and key factors (at individual, social, organisational and wider system levels) influencing outcomes. Finally, a remote panel meeting with key stakeholders will be held, informed by findings of earlier work packages, to agree key design elements for a future intervention.

The PROMISE CARE study will run for 18 months from November 2022 and will gain key insights to help plan future research to develop and evaluate an intervention to improve long-term care post-bariatric surgery. Findings will be disseminated to patient, clinical, academic and policy groups.

Disclosures: HP and ES are British Obesity and Metabolic Surgery Society (BOMSS) council members and have organised educational events supported by Ethicon for BOMSS members (honoraria received for educational events). HP has developed an algorithm for the management of obesity in primary care (as well as accompanying supplement, video and conference presentation) for MGP publishing which were all supported by arm's length sponsorship from Novo Nordisk (honoraria received). HP is a co-author on a publication of UK data from a Novo Nordisk funded study (no personal fees received). HP is a member of the steering group for the Obesity Empowerment Network and the current NICE weight management guidelines committee.

KCo is the BOMSS research co-lead for dietetics and a member of the scientific advisory board for Oxford Medical Products.

KC is a director of bariatric surgery, Obesity UK and chair of the European Coalition for People Living with Obesity, a trustee for the Association for the Study of Obesity and has been a member of a Novo Nordisk Disease Experience Expert Panel since 2017 and a Patient Advisory Board member for Boehringer Ingelheim since 2020 (honoraria received for these last two roles).

P32 The Impact of the COVID-19 Pandemic on Childhood Obesity Rates by Health Board Area in Wales UK

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The aim of this prevalence study was to examine the rates of obesity and severe childhood obesity pre- and post-pandemic by Health Board area in Wales, UK.

Data for all children included as part of the Wales Childhood Measurement Programme (2014/15–2018/19) were utilised as the pre-pandemic data set. The 2021/22 Child Measurement Programme data were used as the post-pandemic data set. Body Mass Index for obesity and severe obesity were defined as above the 95th centile, and 99.6th centile respectively.

Of the 119,917 reception aged children (4–5 years) measured prior to the pandemic the overall prevalence of obesity and severe obesity were 12.1% and 3.2% respectively. Post-pandemic measurements in 2021/22 revealed that the proportion of 4–5 year olds in Wales with obesity ($n = 2,986$) and severe obesity had increased and were 15.5% and 4.8% respectively. Data for one of the seven Local Health Boards in Wales were not reported for 2021/22. However, historically this region had the highest proportion of children with obesity, suggesting that the increase in obesity reported is likely to be an underestimate. When considering the data at Health Board level, higher proportions of children with obesity were noted in 2021/22 compared to pre-pandemic in all bar one Health Board area. Higher proportions of children with severe obesity were observed in 2021/22 in all six Health Boards that reported data.

This study identified that the proportion of children with obesity and severe obesity reported in 2021/22 in Wales appears to be higher than the proportions observed in the 5 years prior to the pandemic.

This study will be of interest to those planning health services, policy makers and academics working in the field of obesity.

Disclosures: None

P33 A digital and remote specialist multidisciplinary tier 3 weight management service achieves equitable outcomes across indices of multiple deprivation deciles (IMDD)

Juliet Finnie, Thomas Curtis, Victoria Lawson, Lucy Diamond, Andy Ho, Neel Gupta

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The impact of obesity is not experienced equally across UK society, with higher levels of obesity associated with higher levels of deprivation and a widening gap in obesity rates between highest and lowest deprivation groups. Uptake and completion of weight management services is unequal with reduced uptake of traditional face to face services in those in higher levels of deprivation. The NHS has committed to reducing health inequalities and providing weight management services that are accessible to all groups. The authors aimed to provide a specialist digital and remote tier 3 service that increases uptake and

engagement for participants across all IMDD. A 12 month multidisciplinary tier 3 weight management service was provided, including specialist dietary coaching and psychology support. Participants were offered a choice of coaching via a digital app or a remote phone pathway. Total diet replacement (TDR) was offered as a treatment option at no cost to the participant. GLP-1 (Liraglutide) treatment was prescribed where clinically appropriate. 3387 referrals were received across all 10 indices of multiple deprivation deciles (IMDD), with similar uptake, retention at 3 months and weight loss across each decile. Although there were variations between each decile, there was no trend towards better outcomes at either end of in the IMDD scale: Uptake from referral at IMDD 1 to 10 respectively: 45%, 46%, 53%, 45%, 47%, 47%, 53%, 54%, 48%, 56% Retention at 3 months at IMDD 1 to 10 respectively: 60%, 54%, 67%, 59%, 57%, 52%, 49%, 61%, 64%, 52%. Weight loss at 6 months at IMDD 1 to 10 respectively: 7.6%, 6.0%, 9.1%, 8.6%, 9.9%, 7.3%, 8.5%, 7.4%, 7.7%, 7.1% In conclusion, a digital and remote specialist tier 3 weight management service can contribute to the NHS priority of promoting equality of service access. Contributing factors to equality of access and outcome may be fully funded TDR, out of hours appointments/messaging, psychology support, a digital app based on behaviour change theory, establishing links with referring GPs and local community signposting.

Disclosures: None

P34 A digital and remote specialist Tier 3 weight management programme achieves equitable outcomes when comparing Asian ethnicity participants to White ethnicity participants

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The impact of obesity is not experienced equally across UK society, with people from a South Asian background experiencing complications of obesity such as type 2 diabetes at a lower BMI. Compounding this, uptake of group weight management services has been reported to be lower in South Asian populations compared to White populations. The NHS has committed to reducing health inequalities and providing weight management services that are accessible to all groups.

The authors aimed to provide a specialist tier 3 weight management service that generates strong uptake and clinical outcomes regardless of ethnic and cultural background. A 12 month multidisciplinary tier 3 weight management service was provided, including specialist dietary coaching and psychology support where required. Participants were offered a choice of digital app coaching or remote phone coaching, and 1:1 or group coaching. A choice of total diet replacement or other evidence based dietary approaches were offered. GLP-1 (Liraglutide) treatment was prescribed where clinically appropriate. 66 Asian ethnicity participants and 2102 White ethnicity participants were referred. Although referral numbers were smaller, equivalent or superior uptake, retention and weight loss outcomes were found in Asian ethnicity participants in comparison to White ethnicity participants: Uptake from referral: 72% (Asian), 58% (White). Retention at 6 months: 52% (Asian), 49% (White). Weight loss at 6 months: 8.8% (Asian), 8.5% (White). Participants from non-white ethnic backgrounds have often been considered 'harder to reach' in the provision of weight management interventions. Contributing factors to this may be the use of a 'one size fits all' approach, for example lack of choice of dietary approaches or coaching pathway. The results here indicate that this intervention was equally acceptable and effective in Asian participants compared to White participants. Key factors in achieving these outcomes may be the provision of pathway choice (digital vs phone, group vs 1:1), culturally inclusive learning content, specialist dietary input to tailor interventions to cultural requirements, establishing links with referring GPs and community signposting. These positive outcomes should be used to support the generation of larger referral volumes in people from an Asian background living with obesity.

Disclosures: None

P35 A digital and remote specialist tier 3 weight management services achieves equitable outcomes in working age compared to older age participants and male compared to female participants, tackling the challenges involved in traditionally harder to reach participant groups

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Tier 3 weight management services have the potential to reduce the impact of obesity on both the individual and society. However, uptake and completion of weight management services is unequal with reduced uptake of traditional face to face services in males, and working age participants. The NHS has committed to reducing health inequalities and providing weight management services that are accessible to all groups. The authors aimed to provide a specialist tier 3 weight management service that increases uptake and engagement for all participants. A 12 month multidisciplinary tier 3 weight management service was provided, including specialist dietary coaching and psychology support where required. Participants were offered a choice of digital app or remote phone coaching as well as group or one to one. Evening and weekend phone appointments and asynchronous messaging aimed to increase accessibility. Total diet replacement was offered. GLP-1 (Liraglutide) treatment was prescribed where appropriate. 2750 females and 852 males were referred. Male participants achieved similar uptake and retention outcomes, and superior weight loss outcomes when compared to female participants: Uptake from referral: 44% (Male), 49% (Female). Retention at 6 months: 46% (Male), 51% (Female). Weight loss at 6 months: 10.8% (Male), 7.7% (Female). 3252 referrals were received for participants under 66 years ('working age') and 381 referrals for age 66+. Working age participants demonstrated similar uptake, retention and weight loss compared to over 66 years participants: Uptake from referral: 55% (working age), 45% (66+ years). Retention at 6 months: 50% (working age), 56% (66+ years). Weight loss at 6 months: 8.1% (working age), 7.2% (66+ years). The results presented demonstrate good uptake and weight loss outcomes in males and working age participants who may be considered 'harder to reach' in traditional face to face tier 3 services. Contributing factors may be the provision of a choice of pathways (1:1, group, digital app, or remote phone), social support where groups are chosen, app technology based on behaviour change theory, appointments outside working hours, asynchronous messaging and the provision of psychology support when required.

Disclosures: None

P36 Understanding the family food cultures, experiences and behaviours of families with varying levels of food security: a cross-sectional study

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Rates of food insecurity have dramatically increased in the UK in the past year; with 21.6% of households with children experiencing food insecurity in 2023, compared to 12% in 2022. Food insecurity is linked to poorer health outcomes, especially among children, with an increased risk of developing obesity in later life. This study aimed to understand how family food cultures, experiences and behaviours differ between families with varying levels of food security. A sample of socioeconomically diverse families from four London boroughs were recruited via primary schools (n = 739). Primary caregivers completed a one-to-one computer assisted interview with a trained researcher, reporting on: their family food security status; the family home food environment; their feeding practices; and their child's food preferences and eating behaviours. Complex samples generalised linear models examined associations between food security status and family food-related outcomes. Analyses were adjusted for clustering at the school-level and children's age, sex, and ethnicity, and used an alpha level <0.01. Overall, 28.4% of families were classified as living with food insecurity. Families experiencing food insecurity had a more obesogenic home food environment compared to food secure families ($\beta = 0.10$, SE ± 0.03, $p < 0.001$). Parents experiencing food insecurity used more emotional feeding ($\beta = 0.10 \pm 0.04$, $p = 0.009$), instrumental feeding ($\beta = 0.14 \pm 0.05$, $p = 0.002$), pressuring feeding practices ($\beta = 0.12 \pm 0.03$, $p < 0.001$), and exerted less structure/control over timing and quality of meals and snacks ($\beta = -0.11 \pm 0.04$, $p = 0.010$), compared to food secure families. Children experiencing food insecurity expressed: higher responsiveness to food cues ($\beta = 0.12 \pm 0.03$, $p < 0.001$); higher emotional over- and under-eating ($\beta = 0.15 \pm 0.04$, $p < 0.001$ and $\beta = 0.14 \pm 0.04$, $p < 0.001$, respectively); higher desire to drink ($\beta = 0.11 \pm 0.04$, $p < 0.01$); and had lower preference for snack foods compared to food secure families ($\beta = -0.12 \pm 0.04$, $p = 0.005$). These findings highlight potential mechanisms through which food insecurity predisposes children to poorer health outcomes and greater obesity risk. Additionally, they provide timely insights into how the home food environment and feeding practices differ between families with varying levels of food security and indicate that interventions targeting childhood eating behaviour and obesity must consider the context in which families experiencing food insecurity live and ensure good quality food is available and affordable for all families, particularly during the current cost of living crisis.

Disclosures: The authors have no conflict of interest.

