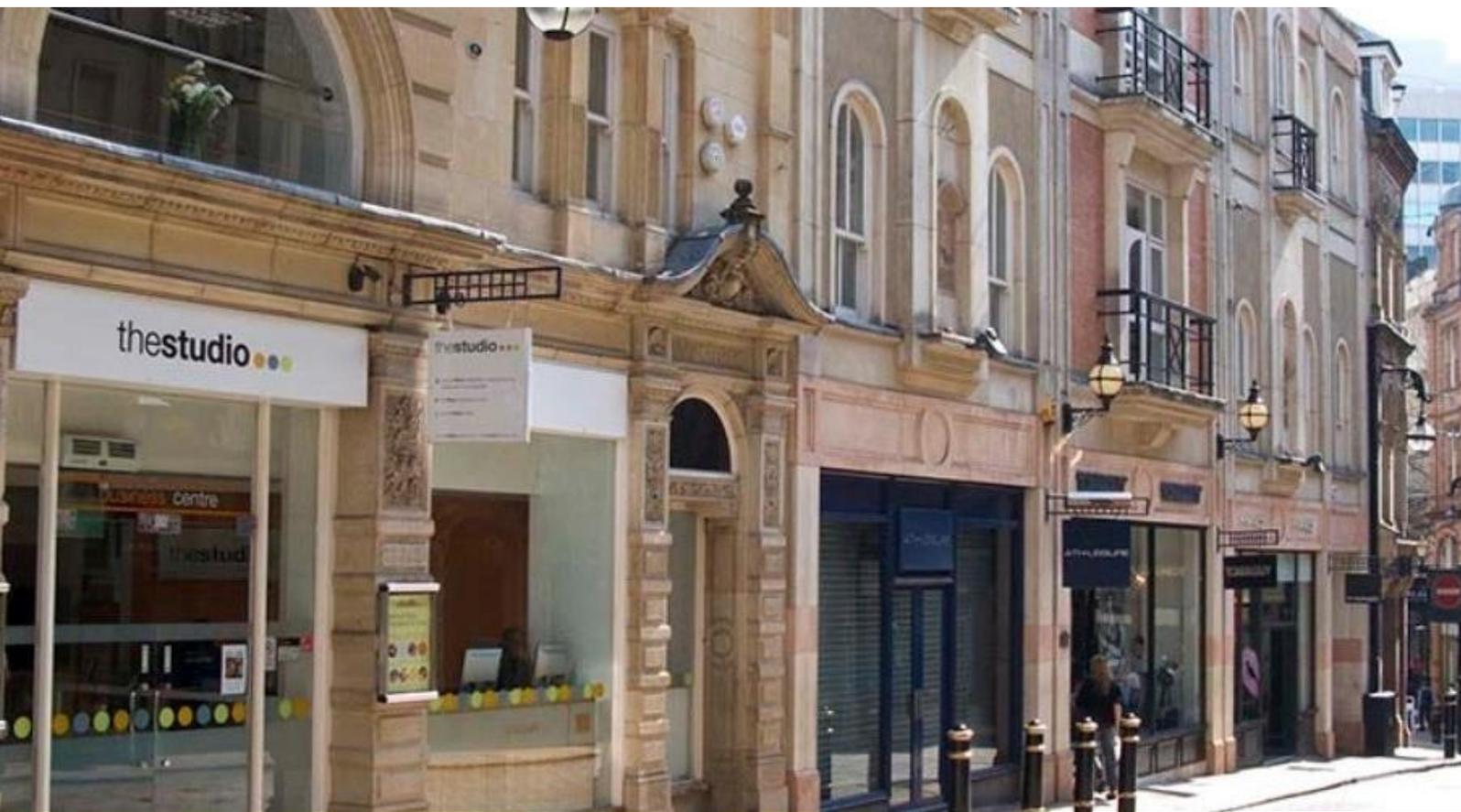# UKSBM
UK Society for Behavioural Medicine

18th UK Society for Behavioural Medicine Annual Scientific Meeting

Tuesday 28th - Wednesday 29th March 2023
theStudio, Birmingham

UNIVERSITY OF BIRMINGHAM

Prize Winning Presentations

Mindfulness improves wellbeing and depression by supporting health maintenance behaviours: RCT of an accessible digital mindfulness-based intervention

Masha Remskar[1], Dr Max J. Western[1], Dr Ben Ainsworth[2]
[1]*University of Bath, UK,* [2]*University of Southampton, UK*

Background: Evidence suggests mindfulness-based interventions can improve wellbeing and reduce symptoms of depression and anxiety. However, the mechanisms of change in this relationship are unclear. This pre-registered randomised controlled trial evaluated a freely-accessible, self-administered digital mindfulness programme as an intervention to improve wellbeing, mental health and sleep quality. Psychological constructs associated with regular engagement in health maintenance behaviours were explored as possible mediators.

Methods: A large international sample (N = 1247, Mage = 27.03, SD = 9.04) were randomised to 30-day intervention with daily mindfulness practice or attention-matched control condition. Participants completed questionnaires (including wellbeing, depression, anxiety, stress, sleep quality, health maintenance self-efficacy, self-regulation and behavioural predictors, such as attitudes and social norms) at baseline, 1-month (post-intervention) and 2-month follow-up. Linear mixed models tested for the effects of intervention on outcomes. Longitudinal mediation analyses explored indirect effects through health maintenance-related constructs.

Results: Relative to control, the intervention condition reported significantly lower depression symptoms (Mdifference= -1.13, 95%CIs -1.84 to -0.43, p= .002), better wellbeing (Mdifference= 1.63, 95%CIs 0.38 to 2.89, p = .011) and sleep quality (Mdifference= 0.27, 95%CIs 0.00 to 0.54, p = .047). Time-Condition interaction terms were significant for depression (p = .012) and approaching significance for wellbeing (p = .073). Effects of intervention condition on depression and wellbeing at follow-up were mediated by more favourable self-regulation and attitudes towards health maintenance at post-intervention. For attitudes towards health maintenance behaviours, but not for self-regulation, these effects remained while controlling for earlier measurements of the mediator and outcome in the models of both depression and wellbeing.

Conclusions: Digital mindfulness is a promising and scalable wellbeing tool for the general population. This trial explored the mechanisms through which this occurs, highlighting the role of mindfulness in supporting health maintenance behaviours. Future work could harness these effects to facilitate health behaviour change.

•••

Using systems mapping as part of the process evaluation of a community-based peer volunteering programme: The Active, Connected, Engaged (ACE) randomised controlled trial.

Dr Nick Cavill[1], Dr Katie Chatwin[2], Zsofia Szekeres[4], Amy Davies[3], Prof Colin Greaves[2], Dr Helen Hawley-Hague[3], Prof Diane Crone[4], Dr Janet Withall[5], Prof Janice Thompson[5], Prof Afroditi Stathi[2]
[1]*Cavill Associates Ltd, Stockport, UK,* [2]*University of Birmingham, Birmingham, UK,* [3]*University of Manchester, Manchester, UK,* [4]*Cardiff Metropolitan University, Cardiff, UK,* [5]*University of Bath, Bath, UK*

Background: System mapping has mainly been used either to help to plan interventions or programmes in complex systems; or to help to develop approaches to the evaluation of complex interventions. Here we explore the application of system mapping as part of the process evaluation of a community-based active ageing intervention: the Active, Connected, Engaged randomised controlled trial (ACE).

Method: Ten workshops were held across three of the ACE intervention sites (Cardiff, Stoke on Trent and Manchester) to develop system maps. These involved: 54 participants (mean age 74); 17 volunteers (mean age 65) and 31 stakeholders (from NHS, statutory and voluntary sectors). These explored the influences on physical activity and the potential relevance of the ACE approach.

Results: System maps were produced showing the main outcome (physical activity) and how it connects to motivators and barriers to physical activity; the roles of stakeholders; and the ideas of volunteers. These led to changes to the intervention approach; and helped to refine the study's logic model.

Conclusions: System mapping has so far proved to be a useful component of the process evaluation for the ACE trial. In the future it will be used to explore any changes to the physical activity system after the ACE intervention.

Implications: System mapping might be considered as part of process evaluation of future intervention studies.

•••

Participatory systems mapping: new guidance and applications in health behaviour research, policy and practice

Convenor & Discussant: Prof Laurence Moore, MRC/CSO Social and Public Health Sciences Unit, University of Glasgow

Purpose: To reflect on how participatory systems mapping (PSM) methods can be applied across disciplines in health behaviour research, policy and practice to optimise intervention design and evaluation, and support behaviour change.

Objective: 1) To present findings from a recent systematic review, and guidance on the choice and design of PSM; 2) To illustrate the potential of PSM through three case examples of empirical research from different disciplines, which focus on different health topics and countries; and 3) To facilitate a discussion about future applications and developments of PSM for strengthening systems and optimising health behaviour research.

Rationale: Systems approaches to improve health through prevention and intervention, and the growth of complex systems methods, are key areas for development in health behaviour research, policy and practice. Within this, methods such as PSM are critical to ensure research and practice are grounded in the multiple perspectives of a system held by diverse stakeholders (e.g. policymakers, practitioners and service users).

Summary: Four complementary presentations will illustrate key aspects and applications of PSM research. These will be followed by a facilitated discussion between presenters, with input from the convenor and delegates. Presentation 1) Contextualising the symposium with findings from a scoping review, and information on the development and use of a guiding framework for selecting and developing PSM methods. Presentation 2) Findings from a collaboration between UK and Filipino institutions, focused on call centre mental health and wellbeing, which highlight ways to adapt and implement PSM in time-scarce situations. Presentation 3) Findings and methodological reflections from an online PSM activity with secondary school children in Scotland and Wales, focused on adolescent sleep interventions. Presentation 4) Findings from a PSM study designed to increase young people's involvement in sexual health policymaking and service improvement, and identify intervention leverage points.

•••

Mapping the use of participatory systems mapping in population health research, and developing guidance for future applications

Dr Benjamin Rigby[1], Carolyn Blake[1], Dr Roxanne Armstrong-Moore[2], Prof Martin White[2], Prof Nigel Gilbert[3], Prof Petra Meier[1], Prof Kirstin Mitchell[1], Prof Sharon Simpson[1], Dr Alexandra Penn[3], Dr Peter Barbrook-Johnson[4], Dr Mohammad Hassannezhad[5], Ben Readman[3], Prof Laurence Moore[1]
[1]MRC/CSO Social and Public Health Sciences Unit, University of Glasgow, Glasgow, UK, [2]MRC Epidemiology Unit, University of Cambridge, Cambridge, UK, [3]Centre for the Evaluation of Complexity Across the Nexus (CECAN), University of Surrey, Guildford, UK, [4]Environmental Change Institute, University of Oxford, Oxford, UK, [5]School of Engineering and Materials Science, Queen Mary University of London, London, UK

Background: Participatory systems mapping (PSM) is increasingly used in health behaviour research. To date, however, there have been limited attempts to map this evolving landscape, or develop guidance and tools to inform the evidence-based choice, design and conduct of PSM in health behaviour research. We aimed to address this gap in the methodological literature. This first presentation provides a contextual overview of PSM methods and an introduction to key elements from our methods guidance, which will be illustrated in-depth in subsequent presentations.

Methods: Guidance was developed by an interdisciplinary, multi-institution team and derived from three processes: i) a systematic mapping review of the extent and nature of PSM in population health research; ii) key informant interviews; iii) a three-part consultation with international PSM experts (survey, workshops, written consultation). Data were analysed thematically and iteratively to facilitate guidance development.

Results: The mapping review showed diverse applications of PSM in health behaviour research, while the consultation highlighted the need to explore practical and meaningful approaches to participation, analysis and application of maps. A framework was developed to support the selection and design of different PSM methods, which emphasises three domains: optimising stakeholder participation; feasibility of implementation; and using maps for intervention development.

Conclusions and implications: This new guidance and associated framework are relevant to those with and without experience of PSM, as well as in both research and practice settings. It will support the selection of research methods, and highlights key opportunities for developing these approaches in health behaviour research.

Using participatory systems mapping to understand mental health and wellbeing in Filipino call centres

Carolyn Blake[1], Dr Maria Guadalupe Salanga[2], Prof Nino Jose Mateo[2], Charisse Tan[2], Dr Evangelia Demou[1], Dr Ruth Lewis[1], Prof Kirstin Mitchell[1]
[1]MRC/CSO Social and Public Health Sciences Unit, University of Glasgow, Glasgow, UK, [2]De La Salle University (DLSU), Philippines

Background: Call centres are a fast-growing industry in the Philippines. Although well-paid, call centre employees have little control over their work and must meet high demands under time pressure. These work conditions can lead to mental ill-health. Poor mental health can lead to lower productivity, increased sickness absence and higher staff turnover rates.

Methods: Using participatory systems mapping, researchers collaborated online with call agents, team leaders and managers from two large call centres (3 sites) in the Philippines to build maps of mental health and wellbeing issues, and use these to design an intervention. To build and validate maps with stakeholders, 11 online workshops took place with 57 participants. To facilitate discussions, the research team used a suite of online tools to ensure stakeholders could have an active role in: discussing mental health and wellbeing; mapping their system; and identifying possible areas for intervention.

Results: The maps highlighted the prevalence of stress, anxiety and sleep-related issues among call centre staff. These issues were caused by a complex array of factors and causal loops that are produced and reproduced by local factors, as well as external factors linked to the competitiveness of the sector at national and global level. Leverage points were identified and formed the basis of intervention development targeting middle managers (team leaders).

Conclusions and implications: The methods developed in this project may be useful to other researchers working in the corporate sector or in settings with limited access to system stakeholders.

Rapid systems mapping with secondary school-aged children to inform intervention development: reflections from a study to reduce interactive electronic device and social media use among adolescents (CLOCK OFF)

Dr Colin B. Shore[1], Dr Anne Martin[1], Dr Benjamin Rigby[1], Carolyn Blake[1], Dr Rhiannon Evans[2], Prof Sharon Simpson[1]
[1]MRC/CSO Social and Public Health Sciences Unit, School of Health and Wellbeing, University of Glasgow, [2]Centre for Development, Evaluation, Complexity, and Implementation in Public Health Improvement (DECIPHer), School of Social Sciences, Cardiff University

Background: Systems-based methods are increasingly utilised to understand influences of health behaviours. However, few have been applied to sleep-related behaviours; previous research is typically limited to complex psycho-physiological systems. Furthermore, systems research often requires longer timeframes, which do not necessarily reflect the realities of practice, and is seldom conducted alongside school-aged children. During a wider study, we tested rapid participatory systems mapping (PSM) methods for describing the social system that influences night-time interactive electronic device (IED) use and sleep quality among adolescents.

Methods: 90-minute online (MS-Teams) workshops were individually conducted with children (aged 11-14) in three separate schools (n= 5, 5 and 8). Experienced PSM researchers facilitated the workshops and used StickyStudio to conduct: i) problem scoping; ii) factor elicitation; iii) systems mapping. Factors were reviewed and mapped for each school using a pragmatic causal chain analysis before amalgamation into a final systems map. The final map was validated by a fourth group of children, and adult stakeholders (e.g. parents).

Results: The systems map indicates the core relationship between night-time IED use and sleep quality is influenced by myriad psychological, physiological, social, and technology-related factors. Key influences of IED use included: social media use; psychological state (e.g. motivation/boredom); social pressure (e.g. peer/parent influence). Key influences of sleep quality included: IED use; sleep patterns; light/sound conditions; and psychological state (e.g. emotions/anxiety).

Conclusions and implications: Rapid online PSM with adolescents is viable for describing health behaviour systems. Interventions should consider the systemic influences of IED use and sleep across multiple levels.

Using participatory systems mapping to understand young people's involvement in sexual health policy and service improvement in Scotland

Dr Ruth Lewis[1], **Carolyn Blake[1]**, Billie Turner[1], Prof Kirstin Mitchell[1]
[1]*MRC/CSO Social and Public Health Sciences Unit, University of Glasgow, Glasgow, UK*

Background: Despite increased interest in involving young people in shaping sexual health policies and services, meaningful youth involvement remains uncommon. Existing attempts typically lack both sustainability (e.g. one-off consultations about services) and direct collaboration between young people, policymakers and practitioners. As part of a participatory project aiming to increase young people's meaningful involvement in sexual health improvement in Scotland (CONUNDRUM Action), we used participatory systems mapping (PSM) methods with a diverse range of stakeholders to understand the dynamics underpinning young people's involvement, and to identify key leverage points for increasing youth participation.

Methods: Initial factors shaping youth involvement in sexual health policy and service improvement were identified in online workshops with a researcher-led Action Group (n=34 members) comprising young people, policymakers, health service providers, and charity sector actors. Further factors regarding youth involvement were elicited from a wider group of stakeholders (n=18) via online interviews co-designed and conducted by young people from the Action Group. The systems map was validated with stakeholders in a two-stage process including online workshops (n=2) to discuss and refine a draft map, and an online survey.

Results: The PSM process increased stakeholders' understanding of the current (lack of) involvement of young people in sexual health policymaking and service improvement, and opportunities for change (participatory analysis of leverage points is currently underway and will be included in the presentation).

Conclusion(s): Involving young people in PSM both as participants and researchers can strengthen the process and lead to meaningful collaboration between young people, policymakers and practitioners.

●●●

Evaluating fourteen interventions promoting the selection of lower-calorie options in food delivery apps: results from three randomised controlled trials

Dr Filippo Bianchi[1,2], Madison Luick[3], Dr Lauren Bandy[3], Dr Jonathan Bone[1], Stefan Kelly[1], James Farrington[2], Jovita Leung[2], Dr Bobby Stuijfzand[2], Dr Abigail Mottershow[2], Filip Murar[2], Frances Bain[1], Dr Susan Ann Jebb[3], Hugo Harper[1,2], Dr Rachel Pechey[3]
[1]Nesta, London, UK, [2]Behavioural Insights Team, London, UK, [3]University of Oxford, Oxford, UK

Background: More than 25M adults in the UK use delivery apps, such as UberEats, to order takeaways that are high in calories and nutrient-poor. Interventions promoting lower-calorie options in delivery apps could help reduce obesity. However, little is known on the effectiveness of this approach.

Methods: We developed a simulated food delivery app and conducted three randomised controlled trials. In each trial, participants did a simulated order and the primary outcome was the number of calories at checkout. In total, the trials included 23,783 adults and tested 14 interventions against a control. Data were analysed using gamma regressions.

Results:
- The first trial tested three interventions pre-selecting small portions by default. All three interventions significantly reduced calorie purchases with average effect sizes ranging from -5.5% (95%CI: -1.5% to -9.6%) to -12.5% (-8.5% to -16.6%) kcal/order (N=6000, all p<0.05).
- The second trial tested four interventions repositioning foods and restaurants to make lower-calorie options more prominent. All interventions significantly reduced calorie purchases with effect sizes ranging from -6.4% (-3.3% to -9.4%) to -15% (-12.2% to -18%) kcal/order (N=9003, all p<0.05).
- The last trial tested seven calorie labels. Five out of seven labels significantly reduced calorie purchases with effect sizes ranging from -4.3% (-0.4% to -7.9%) to -7.8% (-4% to -11.4%) kcal/order (N=8780, all p<0.05).

Conclusions and implications: Behavioural interventions could help people select lower-calorie options when ordering takeaways in delivery apps. Overall, positioning interventions emerged as the most promising approach, followed by interventions pre-selecting smaller portions by default, and finally calorie labels. Future research should assess the long-term impact of these interventions when implemented in the real world.

●●

Calorie (energy) labelling for healthier selection and consumption of food or alcohol: Cochrane systematic review

Dr Natasha Clarke[1,2], Emily Pechey[1], Ian Shemilt[3], Dr Mark Pilling[1], Nia W Roberts[4], Prof Theresa M Marteau[1], Prof Susan A Jebb[4], **Dr Gareth J Hollands**[1,3]
[1]Behaviour and Health Research Unit, University of Cambridge, Cambridge, UK, [2]School of Sciences, Bath Spa University, Bath, UK, [3]EPPI Centre, University College London, London, UK, [4]Nuffield Department of Primary Care Health Sciences, University of Oxford, Oxford, UK

Background: Calorie (energy) labelling is advocated as a means to reduce energy intake from food and alcoholic drinks. There is, however, continued uncertainty about its potential impact, with a 2018 Cochrane review identifying only a small body of low-quality evidence. This updated Cochrane review aims to estimate its impact on consumers' selection and consumption, and identify key effect modifiers.

Methods: Systematic review with meta-analysis using Cochrane methods. Eligible studies were randomised or quasi-randomised controlled trials, interrupted time series or controlled before-and-after studies, comparing calorie labelling with no label, applied to food or alcohol. Outcomes were selection (with or without purchasing) or consumption.

Results: We included 25 studies (23 food, 2 alcohol and food), with most conducted in real-world field settings (16/25) involving menu labelling (18/25). Random-effects meta-analysis of randomised studies found that calorie labelling of food led to a small reduction in energy selected: SMD -0.06 [95%CI -0.08,-0.03], p<.00001 (16 studies; 19 comparisons; n=9840), with a near-identical effect when only low risk of bias studies were analysed; and a larger reduction in consumption: SMD -0.19 [95% CI -0.33,-0.05], p=.006 (8 studies; 10 comparisons; n=2134). These effect sizes suggest that, for an average meal of 600kcal, adults exposed to calorie labelling would select 1.8% (11kcals) less energy and consume 5.9% (35kcals) less. Only two studies focused on alcoholic drinks; meta-analytic results were inconclusive, with inconsistent effects and confidence intervals encompassing harm and benefit.

Conclusions and implications: Current evidence suggests that calorie labelling on food leads to small reductions in energy selected and consumed which, if realised at scale, has the potential to benefit population health. There is currently insufficient evidence to estimate the effect of equivalent labelling on alcohol. Possible wider system effects of implementation, including upon industry actors, as well as additional harms and benefits for consumers, merit further examination.

The impact of calorie labelling on the energy content of menu options and food purchased: An evaluation in worksite cafeterias

Madison Luick[1], Lauren Bandy[1], Susan A. Jebb[1], Rachel Pechey[1]
[1]University of Oxford, Nuffield Department of Primary Care Health Sciences

Background: On 6 April 2022, legislation came into effect in England and Wales requiring calorie labels to be applied to food items on menus of larger restaurants, cafes, and takeaways. This study aimed to assess the impact of calorie labelling on (a) food purchased and (b) energy content of menu options in worksite cafeterias.

Methods: Product-level sales data and energy content of available items was obtained from 142 worksite cafeterias from January 2022 to October 2022. Interrupted-time-series (ITS) analysis evaluated daily energy (kcal) purchased per item prepared by cafeterias. A t-test compared mean energy per option available on menus before and after calorie labelling. Each analysis was conducted at both 6 weeks and 6 months from implementation. There was no change to the presence of calorie information for pre-packaged retail products, but we explored the potential for knock-on effects on quantity sales in secondary analyses.

Results: There was no evidence of a change in energy content of foods purchased (6-week: +0.60 calories/product, 95%CI: -2.54, 3.75; 6-month: +1.59, 95%CI: -0.96, 4.16), or in the mean energy content of menu options (6-week: pre-implementation: 271 calories/item, post-implementation (6-week): 270 (p=0.871); post-implementation (6-month): 269 (p=0.671)). There was no evidence of a change in the quantity of pre-packaged food products sold after the introduction of calorie labels on menu items.

Conclusions and Implications: This large observational study in worksite cafeterias found no evidence that the introduction of calorie labelling led to changes in the behaviour of either the catering provider or the customers.

Impact of health warning labels and calorie labels on selection and purchasing of alcoholic and non-alcoholic drinks: a randomised controlled trial

Dr Natasha Clarke[1,2], Dr Jennifer Ferrar[3], Emily Pechey[1], Minna Ventsel[1], Dr Mark Pilling[1], Prof Marcus Munafò[3], Prof Theresa Marteau[1], Dr Gareth Hollands[1,4]
[1]University of Cambridge, Cambridge, UK, [2]Bath Spa University, Bath, UK, [3]University of Bristol, Bristol, UK, [4]University College London, London, UK

Background: Health warning and calorie labels on alcohol have the potential to reduce consumption. This study aimed to estimate the impact on selection and actual purchasing of (a) health warning labels (text-only and image-and-text) on alcoholic drinks and (b) calorie labels on alcoholic and non-alcoholic drinks.

Methods: Adults (n=644) in England and Wales who regularly consumed and purchased beer or wine online selected drinks in a simulated online supermarket, before purchasing them in an actual online supermarket. Participants were randomised to one of six groups in a between-subjects 3 (Health warning labels (HWLs): i. image-and-text HWL, ii. text-only HWL, iii. no HWL) x 2 (Calorie labels: present vs absent) factorial design. The primary outcome was the number of alcohol units selected (with intention to purchase); secondary outcomes included alcohol units purchased and calories selected and purchased.

Results: 608 participants completed the study and were included in the primary analysis. There was no evidence of an overall difference for either (a) HWLs, or (b) calorie labels on the number of alcohol units selected [HWLs: $F_{(2,599)}=0.406$, p=.666; calorie labels: $F_{(1,599)}=0.002$, p=.961]. There was also no evidence of an overall difference on any secondary outcomes.

In pre-specified subgroup analyses comparing the 'calorie label only' group (n=101) to the 'no label' group (n=104) there was no evidence that calorie labels reduced calories selected [unadjusted means: 1913kcal vs 2203kcal, p=.643]. Amongst the 75% of participants who purchased drinks, those in the 'calorie label only' group (n=74) purchased fewer calories than those in the 'no label' group (n=79) [unadjusted means: 1532 vs 2090, p=.028].

Conclusions and implications: There was no evidence that health warning labels reduce alcohol selection or purchasing in an online purchasing setting. There was some evidence that calorie labels on alcoholic and non-alcoholic drinks may reduce calories purchased but this remains highly uncertain.

The effect of ecolabels on the environmental impact of food purchases in worksite cafeterias: A randomised controlled trial

Madison Luick[1], Cristina Stewart[1], Dr Michael Clark[1], Dr Paul Bateman[1], Dr Brian Cook[1], Melissa Little[1], Gina Wren[1], Prof Susan Jebb[1], **Dr Rachel Pechey[1]**
[1]University of Oxford

Background: The environmental impacts of current dietary patterns must be reduced if global climate targets are to be met. Environmental sustainability labels (ecolabels) have been shown to be effective in online experimental settings, but a previous field study found no effect. This study aimed to provide a larger-scale test of whether ecolabels reduce the environmental impact of food selected in worksite cafeterias.

Methods: Worksite cafeterias (n=96) were randomised to one of three study groups, with 54 included for final analysis. One group was intended to increase meat-free availability, but no change was implemented. This group was therefore treated as part of the control, creating two groups: (1) control (no ecolabels) (n=36), and (2) ecolabels (n=18). The primary outcome was total environmental impact of hot meals sold over a 6-week period. Secondary outcome analyses separately explored the environmental indicators that compose the total environmental impact score (i.e. greenhouse gas emissions, biodiversity loss, eutrophication, and water scarcity), and the mean weekly environmental impacts of hot meal options.

Results: There was no significant change in environmental impact score between the control sites and the intervention sites, where eco-labels were in place (7.1% score decrease, 95%CIs: 32.8% decrease, 28.5% increase). There was also no evidence of a change in the mean environmental impact score per item selected (5.8% mean score decrease, 95%CIs: 15.3% decrease, 4.7% increase). No evidence was found to suggest any changes to any of the four individual environmental indicators.

Conclusions and Implications: Applying ecolabels to menu options in worksite cafeterias resulted in no change in worksites' environmental impact from hot meal sales. While change in global diets is needed for climate targets to be met, these results indicate ecolabels may not be an effective tool to shift consumer behaviour.

●●

Developing an intervention to reduce sedentary behaviour in non-ambulant young people with long-term disabilities

Marilyn Bradbury[1], Dr Sally Fenton[2], Dr Elizabeth Croot[3], Dr Susan Neilson[2], Prof Joan Duda[2]
[1]Birmingham Community Healthcare NHS Foundation Trust, Birmingham, UK, [2]University of Birmingham, Birmingham, UK, [3]University of Sheffield, Sheffield, UK

Background: Non-ambulant young people (NAYP) with long-term disabilities experience prolonged sedentary time, which is associated with poor health (1). We are co-designing the first evidence-based digital intervention to support "moving more" in this population.

Methods: The co-design process followed the 6 Steps of Quality Intervention Development model (2). Data were collected via virtual workshops, interviews and web-based conversations with NAYP aged 12-25 (n=5), family members (n=7), professionals (n=21) and experts (n=5); Step 1: thematic analysis of transcripts identified barriers and facilitators of moving more, which were categorised using the Systems of Sedentary Behaviours (SOS) Framework. Step 2: participants ranked SOS determinants then barriers/facilitators from Step 1, according to potential for change. Step 3: the mechanisms for change were identified, underpinned by the Behaviour Change Wheel and Self-Determination Theory (SDT). Step 4: the contents of the behaviour change app were drafted with participants.

Results: Thirty-eight participants contributed (33 female). In total, 52 barriers and 35 facilitators were identified. Participants identified 3 determinants amenable to change, and 12 barriers/facilitators to address with the intervention were selected from these determinants. This resulted in 5 intervention goals, displayed using a logic model. Participants' feedback about how to achieve the goals was in-line with SDT, which informed selection of behaviour change techniques. A software specification was co-designed with participants using results.

Conclusions and Implications: A theory-based behaviour change app to address prolonged sedentary time in non-ambulant young people is being co-designed. Steps 5-6 will involve feasibility testing the app, following which, the app will be optimised for future evaluation of effectiveness and subsequent implementation.

1.   Ganz. Sedentary behavior and children with physical disabilities: a scoping review. Disability & Rehabilitation. 2021;43(20):2963-76.
2.   Wight, Wimbush, Jepson, Doi. Six steps in quality intervention development (6SQuID). J Epidemiol Community Health. 2016;70(5):520-5.

●●

Improving Fundamental Movement Skills during Early Childhood: An Intervention Mapping Approach

Dr Alexandra Dobell[1], Prof Andy Pringle[2], Dr Mark Faghy[2], Dr Clare Roscoe[2]
[1]University of Birmingham, Birmingham, UK, [2]University of Derby, Derby, UK

Background: There is an abundance of literature supporting the relationship between fundamental movement skill (FMS) competency and physical activity (PA) throughout childhood (Engel et al., 2018; Logan et al., 2015). The earlier in life that a child can begin mastering FMS, the more positive their PA trajectories (Jaakkola et al., 2016) and health outcomes are (Bremer & Cairney, 2018). To achieve sufficient development in FMS, children must be guided with tuition and practice opportunities (Gallahue et al., 2011). Schools and educators provide an opportunity for interventions that improve health behaviours and outcomes for children. Therefore, the aim of this study was to use intervention mapping (IM; Bartholomew-Eldredge et al., 2016) to design a programme of school-based intervention to improve FMS for children aged 4-5 years old.

Methods: Following the six-step process of IM, a school-based intervention for early years foundation stage (EYFS) pupils and teachers in England was planned. Each step comprised three to five tasks which required the input of a planning group formed of key stakeholders (children, parents, teachers, and researchers). Prior knowledge, of the researcher and primary and secondary evidence was also used to support the development of the programme of interventions.

Results: Using the IM Steps, a logic model of the problem, logic model of change, programme design, production, implementation and evaluation steps were proposed or completed within the study. The results propose a sustainable and realistic approach for helping children to develop FMS with the support of well-informed educators who are confident to deliver better FMS practice and PA opportunities.

Conclusion: The results of this study can be used to begin to implement an FMS focused intervention within EYFS settings within England. It is hoped that interventions will improve outcomes for both the individual (child) and teachers.

●●

Acceptability study of a tailored intervention to reduce snacking and sedentary behaviour in young children of refugee parents

Maha Alsubhi[1], Dr Eleanor Bull[2], Dr Joanna Goldthorpe[3], Dr Tracy Epton[4], Prof Sarah Peters[5]

[1]Manchester Centre for Health Psychology, Division of psychology and Mental Health, School of Health Sciences, Faculty of Biological, Medical and Health Sciences, University of Manchester, Manchester, UK, [2]Public Health Department, Derbyshire County Council, County Hall, Matlock, Derbyshire, UK, Division of Medical Education, University of Manchester, Oxford Road, Manchester, UK, [3]Manchester Centre for Health Psychology, Division of psychology and Mental Health, School of Health Sciences, Faculty of Biological, Medical and Health Sciences, University of Manchester, Manchester, UK, [4]Manchester Centre for Health Psychology, Division of psychology and Mental Health, School of Health Sciences, Faculty of Biological, Medical and Health Sciences, University of Manchester, Manchester, UK, [5]Manchester Centre for Health Psychology, Division of psychology and Mental Health, School of Health Sciences, Faculty of Biological, Medical and Health Sciences, University of Manchester, Manchester, UK

Background: One of the greatest challenges facing health care systems and governments today is childhood obesity. This is particularly prevalent among refugees children resettled in developed countries, as a result of the dramatic changes in their environment, refugees commonly experience changes in their health behaviours, such as levels of physical activity and altered eating patterns. "Be healthy" is a culturally and linguistically appropriate family-based intervention designed for refugee parents with young children resettled in the UK. It was developed to address key issues facing parents with their young children, such as increased sedentary behaviour and increased consumption of unhealthy snacks. Using the Theoretical Framework of Acceptability (TFA), this study assessed the acceptability of the intervention.

Methods: Following a four-week intervention, semi-structured interviews were conducted with 23 parents recruited from local refugee organisations, data were analysed thematically using the seven constructs outlined in the TFA.

Results: Six of the TFA constructs were present within the data: affective attitude, burden, intervention coherence, perceived effectiveness, ethicality, and self-efficacy. No data were found in terms of opportunity costs. Participants reported a positive attitude towards attending the intervention, perceiving it as being effective in motivating and initiating behaviour change. "Be healthy" was deemed acceptable, as overall it was reported as well liked, simple to use and easy to understand. The novel findings of this study include the perceptions of participants on the intervention design, namely that it was informed by many cultural considerations and therefore fits well with their cultural norms and value system.

Conclusion: The "Be healthy" is acceptable to refugee parents of young children. Future research could refine the intervention by streamlining the referral process, by providing visual support for less literate participants, such as adding more photos to the booklet, and by considering the organisation of groups based on their nationalities.

●●

Developing digital tools to support the mental wellbeing of young people with long-term health conditions: a Delphi study

Dr Jennie Brown[1], Miss Lauren Cox[1], Dr Kathleen Mulligan[1], Prof Stephanie Wilson[1], Dr Michelle Heys[2,3], Dr Polly Livermore[4], Dr Suzy Gray[4], Dr Angeliki Bogosian[1]

[1]City, University of London, London, UK, [2]East London NHS Foundation Trust, London, UK, [3]UCL Great Ormond Street Institute of Child Health (GOS ICH), London, UK, [4]Great Ormond Street Hospital (GOSH), London, UK

Background: Young people (YP) with long-term conditions (LTCs) are at greater risk of psychological distress than those without LTCs. Despite this, there is a scarcity of quality digital interventions designed to help improve mental wellbeing in this population. We investigated the most frequently experienced psychological issues, alongside gathering information on favoured digital intervention types and mode of delivery. The main aim was to determine what was preferred for a future intervention.

Methods: 26 YP with asthma, diabetes and/or epilepsy (the 3 most common LTCs in YP), 23 parents of YP with LTCs and 10 health professionals mainly in paediatric specialisms (total N= 59) took part in an online Delphi study to gain consensus (set at 75% agreement) on 4 questions across 3 rounds. The most common results were reported if no consensus was reached by round 3.

Results: The participants showed a preference for an app (74% agreement) and a mixture of one-on-one and group support for an intervention (75% agreement, reaching consensus). The most common psychological issue experienced was anxiety (44% agreement), and the top intervention type was 'general counselling' (53% agreement), however, these two aspects did not reach consensus.

Conclusions: The participants expressed a clear desire for an app to help with the psychological aspects of living with LTCs. The lack of consensus on psychological issues and favoured intervention type likely reflected the highly personal nature of these experiences and preferences.

Implications: The results will be important to consider for a future intervention, although further consultation will be needed for app development.

<center>••</center>

The use of the Behaviour Change Wheel approach to co-develop a behavioural intervention to support treatment adherence in young people with Inflammatory Bowel Disease

Cassandra Screti[1], Dr Gemma Heath[1], Dr Rachel Shaw[1], Dr Rafeeq Muhammed[2], Dr Lou Atkinson[1]
[1]Aston University, Birmingham, UK, [2]Birmingham Children's Hospital, Birmingham, UK

Background: Non-adherence to prescribed treatment regimens can have significant clinical consequences for young people with Inflammatory Bowel Disease (IBD). Subsequently, young people require additional support to maintain their IBD treatment adherence behaviours. This research aimed to develop a novel, user-centred, evidence-based, and theory-driven behavioural intervention to support young people (aged 13-18) with IBD adhere to their treatment plan.

Methods: Findings from qualitative interviews with young people with IBD, parents of young people with IBD and healthcare professionals were synthesised with outcomes from a systematic review evaluating treatment adherence interventions for young people with IBD. The exploratory research findings were mapped to psychological constructs from relevant behaviour change theories and behaviour change techniques to inform the interventions development. The Behaviour Change Wheel was used to develop a novel evidence-based intervention, specifically addressing the treatment adherence needs of young people (aged 13-18) with IBD. In a series of co-development workshops, young people with IBD provided feedback on the proposed intervention's components and delivery methods. Parents were further consulted on the prototype intervention. Feedback from young people and parents were incorporated into a revised version of the intervention, aiming to improve its acceptability and feasibility.

Results: A prototype behaviour change intervention to support treatment adherence in young people with IBD has been co-developed. Ten interactive online modules aim to increase young people's treatment plan self-efficacy, support resilience to overcome adherence barriers, develop health communication skills and foster optimism about the future. Interactive online modules and components within each module can be tailored by the user to meet their personal adherence challenges. Within each module, young people are supported to develop user-centred action plans to improve their treatment adherence behaviours.

Conclusions and Implications: The Behaviour Change Wheel approach can be used to effectively co-create a user-centred, evidence-based, theory-driven behavioural intervention with young people.

<center>••</center>

Reducing mobility related disability in older adults: Effects of the REtirement in ACTion (REACT) intervention on sub-domains of physical functioning.

Dr Peter Ladlow[4], **Dr Max Western[2]**, Prof Colin Greaves[1], Prof Janice L Thompson[1], Dr Janet Withall[1], Dr Jolanthe de Koning[2], Dr Jessica C Bollen[3], Sarah Moorlock[1], Prof Jack M Guralnik[5], Prof Kenneth R Fox[6], Prof Afroditi Stathi[1]
[1]University of Birmingham, Birmingham, UK, [2]University of Bath, Bath, UK, [3]University of Exeter, Exeter, UK, [4]Academic Department of Military Rehabilitation, Defence Medical Rehabilitation Centre, Loughborough, UK, [5]University of Maryland School of Medicine, Maryland, USA, [6]University of Bristol, Bristol, UK

Background: The prevention of mobility-related disability among adults is a global healthcare priority. Cost effective community-based strategies to improve physical function and independence in older adults at higher risk of mobility disability are needed.

Methods: In a pragmatic, multicentre, two-arm, single-blind, parallel-group, randomised, controlled trial aiming to improve mobility with an exercise and health behaviour maintenance intervention, 777 older adults (aged >65 years) with reduced lower limb physical functioning (Short Physical Performance Battery [SPPB] score 4-9) were recruited from 35 primary care practices in England. Participants were randomly assigned to receive brief advice or the REACT intervention; a 12-month, group-based, multimodal exercise programme delivered in local communities. In this secondary analysis of the trial data, we estimated differences in the three individual components scores of the SPPB (strength, balance, walking) at 6 and 12-months. Secondary outcomes including subjective measures of physical function were also recorded at 6 and 12-months.

Results: The intervention group demonstrated significant improvements in strength (OR=1.88, 95% CI=1.36-2.59, p<0.001) and balance (OR=1.96, 95% CI=1.39-2.67, p<0.001) at 12-months, but not in gait speed (OR=1.32, 95% CI=0.91-1.90, p=0.139). Individuals with the highest adherence (>75%) demonstrated greatest improvement in strength, but adherence was not related to walking speed or balance. Subjective measures of function also improved at 12-months (short form-36: OR=2.57, 95% CI=1.26-3.87, p<0.001).

Conclusions and implications: In older adults at risk of physical frailty and loss of ambulatory independence, improvements in physical function were observed, regardless of age, sex, baseline levels of physical function and number of co-morbidities, with as little as one exercise session per week. The REACT exercise programme provides local, regional and national service providers with an effective solution to increase muscle strength and balance in older adults at risk of mobility disability.

●●●

Developing evidence-based text messages targeting diet and physical activity behaviours for people with Type 2 diabetes: A series of studies

Dr Y Kiera Bartlett[1], Dr Michelle Harvie[2], Prof Andrew Farmer[3], Prof David P French[1]
[1]Manchester Centre for Health Psychology, University of Manchester, Manchester, UK, [2]The Prevent Breast Cancer Research Unit, Manchester University NHS Foundation Trust, Manchester, UK, [3]Nuffield Department of Primary Care Health Sciences, University of Oxford, Oxford, UK

Background: Diet and physical activity are important aspects of managing Type 2 diabetes. However, people report barriers changing these behaviours. The present research aims to develop text messages that are evidence-based and acceptable to address this.

Methods: (1) A consensus meeting of diet and physical activity experts to identify key target behaviours (n=14); (2) A review of reviews to identify effective behaviour change techniques (BCTs); (3) A focus group study to assess acceptability to people with Type 2 diabetes (n=14); and (4) A workshop with behaviour change experts to write text messages and assess fidelity to BCTs (n=12).

Results: The consensus group study identified five target behaviours agreed by 70% of attendees to be in the top five most important behaviours: a) reduce portion size, b) reduce calorie intake, c) reduce foods that are high in sugar, d) move more often and e) walk where possible. A review of previous reviews identified 24 BCTs with evidence of effectiveness, eight of which had been used in our previous work developing medication adherence messages. The focus group results showed acceptability of the target behaviours. At the workshop, over 200 new messages were generated. New dietary messages and those adapted from previous medication adherence work were reviewed with 160/192 (83%) being rated over the mid-point for fidelity to BCT.

Conclusions and Implications: This research has produced a library of evidence-based messages that can be sent to a large number of people, for a low cost. Following further assessment of the acceptability of the messages to people with type 2 diabetes, these messages could be implemented alongside the medication text messages we are evaluating in

an ongoing randomised controlled trial. Demonstrating the potential to adapt messages across behaviours and maintain fidelity to BCT provides opportunities to shorten the development process in the future.

●●

Using smartphone TechnolOGy to support an EffecTive Home ExeRcise intervention to prevent falls amongst community dwelling older adults - The TOGETHER feasibility RCT.

Dr Helen Hawley-hague[1], Dr Carlo Tacconi[2], Dr Sabato Mellone[2], Ellen Martniez[3], Dr Fan Yang[4], Dr Ting-Li Su[1], Prof Lorenzo Chiari[2], Prof Jorunn Helbostad[5], Prof Chris Todd[1]
[1]University of Manchester, Manchester, UK, [2]University of Bologna, Bologna, Italy, [3]University of Huddersfield, Huddersfield, UK, [4]University of York, York, UK, [5]Norwegian University of Science and Technology, Trondheim, Norway

Background: Falls have implications for older adults quality of life and independence. Strength and balance training has been found to be effective in reducing rate/risk of falls, as long as there is adequate fidelity to the programme. We explore whether smartphone apps based on behaviour change techniques can support patients adherence to an evidence-based programme.

Methods: Two-arm, pragmatic feasibility randomised controlled trial conducted with five health services. Patients aged 50+ years eligible for a falls rehabilitation exercise programme from community services received: (1) standard service or (2) standard service plus the Motivate Me/My Activity Programme apps. The primary outcome was feasibility of the intervention, study design and procedures. Outcome measures include balance, function, falls, strength, fear of falling, quality of life, resource use and adherence measured at baseline, three and six months. Qualitative interviews collected feedback on the applications.

Results: 24 patients were randomised to control group, 26 to intervention group, mean age 77.6 (Range 62 to 92) years. We recruited 37.5% of eligible participants across the 5 clinical sites. 77% in the intervention group completed their full exercise programme (including the use of the app). There was a mean 2.63 (SE1.93) point difference between groups in change in BERG balance score from baseline to 3 months and mean 4.37 (SE2.69) point difference from baseline to 6 months in favour of the intervention group. Less falls (44 v's 51) and less injurious falls (2 v's 9) in the intervention group and higher adherence scores (17.65, SD 6.84 vs 13.09, SD 6.52) and 6 months (15.25 SD 7.79 vs 14.87 SD 7.79). Participants particularly enjoyed the goal-setting and feedback elements of the apps.

Conclusions/Implications: The motivational apps and trial procedures were feasible for health professionals and patients to use. There are positive indications from outcome measures that the apps support adherence.

●●

A qualitative longitudinal process evaluation of motivational processes in the REtirement in ACTion (REACT) physical activity intervention for older adults with mobility limitations: A Self-Determination Theory approach.

Dr Rosina Cross[1], Prof Colin Greaves[3], Dr Janet Withall[3], Dr Marlene Kritz[4], Prof Afroditi Stathi[3]
[1]University of Exeter, Exeter, UK, [2]University of Bath, Bath, UK, [3]University of Birmingham, Birmingham, UK, [4]Curtin University, Australia

A qualitative longitudinal process evaluation of the REtirement in ACTion (REACT) physical activity intervention targeting older adults with mobility limitations: A Self-Determination Theory approach.