P37 INLFUENCE OF ADIPOSITY ON IRON STATUS IN UK WOMEN OF REPRODUCTIVE AGE (18–49y): DATA FROM THE NATIONAL DIET AND NUTRITION SURVEY (NDNS)

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The nutritional status of women of reproductive age (WRA) can be negatively impacted by overweight/obesity (Ow/Ob), with the magnitude of the impact on iron status remaining unclear. We aim to examine the influence of adiposity on iron status in non-pregnant WRA.

Women aged 18–49 years were selected from NDNS years 9–11 (2016–2019). BMI, waist circumference (WC), waist/height, and waist/hip ratio were used as markers of adiposity; haemoglobin, red blood cell count (RBC), mean cell haemoglobin (MCH), mean cell volume and serum ferritin (SF) were used as markers of iron status. Iron Deficiency Anaemia (IDA) was defined as SF<15 µg/L and haemoglobin <120 g/L; and low iron stores without anaemia (LISWA) as SF<30 µg/L and haemolgobin ≥120 g/L. SF was adjusted for inflammation (C-reactive protein (CRP)) by internal regression correction. Analysis was adjusted for smoking and age.

241 women were included, 47% categorised as normal weight (Nw) and 52% with Ow/Ob. LISWA was detected in 40.2% (Nw 40.9%, Ow/Ob 39.7%;) of women, and IDA detected in 5.8% (Nw 3.5%, Ow/Ob 7.9%) with no statistical difference between BMI groups. Anthropometric measurements correlated positively with RBC (particularly BMI $r = 0.22$, WC $r = 0.21$ and hip $r = 0.21$, all $p < 0.001$), CRP (particularly BMI $r = 0.51$, WC $r = 0.51$, and waist/height $r = 0.50$, all $p < 0.001$) and negatively with MCH (particularly BMI $r = -0.15$ $p = 0.018$, WC $r = -0.14$ $p = 0.028$). CRP correlated positively with RBC ($r = 0.20$ $p = 0.002$) and negatively with MCH ($r = -0.24$ $p < 0.001$). There were no associations between anthropometric measurements and haemoglobin, although, a positive association with RBC, particularly with waist/height ($\beta = 0.69$, $p = 0.003$) and waist/hip ($\beta = 0.59$, $p = 0.046$) was observed. All measures of adiposity were associated with CRP, particularly waist/height ($\beta = 4.29$, $p < 0.001$) and waist/hip ($\beta = 3.98$, $p < 0.001$). BMI ($\beta = 0.02$ $p = 0.035$), weight ($\beta = 0.007$ $p = 0.043$) and waist/height ($\beta = 1.30$ $p = 0.036$) were associated with unadjusted SF. BMI ($\beta = -0.06$, $p = 0.018$), WC ($\beta = -0.02$, $p = 0.028$) and waist/height ($\beta = -3.16$, $p = 0.041$) were negatively associated with MCH.

We report a negative impact of adiposity on iron status that presents an increased risk for the development of anaemia, particularly for those who may become pregnant. Regardless of BMI, UK women have a high prevalence of low iron stores, and this would not be detected by current routine anaemia screening.

Disclosures: None.

P39 The NOURISHING and MOVING policy indexes: assessing nutrition and physical activity in England, Scotland, Wales, and Northern Ireland

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Nutrition and physical activity policies are key to creating environments where population health and prevention of obesity-related non-communicable diseases is prioritised. To hold national governments accountable in developing measures which support this, the NOURISHING and MOVING policy indexes were created to assess nutrition and physical activity policy, respectively. They provide an at-a- glance assessment on the policy status in 30 European countries, including in England, Scotland, Wales, and Northern Ireland. Nutrition and physical activity policy actions were identified through a comprehensive scan with a set methodology. Only national level policies were targeted, which include UK-wide and home nation policies. The policy actions were benchmarked using evidence-informed, aspirational attributes that assess the quality of policy design. The NOURISHING policy index shows that most action is being taken across all home nations in nutrition labelling, reformulation, and public awareness. Food marketing and advertising restrictions receive a fair assessment across the board and need improving. Across all home nations, least action is seen in ensuring coherence between food supply chains and health (Northern Ireland receives the

highest assessment fair) and creating a healthy retail and food service environment, where England and Scotland receive a moderate assessment. The MOVING policy index finds best assessments for actions targeting physical activity in schools and the community. There are varied results across home nations for physical activity in the workplace, public communication, and counselling in healthcare settings. Northern Ireland is the only home nation with no action on physical activity in the workplace. Home nations receive mostly a fair assessment on policies targeting the active environments, including active design for built environments, and infrastructure for public and active transport. The NOURISHING and MOVING policy indexes show that key weaknesses in policy actions focus on structural policies in all home nation countries. These include policies on ensuring coherence between health and food systems, and developing infrastructure for active environments. Greater focus on these areas should be given by policymakers, researchers, and civil society to inform advocacy for, and design of, nutrition and physical activity policies for obesity prevention.

Disclosures: None.

P40 Meet LIUC – a practical tool for system leads to Log Intended and Unintended Consequences

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Whole Systems Approaches (WSA) are gaining popularity within public health as a more appropriate way to address complex public health issues such as obesity prevention, physical activity promotion or mental health and wellbeing. However, capturing change within the system is difficult and a variety of evaluation tools are needed, including those that can be used by practitioners with limited research and evaluation resource to draw upon. This abstract aims to describe the piloting of a real world tool for data capture of decision points and their intended and unintended consequence, both formal and informal, on a timeline. Building on the Ripple Effects Mapping approach (Nobles et al, 2022) a tool was developed within the Healthy Weight Whole Systems Approach in Wales, to enable system practitioners to regularly capture decisions and their consequences. The tool was designed to map their actions and observed impacts both intended and unintended. A template was developed with a key, showing colour and shapes, to distinguish different types of actions, such as whether formal or informal interactions, strategic or operational. Two system lead teams agreed to trial the tool over a 3 month period. This involved monthly local team meetings to review and log the previous month's main activities. At the 3 month review the feedback suggested that the tool was proving useful in capturing expected and unexpected activity and outputs. There was agreement to continue the trial and another local system team came on board. The 6 month review confirmed that the tool holds promise for capturing planned activity and the intended outputs or outcomes, but also provides an opportunity for capturing unintended activity. It also appears to demonstrate the importance of developing relationships with wider stakeholders, building connections that develop into levers for intervention in the longer term. Other system lead teams in Wales are now trialling the tool too. In conclusion, LIUC holds promise as a practical tool for those working within complex public health programmes, to capture some of the intended and unintended consequences of actions within their work programme and the longer term value of engagement.

Disclosures: None

P41 Estimating the value of further research into a novel weight loss maintenance intervention. A value of information study

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Value of Information analyses (VoI) can be used to assess the cost effectiveness of research projects. VoI uses health economic modelling techniques to help determine the value to society of collecting data and can inform trial design. SWiM is an online weight maintenance intervention based on acceptance and commitment therapy (ACT) delivered to adults who have recently completed a behavioural weight loss programme. Following a feasibility study, we aimed to evaluate the value of commissioning a randomised controlled trial (RCT) to assess the effectiveness of SWiM. Two expert panel workshops were conducted to specify unknown treatment effect parameters (weight and HbA1c) after 12 and 24 months, using elicitation techniques, and supporting evidence from the 6 month SWiM feasibility study, meta-analysis of weight maintenance interventions, and data from related weight loss trials. We used the School of Public Health Research Diabetes prevention model to evaluate the lifetime National Health Service costs, and Quality Adjusted Life Years discounted at 3.5%. Weight-related health consequences are simulated conditional on trajectories for weight and HbA1c. The incremental net benefit of the intervention was calculated assuming a cost-per-QALY threshold of £20,000, to describe efficient allocation of resources for the NHS. Uncertainty in treatment effects, costs and health-related quality of life were incorporated in probabilistic sensitivity analysis. The VoI analysis estimated the societal value of reducing the uncertainty from collecting data in future RCTs. The expert panel specified treatment effect parameters for SWiM indicating that the intervention is likely to delay weight regain following weight loss. The elicited treatment effect at 12 and 24 months was considered unlikely to lead to faster weight gain compared with standard care. The VoI analyses indicated that uncertainty in the treatment effectiveness parameters have a sizeable impact on the overall uncertainty in incremental net benefit and further research to collect data to inform these parameters would reduce this uncertainty. Weight maintenance interventions have the potential to improve long-term health outcomes. Further research to evaluate SWiM would be an efficient use of resources. Value of information analyses can help to improve the design of trials to support future decision-making.

Disclosures: AJH has consulted for Slimming World. JM is a Trustee for the Association of the Study of Obesity (unpaid role). ALA and SJG are chief investigators on two publicly funded trials where the intervention is provided by WW at no cost outside the submitted work. ALA is a member of the Scientific Advisory Board for WW.

P43 Modelling the long-term costs and health gains from a group-based diabetes education and weight loss intervention in people with newly diagnosed type 2 diabetes

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While weight loss is a well known method of improving glucose control for people with type 2 diabetes, trials have concentrated

on intense weight loss interventions, like surgery or formula diets. We propose a modelling framework to evaluate the cost-effectiveness of group-based weight management interventions in people recently diagnosed with type 2 diabetes. The School of Public Health Research (SPHR) Diabetes Treatment model was updated to evaluate the lifetime NHS costs and Quality Adjusted Life Years (QALY), discounted at 3.5%. This individual-level model simulates a representative population sample with newly diagnosed diabetes using baseline data from the trial and summary statistics from primary care records. The model estimated diabetes-related health outcomes using the UK Prospective Diabetes Study (UKPDS) Outcomes Model 2 risk equations, metabolic risk factor trajectory equations, and additionally simulates osteoarthritis, colorectal cancer, and breast cancer conditional on Body Mass Index. The UKPDS outcomes model is known to over-predict major long-term health outcomes in this population. Therefore, approximate Bayesian computation was used to calibrate incidence of Myocardial Infarction and Stroke events to a 10-year follow-up of ADDITION-Europe. This model will be used to evaluate the cost-effectiveness of the Glucose Lowering through Weight management (GLoW) trial (N = 577). The GLoW trial evaluated the effectiveness of a tailored diabetes education and weight loss intervention (DEW), commonly known as Weight Watchers (WW), against a standard diabetes education program (DESMOND) in adults diagnosed with type 2 diabetes within the past 3 years. Average difference in HbA1c and BMI at 12 months between the DEW and DESMOND will be predicted from trial data. The duration of weight maintenance will be estimated from long-term follow-up of other weight management trials. The simulation generates a natural history for a population with newly diagnosed type 2 diabetes. Calibration to the ADDITION data reduces the incidence of MI and Stroke, and leads to a 10 year mortality rate of 16%, compared with 21% without calibration. The model can be used to evaluate weight loss interventions in this population.

Disclosures: AJH has consulted for Slimming World. JM is a Trustee for the Association of the Study of Obesity (unpaid role). ALA and SJG are chief investigators on two publicly funded trials where the intervention is provided by WW at no cost outside the submitted work. ALA is a member of the Scientific Advisory Board for WW.