Background: Physical activity is beneficial for older adults' health, however they remain the least active age group in the UK. This qualitative longitudinal study aims to understand motivations in older adults receiving the REACT physical activity intervention, through the lens of self-determination theory.

Methods: Participants were older adults randomised to the intervention arm of the Retirement in ACTion (REACT) Study, a community-based physical activity and behaviour maintenance intervention to prevent decline of physical functioning in older adults (≥65 years). Stratified purposive sampling by physical functioning (Short Physical Performance Battery scores) and 3-month attendance was employed. Fifty-one semi-structured interviews were conducted at 6, 12 and 24-months with twenty-nine older adults (Mean age (baseline) = 77.9 years, SD 6.86, 69% female) and at 24-months with twelve session leaders and two service managers. Interviews were audio recorded, transcribed verbatim and analysed using Framework Analysis.

Results: Perceptions of autonomy, competence and relatedness were associated with adherence to the REACT programme and maintenance of an active lifestyle. Motivational processes and participants' support needs, changed during the 12 month REACT intervention and across the 12-months post-intervention (e.g. people derived motivation from the group at the outset of the intervention but this became internalised, and towards the end of the intervention people derived motivation from their own capability).

Conclusions and Implications: Motivational support needs vary in different stages of a 12-month programme (adoption and adherence) and post-intervention (long-term maintenance). Strategies to accommodate those needs include, a) making exercise social and enjoyable in nature, b) knowing participants capabilities and being flexible by adapting exercises, c) supporting participants to experience new physical activity opportunities and d) supporting participants to make active living plans.

●●●

Preventing harm from undiagnosed oropharyngeal dysphagia in ambulatory older people: A behavioural science realist review

Caroline Smith[1], Prof Debi Bhattacharya[1], Charlotte Jeffries[1], Keisha Richards[1], Dr Sion Scott[1]
[1]*University of Leicester, Leicester, England*

Background: Oropharyngeal dysphagia (OD) affects a fifth of older adults but is largely undiagnosed until they are hospitalised. Primary care practitioners can assume a proactive role in identifying and supporting OD to improve outcomes for older adults. This behavioural science realist review aimed to synthesise relevant literature to inform programme theories (PTs) explaining how and why interventions work to facilitate primary care practitioners to detect potential OD and provide initial advice and support to people with suspected OD.

Methods: 22 initial programme theories (IPTs) were constructed using a preliminary literature search, the Theoretical Domains Framework (TDF) and a stakeholder group (patients, carers and practitioners working in primary healthcare, geriatrics and dysphagia care). Databases were searched and literature screened and evaluated for relevance and rigour. Data were inductively coded and then deductively mapped to existing IPTs or used to generate new IPTs. Data were synthesised to confirm, refine or refute IPTs to produce final PTs.

Results: 6 final PTs were supported by 26 sources of evidence: OD education (Knowledge), consistent, clear messaging on OD identification and support (Memory, attention and decision making), addressing misconceptions of OD (Social influences), incorporating OD identification into existing workflow (Environment context and resources), awareness of OD's adverse outcomes (Beliefs about consequences) and perception of OD as part of the practitioner role (Social/ professional role).

Conclusion and implications: The final PTs describe the mechanisms of action by which intervention components facilitate practitioners to improve outcomes for older adults with OD. Linkage of the TDF domains to a taxonomy of behaviour change techniques provides a route to operationalising these mechanisms in an intervention. This should be undertaken in partnership with the target audiences using a co-design approach involving older adults, practitioners and other staff involved in intervention delivery(e.g. managers, IT personnel, etc.).

●●●

Symposium

Preparing patients for major surgical procedures: Supporting behavioural change in Prehabilitation

Convenors: Professor Leah Avery[1], Dr Rachael Powell[2], Dr Claire Madigan[3]
[1]*Teesside University,* [2]*University of Manchester,* [3]*Loughborough University*

Discussants: Dr Claire Madigan
Loughborough University

Intended participants: The talk is aimed at clinicians, behavioural specialists, commissioners of services and public health practitioners.

Purpose: There is increasing interest in interventions that aim to enhance an individual's health status prior to receiving medical treatment and surgical procedures – termed 'prehabilitation'. These interventions typically target physical activity behaviour, but are increasingly targeting emotional well-being, nutrition, and smoking behaviours.

Objective: This multi-disciplinary symposium will consider issues of importance for prehabilitation programmes including their purpose, acceptability, engagement, delivery and effectiveness. We will highlight why behaviour change is integral to prehabilitation, discuss development of real-world services and consider issues relevant to implementation.

Rationale: Prehabilitation aims to optimise health behaviours prior to undergoing treatment, including surgical procedures. It is important to evaluate the impact of prehabilitation on health outcomes and to understand factors influencing engagement, acceptability and delivery.

Summary: John Moore will describe the purpose of prehabilitation within the clinical and policy context, using the Greater Manchester Prehab4Cancer and Recovery Programme for illustration. Mackenzie Fong will consider the impact of prehabilitation interventions through a systematic review and meta-analysis. Rachael Powell will present qualitative findings from patients and clinicians regarding factors related to acceptability and engagement in a prehabilitation programme for individuals receiving cancer surgery. Dr Heather Mackinnon will present an evaluation of two prehabilitation interventions being implemented. Leah Avery will present the theory-informed development of a digital multibehavioural prehabilitation intervention (iPREPWELL) for patients listed for major surgery across clinical specialties. Finally, Claire Madigan and Dr Rebecca Beeken will lead a discussion informed by the symposium presentations, including the role of behavioural science in the context of prehabilitation.

•••

Prehab4Cancer – personalised system level prehabilitation and recovery

John Moore[1], Kirsty Rowlinson-Groves[2], Zoe Merchant[3]
[1]*Manchester University NHS Foundation Trust,* [2]*GM Active and Salford Community Leisure,* [3]*GM Cancer Alliance hosted by The Christie NHS Foundation Trust*

Background: The importance of multi-modal preparation for cancer treatment in the form of 'prehabilitation' is being increasingly recognised by patients, healthcare providers and medical researchers globally. Prehabilitation facilitates cancer patients to engage in exercise, nutrition, and wellbeing interventions prior to, during and after treatment. Behavioural tools can be used to support patients during acute major cancer treatments whilst achieving longer term lifestyle modification. A major challenge is delivering system level prehabilitation solutions which improve care whilst remaining personalised.

Methods: Prehab4Cancer (P4C) is the first Integrated Care System (ICS) level prehabilitation and recovery programme for cancer patients in the UK. It is delivered as a partnership between GM (Greater Manchester) Cancer alliance and GM Active, representing the leisure organisations in the region. The programme has been co-developed with patient groups in GM for patients diagnosed with colorectal, lung or oesophago-gastric cancers. The community-based programme aims to provide personalised exercise, nutritional and wellbeing support, close to a patients' home. Motivational interviewing and other behavioural approaches are employed to support P4C implementation and sustain longer term healthy lifestyle change.

Results: Since its introduction in 2019, Prehab4Cancer has supported over 3000 Greater Manchester patients in preparing and recovering from the challenges of cancer treatments. Through independent evaluation, Prehab4Cancer patients were found to be empowered to take an active role in their cancer care, with a demonstrable better experience of their cancer pathway. P4C improved physiological function, nutritional status and mental wellbeing, resulting in shortened recovery time, reduced peri-operative complications and better survival.

Conclusions and implications: Prehab4Cancer provides a prehabilitation and rehabilitation model ready for implementation at Integrated Care System level.

•••

The effect of preoperative behaviour change interventions on pre- and post-surgery health behaviours, health outcomes, and health inequalities in adults: a systematic review and meta-analyses

M. Fong[1], E. Kaner[1], M. Rowland[1], H.E. Graham[2], L. McEvoy[1], K. Hallsworth[1], G. Cucato[3], C. Gibney[1], M. Nedkova[1], J. Prentis [4], C.D. Madigan[2]
[1]NIHR Applied Research Collaboration, North East and North Cumbria, UK and Population Health Sciences Institute, Newcastle University, Newcastle Upon Tyne, UK, [2]Centre for Lifestyle Medicine and Behaviour (CLiMB), the School of Sport, Exercise and Health Sciences, Loughborough University, UK, [3] Northumbria University, UK, [4] Department of Perioperative and Critical Care Medicine, Freeman Hospital, Newcastle upon Hospitals NHS Foundation Trust, Newcastle upon Tyne, UK

Aim: to examine behavioural prehabilitation interventions across surgeries to inform policy makers and commissioners of the best available evidence.

Methods: A systematic review and meta-analysis of randomised controlled trials (RCTs) was conducted to determine the effect of behavioural prehabilitation interventions targeting at least one of: smoking behaviour, alcohol use, physical activity, dietary intake. The comparator was usual care or no treatment. Outcomes were length of stay, six-minute walk test (6MWT), behaviours (smoking, diet, physical activity and alcohol), BMI and quality of life.

Results: Sixty-seven trials were included; 49 interventions targeted a single behaviour and 18 targeted multiple behaviours. No trials examined effects by equality measures. Length of stay in the intervention group was 1.5 days shorter than the comparator (n = 9 trials, 95% CI -2.6 to -0.4, p = 0.01, I2 83%). Pre-surgery, there was a mean difference of 31.8 m in the 6MWT favouring the prehabilitation group (n = 19 trials, 95% CI 21.2 to 42.4m, I2 55%, P <0.001). Smoking cessation was greater in the prehabilitation group before surgery (RR 2.9, 95% CI 1.7 to 4.8, I2 84%), but there was no difference at 12 months. There was no difference in quality of life (n = 12 trials) or BMI (n = 4 trials).

Conclusions and Implications: Behavioural prehabilitation interventions reduced length of stay by 1.5 days, although heterogeneity was high. Smoking cessation and 6MWT outcomes improved just prior to surgery, and for the latter, early after surgery, but evidence of longer-term impact is limited.

•••

Engagement in prehabilitation for cancer surgery: A qualitative investigation of patient and clinician perspectives

Rachael Powell[1], Amy Davies[1], Kirsty Rowlinson-Groves[2], David P French[1], John Moore[3], Zoe Merchant[4]
[1]University of Manchester, [2]GM Active and Salford Community Leisure, [3]Manchester University NHS Foundation Trust, [4]GM Cancer Alliance hosted by The Christie NHS Foundation Trust

Background: Prehabilitation programmes for individuals undergoing cancer surgery aim to optimise physical fitness before surgery and recovery after surgery. However, participation in prehabilitation is variable. This study aimed to understand factors underlying engagement, referral, and acceptability to both those offered prehabilitation and clinicians within an exemplar prehabilitation and recovery programme.

Methods: Qualitative, semi-structured interviews were conducted with 18 individuals offered the programme. Sixteen 'engagers' took part in the programme; 2 'non-engagers' did not. Purposive sampling aimed to ensure inclusion of individuals across socioeconomic status groups. Interview design was informed by the Theoretical Framework of Acceptability. An online survey was completed by 24 clinicians involved in referring patients to prehabilitation. A multi-perspective, inductive, thematic analysis was conducted; this was structured using the Framework approach.

Results: At the time of cancer diagnosis, there were large quantities of information for staff to cover, and patients to receive, which seemed related to challenges in discussing and referring patients to prehabilitation. However, the programme seemed highly valued by engagers and clinicians. Believing that taking part would improve recovery appeared a key motivator for engagement. Engagers seemed to value a supportive approach where they did not feel forced to do any activity. Tailoring of the programme to individuals seemed valued as it ensured that the programme was appropriate for each person's abilities and needs. Taking part could seem daunting initially, but confidence appeared to increase with experience.

Conclusions and implications: The prehabilitation and recovery programme was highly valued by staff and patients, with its supportive approach appreciated. Discussing the programme around the time of diagnosis could be challenging, and staff may need to take personalised approaches to support engagement or encourage participation at a later time point. It may be valuable to implement strategies such as buddying to support individuals lacking in confidence to take part.

An evaluation of two prehabilitation services for patients waiting for hip and knee surgery and cancer surgery

Dr Heather Mackinnon[1], Natasha Hares[2], Andrew Packham[1], Annabelle Denly[2], Ruth Johnson[1], Kajal Gokal[2], Claire Madigan[2.]
[1]Fit4Surgery Prehabilitation, University Hospitals of Leicester NHS Trust, [2]Centre for Lifestyle Medicine and Behaviour (CLiMB), the School of Sport, Exercise and Health Sciences, Loughborough University, UK

Background: Undergoing major elective surgery can induce several stresses on the body. The extent to which these stresses progress to complications depends on several factors. Some of these risk factors are modifiable and can be reduced by patients engaging in prehabilitation. This study evaluated the University Hospitals of Leicester (UHL) Fit4Surgery prehabilitation services.

Methods: Anonymised service data were collected between February 2020 and July 2022. There are two prehabilitation services: cancer and orthopaedics. Both involve exercise, nutritional (which differs depending on type of surgery) and psychological support. Patient demographics, patient clinical outcomes pre-surgery, and clinical outcomes post-surgery were assessed.

Results: 300 patients were evaluated for cancer surgery and 48 participants for orthopaedic surgery. For orthopaedic surgery there were significantly improved changes in weight, sit to stand scores and six minute walk test pre-surgery. For cancer surgery there were significant improvements in sit to stand scores, nutrition, frailty, physical activity, and emotional well-being. Data is currently being analysed for interviews and post-surgery outcomes and will be ready by February 2023.

Conclusions: The Fit4Surgery programme improved exercise capacity, levels of frailty, nutrition, physical activity, emotional well-being and helped orthopaedic patients to lose weight. Prehabilitation has the potential to target risk factors and potentially improve patient recovery and surgical outcomes.

Development of an evidence-informed digital intervention (iPREPWELL) to prepare patients for major surgery

Leah Avery[1], Rebecca Livingston[1], James Durrand[2], Garry Tew[3], David Yates[4], John Moore[5], Chelsia Gillis[6], Claire Brookes[4], Colin Greaves[7], Dean Wilkinson[8], Kerry Colling[8], Nicola Powley[8], Nathan Griffiths[8], Gerard Danjoux[8]
[1]Teesside University, UK, [2]Northern School of Anaesthesia and Intensive Care Medicine, Health Education England North East & Northumbria University, UK, [3]York St John University, UK, [4]York and Scarborough Teaching Hospitals NHS Foundation Trust, UK, [5]Manchester University NHS Foundation Trust, UK, [6]McGill University, Canada, [7]University of Birmingham, UK, [8]South Tees NHS Hospitals Foundation Trust, UK

Background: The UK undertakes approximately 2.4 million major surgical procedures annually. Improving the physical and psychological resilience of patients before surgery (prehabilitation) can reduce perioperative risk and hospital length of stay. Digitally delivered solutions supporting preoperative multiple health behaviour change are increasingly utilised, yet frequently lack a rigorous, systematic development process. This impacts negatively on patient uptake, engagement and subsequent outcomes. We co-developed an evidence and theory-informed multibehavioural digital prehabilitation intervention (iPREPWELL).

Methods: Perioperative healthcare professionals (HCPs), and patients awaiting major surgery from six specialties were purposively sampled from two hospital trusts. Participants completed a COM-B self-evaluation questionnaire and took part in a semi-structured interview. Data were thematically analysed using the Theoretical Domains Framework. Domains identified facilitated selection of behaviour change techniques that underpinned the components of the digital intervention with reference to the Behaviour Change Wheel.

Results: 19 HCPs and 17 patient participants completed the COM-B self-evaluation questionnaire and took part in an interview. HCPs reported the need for 'promoter', 'prompter' and 'overseer' roles easily mastered to facilitate intervention delivery. The need for evidenced-informed training focusing on skill development was considered important to provide remote support to patients throughout the intervention. Patients emphasised the need for education about the individual benefits of prehabilitation with reference to each target behaviour, with a clear plan to prepare for surgery. Social support and positive reinforcement from the digital intervention and supporting HCPs was considered essential. IT skills emerged as a potential barrier to ongoing engagement.

Conclusions and implications: 'iPREPWELL' provides surgical patients with an opportunity to engage in flexible and individually tailored prehabilitation and provides a co-designed, theory and evidence-informed scalable solution. Delivery during routine care relies on training of clinical teams and allocation of specific roles. A clear rationale for participation was a facilitator to uptake of patients.

Patient barriers and facilitators to lung cancer screening uptake: a rapid systematic review using the Theoretical Domains Framework

Dr Maira Salman, Dr Gaby Judah
[1]Imperial College London

Background: Lung cancer is the most common cause of cancer death in the UK. Though screening of high-risk individuals with Low Dose CT (LDCT) scans has shown to reduce mortality through facilitating earlier detection, current uptake of the pilot Targeted Lung Health Check (TLHC) remains low. (TLHCs are currently offered to individuals at high risk in participating areas of the UK.) This study aims to identify barriers and facilitators to uptake of LDCT scans as a form of lung cancer screening from a review of existing literature

Methods: Three databases were used along with a grey literature search. Inclusion criteria were studies: published in English between 2001-2022; studies looking at patient reported determinants of psychological barriers and facilitators, and related to initial uptake of LCCT scan as method of lung cancer screening. Determinants were extracted from the papers, along with whether these were reported as a barrier, facilitator or both. Determinants were then mapped to the Theoretical Domains Framework domains in order to classify determinants using a theory-based approach.

Results: From an initial 1174 results, 41 papers were included, which reported 31 variables covering 10 TDF domains. Fear [of either lung cancer diagnosis due to fatalism (15 studies), or of the screening procedure (11)] was the most frequently reported barrier followed by cost of procedure (16) and inconvenience of attending (15). The most commonly identified facilitators were clinician recommendation (17) and perceived personal benefit from attending screening (13).

Conclusions and Implications: While concerns of cost are not relevant to a UK setting, the other observed barriers are expected to be applicable. As the UK considers rolling out TLHC nationally, it is important to consider determinants of uptake, so effective interventions can be designed to address these. In particular, interventions should be tested which address fear and promote GP endorsement.

•••

Understanding experience, completion and outcomes of colorectal cancer screening among participants with multi-morbidity; patient and health professional perceptions (COSMOS study, Phases 2 and 3)

Dr Stephanie Smits[1], Prof Sunil Dolwani[1], Prof Adrian Edwards[1], Prof Kerry Hood[2], Delyth Price[1], Prof Kate Brain[1]
[1]Cardiff University, School of Medicine, Cardiff, UK, [2]Cardiff University, Centre for Trials Research, Cardiff, UK

Background: Estimates suggest 40%-60% of people of colorectal cancer screening age have multi-morbidity (two or more concurrent long-term conditions). The Common Sense Model will help understand perceptions of multi-morbidity and how these influence experiences and decisions within the colorectal screening programme.

Methods: Phase 2: Qualitative interviews with Welsh bowel screening participants (n=25) with varying levels of multi-morbidity to explore perceptions of severity, illness representations, motivations, expectations, barriers, level of support and suggested improvements.

Phase 3: Qualitative interviews (n=16) with health professionals working within Bowel Screening Wales to explore perceived impact of multi-morbidity on clinical recommendations and referrals, illness representations, potential acceptance of procedures and associated barriers.

Results: Phase 2: 10 interviews have been completed to date (due for completion February 2023). Preliminary findings suggest a positive experience to screening participation, apart from completing bowel preparation, which has been described as extremely unpleasant. Based on experience, bowel preparation was perceived as a barrier for older people and those with multi-morbidity. Friend and familial experience of bowel cancer increases importance placed on bowel screening completion.

Phase 3: 16 interviews were conducted (average length 31 minutes). Analysis highlighted themes lack of awareness of the implications of a positive stool test (timeline), and reflections of the impacts of specific health conditions or patient groups on screening (identity). Comparisons to the symptomatic service and suggestions for improving screening experience for people with multi-morbidity were also made.

Conclusions and implications: Together, with Phase 1 routine data linkage finding this work will identify tailored strategies and interventions that need to be developed at the participant, healthcare professional and system levels. This will form the basis for a future programme of work, for example the development and evaluation of resources, integrated with the screening programme, which support people with multi-morbidity and the healthcare professionals who consult with them.

•••

Understanding women's experiences of receiving a false positive test result in the NHS Breast Screening Programme: a qualitative study of screening healthcare professionals

Hannah Long[1], Dr Joanna Brooks[1], Dr Michelle Harvie[2], Dr Anthony Maxwell[1,2], Prof David French[1]
[1]University of Manchester, Manchester, UK, [2]The Nightingale Centre, Manchester University NHS Foundation Trust, Manchester, UK

Background: This study explored screening healthcare professionals' (HCPs) views about, and experiences of, delivering false positive test results in breast screening, the impact of these results on future screening attendance and the extent to which this is an appropriate time to offer health advice.

Methods: We conducted 12 semi-structured interviews with HCPs in the NHS Breast Screening Programme. Data were analysed thematically using Template Analysis.

Results: We identified three themes.

'Understanding and managing anxiety': HCPs expected women to feel anxious at their recall appointment and not to have read and assimilated written information provided prior to their appointment. Anxiety management and reassurance was seen as a large part of their role and HCPs reported insufficient training on this.

'Delivering results quickly and thoroughly': HCPs tried to explain results carefully and thoroughly, emphasising that no more tests are needed and encouraging future screening attendance. Whilst some women appeared reassured, the way in which women responded varied.

'Balancing the benefits and the harms': HCPs thought that women believe screening has benefits, but acknowledged that false positive results may undermine trust, deter future screening attendance and increase perceived risk of breast cancer. The contact with HCPs is understood as a useful opportunity to promote breast health advice.

Conclusions and implications: Efforts to prepare women for further tests and realise other screening benefits (i.e. breast and general health promotion) using written information may be limited. While healthcare professionals believe their explanations of results are thorough, they may not sufficiently allay fears about cancer risk. Instead, being explicitly encouraged to attend future screenings may be worrisome for attendees. Women's perceived receptivity to breast health advice may indicate lingering anxiety about cancer. Women's screening experiences may be improved with dedicated support from Breast Care Nurse Specialists and anxiety training for staff to support women.

●●●

What is the psychological experience of receiving a breast cancer risk estimate as part of a breast screening programme? A qualitative interview study

Dr Lorna McWilliams, Miss Victoria Woof
[1]University of Manchester

Background: Risk-stratified screening is being considered for national breast screening programmes. This study aimed to explore the psychological impact of undergoing risk-stratified screening as part of the NHS Breast Screening Programme.

Methods: Individual telephone interviews were conducted with forty women who participated in the BC-Predict study, which involved completing a risk assessment around the time of invitation to screening and receiving a letter indicating their estimated 10-year risk of breast cancer according to one of four risk categories: below average/low (<2%), average (2-4.99%), above average/moderate (5-7.99%) or high (≥8%). Risk consultations were available to women. Audio-recorded interviews were transcribed and analysed using reflexive thematic analysis.

Results: Forty women participated from all four categories. Two themes were produced. Theme one (from risk expectations to what's my story?) highlights that overall, women valued the opportunity to receive risk estimates. However, when the estimate was discordant with perceived risk, this caused temporary distress or made it difficult to accept the information, especially for higher risk women who did not have a risk consultation. Theme two (being a good (woman) citizen) illustrates that women felt positive about being able to contribute to society by having a risk assessment but may feel judged and guilty if they then cannot exert agency or access appropriate follow-up support once they know their risk estimate.

Conclusions and implications: Risk-stratified breast screening was generally accepted without causing long-lasting distress. It will be important for implementation to consider providing follow-up support that enables women to feel they can actively manage their risk.

●●●

Risk-adapted breast screening for women at low predicted risk of breast cancer: An online discrete choice experiment.

Dr Charlotte Kelley Jones[1]
[1]*King's College London*

Background: A risk-stratified breast screening programme could offer low-risk women less screening than is currently offered by the NHS. The acceptability of this approach may be enhanced if it corresponds to UK women's screening preferences and values. Objectives: To elicit and quantify preferences for low-risk screening options.

Methods: Women aged 40-70 with no history of breast cancer took part in an online discrete choice experiment. We developed 32 hypothetical low-risk screening scenarios defined by 5 attributes (start age, end age, screening interval, risk of dying from breast cancer, and risk of overdiagnosis), the levels of which were systematically varied between scenarios. Respondents were presented with 8 choice-sets and asked to choose between 2 screening alternatives or no screening. Preference data were analysed using conditional logit models. The relative importance of attributes and the mean probability of choosing each scenario were estimated.

Results: Participants (N=502) preferred all screening scenarios over no screening. The risk of overdiagnosis had no impact on preference (p= 0.80); however, an older start age, younger end age of screening, longer intervals, and increased risk of dying had a negative impact on utility (p<0.001). The mean probabilities of participants selecting the risk-based screening scenarios relative to current guidelines were low (range 0.20 to 0.50).

Conclusions and implications: A de-intensified screening pathway for women at low risk of breast cancer, especially one that recommends a later screening start-age, would run counter to women's breast cancer screening preferences. We need to research ways to communicate and ensure the acceptability of offering less breast screening to those with a low-risk of breast cancer.

●●

Exploring the barriers and facilitators of implementing CanRisk in primary care: a qualitative thematic framework analysis

Dr Stephanie Archer
[1]*University of Cambridge*

Background: The BOADICEA model for multifactorial breast cancer risk prediction is recommended in NICE guideline CG164. The CanRisk tool, which operationalises the BOADICEA model, allows healthcare professionals to gather information on a range of risk factors and calculate estimated future risk of developing breast cancer. Although the CanRisk tool is freely available for use, it has not yet been implemented widely in primary care.

Methods: To explore the barriers and facilitators to the implementation of the CanRisk tool in primary care. This multi-methods study, conducted with primary care professionals (PCPs) in the UK, included three elements – a questionnaire, two vignette-based case studies and a semi-structured interview. Qualitative data from the semi-structured interviews were analysed using a qualitative framework based on the Consolidated Framework for Implementation Research.

Results: Sixteen PCPs from five research sites in the East of England participated in the study. Key findings highlighted that: time needed to complete the tool, competing priorities, IT infrastructure, and PCPs' confidence and knowledge to use the tool were the main barriers to implementation. The main facilitators included: easy navigation of the tool, its clinical impact, and the increasing expectation to use risk prediction tools.

Conclusions and implications: Future work should focus on reducing the amount of time needed to complete a CanRisk calculation, integrating the CanRisk tool into existing IT infrastructure, and identifying the most appropriate settings in which to conduct a CanRisk calculation. PCPs may benefit from general information about cancer risk assessment and specific training on the CanRisk tool.

●●

Hearing loss and physical activity: a 20-year cohort study from the English longitudinal study of ageing.

Maria Goodwin[1], Prof Eef Hogervorst[1], Prof Rebecca Hardy[1], Prof Blossom Stephan[2], Dr David Maidment[1]
[1]Loughborough University, [2]University of Nottingham

Background: Hearing loss is an independent risk factor for chronic health conditions. Physical activity is a modifiable behaviour that can reduce the risk of developing these conditions. Cross-sectional research has shown that hearing loss is associated with lower physical activity. However, how hearing loss and physical activity are related over time remains unclear.

Methods: Data from 11,294 participants in the English Longitudinal Study of Ageing (ELSA) were analysed. ELSA has collected information from people aged over 50-years every two years since 2002. In the current study, participants were classed as having hearing loss (n=4,946) or normal hearing (n=6,346) based on self-report. Cox proportional hazard ratios and multilevel logistic regression were used to investigate associations between hearing loss and physical activity over time.

Results: Baseline physical activity was not associated with developing hearing loss over the 20-year follow-up period (OR= 0.95, 95% CI; 0.88, 1.02, p= 0.2). However, a wave by hearing loss interaction showed that physical activity declined more rapidly over time in individuals who reported hearing loss compared to those that did not (OR= 0.94, 95% CI; 0.92, 0.96, p<.001).

Conclusions and Implications: The development of hearing loss is associated with a greater and more rapid decline in physical activity over time. This is concerning, as both hearing loss and physical inactivity are modifiable risk factors for chronic disease. Mitigating the decline in physical activity, ensuring physical activity is accessible, and supporting healthy aging for adults with hearing loss may be essential to improve health outcomes in this population.

●●

Using the COM-B model to explore individuals' experiences of a national workplace walking challenge in Scotland and its impact on their physical activity behaviours: a qualitative interview study

Samuel Warne[1], Prof James A. Ainge[1], Prof Gozde Ozakinci[2]
[1]University of St Andrews, St Andrews, UK, [2]University of Stirling, Stirling, UK

Background: There is a wealth of research surrounding the positive impacts of exercise on health and wellbeing, however, sedentary behaviour is still prevalent, particularly in the workplace. This has led to the creation of many workplace programmes intended to reduce sedentary behaviour and increase activity levels. An example is Step Count Challenge (SCC) organised by the charity Paths for All, and available across all workplaces in Scotland. In SCC, teams of five colleagues attempt to complete as many steps as possible during either a four- or eight-week period. The purpose of this research was to explore SCC participant experiences and the impact of participation on exercise behaviours, using the COM-B model.

Methods: Previous SCC participants (N=8, data collection ongoing) took part in one-to-one semi-structured interviews via Microsoft Teams, with conversation particularly centred around experiences and behaviour change, both during the SCC and after the end of the challenge. The interview schedule was structured such that each element of the COM-B model was addressed and responses were analysed using thematic analysis.

Results: Preliminary analyses suggest that the SCC assisted with all elements of Capability, Opportunity and Motivation in some capacity. Additionally, prevalent themes included 'Importance of Team', 'Competition', 'Physical Health', 'Mental Wellbeing' and 'Social Aspect of the challenge'. Also, most participants believed that participation impacted their physical activity behaviour, increasing exercise levels and motivation both during and after the challenge.

Conclusions and implications: Participants believed that they benefitted from the SCC, and that their physical activity levels were positively impacted as a result of their participation. This positive impact seemed to be largely affected by the notions of competition and team driving motivation to exercise, thus supporting these workplace physical activity challenges as potentially effective programmes at changing behaviours and subsequently increasing physical activity levels.

●●

How do mid-to-older aged life transitions influence physical activity and social connectedness? Implications for systems intervention development

Dr Benjamin Rigby[1], Dr Victoria Palmer[1], Meigan Thomson[1], Prof Kirstin Mitchell[1], Prof Sharon Simpson[1]
[1]*MRC/CSO Social and Public Health Sciences Unit, University of Glasgow, Glasgow, UK*

Background: Interventions promoting the mutually reinforcing relationship between physical activity (PA) and social connectedness (SC) can support healthy ageing. Mid-to-older age life transitions (e.g. retirement; bereavement) are important intervention targets, as they may positively or negatively influence PA and SC. However, further systems-orientated research will ascertain how interventions can account for interactions between, and people's experiences of, transitions, place and broader contextual factors to influence PA and SC.

Purpose: Using a systems lens, we explored experiences and priorities related to PA and SC among adults aged 55-75 with recent life transitions, to identify potential intervention leverage points.

Method: Semi-structured interviews with 25 men and women, with primarily low socioeconomic status (therefore increased risk of low PA or SC) and who had retired, relocated, been bereaved or become a carer in the last 2-5 years, were analysed using a thematic framework approach.

Results: Participants described multifarious experiences of PA and SC throughout life transitions, which occurred within complex contextual and life-based circumstances. Informed by transitions-related theories (e.g. Schlossberg's theory; aging in place; social gerontology), five potential leverage points were identified to harness systemic enablers, support coping and promote PA and SC amid transitions: 1) Investing in nature; 2) Growing local assets; 3) Creating a function and enjoyment-orientated mindset; 4) Setting incidental PA goals; 5) Fostering intergenerational connections.

Conclusion(s): Preventative PA and SC interventions for healthy ageing would benefit from systems-orientated approaches that prioritise identified leverage points, and consider how factors associated with coping throughout life transitions interact with broader systemic factors.

●●●

Reporting of accelerometry measures in health research: A systematic review of current guidance

Dr Grace Dibben[1], Mr Carlos Santillan[2], Dr Soren Brage[3], Prof Matthew Buman[4], Prof Edward Duncan[5], Prof Malcolm Granat[6], Dr Melvyn Hillsdon[7], Dr Anne Martin[1], Dr Charles Matthews[8], Dr Paul McCrorie[1], Prof Rod Taylor[1], Prof Tommi Vasankari[9], Prof Charlie Foster[10]
[1]*University of Glasgow, UK, [2]Independent researcher, USA, [3]MRC Epidemiology Unit, University of Cambridge, UK, [4]College of Health Solutions, Arizona State University, USA, [5]Nursing Midwifery and Allied Health Professions Research Unit, University of Stirling, USA, [6]School of Health and Society, University of Salford, UK, [7]Department of Public Health and Sport and Health Sciences, University of Exeter, UK, [8]Division of Cancer Epidemiology and Genetics, National Cancer Institute, USA, [9]UKK Institute for the Health Promotion Research, Finland, [10]School for Policy Studies, University of Bristol, UK*

Background: Major innovations in accelerometry within health research have increased the volume of data being collected and present challenges of translation, making transparent and comprehensive reporting more important than ever. Existing guidance documents and frameworks are limited in their visibility and uptake, and few have focused exclusively on reporting. The objective of this systematic review was to identify, document and characterise existing guidance on reporting of the use of accelerometer-based measurement in health research.

Methods: Bibliographic databases (PubMed, EMBASE, PsycINFO, CINAHL, SportDiscus, PEDro, and Scopus) and the Enhancing the QUAlity and Transparency Of health Research (EQUATOR) Network's library of reporting guidelines were systematically searched in August 2021, and a thematic synthesis of reporting guidance was performed. We used an adapted version of the AGREE II tool to assess the methodological quality of identified guidance documents.

Results: Searches retrieved 5830 records, from which 31 publications were included. Only 17 (55%) were open access, and only four (13%) mentioned the involvement of experts or stakeholders in the guidance development. In total, 236 items of reporting guidance were identified across included publications, which were synthesised across four overarching themes, relating to the different stages of managing accelerometer data: (1) data collection, (2) data preparation, (3) variable derivation and (4) summary variables.

Conclusions and implications: Our review revealed an expansive range of reporting guidance for accelerometry, although not all publications were open access or used rigorous guideline development processes. There is a clear need for future consolidated accelerometry reporting guidance, that is co-produced with relevant experts and stakeholders. The reporting items identified in this review will inform the next stage in the development process for the Consolidated Standards of Reporting Trials (CONSORT), Strengthening the Reporting of Observational studies in

●●●

Testing the feasibility of a multi-component intervention (ACCEPTANCE) to increase physical activity after treatments for cervical cancer

Dr Nessa Millet[1,2], Prof Fehmidah Munir[2], Dr Hilary J McDermott[2], Dr Charlotte L Edwardson[1], Dr Esther L Moss[1]
[1]The University of Leicester, Leicester, The UK, [2]Loughborough University, Loughborough, UK

Background: A lack of lifestyle interventions, low levels of physical activity (PA), and unmet emotional and physical needs after treatment are contributing to compromised quality of life (QOL) after cervical cancer (CC). To address this, a multi-component behaviour change intervention to increase PA after CC was developed using the intervention mapping approach. A study was conducted to test the feasibility of implementing and evaluating the ACCEPTANCE intervention.

Methods: Recruitment was through the University Hospitals of Leicester NHS Trust and social media. Eligibility criteria were: 18-60 years; completed treatment for CC and not meeting the national PA guidelines. Participants took part in a 12-week behaviour change intervention to increase individual and group-based walking, underpinned by the social cognitive theory and theories of self-regulation. Outcome evaluation included an accelerometer and questionnaire measures at baseline, week-6, week-12 and follow-up. A mixed methods parallel process evaluation was conducted alongside.

Results: The trial eligibility rate was 64%. Thirty participants were recruited, and of these, 76.7% were retained. The fitbit PA monitor, the education and problem-solving session, and the 2-weekly health coaching had the highest compliance rates. Preliminary results suggest increases in moderate to vigorous PA by 11.45 minutes/day from baseline to follow-up, alongside increases in light activity and decreases in inactivity. QOL decreased through-out the intervention whilst anxiety and depression scores improved. Underpinning mechanisms of change were increased self-awareness, habit formation and the integration of a small change approach.

Conclusion and implications: The ACCEPTANCE programme was accepted by participants, and only minor modifications will be needed for implementation in a larger definitive trial. The trial results demonstrate changes in physical activity comparable to 20 minutes of brisk walking per day. Future implementation should incorporate learning from the process evaluation and prioritise the recruitment of ethnically diverse participants to better reflect the UK cervical cancer population.

●●●

Adherence to Unsupervised Exercise in Sedentary Individuals: A Randomised Feasibility Trial of Two Online Exercise Interventions

Katie Hesketh
[1]University of Birmingham

Introduction: Current exercise and physical activity (PA) strategies used within healthcare are either clinically effective but unsuitable in routine practice (supervised exercise) or suitable in routine practice but clinically ineffective (PA advice). Mobile health (mHealth) technologies offering biometric data to patients and healthcare professionals, may bridge the gap between supervised exercise and PA advice, enabling patients to engage in regular long-term physically active lifestyles. This study aimed to examine the feasibility of two mobile health (mHealth) technology supported exercise and physical activity (PA) interventions to increase adherence to unsupervised exercise that could be employed in future randomised controlled trials.

Methods: Eighty-six participants were randomised to online resources (n=44, females n=29) or MOTIVATE (n=42, females n=28) groups. The online resources group accessed a website with virtual resources to assist performing in a progressive exercise programme. The MOTIVATE group received exercise counselling sessions supported via mHealth biometrics that allowed instant participant feedback on exercise intensity, and communication with an exercise specialist. Heart rate (HR) monitoring, survey-reported exercise behaviour (GLTEQ) and accelerometer derived PA were used to quantify adherence. Remote measurement techniques were used to assess anthropometrics, blood pressure, HbA1c and lipid profiles. Participant perceptions of the interventions were explored using semi-structured interviews and surveys.

Results: HR derived adherence was 22±34% and 113±68% in the online resources and MOTIVATE groups, respectively. Self-reported exercise behaviour demonstrated moderate (Cohen's d= 0.63, CI= 0.27 to 0.99) and large effects (Cohen's d= 0.88, CI= 0.49 to 1.26) in favour of online resources and MOTIVATE groups, respectively. When drop-outs were considered, 84% of remotely gathered data were available, with dropouts removed data availability was 94%.

Conclusion: Both interventions resulted in positive changes to exercise behaviour. Greater improvements in adherence and PA were observed for the MOTIVATE intervention. Future large-scale trials should explore the effectiveness of the MOTIVATE intervention.

●●●

Behaviour change techniques in low energy and very low energy diet interventions for weight loss: a systematic review with meta-analysis

Tamla Evans[1], Pooja Dhir[1], Dr Jamie Matu[1], Dr Duncan Radley[1], Prof Andrew Hill[2], Dr Andrew Jones[3], Dr Lisa Newson[4], Charlotte Freeman[1], Dr Zoe Kolokotroni[1], Dr Therese Fozard[1], Prof Louisa Ells[1]
[1]Leeds Beckett University, Leeds, UK, [2]University of Leeds, Leeds, UK, [3]University of Liverpool, Liverpool, UK, [4]Liverpool John Moores University, Liverpool, UK

Background: The NHS Low-Calorie Diet (NHS-LCD) Programme was launched in 2020 to help people improve their Type 2 Diabetes through weight loss and maintenance. Programme participants receive structured behavioural support across 52-weeks of one-to-one, group, or digital coaching. As no NICE guidance currently exists on the behaviour change content recommended for low energy diet programmes, the NHS-LCD is informed by behaviour change recommendations more broadly. The aim of this systematic review was to establish the BCTs implemented in interventions prescribing ≤1200kcal/d for people with overweight and/or obesity and how these contribute to effectiveness through meta-analyses.

Methods: Databases were searched from inception to April 2022. Following PRISMA guidance, titles/abstracts and subsequent full texts were screened individually and in duplicate, with discrepancies resolved by a third reviewer. Data extraction, BCT coding and quality appraisal was conducted individually and in duplicate using the TIDieR checklist, BCTTv1, and RoB2 tool. Where data was sufficient, meta-analyses examined weight loss and maintenance outcomes; subgroup analyses examined the effects of individual BCTs, intervention components, and participant characteristics.

Results: Thirty-two papers reporting on 27 studies were identified for inclusion. Of these, 21 studies were included in at least one outcome time-point in the meta-analyses, the remaining six studies were synthesised narratively. 24 BCTs were identified across studies. All eight BCTs analysed at the end-of-diet time-point were individually, significantly associated with a larger reduction in weight; one BCT was statistically significant at end of weight maintenance. Physical activity, Type 2 Diabetes, and BMI category moderated intervention effects.

Conclusions and implications: This is the first systematic review and meta-analysis to examine how specific BCTs contribute to the effectiveness of low-energy diets. We identified eight BCTs associated with a larger reduction in weight. It is recommended that NHS England stipulate the use of these BCTs in the NHS-LCD service specification.

●●

What is the effect of using weight loss requirements or body mass index threshold policies to limit access to elective arthroplasty?

Dr Joanna McLaughlin[1]
[1]University of Bristol

Background: Despite widespread use, the impact of commissioners' policies using body mass index criteria to limit access to hip or knee replacement surgery in England is not clear.

Methods: We conducted a natural experimental study using interrupted time analysis. We used National Joint Registry data for patients who had primary hip or knee replacement surgery in England between January 2009 and December 2019. Clinical commissioning group policies introduced between January 2013 and June 2018 to alter access to surgery for patients who were overweight or obese were considered the intervention. The main outcome measures were rate per 100,000 of primary joint replacement surgery and patient demographics (body mass index, Index of Multiple Deprivation, independently-funded surgery) and measures of clinical and patient-reported physical status over time.

Results: Rates of surgery had a sustained fall after the introduction of a policy, whereas rates rose in localities with no policy introduction. 'Strict' policies that mandated a body mass index threshold for access to surgery were associated with the sharpest fall in rates of surgery (trend change of -1.39 hip operations per 100,000 population aged 40+ per quarter-year, 95% confidence interval -1.81 to -0.97, P<0.001). Policies that enforced extra waiting time before surgery were associated with worsening mean pre-operative symptom scores and rising obesity, contrary to their intended effect. Localities with BMI policies have higher proportions of independently-funded surgery and more affluent patients receiving surgery, therefore increasing health inequalities.

Conclusions and Implications: Commissioners and clinicians should be aware of the counterproductive effects of policies that delay access to surgery and the widening of health inequalities since the ability to pursue independently-funded surgery ranges with patients' affluence. It is our recommendation that BMI policies involving extra waiting time or mandatory body mass index thresholds are no longer used to reduce access to joint replacement surgery.

●●

Two randomised controlled trials to test the effect of social norm messages on meat-free food selection in restaurants and worksite cafeterias

Elif Naz Çoker[1], Dr Rachel Pechey[1], Prof Susan A. Jebb[1]
[1]*University of Oxford, Nuffield Department of Primary Care Health Sciences, Oxford, UK*

Background. Leveraging social norms may support dietary behaviour change. We tested the effectiveness of dynamic descriptive social norm messages on selection of meat-free meals within (1) a restaurant chain and (2) worksite cafeterias across the UK.

Methods. In Study 1, 22 restaurants were randomised in a crossover design to display animated social norm messages designed by the restaurant chain, during the first or last two weeks of the four-week study. In Study 2, 26 sites were randomised in a 6-week, parallel controlled trial. The intervention comprised of social norm messages designed by the researchers on floor stickers, posters, and free standing banners. The percentage sales of meat- vs. plant-based dishes (based on sales records from till data) was the primary outcome in both studies.

Results. Study 1 found no evidence of an effect of the intervention (β = -0.022, p = .978, 95% CIs: -1.63, 1.58). However, adherence to the intervention was found to be low, with inconsistencies in the placement and display of the intervention message, with concerns that the message had not been sufficiently salient. Data collection for Study 2 is due to complete in early December 2022. Fidelity checks show the intervention is delivered at high intensity as planned.

Conclusion and Implications. Our study in restaurants did not find a social norm intervention to be effective. However, Study 2 comprises a robustly designed, theoretically grounded RCT, with enhanced message salience and a longer trial period. Together, these provide novel evidence as to the effectiveness of social norm messaging in retail settings.

•••

Does the design of the NHS Low Calorie Diet Programme have fidelity to the programme specification? A documentary review of service parameters and behaviour change content in a Type 2 Diabetes intervention

Tamla Evans[1], Pooja Dhir[1], Dr Duncan Radley[1], Dr Cristiana Duarte[4], Dr Chris Keyworth[2], Dr Catherine Homer[3], Prof Andrew Hill[2], Rhiannon Hawkes[5], Dr Jamie Matu[1], Prof James McKenna[1], Prof Louisa Ells[1]
[1]*Leeds Beckett University, Leeds, UK,* [2]*University of Leeds, Leeds, UK,* [3]*Sheffield Hallam University, Sheffield, UK,* [4]*York St Johns University, York, UK,* [5]*University of Manchester, Manchester, UK*

Background: NHS England commissioned four independent service providers to pilot low-calorie diet programmes to drive weight loss, improve glycaemia and potentially achieve remission of Type 2 Diabetes across 10 localities. Intervention fidelity (whether the programme is implemented as intended) might contribute to programme success. Previous research has illustrated a drift in fidelity in the design and delivery of other national diabetes programmes.
Aims: 1) To describe and compare the programme designs describing service parameters and behaviour change content, across the four service providers; 2) To assess the fidelity of programme designs to the NHS England service specification.