P44 Weight management experiences among people living with and beyond colorectal, breast or prostate cancer: A cross-sectional survey

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Obesity and weight gain after a cancer diagnosis are associated with poorer outcomes. The World Cancer Research Fund therefore recommends that those LWBC maintain a BMI < 25, and avoid weight gain. The current study aimed to explore the factors associated with receipt of, and interest in weight management advice as well as engagement in existing weight management programmes among people LWBC affected by overweight and obesity. Participants were living with or beyond breast, prostate or colorectal cancer and had self-reported height and weight as part of the "Health and Lifestyle After Cancer Questionnaire". Additional items asked whether they had received advice on losing weight from a healthcare professional since diagnosis, whether they were interested in receiving weight management advice, whether they were currently enrolled in a lifestyle programme, and whether they believed maintaining a healthy weight was important for preventing cancer recurrence. Of 3,456 participants affected by overweight and obesity (BMI ≥ 25), a minority (23%) had received weight loss advice, and only 4% were currently enrolled in a weight management programme. Most were interested in advice (71%) and believed maintaining a healthy weight was important for preventing cancer recurrence (67%). After multiple imputation and adjustment for confounders, logistic regression results suggested those who reported receiving advice were more likely to be interested in receiving advice (Odds Ratio (OR) 1.68; 95% Confidence Interval (CI) 1.30,2.18) and to be enrolled in a weight management programme (OR 1.60; 95%CI 1.07, 2.40). Those who believed maintaining a healthy weight was important for preventing cancer recurrence were also more likely to be interested in weight management advice (OR 1.47; 95%CI 1.33, 1.62) and to be enrolled in a programme (OR 1.57; 95%CI 1.25, 1.99). These results highlight a need for healthcare professionals to offer weight management advice more broadly to their patients affected by overweight and obesity, and to ensure that existing weight management programmes are acceptable to and meeting the needs of those LWBC. Information about the role of excess weight in cancer may encourage individuals to engage with programmes, but must be delivered in a sensitive, non-stigmatizing way.

Disclosures: None

P45 Following a clinically supported, digitally-enabled time restricted eating programme improves eating behaviour and reduces binge eating behaviour

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Binge eating disorder (BED) is higher in people seeking weight loss interventions, with 9–29% reporting binge episodes. Data suggests that eating disorder (ED) risk increases in people following restrictive diets, with increased restrained eating increasing BED risk. Limited data exists on binge eating or eating behaviour in people following time restrictive eating (TRE). Reset Health is a digitally-enabled TRE programme for people living with obesity, T2D, and other complications. This service evaluation assessed the impact of the Reset Health programme on eating behaviour and binge eating.

660 members enrolled (mean age 47.5 ± 10.1yrs, mean BMI 35.0 ± 5.7 kg/m2; 58.9% White Ethnicity). Eating behaviour was assessing using Binge Eating Scale (BES) and Three Factor Eating Questionnaire (TFEQ). Mean BES score was 14.7 ± 8.4, mean TFEQ score 45.0 ± 13.6, subscale for TFEQ scores; Cognitive restraint, 2.24 ± 0.57, emotional eating 2.32 ± 0.63 and uncontrolled eating 2.65 ± 0.91. Members were supported on a TRE, low-carbohydrate, moderate protein plan delivered by clinicians and mentors with dietary guidance, goal setting, feedback, and social support. Data were analysed at 12-months of the 82 completers with completed data and reported using mean ± SD.

Members lost a clinically significant amount of weight 12-months, 9.0 ± 7.0 kg respectively ($p < 0.001$). Binge eating scale significantly reduced by 4.5 ± 7.0 ($p = 0.006$). Total TFEQ score reduced by 3.2 ± 12.5 ($p = 0.192$). Cognitive restraint score increased by 0.37 ± 0.64 ($p = 0.006$) while uncontrolled eating and emotional eating reduced by 0.34 ± 0.44 ($p < 0.001$) and 0.30 ± 0.76 ($p = 0.06$) respectively.

These results overall show that eating behaviour and binge eating risk are not negatively impacted in in members engaging in a clinically led, digitally-enabled TRE programme. Indeed, a modest reduction in disordered eating behaviours was observed. Of importance is that binge eating behaviour and uncontrolled

eating improved despite restraint increasing, suggesting that in a supported environment TRE does not increase risk for onset of eating pathology and can be effective and safe.

Disclosures: AB, SS, DP, JK, BM are on the medical advisory board and are shareholders in Reset Health. LC, LF are employed and are shareholders at Reset Health.

P46 Subjective Evaluation of Female Adult Body Fat Distribution: A Scoping Review

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Objective anthropometric measurements have been used to estimate central adiposity and predict risk of morbidity and mortality, although their implementation at scale is often challenging due to variability in diurnal variation, accuracy and precision of instruments, adherence to gold standard protocols, the anthropometrist's technical capacity, and the methods of data recording. Subjective methods for assessing body shape, such as photographs, silhouettes, and figure rating scales are low-cost alternatives, and have been extensively used in body image research, but limited information is available on their use in disease risk identification. Previous authors have highlighted ethnicity may be implied via facial and body features, and therefore tools may not transfer between population groups. Additionally, the inclusion of clothing items may distract from body shape or be useful for cultural sensitivity. This scoping review systematically identified the available visual subjective body shape assessment tools for assessing regional distribution of body fat, specifically for adult females, and their characteristics. MEDLINE, EMBASE, CINAHL, Scopus, and Web of Science were searched using a comprehensive search strategy focussing on two main facets: body shape and assessment tools, with no language restrictions. After deduplication, 12,332 articles were screened, and 232 records were considered potentially eligible for data extraction. Preliminary results from 167 included studies identified 80 tools. Seventeen identified tools were variations (number of images/shapes, ethnicity) of 9 'original' tools, and one tool was unavailable. Studies utilised tools to explore body image or shape attractiveness, satisfaction, or distortion (74.3%), health/ disease risk (14.4%), subjective tool development/ validation (12.6%), clothing/fashion (5.4%) or other (4.1%). Of 79 available tools, scale types were classed as figural (39.2%), photographic (21.5%), silhouette (15.2%), figural/ scanned image with shape overlay (6.3%), computer generated mannequins (5%), shapes (3.8%), somatograph (1.3%), and 7 tools were unclassified. The median number of body shapes used within tools was nine. Facial features were apparent in 34.1% tools, and 29.8% of 57 applicable tools implied nakedness. Reviewed literature highlights large variation in assessment tools, and primarily focussed on body attractiveness, satisfaction, and distortion. Further investigation into the subjective assessment of regional body fat distribution for disease risk identification is required.

Disclosures: None

P47 Evaluating Year 1 of the Dietitian-led Saxenda clinic in a Tier 3 Weight Management Service

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NICE technology appraisal (December 2020) recommends the use of Liraglutide for the treatment of obesity in adult patients with pre-diabetes and cardiovascular risk factors attending a specialist multidisciplinary tier 3 weight management service.

LUHFT (Liverpool University Hospitals Foundation Trust) provides a specialist tier 3 weight management service for Merseyside and surrounding areas. The service is a consultant led, MDT service, consisting of Dietitians, physiotherapists, Occupational therapists, psychologists, and support services.

Since March 2021, we have successfully integrated a dietitian - led Saxenda clinic into the weight management pathway. Currently, we have 125 patients underway within this pathway, with an additional 100 due to start, later in 2023. We run two weekly dietitian clinics with prescribing and side effect management support from a Consultant Endocrinologist (1 x hour weekly).

Patients must achieve a minimum 5% weight loss at Week 16 and sustain this weight loss, to be eligible for a repeat prescription of Saxenda, up to a maximum period of 2 years.

The objective is to determine the effectiveness of the Saxenda clinic at Year 1, in terms of weight loss and attendance, with emerging baseline and Year 1 biochemistry marker comparison.

A retrospective audit was carried out to examine weight loss at baseline, 6 months, and 12 months.

There are 125 patients who started on Saxenda in Year 1:

- 104 patients (83.2%) remain on Saxenda, having surpassed, and sustained >5% weight loss.
- 14 patients (11.2%) achieved <5% weight loss and were discharged from the Saxenda clinic.
- 5 patients (4%) experienced significant side effects (nausea, diarrhoea, and vomiting) and were withdrawn.
- 2 patients (1.6%) had significant adverse events requiring further investigations and medical treatment.

Mean weight loss at 6 months is 8.11%, with mean BMI at 6 months reducing from 53.09 to 48.67 kg/m^2.

The first 10 patients to reach 1 Year on Saxenda had a reduction in HbA1c of 20.16% (47.16–38.1 mmol/mol). The clinic attendance rate was 97%.

The Saxenda clinic has a low DNA rate and provides an effective weight loss intervention that significantly reduces HbA1c and T2DM risk in a Tier 3 Weight management cohort.

Disclosures: None.

P48 Assessment of the feasibility of extending the WHO Child Obesity Surveillance Initiative (COSI) to England. A qualitative study with key stakeholders

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The WHO Europe Child Obesity Surveillance Initiative (COSI), established in over 40 countries, collects height and weight measures with children aged 6–9 years alongside information on their physical activity and eating behaviours reported via a parent completed questionnaire. In England, the National Child Measurement Programme (NCMP), similarly collects height and weight measures but with children from a differing age group (4–5 and 10–11 years). The aim of this study was to explore the feasibility of a representative sample of Local Authorities (LA's) integrating an additional measurement year into the NCMP allowing England to join COSI. Online semi-structured interviews were conducted with key-stakeholders who would be involved in COSI delivery were it to be introduced. Thematic analysis was conducted using the framework method. Nineteen interviews were conducted with 27 participants, including representatives from WHO Europe, four countries participating in COSI, OHID, and public health teams

across eleven LA's. Two main themes were identified related to the introduction of COSI: (1) Potential benefits (2) Logistics and practicalities. Data allowing for comparison of childhood obesity rates in England to COSI countries, an additional child measurement point to prompt earlier intervention if required, and the parent completed questionnaire (providing contextual information related to physical activity and diet) were seen as key positives. There was strong feeling from participants that additional data collection should lead to action and not act solely as additional surveillance. Representatives from countries already participating in COSI spoke of the opportunities it provides including networking, and the use of data to inform health policies and allocation of resources. Pragmatic considerations (e.g., staff time and costs, school logistics) were discussed by LA representatives with notable variation related to the predicted resourcing which would be required to enable an additional measurement year into the NCMP. It was clear that were COSI to be introduced, schools and parents should be provided with clear information using appropriately sensitive language. Overall, there were perceived benefits of England joining COSI, alongside acknowledgment of potential challenges. Additional data collection would need a clear rationale presented to schools and parents, be well resourced and lead to visible action.

Disclosures: None

P50 Determinants of parents' infant snack choices and the impact of altering labels: A mixed method study

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In recent years there has been a significant increase in the types of food marketed as healthy snacks for infants and young children, despite many of these being energy dense and containing high levels of free sugar and salt. As well as providing nutrition, parents see commercial snacks as playing a non-nutritive role, such as keeping children occupied and enabling them to take part in family rituals. This study aimed to explore the determinants of parents' infant snack choices and assess the impact of removing specific 'health halo' messaging on parents' perceptions of healthiness and intentions to purchase. Participants were UK parents of children aged 6–23 months. An independent parallel mixed methods design was employed for complementarity. An online experiment was conducted with parents ($n = 1237$) to explore children's snack intake and parents' priorities for selection. Participants were randomised to view mock infant snack labels with or without health messaging. Perceived healthiness and purchasing intentions were measured. Chi-square tests were used to compare conditions. To explore factors shaping parents' infant snack choices in more depth and understand their perceptions of common infant snacks, an independent sample of parents ($n = 25$) took part in focus group interviews. Parents completing the online experiment indicated that infants consumed a mean (SD) of 2.5 (1.4) snacks/day. Most infants (87.5%) consumed some commercial infant snacks. When choosing snacks, parents reported prioritised health and development, as well as wanting snacks containing natural ingredients, fruit and vegetables, no additives and no sugar. Removing a single health halo message resulted in minor differences in healthiness and purchase ratings. For example, 16.8% of parents strongly agreed a product labelled 'packed with real fruit' was healthy compared to 12.3% viewing the product without this message ($X2(6) = 12.932$, $p = 0.04$). Focus group participants described complex and competing factors shaping their infant snack choices, including brand identity, social norms, and messaging on commercial snacks suggesting equivalence to fresh fruit and vegetables. Factors determining parents' infant snack choices aligned closely with common marketing messages, for example highlighting fruit content. Legislation restricting the use of health halo messaging on infant snacks could support parents to make healthier choices.