Methods: The NHS England service specification documents and each provider's programme design documents were double coded for key intervention content using the Template for Intervention Description and Replication Framework and the Behaviour Change Technique (BCT) Taxonomy.

Results: The four providers demonstrated fidelity to most but not all the service parameters stipulated in the NHS England service specification. Providers included between 74% and 87% of the 23 BCTs identified in the NHS specification. Twelve of these BCTs were included by all four providers; two BCTs were consistently absent. An additional seven to 24 BCTs were included across providers.

Conclusions and implications: This study examined an underexplored domain of intervention fidelity, design. A loss of fidelity for some service parameters and BCTs was identified across the provider's designs; this may have important consequences for programme delivery and thus programme outcomes. Furthermore, there was a large degree of variation between providers in the presence and dosage of additional BCTs, indicating variation in active ingredients. How these findings relate to the fidelity of programme delivery and variation in programme outcomes and experiences across providers will be examined.

•••

Weight scarring: The psychological impact and mortality outcomes associated with past obesity

Dr. Michael Daly[1], Dr. I Gusti Ngurah Edi Putra[2], Prof Angelina Sutin[3], Prof Andrew Steptoe[4], Dr Eric Robinson[2]
[1]Department of Psychology, Maynooth University, Ireland, [2]Department of Psychology, Institute of Population Health, University of Liverpool, UK, [3]Department of Behavioral Sciences and Social Medicine, Florida State University College of Medicine, United States, [4]Department of Behavioural Science and Health, Institute of Epidemiology and Health Care, University College London, UK

Background: This study tested a novel 'weight scarring' hypothesis suggesting that obesity experienced in the past may reduce current well-being even after substantial weight loss has occurred. In addition, the study examined whether the psychological 'scar' of past obesity predicts increased mortality risk.

Methods: Data were from the National Health and Nutrition Examination Survey (NHANES) collected from 2007-2019 (n=29,047) and from the Health and Retirement Study (HRS) collected from 1992-2021 (n=11,998). Past obesity was assessed using maximum lifetime weight in NHANES and the highest weight from past survey waves in the HRS. Current depressive symptoms were assessed using the Patient Health Questionnaire (PHQ-9) in NHANES and the Centre for Epidemiology Depression Scale (CES-D) in the HRS. A set of 10 additional well-being measures were combined to produce an 'index of impaired well-being' in the HRS. Subsequent all-cause mortality was examined using National Deaths Index (NDI) records in NHANES and household interviews in the HRS. OLS and Cox-proportional hazard regression models were used.

Results: Past obesity was associated with raised current depressive symptoms in both studies (NHANES: β=0.17, 95%CI: 0.13–0.21; HRS: β=0.12, 95%CI: 0.05–0.18) and impaired well-being in the HRS (β=0.15, 95%CI: 0.09–0.21). These association were evident after accounting for current demographic characteristics and weight levels and when those no longer classified as obese were examined. Past obesity predicted an increased risk of premature mortality in both NHANES (HR=1.31, 95%CI:1.16–1.48) and HRS (HR=1.34, 95%CI:1.20–1.50) samples. Depressive symptoms and impaired well-being partly mediated the association between past obesity and the risk of premature mortality.

Conclusions and implications: The study findings suggest that past obesity may 'scar' and that the reduced well-being associated with past obesity may raise mortality risk. Ensuring people with obesity receive psychological support even after experiencing weight loss is important to avert obesity-related psychological difficulties and increased disease burden.

●●

Building and understanding an explanatory model of >5% weight loss in an online behavioural weight management programme: a mixed methods study

Meigan Thomson[1], Dr Emily Long[1], Dr Anne Martin[1], Prof Jennifer Logue[2], Prof Sharon Simpson[1]
[1]MRC/CSO Social and Public Health Sciences Unit, University of Glasgow, Glasgow, UK, [2]University of Lancaster, Lancaster, UK

Background: Behavioural weight management programmes are efficacious in improving health and weight outcomes in adults living with obesity. Understanding what factors support participants to achieve a ≥5% weight loss can be used to suggest how these programmes can be improved. This study aimed to build an explanatory model of social ecological factors contributing to a ≥5% weight loss and to explore these more fully through qualitative interviews.

Methods: Surveys were administered at baseline (n=129) and at the end of the programme (n=102). Survey data were analysed using a sequential model building procedure to build an explanatory model of ≥5% weight loss. Interviews were conducted midway through the programme (n=48). Interviews included questions on how intrapersonal, interpersonal, and environmental factors had affected their weight loss, and were analysed in NVivo using a thematic approach. Following coding and completion of the programme, participants were grouped as either achieving ≥5% or <5% weight loss.

Results: Intrapersonal, interpersonal, programme, and COVID-19 specific factors were significantly associated with >5% weight loss. The explanatory model identified lower baseline takeaway consumption, more dietary changes, lower levels of anxiety, and higher levels of social support from the household as factors explaining 30% of the variance in achieving a ≥5% weight loss. Supplementary qualitative interviews indicated differences between groups in their ability to overcome barriers to dietary changes, how they reacted to stressors, and the types of support received from the household.

Conclusions and implications: This model and qualitative evidence highlights multiple factors attributed to ≥5% weight loss. Programmes should consider how to support participants to source solutions to barriers, consider how dietary changes are imbedded in the participant's life, and how to foster more social support from the household.

●●

Appetite in Preschoolers: Understanding differential susceptibility to obesogenic environments for future intervention efficacy

Convenor: Professor Jacqueline Blissett, Aston University
Discussant: Claire Farrow, Aston University

Intended participants: Participants of the symposium will be academics and clinicians interested in eating behaviour and children's lifestyle behaviours. This symposium will be of particular value to those working with parents of children at risk of adiposity.

Objective: Using current theory to inform complex intervention development, the aim of the APPETItE (Appetite in Preschoolers: Producing Evidence for Tailoring Interventions Effectively) project is to examine how parents interact with their pre-school children with avid appetites in the food context, how these interactions predict short- and long-term effects on obesogenic eating outcomes, and to develop recommendations for intervention.

Rationale: It is well established that childhood obesity develops through a combination of genetic susceptibility and exposure to an obesogenic environment. While establishing a healthy home food environment can buffer genetic risk, we do not know what the best advice is regarding feeding practices for parents who have young children with avid appetites. Current public health advice regarding children's eating and weight is generic, ineffective, and does not tackle variability in children's appetite, which makes behaviour change even more challenging for parents.

Summary: This symposium will summarise our theoretical approach and study protocol, and the initial findings will be briefly summarised, including
- an examination of the directionality of relationships between appetite avidity and feeding practices in n=1858 parents and their children from 15 to 60 months
- the identification of three latent profiles of 3–5-year-old children's eating behaviour from a survey of 995 UK parents/carers
- a qualitative analysis of parental experiences of feeding their children who have avid appetites.

Together these findings demonstrate the complex picture of the individual, family and environmental factors which predict and moderate children's appetite development, which highlight the specific challenges faced by parents of children with avid appetite.

•••

Reciprocal associations between parental feeding practices and child appetite from toddlerhood to early childhood: Bivariate Latent Change Analysis in the Gemini cohort.

Alice R. Kininmonth[1], Moritz Herle[2], Emma Haycraft[3], Claire Farrow[4], Helen Crocker[5], Abigail Pickard[4], Katie Edwards[4], Jacqueline Blissett[4], & Clare Llewellyn[1]
[1]*Research Department of Behavioural Science and Health, Institute of Epidemiology and Health Care, University College London, London, UK,* [2] *Department of Biostatistics & Health Informatics, Institute of Psychiatry, Psychology & Neuroscience, King's College London, London, UK,* [3] *MRC Epidemiology Unit, University of Cambridge, Cambridge, UK,* [4]*School of Psychology & Institute of Health and Neurodevelopment, Aston University, Birmingham, UK.,* [5]*World Cancer Research Fund International, London, UK*

Background: Parental feeding practices (PFPs) are a key component of a child's food environment. Parent-child feeding relationships are hypothesised to be bidirectional in nature, however, to date few large prospective studies have examined this, instead focussing on unidirectional relationships. As such, the direction of relationships between PFPs and children's appetite remain unclear.

Methods: Data were from Gemini, a population-based sample of children born in England and Wales in 2007. Child appetite and PFPs were measured at 15-months and five-years using validated psychometric measures (n=1858). Bivariate Latent Change Score Modelling was used to examine the nature of relationships between PFPs and children's appetite at 15-months and five-years. Models were adjusted to account for clustering of twins within families, child sex, age at measurement, SES, and gestational age.

Results: A reciprocal relationship was observed between instrumental feeding and emotional overeating, with greater instrumental feeding predicting greater increases in emotional overeating (β=0.09;0.03-0.15;p=0.004) and vice versa (β=0.09;0.03-0.15;p=0.005). Reciprocity was also observed between encouragement to eat healthy foods and children's enjoyment of food, with greater encouragement predicting greater increases in enjoyment of food (β=0.08;0.02-0.13;p=0.006) and vice versa (β=0.07;0.02-0.11;p=0.003). Parent-child associations and child-parent associations were

also observed. Sensitivity analyses were conducted using Full Information Maximum-Likelihood estimation for participants with missing follow-up data (n=3787) and effect sizes were the same.

Conclusion: These findings are consistent with the hypothesis that certain feeding practices are used as a 'natural' response to a child expressing an avid appetite, but at the same time such practices impact appetite development by nurturing and encouraging the expression of an avid appetite (e.g., higher emotional overeating and enjoyment of food) in preschool years. The findings provide important insights into the PFPs and appetitive traits that could be targeted as part of a tailored feeding intervention to support parents of children with an avid appetite.

••

Profiles of eating behaviours in childhood and their association with temperament, parenting and food insecurity

Abigail Pickard[1], Helen Crocker[2], Katie Edwards[1] Claire Farrow[1] Moritz Herle[3], Emma Haycraft[4], Alice R. Kininmonth[5], Clare Llewellyn[5], & Jacqueline Blissett[1].
[1] School of Psychology & Institute of Health and Neurodevelopment, Aston University, Birmingham, UK.
[2] World Cancer Research Fund International, London, UK, [3] Department of Biostatistics & Health Informatics, Institute of Psychiatry, Psychology & Neuroscience, King's College London, London, UK
MRC Epidemiology Unit, University of Cambridge, Cambridge, UK, [4] National Centre for Sport and Exercise Medicine, School of Sport, Exercise & Health Sciences, Loughborough University, Loughborough, UK
[5] Research Department of Behavioural Science and Health, Institute of Epidemiology and Health Care, University College London, London, UK

Background: Previous research has evidenced that from infancy onward, genetic influences on weight are partly mediated by appetite avidity, expressed as food approach (FA) behaviours. This study aimed to identify a distinct eating behaviour profile reflecting high food FA in children and examine how other key predictors of children's eating behaviour, such as child temperament, the experience of food insecurity, or parental feeding practices, may vary by identified profiles.

Methods: An online survey was conducted with 995 parents/carers living in England and Wales. Participants reported on their child's eating behaviour using the Child Eating Behaviour Questionnaire, as well as completing measures of child temperament, household food security and parental feeding practices. Latent Profile Analysis (LPA) was carried out to identify distinct eating profiles amongst the children (36-72 months, Mean age = 48.8 months, 52% female).

Results: Four eating profiles emerged from the sample of children: (a) avid eating, (b) fussy eating, (c) happy eating, and (d) typical eating. Avid eating (21.9% of children) was characterised by higher levels of food responsiveness, enjoyment of food, and emotional over-eating in combination with lower satiety responsiveness, slowness in eating and food fussiness. Children with an avid eating profile were reported to be more surgent and experienced greater food insecurity than all other eating profiles. Parents of children belonging to the avid eating profile showed significantly greater use of food for emotional regulation, varied and balanced food provision, restriction of food for health, and restriction of food for weight feeding practices than the three other eating profiles.

Conclusion: Overall, the findings suggest four distinct eating behaviour profiles which differ significantly according to child temperament and parental feeding practices. The identification of the avid eating profile in young children allows future research and interventions to be individually tailored to children's individual susceptibility to adiposity.

••

Examining Parents' Experiences and Challenges of Feeding Preschool Children with Avid Eating Behaviour

Katie Edwards[1], Jacqueline Blissett[1], Helen Crocker[2], Claire Farrow[1] Moritz Herle[3], Alice R. Kininmonth[5], Clare Llewellyn[5], Abigail Pickard[1]& Emma Haycraft[4]
[1] School of Psychology & Institute of Health and Neurodevelopment, Aston University, Birmingham, UK, [2] World Cancer Research Fund International, London, UK, [3] Department of Biostatistics & Health Informatics, Institute of Psychiatry, Psychology & Neuroscience, King's College London, London, UK, MRC Epidemiology Unit, University of Cambridge, Cambridge, UK, [4] National Centre for Sport and Exercise Medicine, School of Sport, Exercise & Health Sciences, Loughborough University, Loughborough, UK, [5] Research Department of Behavioural Science and Health, Institute of Epidemiology and Health Care, University College London, London, UK

Background: Current public health advice regarding children's eating is generic and does not tackle the considerable variability in children's appetite traits and eating behaviour. Behaviours that characterise avid eating have been linked to child overweight and obesity (e.g., greater enjoyment of, and responsiveness to, food). Parent feeding practices are modifiable components of a child's food environment and thus may be key levers for behaviour change in tailored interventions to support the development of children's healthy eating. This qualitative study explored primary caregivers' experiences of feeding children with avid eating behaviour and the challenges that caregivers experience in this context.

Method: Fourteen semi-structured interviews were conducted with primary caregivers of a preschool child (3-5 years) previously identified as having a latent profile of avid eating behaviour. Interviews explored how children's avid eating manifests and the challenges that caregivers face when feeding their child. Interviews also examined which feeding strategies caregivers use to limit their child's food intake, and whether these strategies are effective.

Results: Interview data has been collected and transcribed. Qualitative analysis will be completed by February 2023.

Conclusion: This study will provide an understanding of caregivers' experiences of feeding children with avid eating behaviour. These findings will help to determine targets for the development of tailored interventions to support caregivers with children who are at greater risk of the development of obesity in food abundant environments.

●●

Changing the availability and positioning of more vs. less environmentally sustainable products: A randomised controlled trial in an online experimental supermarket

Cinja Jostock[1], Madison Luick[1], Dr Lauren Bandy[1], Prof Susan Jebb[1], Dr Rachel Pechey[1]
[1]University of Oxford

Background: Diets need to become more sustainable to alleviate the adverse impact of food systems on the environment. Targeting the availability and positioning of lower-environmental impact foods in settings such as supermarkets may facilitate behaviour change. This study aimed to investigate the effectiveness of availability and positioning interventions seeking to promote products with a lower environmental impact, alone and in combination, on the sustainability of food choices in an experimental online supermarket.

Methods: In this randomised controlled trial a representative sample of UK adults were randomly assigned to one of four trial groups: Control, Availability Only [additional lower environmental impact products added to website options], Order Only [products displayed on website such that lower environmental impact options were more likely to appear earlier], and Availability & Order. The primary outcome was total environmental impact score, calculating by summing across products placed in baskets, with a score of 1 for each product in the lowest 20% for environmental impact, up to 5 for the highest 20%. Trial group means were compared using Welch's ANOVA test.

Results: Mean environmental impact scores were significantly lower in the Order Only group (-1.5, 95%CIs: -2.2, -0.8) and Availability & Order group (-2.4, 95%CIs: -3.2, -1.7) compared to Control (mean=21.3), with no statistically significant difference between Availability and Control (-0.3, 95%CIs: -1.0, 0.4). No interactions were found between the two interventions, by device type used (mobile vs. desktop/tablet) or participant characteristics (gender, age group, education, income, usual meat consumption).

Conclusions and implications: This proof-of-principle study demonstrates positioning interventions may be an effective tool to increase sustainability of purchases on online supermarket websites, while availability may need ordering to be implemented alongside to ensure effectiveness. Future studies should investigate whether the intervention effects are transferable to other settings such as real-world online supermarkets.

•••

Acceptability and Feasibility of a Targeted Intensive Community-based campaign To Optimise Cancer awareness (TIC-TOC)

Dr Eleanor Clarke[1], Dr Gwenllian Moody[1], Dr Pamela Smith[1], Dr Julia Hiscock[2], Dr Rebecca Cannings-John[1], Dr Julia Townson[1], Myrsini Gianatsi[1], Ms Dawn Casey[1], Mayu Crowther[1], Dr Berni Diethart[1], Prof Adrian Edwards[1], Dr Christina Erwin[1], Peter Henley[1], Dr Dyfed Huws[1], Amanda Iles[1], Dr Daniel Jones[1], Nigel Kirby[1], Catherine Lloyd-Bennet, Dr Fiona Ludd-Widger[1], Gareth Newton[1], Dr Harriet Quinn-Scoggons[1], Prof Michael Robling[1], Ann Thomas[1], Sara Thomas[1], Angela Watkins[1], **Dr Grace McCutchan**[1], Prof Katherine Brain[1]
[1]Cardiff University, Cardiff, UK, [2]University of Bangor, Bangor, UK

Background: We assessed the acceptability and feasibility of delivering and evaluating a targeted community-based vague symptom awareness intervention. The intervention aimed to encourage presentation to primary care and ultimately referral to Rapid Diagnostic Centres (RDCs) which are being implemented across the UK to accelerate diagnosis of vague suspected cancer symptoms.

Methods: Mixed-methods evaluation of an intervention delivered from July 2021-March 2022, in deprived communities in Wales, UK. Intervention messages aligned to the Behaviour Change Wheel were delivered by trained cancer champions using broadcast, printed, outdoor and social media. Data collection included (1) questionnaires with RDC patients to assess the patient interval (Neal et al., 2014), (2) Advertising metrics and (3) qualitative interviews and focus groups. Feasibility was assessed as green (deliverable), amber (amend) or red (review) based on descriptive statistics or thematic analysis.

Results: Of 243 RDC patients, 21% completed the questionnaire (amber) with <20% missing data (green). Most intervention participants (72%) were from the two most deprived quintiles (green). Patient interval measurement was sub-optimal.

Seven cancer champions were recruited, with 4 retained. Facebook advertisements reached 237,023 people and received 8,164 post engagements. Delivery of supermarket billboard and poster advertising, pharmacy bags and radio/Facebook/newspaper adverts were assessed as green. Adverts on buses, newspaper stories and leaflets were amber and TV interviews, posters in buses and bus shelters were red.

Interviews with 43 stakeholders and two focus groups were conducted. Preliminary qualitative findings highlight barriers and facilitators to the cancer champion role such as teamwork and COVID.

Conclusion: It was feasible to deliver and evaluate multiple elements of this targeted community-based intervention, despite issues with collecting data from RDC patients during COVID-19. A stakeholder workshop will inform optimal methods of implementing and evaluating behavioural interventions to support RDCs in deprived populations.

•••

Barriers and enablers to accessing support services offered by staff wellbeing hubs: A qualitative study

Dr Chris Keyworth[1], Adnan Alzahrani[1], Lucy Pointon[1], Dr Kerry Hinsby[2], Dr Nigel Wainwright[3], Lucie Moores[3], Jenny Bates[3], Dr Judith Johnson[1]
[1]University of Leeds, Leeds, UK, [2]Leeds and York Partnership Foundation Trust, Leeds, UK, [3]Mid-Yorkshire Hospitals NHS Trust, Leeds, UK, [4]Bradford Institute for Health Research, Bradford Royal Infirmary, Bradford, UK

Background: International efforts have been made to develop appropriate interventions to support the mental health needs of healthcare professionals in response to COVID-19. However, fewer staff have accessed these than expected, despite experiencing elevated levels of mental distress since the onset of the pandemic. Consequently, we aimed to examine the barriers and enablers for healthcare professionals in accessing interventions offered by a Staff Mental Health and Wellbeing Hub.

Methods: Twenty-five semi-structured interviews were conducted with healthcare, social care and voluntary, community and social enterprise (VCSE) sector staff. Data were analysed using thematic analysis.

Results: Four key themes were identified: (1) Environment and Atmosphere in the Workplace; (2) The Impacts of COVID-19; (3) Confidentiality; and (4) Awareness and Communication of Resources. Organisational environments were perceived as an important enabler of accessing the hub services for mental health and wellbeing support. This included the importance of recognising and responding to the ongoing pressures of COVID-19- specific challenges. Ensuring and communicating aspects of confidentiality, and ensuring clear and consistent communication of the benefits of the Hub may encourage help-seeking for mental health challenges among healthcare professionals.

Conclusions and Implications: Our findings highlight important considerations to increase uptake and engagement with services to support the mental health and wellbeing of healthcare professionals and associated staff and volunteers. Organisations aiming to increase employee uptake of these services should regularly circulate consistent and clear emails about what these services offer, provide training and information for managers so they can support staff to access these services and ensure access is confidential.

•••

Investigating Interventions to Change Eating Behaviours in Field Settings: Common Problems and Recommendations

Violetta Vysevkova[1], Dr Gareth Hollands[2], Dr Rachel Pechey[3], Dr James Reynolds[1]
[1]Aston University, Birmingham, UK, [2]University College London, London, UK, [3]University of Oxford, Oxford, UK

Background: Interventions in food environments to improve eating behaviours could make substantial progress towards tackling obesity and improving health in general. However, testing these interventions in field settings (e.g., cafeterias, supermarkets) is logistically complex, time consuming, and offers many challenges to implementation and evaluation. This study set out to identify common problems faced by researchers who have conducted research that attempts to change eating behaviours in these field settings to inform the development of guidelines for future research.

Methods: Qualitative content analysis of open text responses by 32 researchers with experience of conducting field trials targeting eating behaviours. A Qualtrics survey was distributed that contained a mixture of closed and open questions to identify common problems encountered during research on changing eating behaviours in naturalistic environments, how researchers solved or managed these problems, and the impact they perceive the problems had on the validity of their results.

Results: Content analysis yielded 23 subcategories of distinct problems which fell into three categories: recruitment, data collection/analysis, and intervention delivery. There were also three categories of solutions which mapped onto the three problem categories. There were 21 subcategories of solutions, with some problems having multiple solutions and some having none. 89% of researchers' responses stated that these problems affected the validity of study results: 50% to a small extent, 33% to a moderate extent, and 6% to a large extent.

Conclusions and Implications: Establishing a practice of reporting practical problems encountered by researchers and their possible solutions has potential to improve the development and implementation of intervention research in naturalistic food environments, as well as its transparency and reproducibility. We provide a preliminary set of guidelines for predicting and managing problems that occur when conducting behaviour change research in field settings.

•••

Patient-centred development and validation of the Patient-Reported Impact of Dermatological Diseases (PRIDD) measure

Dr Rachael Pattinson[1], Nirohshah Trialonis-Suthakharan[2], Jennifer Austin[3], Allison FitzGerald[3], Prof Matthias Augustin[2], Prof Chris Bundy[1]
[1]*Cardiff University, Cardiff, UK,* [2]*University Medical Center Hamburg-Eppendorf (UKE), Hamburg, Germany,* [3]*International Alliance of Dermatology Patient Organizations, Ottawa, Canada*

Background: Dermatological conditions are highly prevalent worldwide and significantly impact upon quality of life. The psychological and social impacts include the stigma of living with a visible condition, symptoms including pain and itch, self-management, depression, anxiety, stigma, and social isolation.
Existing patient-reported outcome measures (PROMs) are not theory-informed and do not comprehensively capture the impact of dermatological diseases on patients' lives and therefore underestimate patient burden. The Global Research on the Impact of Dermatological Diseases (GRIDD) project is developing a new measure of the impact of dermatological conditions on patients' lives called PRIDD (Patient-Reported Impact of Dermatological Diseases).

Methods: GRIDD is a mixed methods study consisting of five phases: 1) COSMIN systematic review. 2) Qualitative interview study developing the conceptual framework of impact and generating items. 3) Delphi study eliciting consensus from patients on which impact items to prioritise for inclusion in PRIDD. 4) Cognitive interview study evaluating content validity, acceptability, and feasibility. 5) Psychometric testing.

Results: 2,221 people representing 90 conditions from 61 countries participated. None of the 36 PROMs evaluated in the systematic review were recommended for use as the 'gold standard'. The conceptual framework depicted impact as a multifaceted construct involving physical, life responsibilities, psychological and social impacts. The Delphi study reduced the item pool of 263 to a 27-item draft of PRIDD. Cognitive interviews produced a 26-item version of PRIDD with evidence of content validity, feasibility, and acceptability from patients. A confirmatory factor analysis refined the conceptual framework. PRIDD fits the Rasch model. Testing of further measurement properties is underway.

Conclusions and implications: PRIDD has been developed in close collaboration with patients and meets the gold-standard COSMIN criteria. PRIDD will greatly enhance patient perspectives by providing quantifiable patient impact data for better decision-making at the individual, national and global levels, with higher prioritisation of dermatological conditions.

●●●

A discrete choice experiment exploring preferences for remotely supervised prehabilitation

Dr James Durrand[1]
[1]*Health Education England North East*

Background: Prehabilitation is the preoperative enhancement of physical and mental health to improve perioperative outcomes. Support has traditionally been face-to-face. Covid-19 has focussed a pre-existing need for robustly developed 'home-based' alternatives. Understanding preferences is key to intervention design, yet little is known in this context. Discrete Choice Experiments (DCEs) can explore healthcare preferences across a large sample of respondents. Adaptive-choice designs overcome traditional limitations, customising questionnaires to the individual respondent. This study explored preferences for remotely supervised prehabilitation using an adaptive choice DCE.

Methods: An Adaptive Choice-Based Conjoint (ACBC) questionnaire was developed through Sawtooth Software lighthouse suite (Provo, Utah, USA). Basic demographic, surgical and health-risk behaviour data were collected. The DCE comprised 6 attributes with 14 levels. Patients preparing for major surgery were invited to participate at 10 NHS sites. A Hierarchical Bayes (HB) model was used to estimate the relative importance of each attribute and utilities of each level. Choice simulation explored the predicted 'market share' of differing programme designs.

Results: 164 respondents completed questionnaires. The relative importance of attributes revealed that 'programme format' (digital or paper) was most important. Level utilities indicated a paper-based programme, that could be commenced at home at point of surgical listing with a fortnightly HCP review and integrating a wearable device was most acceptable to the cohort overall. However, programme format was divisive. Patients segmented into two demographically distinct groups exhibiting strong preferences for a digital and paper format. Choice simulation indicated that both paper-based and digital-based offers would obtain wider acceptability.

Conclusions and implication: DCE can feasibly explore preferences for prehabilitation programme design. Demographic rather than clinical factors may influence preferences for support. A range of programme offers may be necessary to engage the widest range of surgical patients in remotely supervised prehabilitation support.

●●●

Optimising a co-production framework for developing public health interventions: application and testing of school-based Research Action Groups

Dr Hayley Reed[1], Dr Rhiannon Evans[1], Prof Simon Murphy[1]
[1]DECIPHer, Cardiff University, Cardiff, Wales

Background: Existing guidance and frameworks for developing public health interventions do not guide researchers on how to work with intervention stakeholders to co-produce context specific interventions. The present study aimed to optimise a co-production framework through applying and testing Research Action Groups (RAGs) in real-world secondary school contexts. RAGs were established with multiple school stakeholders and supported by an external facilitator to use school data to produce school-specific mental health and wellbeing interventions.

Methods: A mixed methods process evaluation was conducted in two contextually diverse case study secondary schools to optimise the co-production framework. The process evaluation focused on the implementation of co-production, the interaction between co-production and the school contexts, how decision-making functioned, and if resultant interventions were socially valid. Data collected for the process evaluation during co-production processes were a researcher diary (n=45 entries), and observations of student photography (n=21) and RAG meetings (n=8). Post co-production, interviews and surveys with RAG students (n=18) and staff (n=8), and two school-specific Senior Management Team (SMT) focus groups (n=10) were conducted.

Results: The study identified four ways to optimise and integrate co-production into real world practice. They include the need to: assess schools for their readiness to undertake co-production; more effectively communicate the necessity to have stakeholders from the whole system involved; work with SMTs throughout co-production processes; involve stakeholders outside the school to support producing solutions to change school mental health and wellbeing priorities.

Conclusions and Implications: The framework presents the co-production functions necessary to support school stakeholders to develop interventions that meet their needs and contexts. It can be utilised in other settings to support the development of public health interventions.

●●●

Researching together: putting PPIE co-researchers at the heart of research

Dr Jack Joyce[1], Carolyn Newbert, Dr Nicola Guess, Dr Caroline Mitchell, Dr Charlotte Albury
[1]University of Oxford

Background: The "NewDAWN" trial aims to develop a new treatment pathway for people with type 2 diabetes (T2D) to support remission. To be successful the pathway must reflect the actual experience of living with diabetes to work for as many different people as possible. To achieve this we incorporated patient public involvement and engagement (PPIE) and public co-researcher at the heart of the research to ensure that our work is person centred and grounded in the lived experience of diabetes. Here we build on participatory research reflections (e.g. Mikulak et al., 2021) to discuss the value, strengths and challenges of our collaboration between researchers and PPIE co-researchers.

Methods: The development of the NewDAWN pathway involved detailed narrative interviews with people with type 2 diabetes. Interviews were led by an experienced qualitative researcher and a public co-researcher. The co-researcher was directly involved in sampling, designing interview questions, conducting interviews, iterating the interview design and supporting analysis.

Results: The researcher and co-researcher reflected on their roles and believe the overall quality of the research and its implementation were improved but is not without its challenges. The co-researcher offered strengths such as being able to ground interview questions in the actual experience of diabetes, and increased trustworthiness for participants. It was difficult to balance meaningful participation and access without unduly burdening them with work and training, and the extent of their involvement in co-producing analysis.

Conclusions and implications: Including a co-researcher cemented the patient view at the heart of the NewDAWN pathway development. We firmly believe that challenges can be overcome through open communication and respecting the other's experience, knowledge and skills, and that public co-researchers can play a vitally important role in the quality and implementation of research. Democratising research is gold standard practice and co-research is one step in that direction.

●●●

Dietary intake in adolescents in the Midlands receiving free school meals versus those not receiving free school meals

Dr Marie Murphy[1], Eloise Watkin[1], Dr Miranda Pallan[1]
[1]University of Birmingham, Birmingham, UK

Background: In England, 20.9% of secondary school students are eligible for free school meals (FSM). Dietary intake during school lunch is important for those receiving FSM, since school food comprises a greater proportion of daily energy and nutrient intake compared to those not receiving FSM. We aimed to investigate the association between receiving FSM and pupils' lunchtime dietary intake.

Methods: A cross-sectional study with pupils aged 11-15 years attending state-funded secondary school academies in the Midlands (UK). Dietary intake and demographic data were collected by online 24-hour dietary recall and pupil survey respectively. Outcomes were lunchtime intakes of fruit and vegetables, sugar sweetened beverages (SSBs), foods/drinks high in fat, sugar and salt (HFSS), free sugars (g), energy (kcal), fat (g), fibre (g), iron (mg), vitamin D (µg), calcium (mg), sodium (g), and percent of energy intake from free sugars. We used mixed-effects linear and Poisson regression models adjusted for age, sex, ethnicity, area deprivation and food source.

Results: 1661 pupils participated, with 269 receiving FSM (16.2%). Pupils receiving FSM consumed less energy (-84.18Kcal, 95% CI: -135.20, -33.16), fat (-3.70g, 95%CI: -6.09, -1.32), sodium (-155.85mg, 95%CI: -229.78, -81.92) and fewer HFSS foods (Incidence rate ratio (IRR)=0.78, 95% CI 0.65, 0.92), but consumed more SSBs (IRR=1.39, 95% CI: 1.07, 1.80). Pupils receiving FSM also had lower intakes of fibre (-0.98g, 95% CI: -1.49 to -0.48), iron (-0.56mg, 95%CI: -0.85, -0.28) and calcium (-73.12mg, 95% CI: -114.85, -31.39).

Conclusions and implications: Pupils receiving FSM may consume less food compared to pupils not receiving FSM, potentially leading to inadequate energy and micronutrient intakes. We recommend further investigation of FSM provision in secondary schools, including whether the price-point is sufficient for ensuring adequate nutritional intake during school lunch.

• •

Comparison of dietary intake across ethnic groups in adolescents living in the Midlands

Anisah Ali[1], Dr Marie Murphy[1], Dr Miranda Pallan[1]
[1]University of Birmingham, Birmingham, UK

Background: In the UK, prevalence of childhood obesity varies by ethnic group. Evidence on adolescent dietary intake across different ethnic groups is limited. This study aimed to explore the association between ethnic group and dietary intake in adolescents in the Midlands, UK.

Methods: A cross-sectional study with pupils aged 11-15 years attending state-funded secondary school academies in the Midlands. Pupils provided sociodemographic information (ethnicity, age, sex and home postcode) and at least one 24-hour self-reported dietary recall using Intake24 (online dietary recall tool). Associations between ethnicity and dietary intake (total energy intake, macronutrient intake and food group consumption) were explored using multilevel linear and logistic models, adjusted for age, sex and area deprivation.

Results: Preliminary analysis with data from 1578 pupils attending 26 secondary school academies showed that adolescents from all ethnic groups exceeded UK government dietary guidelines for free sugar intake and had inadequate intakes of fibre, fruit and vegetables. Consumption of sugar-sweetened beverages (β = -0.20, 95% CI: -0.37, -0.02) and sugar/chocolate confectionary (β = -0.10, 95% CI: -0.19, 0.00) were lower in pupils from the Asian group compared to the White European group. Consumption of sugar/chocolate confectionary was also lower in pupils from the Black (β = -0.24, 95% CI: -0.41, -0.08) group compared to White Europeans. Further analysis will be undertaken on the full data set which includes dietary data from 2,273 pupils.

Conclusions and implications: In adolescents from all ethnic groups, free sugar intake was high whilst fibre, fruit and vegetable consumption was low. Adolescents from Asian and Black groups had lower intakes of some high sugar foods/drinks, however, there is a need to further understand differences within these broad ethnic groups.

• •

Provider perceptions of interventions to encourage prevention and early diagnosis of cancer after a negative diagnosis

Dr Ruth Evans[1], Dr Brian Nicholson[2], Dr Thomas Round[3], Dr Jo Waller[4], Caroline Gildea[5], Debs Smith[6], Prof Suzanne Scott[7]
[1]King's College London, UK, [2]Oxford University, UK, [3]King's College London, UK, [4]King's College London, UK, [5]National Disease Registration Service, NHS Digital, UK, UK, [6]Patient Representative, UK, [7]Queen Mary University London, UK

Background: Negative diagnosis following referral for suspected cancer may be an under-utilised 'teachable moment' when people are more responsive and receptive to health information. The purpose of this study was to investigate healthcare professional's (HCP's) views about the feasibility of introducing new initiatives to offer advice and support to encourage early diagnosis and reduce future cancer risk, after an initial negative diagnosis.

Methods: Online, semi-structured interviews were conducted with practising NHS healthcare professionals involved in the referral or ongoing care of patients referred onto the two week wait pathway for suspected cancer. Interviews were audio-recorded, transcribed verbatim and analysed using Framework Analysis using both inductive coding, and deductive coding informed by the Theoretical Domains Framework.

Results: 36 HCPs (n=14 primary care, N=22 secondary care) were interviewed between October and December 2021. There was variability in the extent of support currently offered to patient's after the two-week wait pathway for suspected cancer. Whether patients should or could be offered additional support and the content of that support was influenced by perceptions of resource requirements (e.g. consultation time, skill level of staff involved), along with judgements about intervention efficacy to result in health behaviour change, and the potential consequences including patient anxiety or confusion. Perceptions around the goals of the two week wait pathway and role of primary care influenced ideas about where support should be offered, HCP's motivation to offer support, and how support might be perceived by patients.

Conclusions and implications: Providers' views can usefully inform future intervention design. The content, format and delivery of initiatives directed towards patients who receive a negative diagnosis following urgent referral for suspected cancer needs to be resource efficient, have proven impact and be coherent to patients given their recent health experience.

●●●

How do women at increased risk of breast cancer make sense of their risk? An interpretive phenomenological analysis

Victoria Woof[1], Dr Lorna McWilliams[1], Prof Anthony Howell[1,2], Prof D Gareth Evans[1,2], Prof David French[1]
[1]University of Manchester, Manchester, [2]Manchester University NHS Foundation Trust, Manchester,

Background: Clinically-derived breast cancer risk can now be accurately estimated due to breast density and a Polygenic Risk Score being included in popular risk prediction models. This allows women at increased-risk to be offered more frequent screening and preventive medication, but most women at higher-risk are unaware of this. For those who have received a clinically-derived risk, risk appraisals are still often inaccurate with reasons for this poorly understood. This study aimed to gain an in-depth understanding of women's lived experiences of receiving an increased risk of breast cancer.

Methods: One-to-one semi-structured telephone interviews were conducted with eight women who had received an above-average (moderate) or high-risk estimate from a breast cancer risk study (BC-Predict). Interviews lasted 40 to 70 minutes. Data were analysed using Interpretive Phenomenological Analysis.

Results: Four themes were generated: (i) encounters with breast cancer and perceived personal significance, where the nature of women's lived experiences of others with breast cancer impacted their views on the significance of the disease, (ii) 'It's random really': difficulty in seeking causal attributions, where women endeavoured to find definitive patterns but encountered contradictions and confusion in attributing causes to breast cancer, (iii) believing vs identifying with a clinically-derived breast cancer risk, where personal risk appraisals and expectations influenced women's ability to internalise their clinically-derived risk and pursue preventative action and (iv) perceived utility of breast cancer risk notification, where women reflected on the usefulness of knowing their risk.

Conclusions and implications: Women hold appraisals of their risk prior to receiving clinical estimates. These lay models of causality influence their ability to connect with and make sense of their clinically-derived breast cancer risk. Healthcare professionals should discuss where women may have misconceptions and inaccurate beliefs about breast cancer risk prior to communicating a clinically-derived risk in order to provide more individualised feedback.

●●

Refining the concept and assessment of 'acceptability' in cancer screening and early diagnosis

Convenor: Dr Jo Waller, King's College London
Discussant: Professor Suzanne Scott, Queen Mary's University of London

Intended Participants: The session will be of interest to researchers working in the field of cancer prevention and early diagnosis, as well as those interested in the concept and measurement of acceptability more broadly.

Purpose: Cancer screening and early diagnosis is in a period of rapid innovation. New technologies including risk-assessment tools, multi-cancer early detection tests and novel sampling devices are being developed. Risk-stratification of screening programmes is being considered as well as the use of Artificial Intelligence (AI) in key aspects of the screening pathway. Any changes to the way cancer screening and early diagnosis are delivered must be acceptable to the target population to ensure good and equitable uptake, and maintain trust. The Theoretical Framework of Acceptability (TFA; 2017) has been widely adopted in health services research but more needs to be done to refine the model, develop appropriate measures, and apply it in the context of cancer screening and early diagnosis. We bring together behavioural scientists with experience of using the TFA in this context to set an agenda for future research.

Objectives: 1) Describe ongoing work on acceptability in the context of cancer screening and early diagnosis; 2) Identify challenges to applying the TFA in this context; 3) Set priorities for future research.

Rationale: The UK Society for Behavioural Medicine, including the Cancer Special Interest Group, provides an ideal setting to bring together researchers and practitioners interested in these issues.

Summary: Talks describing current work on acceptability in the context of breast screening AI, risk-based lung screening, risk-stratification and multi-cancer early detection tests will set the scene for a broader discussion including measurement and refinement of the TFA.

●●●

Acceptability of Risk-Based Eligibility Criteria in Lung Cancer Screening

Dr Evangelos Katsampouris
Wolfson Institute of Population Health, Queen Mary University of London

A national lung cancer screening programme was recently recommended in a landmark decision by the UK National Screening Committee. This programme would be unique in that there is consensus, from the outset that risk-based eligibility criteria, primarily based on age and smoking, are necessary to ensure a favourable risk-benefit ratio for screening participants. To date, little is known about the acceptability of using risk-based eligibility criteria in lung cancer screening from the perspective of prospective screening candidates and the wider UK public. Previous research suggests the public may perceive restrictions on eligibility negatively, which may be further complicated by one of the primary criteria being a behavioural risk factor – tobacco smoking – which has a history of being stigmatised. The acceptability and communication of risk-based eligibility for lung cancer screening is an under researched area, as are the potential downstream psychosocial and behavioural consequences for those people who are ineligible for lung cancer screening, but do meet some of the risk-based eligibility criteria. We are carrying out a mixed-methods study to explore the public acceptability of using risk-based eligibility criteria for lung cancer screening. The aim is to better understand how best to communicate eligibility criteria, both at the population level and also the individual level for those who undergo eligibility assessment. This research will provide novel and translatable insight into communication strategies of eligibility criteria in order to improve public and participant acceptability and optimise any psychological and behavioural implications.

●●●

Implementation of risk stratification within cancer screening programmes: using community juries to understand public acceptability

Dr Becky Dennison
Department of Public Health and Primary Care, University of Cambridge

Population-based cancer screening programmes are shifting away from a one-size-fits-all approach to introduce risk stratification at one or more points on the pathway. We explored the social and ethical considerations of implementing risk stratification within screening broadly, then within bowel cancer screening specifically.

We conducted a series of community juries, a deliberative democratic method in which participants take a societal perspective. First, participants were informed through pre-recorded presentations and question-and-answer sessions with experts. These presentations covered key concepts, potential implications and ethical considerations. Second, we conducted focus groups to encourage discussion and consideration across the breadth of the topic. Participants then independently deliberated on the research questions before reporting their final verdicts on the acceptability of risk-stratified screening. All interactive sessions were recorded and analysed thematically.

Across all of the juries, participants gained a good understanding of the concept of risk stratification and used the information gained in the study alongside their personal values. Some misunderstandings remained, but these were not deemed to have significant impact on the jury outcomes. Following deliberation, most juries reached collective verdicts and cited both benefits of risk stratification that had been presented by experts as well as their own ideas. They qualified their support for risk stratification with concerns or caveats, but overall these issues were outweighed by the advantages.

Community juries are an effective method for exploring public perspectives on risk-stratified screening and identify priorities for implementation and communication, although participants' in-depth topic education resulting from the research context is not feasible at the population level.

●●●

Acceptability of risk stratification within population-based cancer screening from the perspective of the general public: A mixed methods systematic review

Lily Taylor
Department of Public Health and Primary Care, University of Cambridge

Risk stratification has the potential to improve resource allocation and the balance of harms and benefits of screening by targeting those who are most likely to benefit. Public acceptability has implications for engagement, uptake, and the ultimate success of such a programme. Therefore, this review sought to understand whether risk stratification of population-based cancer screening is acceptable to the general public and in what context.

Four electronic databases were searched from January 2010 to November 2021. Qualitative, quantitative, and mixed methods papers were eligible for inclusion. The Joanna Briggs Institute convergent integrated approach was used to synthesise the findings and the quality of included literature was assessed using the Mixed Methods Appraisal Tool. The Theoretical Framework of Acceptability was used as a coding frame for thematic analysis
.
The search returned 12,039 citations, twenty-two of which were deemed eligible for inclusion. The majority of papers were in relation to breast cancer screening. Other cancer types included ovarian, kidney, colorectal, and prostate cancer. The public were generally accepting of risk stratification, considering it to be logical and of wider benefit than existing screening practices. We identified ten priorities for implementation across four key areas: addressing public information needs; understanding communication preferences; mitigating barriers to accessibility; and the role of healthcare professionals, especially in supporting reduced screening for low-risk individuals.

The public generally find risk stratification of population-based cancer screening programmes to be acceptable, however we have identified areas that would improve implementation and require further consideration.

●●●

Acceptability of using Artificial Intelligence in the NHS Breast Screening Programme from an Eligible Population Perspective

Dr Lauren Gatting
School of Cancer & Pharmaceutical Sciences, King's College London

The application of Artificial Intelligence (AI) in the NHS Breast Screening Programme (NHSBSP) could see improvements in breast cancer outcomes and provide a partial solution to existing radiologist shortages, and is currently being trialled in the UK. Before implementation, public acceptability needs to be assessed to determine potential impact on uptake, equity and trust, and to provide insights to optimise future communication efforts. The aim of this study was to explore the views and concerns of the breast screening-eligible population in England regarding the acceptability of an AI-tool being used in the NHSBSP.

Twelve 90-minute focus groups were carried out with a diverse population of 64 women across England who were eligible for breast screening (50 to 70yrs) or nearing the eligible age (45 to 49yrs).

Constructs from the Theoretical Framework of Acceptability (TFA) were incorporated into the focus group topic guide to ensure a breadth of factors relevant to acceptability were included. The focus groups were transcribed verbatim and analysed using reflexive thematic analysis.

The TFA provides broad dimensions of acceptability in healthcare and, as a starting point to developing the focus group topic guide, ensured a comprehensive account of acceptability was being investigated. However, the constructs outlined in the framework provided little direction for developing the topic guide questions.

In this talk I will report the questions generated for the topic guide, as well as the themes from the analysis, and reflect on these in relation to the constructs in the TFA.

●●●

Public acceptability of multi-cancer early detection tests in cancer screening

Ninian Schmeising-Barnes
School of Cancer & Pharmaceutical Sciences, King's College London

Multi-cancer early detection (MCED) tests can detect early signs of cancer in samples of bodily fluids (e.g. blood and urine) and locate the origin of 'cancer markers', helping direct diagnostic follow-up. Trials are currently underway to assess how useful these tests are when used in a screening context in an asymptomatic population to allow earlier detection of cancer and ultimately better cancer outcomes. The NHS-Galleri trial has recruited 140,000 participants to assess a blood-based MCED test (the Galleri® test), with the hope that these tests would be rolled out as a population screening programme if proven clinically useful.