Disclosures: None

P51 Parents' beliefs about the sugar content of infant foods and the impact on parents' feeding choices of adding a high sugar indicator: A mixed method study

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Many infants and young children in the UK exceed national guidelines for energy and free sugar, increasing their risks of excess weight gain. Baby foods are frequently marketed as healthy despite containing high levels of free sugar. This study aimed to (i) assess the impact on parent's feeding choices of adding a high sugar indicator to infant food labels and (ii) explore parent's beliefs about the sugar content of infant foods. An online experiment was conducted with UK parents of children aged 6–23 months ($n = 1237$). Parents were randomly assigned to one of three groups. Each group viewed three varieties of infant dessert, all of which displayed either: (i) no information about sugar; (ii) high sugar indicators; or (iii) high sugar indicators plus the message 'contains natural sugar'. Chi-square tests were used to compare conditions. Parents could choose an infant dessert or indicate none chosen. The experiment was repeated with infant snacks. Parents then indicated their level of agreement with statements about the sugar content of infant foods. To better understand the way sugar labelling is used, in-person focus group interviews were conducted with an independent sample of parents of children aged 6–23 months ($n = 25$). In the online experiment, infant desserts displaying a high sugar indicator were chosen by fewer parents (68.3%) than identical desserts without a high sugar indicator (95.4%), and the impact of adding a high sugar indicator was smaller when 'contains natural sugar' was also shown, with 75.0% of parents choosing a dessert ($X2(2) = 101.0004$, $p < 0.001$). Results were similar for infant snacks. Survey responses indicated most parents believed foods marketed as suitable for babies didn't have added sugar (70.3%) and were low in sugar (63.5%). Most parents also believed that natural sugar in baby food wasn't bad for babies (59.5%). Parents attending focus group interviews expressed mixed opinions about 'natural sugar', they wanted clearer sugar labelling and supported the use of a high sugar indicator. Most parents believed infant foods had a low sugar content. Adding a high sugar indicator to infant foods and removing 'contains natural sugar' could support parents to reduce their children's intake of free sugar.

Disclosures: None

P52 The Equity Impact of the Soft Drinks Industry Levy (SDIL) in the UK

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The Soft Drinks Industry Levy (SDIL), announced in the UK in 2016, aimed to reduce SSB consumption. A criticism is its economic regressivity as those with lower incomes pay a greater

proportion compared to higher incomes. We use the Extended Cost-Effectiveness Analysis methodology to analyze the equity impact of the SDIL. We computed overall change in SSB consumption from the SDIL by income group and levy charges as a proportion of SSB expenditure per group. We considered averted cases of obesity and diabetes prevalence across income groups. We analysed averted direct and indirect costs due to reduction in health costs across income groups. After introduction of the SDIL, additional SSB costs were £42,334,968 for the lowest income tertile, £26,238,564 for the middle tertile and £35,474,062 for the highest tertile. 87,500 overweight cases and 59,900 obesity cases were averted in the highest income tertile; 82,300 overweight cases and 47,700 obesity cases in middle tertile; and 145,300 overweight cases and 97,300 obesity cases in lowest tertile. Direct diabetes cost savings due to cases averted annually is £18.52 million with greatest savings of £8.18 million in the lowest income tertile, £6.29 million in the middle tertile and £4.1 million in the highest tertile. The indirect savings saved include the savings of reduced absenteeism is £24.16 million overall, with greatest savings in the lowest income tertile of £10.66 million, £8.2 million in the middle tertile and £5.3 million in the highest tertile. Pension savings were calculated to be £23.5 million, £18.1 million, and £11.7 million across income tertiles lowest to highest respectively. Savings due to reduced expenditure on social welfare were £8.4 million saved overall, with £3.75 million saved in the lowest income tertile, £2.88 million in the middle tertile and £1.86 million in the highest income tertile. We found that the distributional impact of these factors across income tertiles demonstrates that the SDIL is not regressive as is assumed with many SSB taxes. The net savings are greatest in those of the lowest income tertile, and the net costs are greatest in those of highest income tertile.

Disclosures: None

P53 Exploring the perceptions of health, weight and obesity

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Obesity is a complex disease driven by factors largely beyond an individual's control (e.g., genetics, environment). Despite this, attitudes towards people living with obesity (PLwO) typically encompass negative stereotypes (e.g., laziness, lack of self-discipline), often placing blame on the individual. In this ongoing work, we explore perceptions held around weight, and how these link with health and being "healthy". Participants ($n = 110$ to date) completed an online survey comprising of demographic questions and validated questionnaires measuring experience of weight bias/stigma, views of PLwO, weight status, and physical activity. Participants viewed eight images depicting "healthy" (eating balanced meal, physical activity) and "unhealthy" (eating junk food, sedentarism) behaviours completed by individuals with healthy weight or obesity, and asked to describe what they see. Finally, participants were asked to report factors they believe contribute to good and poor health. Participants who self-identified as overweight or obese experienced greater number of stigmatising situations ($z = 624$, $p < 0.001$) and held more stigmatising views of themselves ($z = 560$, $p < 0.001$). However, stigmatising views of others, measured using validated questionnaires, were low across all participants. When measuring these views across image-based questions, comments were more negative if they depicted PLwO compared to healthy weight counterparts, regardless of the activity depicted ($z = 233$, $p < 0.001$). Comments to images of PLwO were more critical of the behaviour depicted (i.e., eating, physical activity) even where these are deemed "healthy". In comparison, images of individuals with healthy weight often focussed on wider factors (e.g., social interactions, occupation). Participants' views of good and poor health often centred around physical appearance; good health was linked with a slim or muscular build (associated with exercise), whereas poor health was linked with perceived larger body size and associated with general poor health (e.g., unhealthy diet, smoking, poor mental health). This data shows discrepancy in views of PLwO versus healthy weight. While quantitative data shows low stigmatising views, qualitative data identified clear bias; PLwO are consistently viewed more negatively even if they follow similar "healthy" behaviours as healthy weight counterparts. Addressing such discrepancies is important for eradicating weight-based stigma.

Disclosures: None.

P54 Caring for people living with severe obesity in the community; use of specialist equipment and housing adaptations, and associated costs

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People living with severe obesity (PLwSO) experience increased risk of functional disability, requiring specialist – often termed bariatric – equipment. Hospital staff commonly report difficulty accessing such equipment. Home health care for PLwSO is growing, yet equipment and adaptations used by community-dwelling PLwSO, including costs, are poorly documented. For a wider study in a Scottish local authority area, PLwSO known to community professionals consented to a home visit between February and December 2020, where an investigator-administered questionnaire included use of current medical equipment and housing adaptations. Care records were used to verify data. Local and published sources informed a micro-costing. Twenty-five individuals (15 women) participated, aged 40–87 (mean = 62) years, BMI 40–77 (mean 55) kg/m2, 20 were housebound. One participant had sourced equipment privately, whilst 24 (96%) had equipment or home adaptations provided by health or local authority services. Nineteen participants (76%) used specialist equipment to accommodate larger body size or weight. Total equipment costs were £114,637 ranging from £0 to £25,495 by participant (mean £4,585 for all, median £2,367). Ten (40%) participants had individual costs >£5,000. The most frequently used equipment were rise-recline chairs, aiding sit-to-stand and lower limb elevation, with 20 chairs (2 private) between 19 participants. Sixteen chairs were heavy duty or custom made, costing up to £5,190. Mean cost was £2,241, >3 times greater than standard chair costs. Twelve participants had hospital beds. Nine had bariatric beds at a mean cost of £1,824, nearly 4 times more than standard bed costs. Housing adaptations ranged from simple bathroom grab rails to full-scale house extensions involving architects and builders. Total adaptation costs were £134,194, ranging from £0 to £30,576 by participant (mean £5,368, median £412). Twelve (48%) participants had individual costs >£5,000. Wet floor showers were the most common housing adaptation, accessed by 16 participants. PLwSO commonly use specialist chairs and beds to enable activities of daily living at home, with associated significant costs. Further work is needed regarding usage and availability, to inform evidence-based decision making about person-centred care, effective resource utilisation, service development, staff training and health economic costing of obesity.

Disclosures: None.

P55 Is Orlistat an effective treatment option compared to newer anti-obesity medication in a specialist weight management service?

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MoreLife Tier 3 weight management service offers Orlistat and Liraglutide as treatment options to those that meet NICE eligibility criteria. As part of the medication pathways individuals receive comprehensive medical and dietetic consultation with the specialist team. For clients to continue on Liraglutide or Orlistat they need to demonstrate 5% weight-loss after 12 weeks at full dose. This evaluation compares data to discuss if Orlistat is an effective treatment option considering the introduction of newer medication.

This review compared data from 41 clients prescribed Liraglutide with 41 clients prescribed Orlistat who reached the point of weight-loss review, per NICE guidance, between April 2022 and April 2023.

For individuals treated with Liraglutide 4.8% of participants stopped treatment due to undesired side effects and 2.4% discontinued due to poor attendance. Comparatively, 14.6% of clients stopped Orlistat due to side effects and 12.2% due to attendance. At review, 9.7% clients were advised to stop taking Orlistat due to a new medical diagnosis considered adverse to treatment and 4.9% were not compliant with the recommended dose. On the Liraglutide pathway 37 clients (90.2%) reached the point of review were compliant with both medication and attendance, from this 92.1% achieved the 5% weight-loss goal. 24 clients (58.6%) were compliant on the Orlistat pathway and 54.2% of those had achieved the 5% recommendation. For individuals who continued on the medication pathway the mean weight loss was −10.9 kg and −8.4% (Liraglutide) verse −6.3 kg and −5.7% (Orlistat).

These results outline a significant difference in user compliance, frequency of side effects and weight-loss between the two medications. However, Orlistat has lesser criteria for eligibility comparatively thus preferable where Liraglutide is not appropriate. Additionally the cost of Liraglutide is around nine times higher than the cost of an Orlistat prescription. A recent systematic review on Orlistat outlines that 21% of clients achieved 5% weight-loss. Clients at MoreLife have more success (58.6%) which could be corelated to with robust medication pathway offering the addition of dietary assessment which may not be provided in primary care. Thus, Orlistat should be considered as an cost-effective treatment option for weight-loss with the correct support.

Disclosures: All authors are affiliated with MoreLife Tier 3 service from which the data was collated.

P56 Recruiting an ethnically and socioeconomically diverse population of women in the postpartum period: the Supporting MumS (SMS) randomised controlled trial

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Major physiological, psychological and social change is typical of the postpartum period. This poses challenges for engaging with weight management interventions, particularly for disadvantaged groups who are less likely to be represented in health research, creating a potential to increase health inequalities. Supporting MumS (SMS) is a United Kingdom (UK)-wide randomised controlled trial (RCT) that aims to examine the effectiveness of an automated text message intervention to support postpartum weight management.

A two-arm, multi-centre trial recruiting women, within two years of giving birth, with a BMI ≥ 25 kg/m2, from five sites across the UK. Recruitment sites were selected to target geographical areas of ethnic and socioeconomic diversity. Recruitment was via community and NHS pathways and the Born in Bradford Better Start (BiBBS) cohort study. Preliminary descriptive analysis examined the numbers screened for eligibility and randomised, participant characteristics and data on how women heard about the study.

Over a 12-month period, 2,199 women expressed an interest in taking part (Belfast n = 568, Scotland n = 367, Cardiff n = 601, Bradford n = 277, London n = 386), 1,221 women (56%) were screened for eligibility and 892 women (41%) were randomised (Belfast n = 200, Scotland n = 150, Cardiff n = 159, Bradford n = 194, London n = 189). Over 35% of the women screened were of non-white ethnicity. The majority of those screened/recruited heard about the study through social media including sponsored posts (50.2%/50.7%), followed by parental groups (17.5%/19.0%), friends/family (6.9%/7.9%) and GP/health professionals (2.2%/3.0%). Approaches differed across sites (London: 94% recruited through community-based, face-to-face methods; Bradford: >40% recruited via BiBBS and associated community links). Overall, participant mean age and BMI was 33.1 (±5.1) years and 32.5 (±5.7) kg/m2, respectively. The recruited sample ethnicity is: White = 66.1%, Asian/Asian British = 16.7%, Black/Black British/Caribbean/African = 11.0% and Other = 6.1%, with the largest proportions of women from Asian and Black groups recruited from Bradford and London sites, respectively. Household income distribution is: <£10k–30k = 33.9%; £30–60k = 35.1% and > £60k = 31.0%.

An ethnically and socioeconomically diverse sample of women was recruited using varied approaches and by including study sites with links and access to under-served populations. Retention and intervention engagement in different groups of women will be examined in the ongoing SMS trial.

Disclosures: Emma McIntosh is a member of the National Institute for Health Research (NIHR) Public Health Research (PHR) Funding Board. Caroline Free is a member of the Health Technology Assessment (HTA) Funding Committee. Frank Kee was a member of the NIHR PHR Research Funding Board and PHR Prioritisation Group (2009–19). Dunla Gallagher received funding from Slimming World (Miles-Bramwell Executive Services Ltd, Alfreton, UK) for work conducted prior to her involvement in this study (2013–2017).

P57 Innovative online portal is effective for adults with overweight and obesity to lose weight: STOP Project RCT

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Obesity care is an urgent global health related challenge. This research is part of the interdisciplinary European STOP project that aims to establish a data and knowledge ecosystem as a basis for the STOP Portal to enable healthcare professionals in decision support, and persons with obesity in analysis and feedback of health information to optimise healthy nutrition. The aim of this current randomised controlled trial (RCT) was to determine the effectiveness of the newly developed system for adults with overweight and obesity to lose weight. This was a pilot two-arm RCT: 1. intervention (n = 15) and 2. control (n = 15). All the participants were adults with overweight or obesity. The intervention group used the STOP Portal, while the control group did not use this system, no intervention. Participants were randomised into one of the two groups using a computer randomised programme. The primary outcome was percentage reported weight loss. Four data collection points for both the intervention and control groups at 1. baseline (month 0); 2. month 1; 3. month 2; and 4. month 3. Regardless, of what group the participants were in, their weight and height were recorded at each of these four data collection points. The STOP Portal collects the following data: physiological data, knowledge resources, biomedical data, self-reporting activity and food data. Ethical approval was obtained. A total of 30 adults registered for this pilot RCT and participated up to three months. The results clearly indicated that adults (18 years+) with overweight or obesity and were in the intervention group and using the STOP Portal significantly ($P < 0.001$) lost body weight (kg; % weight loss; BMI). Thus the STOP Portal is significantly effective for participants losing body weight. However, not all the participants in the intervention group used the STOP portal but still lost some body weight, indicating that not all participants would use a tool such as the STOP Portal. In conclusion, this RCT showed that the STOP Portal has potential to be effective for adults with overweight or obesity to lose weight, especially for those who engaged with it. Thus digital technology can support obesity care.

Disclosures: None

P58 Initial experience of digital weight management apps for patients waiting for a Tier 3 Weight Management service appointment

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The provision of Tier 3 Weight Management (WM) services varies across the UK and many services have significant waiting times from initial referral. The use of digital technology for WM services is increasing in popularity, both commercially and within the NHS in an attempt to reduce disparities in provision.

We received funding to purchase 94 licences for a 6-month programme using a Liva Healthcare coaching app, to be offered to patients on our waiting list for a first appointment in the WM service. Patients were screened by a WM nurse specialist (to exclude patients with eating disorders, pregnancy, prior bariatric surgery of significant mental health problems) and provided with verbal and written information about the programme. Between 3rd Oct 2022 and 31st March 2023, 324 patients were approached, and 94 (10 male and 84 female) patients were referred (29%). By the end of May, 61(65%) had enrolled with the programme, 33 were discharged.

Reasons for discharge: app not downloaded ≥ 40 days (17), multiple cancelled appointments and no further activity ≥ 40 days (4), did not attend initial appointment (4); no appointment made within 40 days (3), patient request (2), did not attend more than 3 appointments (2), on another programme (1).

Of the 43 patients referred before 15th December 2022, half have been discharged and only one person completed the 6-month programme so far (out of potentially 15).

Approximately 80 hours of the WM nurse's time was spent on the initial contact (screening referrals and contacting the patients). Further time was spent for follow up consultations, inputting patients to clinical systems, informing GPs and answering queries.

Outcome data regarding changes in weight and patient satisfaction for those referred to the 6-month programme are not available yet, so it is too early to make any conclusions. It is clear however, that screening patients on a WM waiting list is time consuming and patient engagement poor. Although a useful adjunct to weight loss for many patients, digital weight management programmes are unlikely to be the panacea for all.

Disclosures: None

P59 The effect of irregular meal pattern on nitrogen balance: a randomized controlled trial in healthy normal weight women

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Recently, irregularity of meal pattern has been considered as a possible new risk factor for obesity and its associated consequences. The effect of an irregular meal pattern on carbohydrate and lipid metabolism has been considered in a limited number of studies, however, the impact on protein metabolism has not been addressed. The aims of this study were to investigate the effect of irregular meal pattern, compared with a regular meal pattern, on nitrogen balance and subjective appetite in healthy normal-weight females over a 7-day period. In a randomized crossover trial, 14 female with healthy normal weight (mean ± SD BMI: 20.4 ± 1.5 kg/m2) followed in period 1 either a regular (6 meals/day) or an irregular meal pattern (3–9 meals/day). In period 2, participants followed the alternative meal pattern to that followed in period 1. The two (7-day) intervention periods separated by a wash-out period of 21 days. Nitrogen balance was calculated based on measuring of urinary urea nitrogen using daily 24-h urine samples. Subjective appetite ratings were recorded before and after each meal on day 7 during both intervention periods when 6 meals were consumed. Nitrogen balance between the two interventions was not significantly different ($P = .091$) over a 7-day period. Moreover, there were no significant differences in pre- and post- meal values between interventions in all appetite ratings (hunger, satiety, fullness, and prospective food consumption). The findings from the present study have indicated that the effect of meal pattern irregularity on nitrogen balance over 7-day period is not significant. With regard to subjective appetite, there were no changes in all appetite ratings with consuming a regular or irregular meal pattern which was inconsistent with previous studies. It would be of interest in future works to study overweight and obese individuals in the same protocol with restricted nitrogen content to make the findings applicable to a broader population and to conduct longer term studies.

Disclosures: None.

P60 Inclusive public health messaging for obesity and eating disorders: a focus on children and adolescents

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A focus of obesity public health messaging is making calorie information salient. As such, out-of-home sector calorie labelling regulations were introduced in England in 2022. Eating disorders (EDs) professionals and advocates are concerned that the focus on calories may inadvertently increase preoccupation with food, weight and shape, leading to increases in disordered eating behaviours and cognitions among vulnerable groups, including children and young people (CYP). Concern has been compounded by an increase in referrals for EDs among CYP in high-income countries over recent years. However, the specific impact of current obesity public health messaging on ED risk in CYP is not known. The Obesity Policy Research Unit is therefore undertaking research which aims to discern the range of weight and healthy eating messages that CYP are exposed to, and how these are understood, internalised, and acted upon. This will inform the development of inclusive public health obesity messaging that does not cause inadvertent harm to CYP who are living with, recovering from, or at risk of, an ED. The research involves Patient and Public Involvement and Engagement (PPIE), and qualitative and quantitative studies with CYP, parents and teachers. ~1000 CYP (aged 9–13) will be recruited via schools in urban and rural areas of England. A quantitative survey will establish their understanding of healthy eating and energy balance, and discern the messages they are exposed to (including both public health and non-government messaging) around weight, eating and body positivity. Qualitative research using focus groups will explore how CYP understand, interpret, and internalise messages around weight and healthy eating, and how these are acted upon. PPIE with CYP, parents, teachers, and individuals with lived experience of EDs will inform the research throughout, including recruitment materials, development of the quantitative survey, and the interview schedule for focus groups. EDs across the weight spectrum are increasing in prevalence among CYP in many high-income countries. A move towards making obesity public health messaging more considerate of CYP who are living with, or at risk of, an ED could have wide benefits and would support the healthcare principle of 'first, do no harm'.

Disclosures: None

P61 Nature and Nurture in the Development of Appetite From Infancy To Early Adolescence: A Longitudinal Twin Study

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Behavioural Susceptibility Theory hypothesises that inherited variation in appetite plays a causal role in the development of obesity from early life. However, to date, there have been few twin studies of the heritability of appetite in childhood, and none examining the developmental trajectory of genetic and environmental influences on appetite over key developmental stages during the lifecourse. This study therefore examined genetic and environmental contributions to variation in appetite over ten years, from infancy to early adolescence. Participants were from Gemini, a population-based cohort of $n = 2402$ pairs of British twins born in 2007, established to examine genetic and environmental influence on early growth. Parents reported on four core aspects of their children's appetite (food responsiveness [FR], slowness in eating [SE], satiety responsiveness [SR] and enjoyment of food [EF]), measured using the Baby/Child Eating Behaviour Questionnaire at 8 months, 16 months, 5, 7 and 13 years of age. Longitudinal twin models quantified genetic and environmental influences on variation in each appetite trait at the 5 time-points. Individual differences in all appetite traits were under significant moderate-to-high genetic influence across all stages of development (FR: 41–61%; EF: 59–77%; SR: 46–77%; SE: 43–83%), with the lowest genetic influence observed during toddlerhood for FR, EF and SR. For these three traits there was also significant influence from environmental factors shared completely by twin pairs, at younger ages, which was was highest during toddlerhood (FR: 51%; 95%CI:45–46%; EF: 31%;24–37%; SR: 43%;37–49%), but diminished as children matured into early childhood, with no significant influence on EF or SR by early adolescence. Environmental factors influencing SE at all ages were solely those that were unique to each individual twin (i.e. not shared with their co-twin). This study contributes to a burgeoning research base implicating appetite as a neurobehavioural mediator of genetic susceptibility to obesity, with strong triangulation of evidence now spanning behavioural genetics and a range of other study designs. However, the environment also shapes appetite importantly during the early years; toddlerhood, in particular, appears to offer a key window of opportunity for interventions targeting FR, EF and SR.

Disclosures: None

P62 Impact of Supervised Exercise Training on Habitual Physical Activity in Healthy Older Adults: The Hertfordshire Physical Activity Randomised Controlled Trial

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We aimed to determine the influence of a supervised, structured exercise programme on physical activity in healthy older adults, within the Hertfordshire Physical Activity Trial (ISRCTN 60986572). The setting was a community-based gymnasium in the UK. Participants included 100 healthy older adults (44% female, age range 67–76 years, without prevalent diabetes, cardiovascular disease or poor mobility) born and still living in Hertfordshire, UK with 96% follow-up. Half were randomised to the control group and received no intervention while the other half were randomised to the exercise group and received 36 supervised, moderate intensity, one-hour sessions on a cycle ergometer over 12 weeks. The main outcome measures for this post-hoc analysis was physical activity energy expenditure (PAEE) and its underlying intensity distribution over seven days. This was measured before, during and immediately after the exercise intervention with individually calibrated combined heart rate and movement sensing. Midway through the 12-week intervention, neither overall PAEE nor its underlying activity intensity distribution were different between groups. However, on the three days of the week that the structured exercise programme was delivered (Monday, Wednesday, Friday), the exercise group had a 9.1 kJ/ kg/ day ([2.5, 15.7], $p = 0.007$) increase in PAEE, a reduction in the proportion of time spent under 1.5 metabolic equivalents (METs) and an increase in time spent between 1.5 and 3 METs and above 3 METs, compared to the control group. In the week following the intervention, there was no difference in PAEE between the groups, but the exercise group spent more time between 1.5 and 3 METs, compared to controls. In conclusion, three one-hour bouts per week of structured aerobic exercise increased daily physical activity on the days they occurred, but did not change the overall

level of physical activity across the whole week. Future studies should focus on optimising the frequency, duration and intensity of exercise to support active living in this population.