Acceptability of any new health innovation is key to implementation and should be assessed and addressed before and during implementation. Since MCED tests are very different to existing single-site screening tests, it is important that we understand the public's perceptions of these test and tailor implementation to maximise acceptability and informed uptake.

This short presentation will outline how MCEDs are unique, the key acceptability considerations for MCED screening and how we think these might best be assessed, as well as briefly touching on our own work in this area.

●●●

Development of the MIAMI intervention : Supporting GPs and people with hypertension to maximise medication use to control blood pressure

Prof Gerard Molloy[1], Dr Eimear Morrissey[1], Dr Patrick Murphy[2], Dr Michael Hogan[1], Dr Owen Harney[1], Prof Andrew W Murphy[2]
[1]School of Psychology, University of Galway, Galway, Ireland, [2]HRB Primary Care Clinical Trials Network Ireland, Discipline of General Practice, University of Galway, Galway, Ireland

Background: Hypertension (high blood pressure) is a major preventable cause of cardiovascular diseases and all-cause mortality globally. One of the biggest causes of poor blood pressure control in those diagnosed is non-adherence to antihypertensice medications. Despite this, discussions around medication taking are often not a routine part of the GP-patient encounter. The aim of this study is to describe the development of an intervention to support General Practitioners (GPs) and people with hypertension to maximise medication use to control blood pressure.

Method: Using the Behaviour Change Wheel as guidance, we drew on theory and evidence to draft the intervention. We then held a "Collective Intelligence" (CI) workshop with 20 participants, including people living with hypertension, GPs, primary care nurses, pharmacists and researchers. We used scenario based design, informed by the Extended Common Sense Self-Regulation Model, to elicit views on the proposed intervention and generate targeted intervention options. A 'Public and Patient Involvement' (PPI) panel refined the proposed intervention.

Results: The MIAMI intervention is a structured set of supports for GPs and patients to facilitate adequate information exchange about long-term antihypertensive medication use and adherence skill development. GP intervention components include a 30 minute online training programme, information booklet and consultation guide. Patient intervention components include ambulatory blood pressure measurement, a chemical adherence test, consultation plan and educational videos.

Conclusion: The CI methodology provided a systematic approach to key parts of the PPI and stakeholder engagement components of the MIAMI intervention design. The acceptability and feasibility of the MIAMI intervention is currently being assessed in a pilot cluster randomised controlled trial.

●●●

Development and feasibility testing of the 'ACT now & check-it-out' intervention to support patient-initiated follow up (PIFU) for Head and Neck cancer patients

Prof Colin Greaves[1], Dr Lauren Matheson[1], Prof Joan Duda[2], Dr Mary Wells[3], Mr Denis Secher[4], Mrs Pat Rhodes[4], Dr Ava Lorenc[5], Dr Marcus Jepson[5], Prof Gozde Ozakinci[6], Prof Eila Watson[1], Mrs Tessa Fulton-Lieuw[2], Dr Saloni Mittal[2], Dr Barry Main[5], Mr Paul Nankivell[2], Prof Hisham Mehanna[2], Dr Jo Brett[1], The PETNECK2 Research Team
[1]Oxford Brookes University, Oxford, UK, [2]University of Birmingham, Birmingham, UK, [3]Imperial College Healthcare NHS Trust, London, UK, [4]Expert by experience, UK, [5]University of Bristol, Bristol, UK, [6]University of Stirling, Stirling, UK

Background: Current head and neck cancer (HNC) follow-up models are sub-optimal for detecting recurrence and may be unsustainable given rising HNC cases. We aimed to develop and assess the feasibility /acceptability of an intervention, to support and empower HNC patients to engage in PIFU self-care behaviours, as an alternative to current routine surveillance.

Methods: An intervention mapping approach, informed by evidence synthesis, behaviour change frameworks (COM-B model and Self Determination Theory) and stakeholder consultation, guided intervention development. Data sources included a patient survey (n=144), patient interviews (n=30), workshops with patients (n=25) and caregivers (n=3) and eight online focus groups with 34 clinicians. To assess intervention feasibility, we conducted a single-arm feasibility study, including semi-structured interviews with patients and health professionals who recruited to /delivered the intervention.

Results: The 'ACT now & check-it-out' intervention comprises an education and support session with a health professional and an app (or booklet) for patients. The main behavioural targets for patients are: Assessing what is normal for them; regularly checking for symptom changes; prompt help-seeking for persistent or new symptoms; self-management of fear of recurrence; engaging with the intervention over time. Secondary targets are: Self-management of treatment related side effects.

Qualitative feedback from the patient interviews suggested that most held positive perceptions towards PIFU and were engaging in regular self-care behaviours. Self-efficacy for symptom self-checking was sub-optimal for a minority, who felt this could be optimised through more in-depth demonstration of self-checking and patient education by health professionals. Findings form the health care professionals group will be reported at the UKSBM meeting.

Conclusions: We have developed an evidence, person and theory-based intervention to support PIFU and self-care in head and neck cancer patients. Feedback on acceptability /feasibility was broadly positive, suggesting several ways to improve the programme prior to full-scale trial evaluation (now in progress).

•••

Adding web-based support to exercise referral schemes improves symptoms of depression in people with elevated depressive symptoms: a secondary analysis of the e-coachER randomised controlled trial.

Dr Jeff Lambert[1], Prof Adrian Taylor[2], Dr Adam Streeter, Prof Colin Greaves[4], Dr Wendy Ingram[2], Prof Sarah Dean[5], Prof Kate Jolly[6], Prof Nanette Mutrie[7], Dr Lisa Price[8], Prof John Campbell[5]
[1]Department for Health, University of Bath, Bath, UK, [2]Peninsula Medical School (Faculty of Health) University of Plymouth, Plymouth, UK, [3]Institute for Epidemiology and Social Medicine, Muenster University, Muenster, Germany, [4]School of Sport, Exercise and Rehabilitation Sciences, University of Birmingham, Birmingham, UK, [5]University of Exeter Medical School, Exeter, UK, [6], Institute of Applied Health Research, University of Birmingham, Birmingham, UK, [7]Physical Activity for Health Research Centre, University of Edinburgh, Edinburgh, UK, [8]Sport and health Sciences, University of Exeter, UK

Background: Exercise referral schemes (ERS) reduce depression but the additional effect on mental health from web-based behavioural support is unknown. This secondary analysis reports the effects of the e-coachER web-based intervention on depression, anxiety and MVPA in the cohort of trial participants with elevated depressive symptoms and investigates whether these were influenced by key processes linked to the intervention logic model.

Methods: Of the original 450 adults recruited into the e-coachER trial, 205 had at least mild depression, based on the Hospital Anxiety and Depression Scale (HADS), and were included in the present analysis. Data collected included the HADS, accelerometer measured and self-reported MVPA and survey items on key processes. Linear mixed models were used to compare groups for change in depression and anxiety at 4 and 12 months. We also examined whether changes in physical activity and process variables at 4 months mediated changes in depression and anxiety at 12 months.

Results: At four months, those randomised to e-coachER reported improved levels of depression (-1.36, 95% CI: -2.55 to -0.18) but not anxiety, or MVPA, compared with controls. No differences were observed at 12 months for depression, anxiety or MVPA. Intervention effects on MVPA did not mediate improvements in depression or anxiety. However, intervention effects on confidence, competence and self-monitoring at four months significantly mediated the reduction in depression at four months. Intervention effects on competence and self-monitoring at four months also significantly mediated improvements in anxiety at four months.

Conclusions and implications: Web-based support leads to greater reductions in depression at 4 months compared to exercise referral schemes alone. Changes in depression and anxiety can be influenced by changing people's motivational regulations toward physical activity. e-coachER may represent a low-cost option to reduce the burden of depression and anxiety in the context of exercise on referral.

•••

Interventions to improve mental health and well-being of parents of adolescents with neurodevelopmental conditions: a systematic review

Mariana Costa E Silva[1], Dr Angeliki Bogosian[1], Prof Sebastian Gaigg[1], Lewis Benjamin[1]
[1]City, University of London, London, UK

Background and objectives: Parents of children with neurodevelopmental conditions (NDC) report higher levels of stress and mental health difficulties compared to parents of typically developing children. Adolescence also presents unique set of challenges. The present study aimed to identify interventions focused on improving parental mental health and well-being of parents of adolescents with NDC and synthesize details about their effectiveness.

Methods: The systematic review included peer-reviewed studies published in English, parents of children between 10 and 19 years old diagnosed with NDC that used standardised mental health assessment as outcome measures. Studies were retrieved from nine databases. Studies' quality was appraised using RoB-2 and ROBINS-I, and significant results were synthetised using narrative synthesis.

Results: Primarily, 6,300 records were identified, 5,073 records screened, 231 had titles and abstracts screened, and 219 had the full text read. The final review comprised 27 papers (non-randomised studies = 19, 70.37%) containing 28 interventions. In a sample of 1,745 participants, most participants were described as females (86.05%) and mothers, and the mean age was 44.9 years old (SD = 3.26) and 13.03 years old (SD = 2.35) for their children. Half of the sample comprised parents of autistic adolescents (34.3%) or parents of adolescents with ADHD (17.57%). For mindfulness-based interventions (n = 12), eleven studies reported improvements in stress and mindfulness and five in depression and anxiety. Psychoeducational interventions (n = 5) had one study reporting improvements in stress and anxiety, and

three in depression. Finally, ACT and CBT-based interventions (n = 2) had one study reporting improvement in stress and depression.

Conclusion: Summarily, retrieved interventions showed promising results for improving parental mental health, but the preliminary design and small sample size for most interventions highlight the need for more investigations. Furthermore, studies failed to report community involvement in the development of the reported interventions.

•••

Mobilising knowledge of theory and evidence in the co-production of The Digital-My Arm Pain Programme (D-MAPP)

Lucy Brading[1], Dr Kathleen Kane[1], Dr Sarah Kingsbury[1], Prof Philip Conaghan[1], Dr Ian Kellar[1]
[1]*University of Leeds, Leeds, England*

Background: Distal upper limb (DUL) musculoskeletal disorders (MSDs) are common conditions that affect the hand, wrist and elbow, impacting quality of life. Despite this, DUL-MSDs lack effective self-management tools. The Digital-My Arm Pain Programme (D-MAPP) aims to develop and test a digital self-management intervention for DUL-MSDs. The study aimed to mobilise knowledge of Mechanisms of Actions (MoAs) and Behaviour Change Techniques (BCTs) to support co-production of the D-MAPP intervention ahead of evaluation in a multi-centred RCT.

Methods: A hybrid online/face to face (F2F) co-production process utilised evidence synthesis to generate the starting point for a Delphi with 19 people living with DUL-MSDs (pwDUL-MSDs) and 23 healthcare professionals (HPs) to obtain consensus on intervention components to include. Focus groups with 15 pwDUL-MSDs and 13 HPs were analysed using framework analysis to identify Mechanisms of Actions (MoAs) associated with self-management of DUL-MSDs. Identified MoAs were mapped to BCTs. An Experience Based Co-Design (EBCD) approach was employed at stakeholder-led workshops, using the MoAs and exemplar quotes to develop a trigger film, and linked candidate BCTs as the starting point for subsequent co-production workshops.

Results: 13 pwDUL-MSDs and 8 HPs were invited to 4 online and 1 F2F workshops. However, it was challenging to mobilise knowledge of MoAs/BCTs explicitly in online workshops. Instead, use was intuitive and experiential. Six core intervention elements were co-produced, broadly aligned to Information about health consequences, Information about social and environmental consequences, self-monitoring of behaviour, Feedback on behaviour, Graded tasks, and Social support (emotional).

Conclusions and Implications: Co-producing a digital self-management intervention for pwDUL-MSDs was feasible using EBCD in a hybrid workshop approach, but mobilising knowledge of MoAs/BCTs was challenging. Methods for mobilising theory and evidence in participatory approaches to intervention development will require creativity.

•••

A qualitative exploration of the role of social networks in weight management for pregnant and postpartum women

Dr Stephanie Chambers[1], Dr Lynsay Matthews[2], Prof Jennifer Logue[3], Prof Sharon Simpson[1]
[1]University of Glasgow, Glasgow, UK, [2]University of the West of Scotland, Paisley, UK, [3]Lancaster University, Lancaster, UK

Background: Almost half of women living in Scotland are classified as overweight or obese in pregnancy. Maternal obesity is associated with increased health risks and medical complications. Social networks (family, friends, peers) are important drivers for obesity-risk behaviours and supportive environments can increase interventions' success. There is a lack of research on the relationship between social networks and weight management for women during and after pregnancy. The aim of this study was to explore women's perceptions of the role of social networks and social support in managing their weight during pregnancy and postpartum.

Methods: Qualitative interviews were carried out with 11 first-time pregnant women, at 13-35 weeks gestation, aged 18+ with pre-pregnancy BMI ≥25 and interested in eating healthier and/or participating in physical activity; and nine women 9-12 months post-partum, aged 18+ with a current BMI ≥25 and interested in losing weight. Pregnant participants were recruited from NHS antenatal hospital clinics and post-partum participants from community groups and social media. Participants were living in central Scotland. Interviews were face-to-face or carried out remotely via Skype/telephone. Data were analysed using thematic analysis.

Findings: The analysis provided a holistic interpretation of the social processes related to weight management in pregnancy and postpartum and the role of women's social networks in relation to these processes. Support from social networks could be both positive and negative, and there were differences between pre-pregnancy and post-pregnancy as families negotiated new roles. Women also discussed additional contextual factors that acted as facilitators and barriers to weight management.

Conclusions: Women perceived their social networks to play an important role in weight management before and after giving birth. Ante-natal and post-partum advice for women with BMI≥25 could indicate ways in which women might negotiate support from those closest to them to manage their weight during this challenging life transition.

●●●

"I don't know what I'm feeling for": Young women's beliefs about breast cancer risk and experiences of breast awareness

Sarah Hindmarch[1], Dr Louise Gorman[2], Rhiannon E Hawkes[1], Dr Sacha J Howell[3], Prof David P French[1]
[1]Manchester Centre for Health Psychology, Division of Psychology and Mental Health, School of Health Sciences, Faculty of Biology, Medicine and Health, University of Manchester, Manchester, UK, [2]NIHR Greater Manchester Patient Safety Translational Research Centre, University of Manchester, Manchester Academic Health Science Centre, Manchester, UK, [3]Division of Cancer Sciences, Faculty of Biology, Medicine and Health, University of Manchester, Manchester Academic Health Science Centre, Manchester, UK

Background: Younger women are more often diagnosed with advanced breast cancer. Beliefs about risk are instrumental in motivating many health protective behaviours, but there may be confusion around which behaviour is appropriate to detect breast cancer earlier. Breast awareness, defined as an understanding of how the breasts look and feel so changes can be identified early, is widely recommended. This differs from breast self-examination, which involves palpation using a specified method. We aimed to investigate young women's beliefs about their risk and experiences of breast awareness.

Methods: Thirty-seven women aged 30-39 years with no female first-degree relatives affected by breast cancer or personal history of breast cancer were recruited. Seven focus groups (n=29: 21 white British, 8 from ethnic minority backgrounds) and eight individual interviews (8 white British) were conducted. Data were audio-recorded, transcribed and analysed using reflexive thematic analysis.

Results: Three themes were generated. Uncertainty regarding checking behaviours highlights how confusion about self-checking behaviour advice has resulted in women infrequently performing breast checks. "Future me's problem" describes how women's perception of breast cancer as an older woman's disease has been informed by the organisation of breast screening services and reinforced by clinical interactions with healthcare professionals about breast health concerns. Campaigns as a missed opportunity highlights the potential negative effects of current breast cancer fundraising campaigns and the perceived absence of educational campaigning about breast cancer for young women. Women desired social media campaigns that convey actionable health messages.

Conclusions and Implications: Young women do not know what self-checking behaviours they should be performing, leading to reported disengagement. Defining and clearly communicating the best strategy for breast awareness is

essential. Future qualitative research should examine healthcare professionals' understanding of breast cancer risk and referral decision-making for young women to identify how consultations about breast health concerns can be improved.

•●●●

Acceptability of an Acceptance and Commitment Therapy intervention to support medication decision-making in women with breast cancer: A rapid qualitative process evaluation

Sophie Green[1], Louise Hall[1], Hollie Wilkes[2], Christopher Graham[3], Samuel Smith[1]
[1]*Leeds Institute of Health Sciences, University of Leeds, Leeds, UK,* [2]*Leeds Institute of Clinical Trials Research, University of Leeds, Leeds, UK,* [3]*Department of Psychology, Queen's University Belfast, UK*

Background: Adjuvant endocrine therapy (AET) reduces breast cancer recurrence, but side-effects and associated distress affect adherence. We co-designed an Acceptance and Commitment Therapy (ACT) intervention to support medication decision-making in women prescribed AET (ACTION). It consisted of one individual and three group ACT-based sessions. We aimed to understand the acceptability of the intervention to trial participants and therapists in a nested qualitative process evaluation of the ACTION pilot trial.

Methods: We conducted remote semi-structured interviews with three trial therapists and 20 women taking AET who received the ACTION intervention. Interviews were guided by the Theoretical Framework of Acceptability (TFA). Rapid Assessment Procedure (RAP) sheets were completed after each interview to map responses onto TFA constructs. Individual RAP sheets were collated to identify key findings.

Results: Several ACT skills were useful to participants, such as taking steps to live by one's values (TFA construct: affective attitude). Participants felt the group setting was helpful to hear women's experiences, and to normalise their own feelings (affective attitude, coherence). A minority of women found it anxiety-provoking to hear other's stories. Most women felt remote delivery reduced the opportunity for social connection, although some conceded it reduced practical attendance barriers (e.g. travel), and anxiety about meeting unfamiliar people (affective attitude, burden). Therapists felt the intervention content was acceptable, but trial processes (e.g. completing forms) were frustrating and impacted clinic time (burden, opportunity costs). All therapists felt ACTION could be part of routine care, but questioned which grade of staff would deliver it and whether it would be appropriate for women with higher distress.

Conclusions and implications: ACTION is acceptable to women taking adjuvant endocrine therapy and therapists. Rapid analysis techniques enabled timely identification of implementation challenges and potential areas for improvement. Rapid analysis can facilitate more efficient process evaluations in time- and resource-limited contexts.

•●●

Designing a health-promoting digital health intervention for midlife women using co-production and behaviour change theory

Hana Sediva[1], Dr Sanjoy Deb[1], Dr Tina Cartwright[1], Dr Claire Robertson[1]
[1]*University of Westminster, London, UK*

Background: Digital health interventions (DHIs) are efficacious in promoting health behaviours in midlife women. Public/patient involvement (PPI) in co-designing such interventions is vital to ensure interventions are useful for people who use them.

Objective: The aim of the study is to use participatory research approach (co-production) to systematically co-design theory-and-evidence-based DHI to improve healthy eating and physical activity in midlife women (aged 40 – 65 years) living in the UK.

Methods: Co-designing the DHI with a group of midlife women (n = 7) in three 2-hr long group workshops . The intervention design workshops were informed by the Behaviour Change Wheel guide's worksheets. The group tasks were to select target behaviours for healthy eating and regular physical activity, identify what needs to shift for the target behaviours to be achieved and how to bring about that change.

Results: Thirteen physical activity and eleven healthy eating target behaviours were identified (e.g., reducing alcohol intake, eating regularly, adding healthy snacks, reducing ultra-processed foods, increasing walking, incorporating strength training). On average 30 BCTs were mapped to each target behaviour, with 39% of the BCTs targeting capability, 41% motivation, and 20% opportunity. The most frequently used behaviour change categories included 'social support', 'self-belief', 'shaping knowledge', 'repetition and substitution', and 'natural consequences'. To operationalise the identified BCTs, a number of 'if-then scenarios' were designed to aid in the development of the prototype.

Conclusion: The findings of this qualitative study indicate that co-designing DHIs with midlife women through co-production is feasible and acceptable. The BCW guide, COM-B model, TDF, and the BCTTv1 can be applied

successfully in the context of designing a DHI to improve healthy eating and regular physical activity. Thus, systematically co-designing theory and evidence-based interventions with midlife women provides an opportunity to improve the design of lifestyle health-enhancing interventions targeting women in midlife.

●●●

Disordered eating in people with Premenstrual Dysphoric Disorder (PMDD)

Dr Lynsay Matthews[1], Dr Relindis Ebesoh Nkeng[2], Myfanwy Miranda[2]
[1]*University of the West of Scotland, UK,* [2]*University of Glasgow, UK*

Background: Premenstrual Dysphoric Disorder (PMDD) is a severe hormone-based mood disorder. It is driver of poor mental health for 1 in 20 women (and AFAB), characterised by emotional dysregulation, high rates of suicidal ideation and self-harm. 1 in 3 people with PMDD attempt suicide. We explored eating behaviours of women (and AFAB*) with PMDD.

Methods: Two studies were undertaken: (i) a narrative systematic review of n=17 studies; and (ii) a qualitative interview study of 12 people with PMDD in the UK.

Results: The systematic review demonstrated that PMDD is associated with disordered eating and a higher prevalence of the eating disorders bulimia nervosa and binge eating disorder. Patterns of eating in women with PMDD, when compared to controls, showed marked increases in appetite, overall energy intake, consumption of foods rich in carbohydrates and fat and specific food cravings during the luteal phase of the menstrual cycle. Studies exploring physiological mechanisms stated women with PMDD had decreased levels of leptin during the luteal phase compared to control women. Negative eating behaviours were associated with negative mood states, impulsivity and emotional responses to food. These findings were supported by our qualitative study, where women with PMDD described disordered eating behaviours consistent with binge eating disorder, bulimia nervosa and in some cases anorexia nervosa. They engaged in purging via laxatives or self-induced vomiting. The cyclical nature of their symptoms confused and exhausted them, leaving them uncertain how/where to seek support.

Conclusions and implications: Women with eating disorders should be screened for PMDD, and cross-discipline management explored to optimise clinical care. Given that the majority of people with eating disorders are women, and that 1 in 20 women live with PMDD, understanding this relationship is critical for appropriate interventions and clinical practice.

[*AFAB: individuals assigned female at birth]

●●●

Implementation of hip replacement surgery recommendations: Orthopaedic surgeons' perspectives

Dr Rachael Powell[1], Amy Davies[1], Tony Coffey[2], Dr Vikki Wylde[3], Helen Hickey[2], Tracey Taylor[4], Hiren Divecha[4], Matthew Wilson[5], Prof Tim Board[4]
[1]University of Manchester, Manchester, UK, [2]University of Liverpool, Liverpool, UK, [3]University of Bristol, Bristol, UK, [4]Wrightington, Wigan & Leigh NHS Foundation Trust, Wigan, UK, [5]Royal Devon University Healthcare NHS Foundation Trust, Exeter, UK

Background: The HipHOP study (ISRCTN11097021) aimed to evaluate the feasibility of conducting a randomised controlled trial to compare the clinical and cost-effectiveness of hybrid and cemented implants in total hip replacement surgery. Within the feasibility study, we conducted embedded qualitative research which aimed to understand how to optimise implementation of the findings from the future randomised controlled trial.