Disclosures: None of the authors has any financial relationships with any organisations that might have an interest in the submitted work in the previous three years. There are no other relationships or activities that could appear to have influenced the submitted work.

P63 Novel Roles in the Obesity Service to Support Digital Interventions

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Digital interventions to support obesity care hold promise but also need to integrate within care pathways to make an impact. Especially where engagement and accountability are key. The services described were successful in obtaining two grants from NHSx (now transformation) for the implementation of digital pathways within the clinical system. Here we describe two novel human roles -exercise practitioner and digital navigator created to support the integration of the digital workstream into the care pathway. The roles included:

1. Raising awareness to staff and patients as to the benefit of the digital interventions
2. Using a variety of strategies to support digital recruitment and retention
3. Maintaining an overview of the care pathway and spacing digital and physical appointments
4. Monitoring progress using real-time data and self-reported data on the dashboard
5. Contacting patients as needed to support and promote self-empowerment
6. Using platform's analytics dashboard to provide patients with targeted support and guidance
7. Ensure integration of digital and clinical data
8. Creation of monthly reports, allowing for the evaluation of the project, and ensuring continuous reflection and improvement.

Digital outcomes will be reported separately. It is our conclusion that these novel roles supported the implementation and success of these digital solutions. Also supporting self-efficacy and clinician confidence in the new interventions.

Disclosures: None

P64 A digital solution to help people with obesity in North-east London navigate through health and lifestyle resources

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Obesity is a major public health challenge which contributes directly and indirectly to co-morbid health conditions, health inequalities and premature death. Evidence indicates that managing these levels of obesity in the population requires a combination of effective public health measures, an informed and engaged patient and an effective, holistic care pathway. Obesity is linked with deprivation and East London boroughs report some of the highest rates of adult obesity in London. There are several weight management services as well as third-sector options but navigating between them and selecting the most appropriate can be challenging. It is observed that attrition rates are high when people are passively referred, and resources are not relevant to them. In response to this, Barts Obesity Service has developed this novel concept for a dynamic, patient support platform. The vision is to provide a personalised solution for weight management which recognises the complex drivers and heterogeneity of obesity. The tool aims to present a reputable and up to date repository of weight management resources to encourage self-management where appropriate. The platform can be downloaded as an app or desktop programme. The platform provides a mechanism for patients to profile their needs through a series of health-related questions, followed by a list of resources which are personalised to that patient based on their profile. Resources offered are localised depending on the patient's home location and include a range of organisations from the third, business and public sectors who can support patients depending on their personal profile. The platform also offers risk information to patients to demonstrate the impact of their condition on future health. The aim of this bespoke resource app is to avoid inappropriate referrals and address huge waiting lists aggravated by the pandemic. The app is in the pilot phase and this project has been accepted for the Topol Digital Fellowship. If successful, this tool has the potential to facilitate integrated care and patient empowerment. It has the potential to be transformative for obesity care in the region.

Disclosures: None

P65 Physical Activity, Insulin Sensitivity and Cardiometabolic Risk in Healthy Older Adults: Cohort Analysis of the Hertfordshire Physical Activity Trial

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Physical activity is an important determinant of health, but the relationship between physical activity energy expenditure (PAEE) and anthropometric and metabolic traits, and how changes in PAEE influence these traits over time, have not previously been described in healthy older adults. We conducted a post-hoc cohort analysis of participants in the Hertfordshire Physical Activity Trial (ISRCTN 60986572), in which 100 healthy older adults (aged 67–76 years) were randomised to a 12-week supervised, structured aerobic exercise programme or to a control group with no intervention. We examined baseline associations between physical activity energy expenditure (PAEE, measured with individually calibrated combined heart rate and movement sensing) and anthropometric and metabolic characteristics at baseline, and how changes in activity during the intervention were associated with changes in these characteristics at follow-up. Of 100 participants (44% female) without prevalent diabetes or cardiovascular disease recruited to the trial, 93 had PAEE measures available. There were strong and consistent cross-sectional associations between PAEE and several measures of adiposity, insulin sensitivity and cardiometabolic risk, even after adjusting for aerobic fitness, but changes in physical activity were associated with changes in only some of these outcomes at 12 weeks. These findings emphasise the importance of physical activity for improving metabolic health and reducing cardiovascular risk, even in healthy older adults and independent of their level of aerobic fitness. Anticipated anthropometric and metabolic changes associated with increases in physical activity may take longer than 12 weeks to become apparent.

Disclosures: None.

P66 Assessment of weight stigma at the Barts Obesity Clinic

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Weight stigma refers to the discriminatory acts and ideologies targeted towards individuals because of their weight and size. It can have devastating social, psychological, and physical effects on people living with obesity. Weight stigma experienced in healthcare settings can lead to avoidance of future care, reduced quality of care and worsening of health inequalities. The All-Party Parliamentary Group on Obesity reported that 88% of the participants have been, stigmatised, criticised or abused because of their obesity and more than a third stated that they had not accessed any lifestyle or prevention services. To understand more about the experiences of people living with obesity at our centre, we created an anonymous questionnaire which was optional for patients attending the obesity clinic at Barts Health NHS Trust. Out of the 19 participants, 74% were female, all felt that they had an issue with their current weight. All had intentionally tried to lose weight of which 63% managed to lose weight. At our centre, 68% felt empowered to lose weight, 58% had been treated empathetically, 63% had been treated respectfully, 53% had felt stigmatized, 58% felt judged, and 53% felt discriminated against. They reported feeling judged by family members, at work and even by healthcare professionals. They just want to be seen as another human and are often labelled as lazy, someone who overeats and does not exercise. The uptake of this voluntary survey was sub optimal and is assumed that obesity and weight stigma remain a delicate topic. All individuals including healthcare professionals need to better acknowledge the negative effects of weight stigma throughout an individual's lifetime and empathise and support solutions. Increased understanding and awareness about the causes of obesity is of paramount importance. In response to the survey, we have started creating content to tackle misinformation including informative videos and interviews with people living with obesity. One of the videos provides a detailed qualitative patient testimonial about the effects of weight stigma. Weight stigma needs to be eradicated to help improve the care provided for people living with obesity.

Disclosures: None

P67 Personalised physical activity prescription via a digital therapeutic leads to increases in objectively measured activity minutes, and decreased in weight, in users with obesity

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The benefits of physical activity (PA) for people living with obesity are shown to be significant, regardless of any associated weight loss, including improved cardiovascular health and mental health. However, there are significant barriers to PA behaviour change for people with obesity. These include multiple co-morbidities, pain, fatigue, low self-efficacy and weight stigma. Clinicians supporting patients with weight management will advise patients to increase PA, however few have the specific knowledge needed to create personalised PA plans, and clinical exercise specialists are a limited resource. Digital therapeutics have the potential to provide accessible, scalable PA behaviour change support for people with obesity. 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. If 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 analysis of routinely collected data from all EXI users was undertaken. Over 30,000 people have initiated a PA journey using EXI. 8200 users listed obesity as a health condition. 45% of these users were provided EXI as part of a NHS, public health or private health service, including Tier 3&4 obesity services. 91% also listed at least one other health condition. For users with wearable devices who recorded data at week 12, weekly activity minutes increased significantly compared to week one ($t = -2.929$, $p < 0.005$). The mean increase was 51 minutes (30%). For users who self-reported weight at week 12, there was a significant decrease in weight compared to week one ($t = 3.841$, $p < 0.001$). The mean decrease was 4.67 kgs (4.2%). While there was much variance in the data, mean weekly prescription adherence ranged from 49–59% over 12 weeks. These findings indicate that EXI can support people with obesity to increase their PA and reduce their weight at significant levels, whether alone, or as part of a care pathway. Further development of EXI will seek to improve prescription adherence.

Disclosures: All authors are either employees or contractors of EXI and receive salaries or payments for their work.

P68 Engaging pregnant women in a healthy lifestyle intervention in Greater Manchester to reduce the risks associated with excess weight in pregnancy

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Excess weight in pregnancy is an increasing public health concern, growing in line with the global obesity pandemic. Having a BMI of >30 significantly increases the likelihood of a miscarriage from a 1 in 5 chance to a 1 in 4. The prevalence of obesity during pregnancy also is associated with multiple adverse short- and long-term negative health outcomes for both mother and baby. Existing provision in the UK to support women to reduce and manage excess weight in pregnancy is very limited, even though the issue is a widely acknowledged concern within maternity services and Integrated Care Boards. This service evaluation looks at the outcomes of a T3 weight management service delivering a care pathway providing healthy lifestyle support to pregnant women in Greater Manchester. Evaluation is based on service referrals, patient engagement, participation retention and patient reported health outcomes.

Patients were referred to the service by a local midwife based on an inclusion criteria of being pregnant and living with a BMI > 35. Eligible patients were triaged and offered the programme. The programme includes 6 flexible one-to-one sessions with a nutritionist with additional input of a multi-disciplinary team of clinicians including, dieticians and psychologists. Programme topics included mental health and wellbeing, balanced diet, physical activity and tackling myths as per NICE guidance.

Between 01.03.22 and 31.01.23, 77 referrals were made to the MoreLife service (31% of women referred were non-white); 47 (61%) women engaged with the antenatal service delivered through comprehensive sessions. 93% of women who started the study completed on average 4 sessions of the intervention, while 23% of participants attended 100% of the support available. All the participants reported a change to their diet which includes adherence to 5 A day, reducing sugar intake and 89% of participants reported improvements in self-reported health outcomes, such as management of gestational diabetes and hypertension. The programme outcomes demonstrate strong

levels of engagement from women with the programme, resulting in changed behavior and improved health.

Disclosures: All Authors work for MoreLife UK Ltd

P71 Barriers and enablers to the implementation of obesity prevention school-based interventions in Riyadh, Saudi Arabia: A qualitative study of high school staff and students informed by the COM-B model

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In the Kingdom of Saudi Arabia (KSA), adolescent health is suboptimal; findings from the KSA World Health Survey in 2019 indicated that, among those aged 15–29 years, 79% had insufficient physical activity and 30% were living with overweight or obesity. Regulations to improve physical activity and health for females were introduced in 2019. While schools are regarded as potential channels to improve public health, many fail to deliver obesity prevention strategies effectively. The aim of this study was to explore barriers to and enablers of implementing obesity prevention school-based interventions through conducting focus group discussions (FGDs) in the female school setting with different stakeholders. A total of n = 9 qualitative FGDs were undertaken across three female public high schools in Riyadh with differing levels of economic deprivation; n = 6 FGDs took place with students (aged 17) and n = 3 FGDs were conducted with school stakeholders (principals and teachers). This abstract reports on the principals and teachers' FGDs. A semi-structured topic guide was generated using the COM-B model exploring the capabilities, opportunities and motivations of teachers and principals regarding implementation of obesity prevention school-based interventions. A framework analysis was undertaken to explore barriers and enablers. FGDs were analyzed by examining COM-B constructs of capability, opportunity, and motivation. Factors relating to capability were consistent across different schools, with lack of trained staff as a prominent barrier; there was less consistency regarding enablers. Factors relating to opportunity were consistent across different schools; with the built school environment as a prominent barrier, and the newly introduced physical education curriculum as an enabler. The majority of stakeholders discussed the barriers to physical activity and healthy eating related to the opportunity of physical environment. Factors relating to motivation were also consistent across schools and were mainly around the importance of obesity prevention as an enabler, and lack of student motivation as a barrier. Principals and teachers in Saudi high schools across the socio-economic spectrum reported consistent barriers across the COM-B constructs. Enablers across opportunity and motivation constructs were also consistent. However, enablers in terms of capability were less consistent. These findings will help support school-based obesity prevention intervention development.

Disclosures: None

P72 Effectiveness of a diabetes education and behavioural weight management programme versus a diabetes education programme in adults with a recent diagnosis of type 2 diabetes: the Glucose Lowering through Weight management (GLoW) randomised controlled trial

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People with type 2 diabetes (T2D) who lose weight could potentially reduce their use of medication and risk of cardiovascular disease, and can even achieve T2D remission. We aimed to evaluate the clinical and cost-effectiveness of a tailored diabetes education and behavioural weight management programme compared with standard care in helping people with overweight or obesity and a recent T2D diagnosis to lower their blood glucose, lose weight and improve cardiovascular risk.

In this pragmatic, randomised, single-blind, parallel two-group trial, adults (≥18 years) with overweight or obesity (BMI ≥25 kg/m2) newly diagnosed with T2D (≤3 years) were randomised to a tailored diabetes education and behavioural weight management programme (DEW; delivered by WW) or to current standard care diabetes education (DE; the DESMOND programme). Participants completed assessments at 0, 6, and 12 months. The primary outcome was 12-month change from baseline in HbA1c. We also assessed bodyweight, other biochemical outcomes, behavioural measures (physical activity, food intake), and psychosocial measures (eating behaviour, quality of life). The intervention effect on change in outcomes was estimated from random intercepts linear regression models or logistic regression models. A microsimulation model estimated incremental lifetime costs and QALYs. Trial registration: ISRCTN18399564.

577 participants were randomised (DEW: 289, DE: 288); 398 (69%) completed 12-month follow-up. We found no evidence for an intervention effect on change in HbA1c from baseline to 12 months (adjusted difference: −1.08 [95% CI: −3.32, 1.15] mmol/mol, p = 0.34) or 6 months (−1.88 [−4.19, 0.42] mmol/mol). We found intervention effects on weight at 6 (−1.97 kg [−3.11, −0.83]) and 12 months (−1.46 kg (−2.69, −0.23]). Participants in DEW had higher odds of achieving remission than participants in DE (6 months: OR = 2.17 [1.03, 4.74]; 12 months: OR = 2.71 [1.35, 5.72]). DEW is likely to be more cost-effective than usual care at a £20,000 cost-per-QALY threshold.

Including a commercial behavioural weight management programme combined with remote dietary counselling after diagnosis of T2D could help more patients with overweight/obesity to achieve weight loss and remission and be more cost-effective compared with current standard NHS care.

Disclosures: ALA and SJG are the chief investigators on two publicly funded (MRC, NIHR) trials where the intervention is provided by WW (formerly Weight Watchers) at no cost outside the submitted work. ALA is a member of the Scientific Advisory Board for WW. AJH has consulted for Slimming World. CAH reports payment or honoraria from Ethicon, NovoNordisk and International Medical Press for lectures, presentations, speakers bureaus, manuscript writing or educational events. JM is a Trustee for the Association of the Study of Obesity (unpaid role). All other authors report no conflicts of interest.

P73 A Retrospective Analysis on the Impact of a Digital Lifestyle Intervention as a Specialist Weight Management Service for NHS-Referred Patients

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Second Nature offers a variety of digitally-delivered weight management programmes tailored to specific health needs, such as for people living with obesity or type 2 diabetes. This retrospective analysis aimed to examine the effectiveness of

Second Nature for people living with obesity, or obesity and type 2 diabetes.

This retrospective analysis of real-world data included NHS-referred patients with a minimum BMI of 35 kg/m2. The 12-month Second Nature programme was divided into a 'Core' phase, to promote initial weight loss, and a 'Sustain' phase, to support participants to maintain long-term behavioural changes. A Multi-Disciplinary Team (MDT) comprising of Second Nature's dietitian or nutritionist health coaches, exercise specialists, and each participant's General Practitioner (GP) or nurse ensured safe and effective care for each participant. This approach enabled the continuous monitoring of clinical measures and adjustment of medications as needed. Weight readings recorded at any point after two years were analysed using a paired t-test, with the null hypothesis being a weight loss of 0%. The sensitivity of the results to missing data were assessed using Last Observation Carried Forward (LOCF), which assumed the last weight reading before the two-year mark was maintained, and Baseline Observation Carried Forward (BOCF), which assumed a 0% weight loss.

The analysis involved 1,194 NHS-referred participants with a mean age of 49.9 (SD 12.0) years, a mean baseline BMI of 46.3 kg/m2 (SD 31.6), and composed of 787 females (66%). Out of these, 281 participants (24%) recorded weight readings after two years, with a mean weight loss of 11.8% (SD 11.9; $p < 0.001$). The LOCF analysis of 971 participants, showed a mean weight loss of 7.0% (SD 10.1; $p < 0.001$). Whilst the BOCF analysis showed a mean weight loss of 2.8% (SD 7.3; $p < 0.001$) across all 1,194 participants.

This analysis provides evidence to support the effectiveness of the Second Nature programme for people living with obesity. Participants who recorded weight readings after two years achieved clinically meaningful weight loss of 11.8%. These findings provide evidence that digitally delivered weight management interventions can effectively support participants with complex requirements when integrated with NHS weight management services.

Disclosures: Robbie Puddick, Rosie Carr, and Michael Whitman are Second Nature employees.

P76 The effect of tirzepatide on food intake in humans

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Tirzepatide (TZP), a GIP/GLP-1 receptor agonist delivered robust body weight (BW) loss in people with type 2 diabetes (T2D) and obesity in Phase 3 clinical trials. This randomized, double-blind, parallel study compared the effects of TZP 15 mg, semaglutide 1 mg (SEMA) and placebo on energy intake (assessed by an ad libitum lunch), appetite (visual analog scale) and body composition at baseline and at 28 weeks of treatment. At 28 weeks, reductions in BW from baseline were observed with TZP (−11.2 kg) and SEMA (−6.9 kg), and significantly differed between groups (−4.3 kg; $p < 0.001$). Reductions in fat mass from baseline were also observed with TZP (−9.7 kg) and SEMA (−5.9 kg), and significantly differed between groups (−3.8 kg; $p = 0.002$). Energy intake reductions from baseline observed with TZP (−348.4 kcal) and SEMA (−284.1 kcal) did not differ between groups (−64.3 kcal; $p = 0.187$). TZP and SEMA reduced overall appetite assessment score but did not differ between groups. TZP achieved greater weight loss than SEMA, consistent with results of the larger Phase 3 trial. BW reduction was mostly driven by fat mass loss. Significant and clinically meaningful reductions in appetite and energy intake were observed with both TZP and SEMA. However, these effects could not completely explain the additional weight loss with TZP. As appetite and energy intake reduction were not significantly different between treatments, additional mechanisms might contribute to the weight loss with TZP.

Disclosures: JD, AX, TC, ZM are employees and shareholders of Eli Lilly and Company

P77 Tirzepatide reduces body weight across body mass index (BMI) categories: A SURMOUNT-1 pre-specified analysis

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This pre-specified analysis of SURMOUNT-1 trial evaluated the efficacy of tirzepatide (TZP) according to baseline severity of obesity. Adult participants, with obesity, or overweight (OW) with weight-related comorbidities (excluding diabetes), were randomised (1:1:1:1) to once-weekly TZP 5, 10, or 15 mg, or placebo (PBO). Percent change from baseline in body weight (BW) and proportion of participants achieving ≥5% BW reduction at week 72 were assessed in participants with BMI ≥ 27– < 30 (OW), ≥30– < 35 (Class 1 obesity), ≥35– < 40 (Class 2 obesity), and ≥40 kg/m2 (Class 3 obesity). On treatment data prior to discontinuation of study drug were used for analysis. 2539 adults were randomised (female = 68%, mean age = 45 years, BW = 104.8 kg, BMI = 38.0 kg/m2). All TZP doses lowered BW vs PBO regardless of baseline BMI category ($p < 0.001$). The estimated treatment difference (95%CI) of TZP 5, 10, and 15 mg, respectively, vs PBO for the %BW change from baseline was: −13.6% (−18.0,−9.3), −15.2% (−19.6,−10.8), and −15.2% (−19.6,−10.7) in OW; −13.9% (−15.7,−12.2), −19.3% (−21.1,−17.5), and −18.6% (−20.4,−16.7) in Class 1 obesity; −13.3% (−15.3,−11.2), −20.0% (−22.0,−17.9), and −22.5% (−24.5,−20.4) in Class 2 obesity; and −13.4% (−15.5,−11.3), −18.2% (−20.2,−16.2), and −20.3% (−22.3,−18.3) in Class 3 obesity. The proportion of participants achieving ≥5% BW reduction in each BMI category, respectively, was greater ($p < 0.001$) with TZP (92–100%, 90–98%, 90–98%, and 87–97%) vs PBO (30%, 28%, 25%, and 30%). In adults with obesity, each TZP dose led to significant BW reductions vs PBO irrespective of baseline BMI. The higher TZP doses (10 and 15 mg) led to greater BW reductions.

Disclosures: CW Le Roux reports grants from Irish Research Council, Health Research Board, Science Foundation Ireland and Anabio, consulting fees from Novo Nordisk, Eli Lilly, Johnson & Johnson, Boerhinger Ingelheim and GI Dynamics, honoraria for lectures/speaker bureau for Novo Nordisk, Herbalife and Johnson & Johnson, travel support for attending meetings from Novo Nordisk, Herbalife and Johnson & Johnson. R Malik, N Ahmad, B Liu, MC Bunck, S Zhang and, and A Stefanski are employees and shareholders of Eli Lilly and Company.

P78 Co-production with underserved communities to produce tailored peer-led support groups for people living with obesity with a special focus on two distinct underserved groups: LGBTQ+ women and non-binary people, and South Asian Muslim women

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Obesity UK is the UK's largest charity representing the voice of people living with obesity and runs bi-weekly support groups providing much needed peer-led support. However, lesbian, gay, bi, transgender (including non-binary), queer or associated identities (LGBTQ+), and diverse ethnic communities are under-represented. LGBTQ+ people and South Asian Muslim women are more likely to live with obesity, but less likely engage with existing weight management services. Our primary aim is to improve equality, diversity, and inclusion, by providing support for, and enhancing the voice of, currently least heard and underserved communities at high risk of obesity and associated co-morbidities. This research is truly innovative: every aspect of this research has been or will be developed by people with lived experience of obesity. It is led by Obesity UK; with co-investigators who are patient and public representatives; and facilitated by researchers in the Obesity Institute alongside, University of Bradford, Leeds City Council, West Yorkshire Integrated Care Board, and local LGBTQ+ and South Asian communities across West Yorkshire. We will co-develop tailored peer-led support groups with these two communities and train community peers to facilitate. We will learn how to co-develop these support groups and evaluate whether the new groups are successful and achieve what they set out to do, according to co-produced core values and principles. We will learn how to create a sustainable model for developing other peer-led support groups tailored to the needs of other under-served communities across the UK and roll out using a co-developed implementation toolkit. Preparatory coproduction work with people with lived experience from both communities has already highlighted key learning points such as the need for a safe and supportive space free from stigma and using person first language in all support groups. The two diverse communities also have distinctive needs, women from the South Asian Muslim community prefer in-person support group meetings, and people from the LGBTQ+ community prefer online support groups. This co-produced research will underpin a substantive programme grant to develop a new wellbeing registry which will represent the needs of all people living with obesity and inform person-centred weight management care.

Disclosures: None.

P79 Acceptability of a habit-based behavioural intervention for pregnant women with overweight and obesity within an antenatal care clinic in Ireland: the Healthy Habits in Pregnancy and Beyond (HHIPBe) pilot RCT

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There is limited weight management support available to pregnant women with overweight and obesity. Evidence-based gestational weight management interventions that are acceptable and feasible to deliver are needed. This abstract reports the acceptability of the 'Healthy Habits in Pregnancy and Beyond (HHIPBe)' behavioural intervention delivered to pregnant women (BMI between 25–38 kg/m2) during routine antenatal care at a maternity care site in the Republic of Ireland. HHIPBe was adapted from the 'Ten Top Tips for a Healthy Weight (10TT)' intervention and encouraged development of ten diet, physical activity and weight management habitual behaviours. The intervention was a brief (15–20 minute) 1:1 intervention session delivered by a midwife in early pregnancy and supported by a leaflet, logbook and app. Due to the COVID-19 pandemic, sessions were delivered remotely or in person where feasible. Acceptability was assessed through semi-structured online interviews with women postpartum and healthcare professionals involved in study oversight, recruitment and intervention delivery. Data were analysed thematically. Twenty-one women were recruited at this site over 4 months (Age: 33.67 ± 4.44 years; BMI: 29.23 ± 3.37 kg/m2); 12 received the intervention. Participant interviews ($n = 6$) indicated that women found the brief 1:1 intervention session encouraging and non-judgemental, the tips achievable and materials useful. A sensitivity surrounding weight being discussed was apparent, however, it was also clear that women found the intervention very acceptable. Several women discussed the value of the intervention in terms of positive changes to diet, activity, weight management and wider family impacts. Some women would have valued the intervention earlier in pregnancy to start forming habits and managing their weight gain sooner. Healthcare professional interviews ($n = 4$) indicated that delivery of the brief 1:1 intervention was straightforward and that the bespoke training provided by the research team was helpful. The main barrier identified to integrating the intervention within existing care was staff availability to deliver it. This brief habit-based behavioural intervention to facilitate healthy eating and physical activity and aid appropriate gestational weight management was acceptable to pregnant women with overweight and obesity, has potential to be integrated into routine antenatal care and warrants further investigation in a full trial.

Disclosures: None.

P81 Glucagon-Like Peptide-1 Receptor Agonist (GLP1-RA) therapy can be initiated and managed safely, with high patient satisfaction, as part of a digital and remote Tier 3 obesity service

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Oviva UK, London

Tier 3 obesity services are being revolutionised by the arrival of GLP1-RA therapies, such as Saxenda®. These drugs have been shown to be highly effective in promoting weight loss in landmark trials. However, concerns exist that their reach may be limited by the lack of sufficient multidisciplinary Tier 3 services in the UK. The ability to develop a remote service for injectable GLP1-RA initiation and management provides significant scope for overcoming patient access barriers, provided this is safe and acceptable to patients. The authors aimed to deliver and evaluate a digital, remote Tier 3 obesity service that provides patients with the confidence and support required to safely initiate and manage injectable GLP1-RA obesity therapy (Saxenda®). Saxenda® was prescribed as part of a comprehensive 12 month digital and remote tier 3 weight management pathway to eligible participants ($n = 111$). A random sample of these patients ($n = 47$) were invited to provide feedback via a structured telephone survey. Patients were included regardless of treatment continuation status. Thirty-two patients (68%) provided feedback. Adverse event data was systematically collected for all participants on the programme and analysed. Across all ten questions, the proportion of responses that were positive ('Good' or 'very good') was above 93% (range 93.8%–100%). The proportion reporting their overall experience as positive was 96.9% [95% CI 84.3%, 99.5%], with 90.6% reporting their overall experience as 'very good' [95% CI 75.8%, 96.8%]. The proportion confident in initiating treatment

following remote consultation was 93.8% [95% CI 79.9, 98.3%]. No serious adverse events were reported for any GLP1-RA patients on the programme (n = 111). The results demonstrate that a remote specialist Tier 3 weight management service was highly effective in providing patients with the confidence and support they need to start and manage injectable GLP1-RA obesity therapy, with no safety concerns identified. Remote services can be a safe and highly acceptable means of overcoming patient access barriers to the emerging injectable obesity therapies.

Disclosures: None

P83 What happens to people who join a community weight management programme? Long-term outcomes up to seven years after first joining

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Obesity is a chronic condition and requires on-going or intermittent support over time. Community weight management programmes, such as Slimming World, provide ongoing support for people seeking weight management. Longer-term follow up outcomes of people receiving support from such programmes in self-funded settings is understudied. This study evaluates the most recent weight outcomes of adults who first joined Slimming World in 2016 and also accessed the service at least two years later. This secondary analysis included adults who joined Slimming World during 2016. Most recent electronic weight data for members who attended at least two years after joining were collated using last observation carried forward. Members who had at least one weight recorded between 2018 and 2023 (100,560 adults, 9.2% of people who joined in 2016) were included. Mean age and BMI at baseline were 49.4 (13.8) years and 33.9 (6.83) kg/m2 and 8.5% were male. 93.7% were matched to an IMD decile with 24.2% (n = 22,790) in the lowest three and 35.5% (n = 33,345) in the highest three deciles.

Mean change in weight and BMI was −11.2 (7.9)% and −3.9 (3.2) kg/m2 respectively with 20.4% at a personal target weight. Changes in weight by year of last reported weight were as follows; in 2018: −10.9 (7.5)% (n = 50,332), 2019: −11.2 (7.9)% (n = 20,731), 2020: −11.0 (8.3)% (n = 14,407), 2021: −11.5 (8.9)% (n = 5,343), 2022: −12.0 (8.4)% (n = 3,299) and 2023: −13.6 (8.6)% (n = 6,448). Year of last reported weight positively correlated with joining age ($r = 0.19$, $p < 0.001$) whilst correlations with joining BMI and IMD were not meaningful (both $r < 0.001$). This evaluation shows successful long-term weight outcomes from two to seven years in adults from a range of socioeconomic backgrounds who received weight management support from Slimming World. Results show that people achieve and/or maintain losses of over 10% with around 20% attending at their personal target weight. Although this data doesn't explore if continuous or intermittent support was accessed, this analysis highlights the importance of open-ended support as a key factor in successful obesity management.

Disclosures: All authors work full or part-time for Slimming World.

P84 The UK Obesity Landscape: Results from the UK Primary Care Cohort of the IMPACT-O Study

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The EpIdeMiology Landscape and PAtient Care paThways of Obesity (IMPACT-O) study is a multi-country retrospective cohort study that reports the rates and impact of overweight/obesity across selected countries in Europe and the Asia-Pacific region. Epidemiological data can be used to help inform public health decision-making. The IMPACT-O study utilises electronic medical records (EMR) and claims databases standardised to the Observed Medical Outcomes Partnership Common Data Model from Australia, China, France, Germany, Italy, Spain, the UK and Japan. Here we report data from the UK IMRD (IQVIA Medical Research Database) THIN (The Health Improvement Network) database for the April 2023 data cut. UK IMRD is a database of anonymised EMR collected at primary care clinics throughout the UK. The total number of adults with overweight/obesity, based on diagnosis codes and/or body mass index (BMI) between 2018–2022, was estimated. For the prevalent cohort, BMI category and comorbidities were described for adults (≥18 years) with ≥1 BMI record of ≥25.0 kg/m2 (for overweight or obesity) and ≥12 months before the index date (highest BMI record). BMI was recorded for 38.9% of active patients in the database (n = 4,454,982). Overall, the number of adults identified with overweight or obesity based on BMI (≥25.0 kg/m2) and/or diagnosis codes was 1,110,830, of which only 4.2% had a diagnosis code present. The prevalent cohort consisted of 893,246 individuals; of those, 403,502 (45.2%) had overweight ($25 \le BMI < 30$), 271,746 (30.4%) had obesity class I ($30 \le BMI < 35$), 128,216 (14.4%) had obesity class II ($35 \le BMI < 40$), and 89,782 (10.1%) had obesity class III ($BMI \ge 40$). 71.2% of adults with overweight/obesity had ≥1 comorbidity (n = 636,044) and 47.8% (n = 426 820) had multimorbidity (≥2). Overall, the most common comorbidities were hypertension (50.0%), dyslipidaemia (34.5%), depression (27.5%), and type 2 diabetes (15.7%). Generally, comorbidity rates increased with BMI category. These UK primary care cohort results demonstrated that only a small proportion of people with overweight/obesity had formal documented coded diagnoses in their EMR. Since diagnosis codes and weight/height (BMI) may be poorly recorded in EMR, there may be an underestimation of the number of people with overweight/obesity.

Disclosures: Alun Lloyd Davies, Esther Artime and Lill-brith von Arx are employees and shareholders of Eli Lilly and Company. Erik Spaepen is an external consultant of Eli Lilly and Company. Kamlesh Khunti acted as a consultant, speaker, or received grants for investigator-initiated studies for AstraZeneca, Boehringer Ingelheim, Eli Lilly and Company, Merck Sharp and Dohme, Novartis, Novo Nordisk, Sanofi-Aventis and Servier; consultant and speaker for Abbott, Amgen, Bayer, Napp and Roche; and is the study lead for UK for Applied Therapeutics and Oramed Pharmaceuticals. Matt Capehorn is the Medical Director of Lighterlife; serves as an Ad Hoc Medical Advisor to McDonalds, UK; and has also received honoraria for talks or attendance at meetings from Novo Nordisk, Eli Lilly and Company, and Boehringer Ingelheim. Atif Adam, Xiaoyu Lin, Mengyuan Shang and Sarah Seager have no conflict of interest to declare.

P85 Baseline characteristics of participants of the Best Health Adult Weight Management Programme, a dietitian-led online community based behavioural intervention

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Funding was allocated for the design and implementation of a dietitian led online behavioural weight management programme, as part of the integrated model of care for prevention and management of chronic disease within the Irish healthcare system. Referral criteria for the programme includes adults with a BMI ≥ 30 kg/m2 with co-morbidities. The programme includes an initial 1:1 assessment followed by 14 group sessions delivered over 12 months. The aim of this study is to describe the baseline characteristics of participants in the early implementation phase between October 2021 and November 2022 across five sites.

The majority of recruited participants were sourced from validated waiting lists of patients referred to the dietitian for weight management. Baseline characteristics data was entered via SmartSurvey.co.uk and included socio-demographics, anthropometry, co-morbidity status, and biochemistry relating to cardio-metabolic health (if available). Participants who accepted a place on the programme completed a questionnaire that included rating their confidence (1 = Not at all Confident, 7 = Extremely Confident) in talking to a healthcare professional about their health and in using technology to access a virtual weight management programme. Data analysis was completed using MS excel.

Main source of referral was via GP (59%) and 111 patients completed an initial assessment. The mean age was 55 (±14) years, majority female (74%) and 24% are living with Type 2 diabetes. Mean weight was 111.3 (±25.4) kg (range = 75.2–223 kg, n = 107). Mean body mass index (BMI) was 40.7 (±7.4) kg/m2 (range 30–61 kg/m2, n = 107). Mean LDL cholesterol was 2.63 (±1.1) mmol/L (range = 0.8–5.5 mmol/L, n = 52). Participant's median rating of confidence in talking to a healthcare professional about their health was 6 (n = 83) and in using technology to access the programme was 5 (n = 74).

Findings indicate further work is needed to improve engagement with men and younger people. Higher BMI and prevalence of co-morbidities at baseline highlights the need for improving access to specialist obesity services.

Disclosures: None.