Methods: Semi-structured telephone interviews were conducted with 16 orthopaedic surgeons from four NHS sites in England. Interviews included exploration of issues around implementation of future trial findings, including perceptions of potential barriers to implementing trial recommendations into practice. The Framework approach was used to structure an inductive, thematic analysis.

Results: Three issues appeared important when considering changes to surgical practice. First, surgeons wished to see a strong evidence base clearly showing a difference between fully cemented and hybrid hip replacements. Well-designed research and the support of guidance by national bodies were considered influential. Second, considering the impact on one's own practice seemed important. Orthopaedic surgery could be regarded as a 'craft', whereby surgeons would want to believe that a new approach would work best not only for surgeons in general, but specifically within in their own, individual practice. Third, the need for training was identified so that surgeons would be competent following a change of practice, with potential variability in surgeons' willingness to retrain being apparent.

Conclusions and implications: Implementation of trial findings in the context of surgery is complex because of the skills required to change surgical practice, and risk of suboptimal outcomes for patients during a change in practice due to the surgeon's learning process. Clear findings from high-quality research seem influential in providing an evidence base, but surgeons also need to believe that their personal surgical results will improve, and workforce training must be considered.

●●●

Preventing delirium: What influences hospice staff's behaviours? A focused ethnography

Imogen Featherstone[1], Prof Miriam Johnson[2], Prof Trevor Sheldon[3], Dr Rachael Kelley[4], Dr Rebecca Hawkins[5], Dr Alison Bravington[2], Dr Rachael Dixon[6], Dr George Obita[6], Dr Sarah Callin[7], Prof Najma Siddiqi[1,8]
[1]Health Sciences, University of York, York, UK, [2]Wolfson Palliative Care Research Centre, Hull York Medical School, University of Hull, Hull, UK, [3]Wolfson Institute of Population Health, Barts and the London School of Medicine and Dentistry, Queen Mary University, London, UK, [4]Leeds Beckett University, Leeds, UK, [5]University of Leeds, Leeds, UK, [6]Dove House Hospice, Hull, UK, [7]Saint Catherine's Hospice, Scarborough, UK, [8]Hull York Medical School, York, UK

Background: Delirium is common and distressing for hospice in-patients. Hospital-based research shows delirium is preventable, but there is little research from hospice settings. Interventions address patients' fundamental care needs e.g. hydration, nutrition and mobility.

Aims: To explore the behaviours of hospice in-patient staff in relation to delirium prevention, and the influences on them, using behaviour change theory (Michie et al, 2011).

Methods: Focused ethnography in two hospice in-patient units using observation, semi-structured interviews and document review. Observation and interview guides drew upon preventative behaviours identified from delirium guidelines and behaviour change theory. Analysis included open coding exploring influences on preventative behaviours; development of summary statements coded to Mechanisms of Action (MoAs) and COM-B concepts; and analysis of cross-cutting influences.

Results: 236 hours of observation with 89 participants (multidisciplinary staff, volunteers, patients, relatives) and 10 semi-structured interviews were conducted.

Staff enacted many delirium preventative behaviours as part of fundamental care. This was supported by person-centred essential care being highly valued in hospice culture (MoAs: Values, Norms), adequate staffing levels (Environmental context and resources) and multidisciplinary team engagement (Social/ Professional role and identity).

However, staff knowledge was limited (Knowledge) and most carried out these behaviours without delirium prevention as an explicit aim (Goals). A lack of structured processes limited how systematically some were implemented. Some

preventative behaviours, such as mobilising patients, became more limited or required adaptation as illness progressed, influenced by patients' physical capability (COM-B); staff expectations (Goals) and patient/family preferences (Values).

Conclusions and implications: The value placed upon high quality fundamental care in hospices, and corresponding resource provision, supports delirium prevention behaviours but these require adaptation as patients become closer to death.

Our findings can be used to inform the development of a behaviour change intervention to enable systematic implementation of delirium prevention behaviours, tailored to the hospice in-patient setting.

••

Healthcare professionals' barriers and enablers to switching from a solid to a liquid version of Parkinson's medication: A qualitative study underpinned by the Theoretical Domains Framework.

Caroline Smith[1], Prof Debi Bhattacharya[1], Bethany Atkins[1], Dr Sion Scott[1]
[1]*University of Leicester, Leicester, England*

Background: People with Parkinson's (PwP) who develop dysphagia (swallowing difficulties) find it hard to swallow tablet/capsule medicines. Liquid medicines are an alternative that delay progression to last line formulations such as injections. However, switching to liquid alternatives is a complex prescriber behaviour. This qualitative investigation aimed to characterise barriers and enablers to prescribers switching from a tablet/capsule to a liquid formulation of Parkinson's medicine.

Methods: Four virtual semi-structured focus groups attended by a purposive sample of healthcare professionals (n=3-4 per focus group) whose role includes prescribing Parkinson's medicine were convened. A topic guide was designed to aid discussions and elicit the barriers and enablers to switching within the 14 Theoretical Domains Framework domains. The data were analysed using an abductive thematic analysis approach.

Results: Three themes summarised the key barriers and enablers: (i) Position of liquids in the treatment pathway (ii) The practitioner (iii) Properties of the liquid medicine. Five TDF domains were prioritised. Practitioners recognised liquid medicines should be available earlier in the treatment pathway, yet faced prescribing boundaries and organisations seeking cheaper alternatives (Environmental context and resources). Complexity to administer and prescribe liquid medicines was escalated by lack of experience and evidence base (Knowledge and Skills). Secondary care set a precedent for primary care as access to multi-disciplinary teams supports practitioners to switch (Social professional role and identity). Ultimately, PwPs' wellbeing and preference was the main influencer for practitioners (Goals).

Conclusions & Implications: There is a desire for liquids to be prescribed earlier in the treatment pathway and health system changes are required to increase their availability and recognise their value. Comprehensive training and collaboration across care settings is also key to achieve this. Practitioners should be engaging in dyadic practitioner-patient decision making to optimise medication; education, administration and adherence.

••

What bothers severe asthma patients most - and can clinicians tell? A paired patient-clinician study across seven European countries

Ben Ainsworth[1,2], Dr Eleanor Chatburn[2,4], Dr Aruna Bansal[5], Ms Olivia Fulton[6], Ms Dominique Hamerlijnck[6], Dr Courtney Coleman[6], Dr Katrien Eger[7], Prof Michael Hyland[8,9], Mr Joshua Holmes[10], Prof Liam Heaney[10], Dr Vratislav Sedlak[11], Dr Natalija Edelbaher[14], Dr Sabina Skrgat[12,13], Dr Anneke ten Brinke[15], Prof Celeste Porsbjerg[16], Prof Mina Gaga, Dr Claudia Loureiro[17,18], Prof Ratko Djukanovic[3], Emmanuelle Berret[19], Dr Namhee Kwon[20]
[1]*University of Southampton, Southampton, UK,* [2]*Department of Psychology, University of Bath, Bath, UK,* [3]*NIHR Southampton Respiratory Biomedical Research Centre, Faculty of Medicine, University of Southampton, Southampton, UK,* [4]*Department of Clinical Psychology, University of East Anglia, Norwich, UK,* [5]*Acclarogen Ltd, Cambridge, UK,* [6]*European Lung Foundation, Sheffield, UK,* [7]*Department of Respiratory Medicine, Amsterdam University Medical Center, University of Amsterdam, Amsterdam, NL,* [8]*University of Plymouth, Plymouth, UK,* [9]*Plymouth Marjon University, Plymouth, UK,* [10]*Wellcome-Wolfson Institute for Experimental Medicine, Queen's University Belfast, Belfast, UK,* [11]*Department of Respiratory Medicine, University Hospital Hradec Králové, Charles University in Prague, Prague, Czech Republic,* [12]*Department of Pulmonary Diseases and Allergy, University Medical Centre Ljubljana, Ljubljana,* [13]*Medical Faculty, University of Ljubljana, Ljubljana, Slovenia,* [14]*Department of Pulmonary Diseases, University Medical Center Maribor, Ljubljana, Slovenia,* [15]*Medical Centre Leeuwarden, Leeuwarden, NL,* [16]*Department of Respiratory Medicine, Bispebjerg University Hospital, Copenhagen, Denmark,* [17]*Pulmonology Unit, Hospitais da Universidade de Coimbra, Coimbra, Portugal,* [18]*Centre of Pulmonology, Faculty of Medicine, University of Coimbra, Coimbra, Portugal,* [19]*European Respiratory Society, Lausanne, Switzerland,* [20]*Respiratory Clinical Sciences, GSK, Brentford, UK*

Background: Severe asthma is a complex, multi-dimensional disease. Therefore, management of severe asthma should be equally multi-faceted, including appropriate medication and non-pharmacological therapies such as physiotherapy,

supported self-management and psychological support. Optimal treatment adherence and outcomes require shared decision-making, rooted in mutual understanding between patient and clinician. This study used a novel, patient-centred approach to examine the most bothersome aspects of severe asthma to patients, as seen from both perspectives in asthma registries.

Methods: Across seven countries, 126 patients from seven severe asthma clinics in seven European countries completed an open-ended survey regarding most bothersome aspect(s) of their asthma. Patients' responses were linked with their treating clinician who also completed free-text survey about each patient's most bothersome aspect(s). Responses were coded using content analysis, and patient and clinician responses were compared. Finally, asthma registries across Europe were examined to see the extent to which they reflected the most bothersome aspects reported by patients. Patient representatives were involved in study design, analysis and interpretation.

Results: Eighty-eight codes and 10 themes were identified. Clinicians were more focused on direct physical symptoms and were less focused on 'holistic' aspects such as the effort required to self-manage their disease. Clinicians accurately identified a most bothersome symptom for just 29% of patients. Agreement was particularly low in younger patients and those infrequently using oral corticosteroids. In asthma registries, patient aspects were rarely reflected in clinical measures and were predominantly represented in self-report patient questionnaires.

Conclusions and Implications: Results demonstrated different perspectives and priorities between patients and clinicians, with clinicians more focused on physical aspects. These differences must be considered when treating individual patients, and within multi-disciplinary treatment teams. The use of questionnaires that include multi-faceted aspects of disease may result in improved asthma research and clinical practice.

•●●

Barriers and facilitators to General Practitioners' physical activity promotion behaviours when treating individuals with depression: a cross-sectional survey study

Jemima Cooper[1], Dr Jeffrey Lambert[1], Prof Fiona Gillison[1]
[1]University of Bath, Bath, UK

Background: Despite the evidence-based benefits of physical activity for depression, previous studies indicate the majority (72%) of General Practitioners (GPs) do not discuss physical activity (PA) with patients during consultations. Given how integral GPs are in the use of PA for the management of depression, we need to identify the barriers and facilitators they experience to better understand why they don't engage in PA promotion for depression.

Methods: A cross-sectional survey was administered online to a representative sample of GPs from 1,248 GP Practices throughout England across all seven Integrated Care Board regions. GPs and Academics were involved in the development of the survey, which consisted of thirty-two questions to assess respondent characteristics, and barriers and facilitators to PA promotion for depression. The questions were guided by the Theoretical Domains Framework. Data will be analysed using descriptive statistics and analysis of variance (ANOVAs).

Results: Recruitment is ongoing with a current response rate of 5%. Initial results indicate that almost half of GPs report often discussing and recommending PA as part of their routine practice for patients who consult with them about depression. However, when treating patients with depression, over 50% of GPs report discussing and recommending other types of treatment often takes priority over discussing and recommending PA. Data collection will conclude by the end of December 2022, with full results to be presented at the conference.

Conclusions & Implications: Despite depression being the most common mental disorder, this is the first national survey to assess the barriers and facilitators to GPs' promotion of PA as a treatment for depression as a primary outcome. Increasing our knowledge and understanding of GPs PA promotion behaviours may help to inform more targeted interventions for GPs working with this sub-population of mental illness.

•●●

Assessing the public support for tobacco control policies: A survey of 7,566 UK adults

Dr Filippo Bianchi[1,2], Niamh Thompson[2], Alice Worsley[2], Bram Reitsma[2], Dr Giulia Tagliaferri[2], Dr Helen Brown[2]
[1]Nesta, London, UK, [2]Behavioural Insights Team, London, UK

Background: Smoking is a leading cause of illness and premature death. Based on current trends, the UK's targets to become a smoke-free society will be missed. Opposition against radical tobacco control policies is often cited as a barrier to progress. We aimed to estimate the level of public support for six tobacco control policies.

Methods: We asked 7,566 adults to rate their support for six tobacco control policies on a scale from 1 (strongly oppose) to 5 (strongly support). The policies included in our survey were those outlined in a 2022 independent government report. We used a convenience sample of participants recruited for a separate study, who were representative of the UK population on age, gender, income, location, education, ethnicity, and socio-economic status. We analysed the net support for each policy, i.e. the difference between the number of participants (strongly) supporting and those (strongly) opposing a policy.

Results: There was positive net support for all six policies included in our survey.

The policies with the highest net support were (1) banning smoking in more public spaces (net support: +56%), (2) increasing tax on all tobacco, including rolling tobacco (net support: +46%), and (3) increasing the legal age of sale of tobacco by one year, every year (net support: +41%).

The policies with the lowest net support were (1) increasing tax on cigarettes, but not rolling tobacco (net support: +7%), (2) providing free e-cigarette to smokers in deprived communities (net support: +5%), and (3) GPs prescribing e-cigarettes to those trying to quit (net support: +12%).

The proportion of people who neither opposed nor supported the six tobacco control policies ranged from 14% to 33% (median 23%).

Conclusions and implications: There is positive net public support for a range of tobacco control policies.

●●●

The prevalence and associations of alcohol use and psychological distress among ethnic groups in the UK: a cross-sectional analysis of eight national surveys

Dr Jo-anne Puddephatt[1], Dr Juliana Onwumere[2], Dr Suzanne Gage[3], Prof Ross Coomber[4], Dr Jayati Das-Munshi[2], Dr Laura Goodwin[1]
[1]Lancaster University, Lancaster, UK, [2]King's College London, London, UK, [3]Wellcome Trust, London, UK, [4]University of Liverpool, Liverpool, UK

Background: Alcohol use is more common among White British groups, however, research uses broad categorisations of ethnicity which might not reflect differences in drinking patterns. It is known that alcohol use and psychological distress co-occur but not across different ethnic groups. This study aimed to examine the pooled i) prevalence of alcohol use and binge-drinking across ethnic groups, ii) prevalence and associations of alcohol use and binge-drinking among individuals with psychological distress across ethnic groups.

Methods: The current study combined the following datasets; 2007 and 2014 Adult Psychiatric Morbidity Survey, South East London Community Survey (phase I), Next Steps (wave 8), Understanding Society (wave 7), 1999 and 2004 Health Survey for England, and Millennium Cohort Study (wave 7). The most specific categorisations of ethnicity were used. Psychological distress was assessed using standardized screening tools and treated as a binary variable. Alcohol use was assessed using the Alcohol Use Disorder Identification Test-Consumption and categorized as non-drinkers, low-risk drinkers, and increased-risk drinkers. A random-effects meta-analysis was conducted with DerSimonian & Laird mode.

Results: The pooled prevalence of non-drinking was highest among Pakistani groups (94%,95%CI=88-98),low-risk drinking was highest among Black Caribbean groups (62%,95%CI=56-69),increased-risk drinking, and binge-drinking, was highest among White British groups (increased-risk=36%,95%CI=33-38; binge-drinking=30%,95%CI=27-33). When stratified by psychological distress, White British groups with psychological distress were more likely to be non-drinkers compared to White British groups without (OR=1.46,95%CI=1.34-1.59). Indian groups with psychological distress were more likely to be increased-risk drinkers compared to Indian groups without (OR=1.43,95%CI=1.05-1.96).

Conclusions and Implications: While the prevalence of increased-risk drinking was highest among White British groups, when stratified by psychological distress, only Indian groups with psychological distress were more likely to report increased-risk drinking. There is a need to understand the reasons for the patterns of alcohol use among ethnic minority groups who are experiencing poor mental health.

●●●

Stakeholders' barriers and facilitators to implementing a secondary care tobacco addiction treatment pathway: qualitative study with a behavioural analysis

Dr Angela Rodrigues[1], Dr Angela Wearn[2], Dr Anna Haste[3], Prof Catherine Haighton[1]
[1]Northumbria University, [2]Newcastle University, [3]Teesside University

Background: The Conversation, Understand, Replace, Experts and evidence-based treatment (CURE) project aims to provide a comprehensive offer of both pharmacotherapy and specialist support for tobacco dependence to all smokers admitted to hospital and after discharge. CURE was piloted within a single trust in Greater Manchester, with preliminary evidence suggesting this intervention may be successful in improving patient outcomes. To inform implementation, we conducted a qualitative study, which aimed to identify factors influencing healthcare professionals' implementation behaviour within the pilot site. To conduct the behavioural analysis, we used the Behaviour Change Wheel framework to 1) define the content of the implementation strategy used, 2) specify mechanisms of action, and 3) identify opportunities for refinement.

Methods: Individual, semi-structured telephone interviews were conducted with 10 purposively sampled health professionals involved in the delivery and implementation of the CURE project pilot. Topic guides were informed by the Theoretical Domains Framework (TDF). Intervention content was specified through behaviour change techniques (BCTs) and intervention functions. A logic model was developed to specify the implementation strategy and its mechanisms of impact. Opportunities for refinement were determined by linking theoretical domains, intervention functions and BCTs. The development of recommendations for optimisation was conducted over a two-round Delphi exercise.

Results: Across interviews, 'Environmental Context and Resources', 'Goals', 'Social Professional Role and Identity', 'Social Influences', 'Reinforcement', and 'Skills' were identified as key domains influencing implementation. The behavioural analysis identified 26 BCTs, five intervention functions and four policy categories in the implementation strategy. Recommendations to optimise content were revised following stakeholder' engagement.

Conclusions: The CURE project offers a strong foundation from which a tobacco dependence treatment model can be developed in England. This research suggests content modifications to improve the design of further implementation strategies and health policy in this area.

●●●

Developing research priority areas to improve treatment pathways and outcomes for people with co-occurring mental health problems and alcohol use disorders

Dr Laura Goodwin[1], Dr JoAnne Puddephatt[1], Dr Patricia Irizar[2], **Phil Parkes[3]**, Rose Johnston[1], Dr Katherine Jackson[4], Dr Amy O'Donnell[4]
[1]Spectrum Centre for Mental Health Research, Lancaster University, Lancaster, UK, [2]Department of Sociology, University of Manchester, Manchester, UK, [3]Expert Citizens, Stoke-on-Trent, UK, [4]Population Health Sciences Institute, Newcastle University, Newcastle, UK

Background: Despite evidence showing how frequently mental health and alcohol use disorders (AUDs) occur together, people with co-occurring problems face a range of barriers in accessing services. Current UK guidance outlines three treatment models for co-occurring problems: serial, parallel, and integrated. The aim of public workshops were to: i) to understand the positives and negatives of these treatment models and ii) to develop a list of priority areas for research.

Methods: Two online workshops were held with 25 public representatives with lived experience of co-occurring mental health and AUDs and professionals who work with them (e.g. health professionals). The first half of both workshops involved structured discussions on the positives/negatives of each treatment model. In workshop 1, attendees were also asked to propose research questions which could improve the care of those with co-occurring problems. Between workshops 1 and 2, these ideas were refined into 20 questions which were ranked in workshop 2. The protocol for priority setting was based upon an abridged version of the James Lind Alliance (JLA) guidance (James Lind Alliance, 2021).

Results: Seventy five percent of attendees thought that a serial treatment model, specifically alcohol before mental health treatment, was the most common. There were greater negatives outlined for serial treatment, compared to parallel and integrated models, including long wait times and lack of communication across services. The top ranked questions

in the priority setting activity included: 1)"Where are people with co-occurring problems most likely to present?" and 2)"What are the needs of carers and family members?"

Conclusions and implications: Public involvement provided valuable insight into different treatment pathways, suggesting that serial models may not be the most appropriate. Future research priorities for this field were identified and this process highlighted that it is possible to undertake priority setting activities within a short timeframe.

●●

Understanding the enablers and barriers in stopping smoking and accessing support in underserved communities

Martin Lamb[1], Dr Rachael Thorneloe[1], Dr Helen Humphreys[1], Dr Elaine Clarke[1], Prof Maddy Arden[1]
[1]*Sheffield Hallam University*

Background: Smoking prevalence is high, and uptake of Sheffield Stop Smoking services is low among certain population groups where existing health, social, and economic inequalities exist. We explored whether there are any differences in issues and needs among different underserved communities and made recommendations for interventions that aim to support smoking cessation and uptake of services.

Methods: We trained ten community members from four community organisations in Sheffield to become community researchers. They undertook 28 structured interviews with people living in Sheffield who smoke, and who were from underserved communities. Informed by the COM-B model, the interviews explored participant's barriers to quitting/uptake of Stop Smoking Services and experiences of previous quit attempts. Data were analysed using a mixture of descriptive statistics and deductive framework analysis using the COM-B model.

Results: This research indicated a lack of awareness of the support on offer and a mismatch between what they identified as the barriers to quitting and what the service could offer to address those barriers and to support change. We found that the different groups studied had much in common in terms of the experiences, challenges and awareness of support, however, there did seem to be three groups who had somewhat different needs: those who were ready to quit but needed support to do so, those who were not ready to quit but would access the support, and those who were neither ready to quit nor ready to access the support service.

Conclusion & Implications: We have made a series of recommendations about how to support this population to develop the readiness to quit, through additional communications and services that support them to transition through to intention to quit. Recommendations have also been made for communications to encourage those willing to try to quit to access the Stop Smoking Services.

●●

Engagement with the nationally implemented NHS Digital Diabetes Prevention Programme: Usage patterns over the 9-month programme duration

<u>Rhiannon Hawkes[1]</u>, Dr Lisa Miles[1], Dr Ben Ainsworth[2], Dr Jamie Ross[3], Dr Rachel Meacock[4], Prof David French[1]
[1]Manchester Centre for Health Psychology, University of Manchester, UK, [2]School of Psychology, University of Southampton, UK, [3]Centre for Primary Care, Wolfson Institute of Population Health, Barts and The London School of Medicine and Dentistry, Queen Mary University of London, UK, [4]Centre for Primary Care and Health Services Research, University of Manchester, UK

Background: Digital interventions may be a scalable way to achieve behaviour change. However, user engagement is necessary for such benefits to be achieved. There is a dearth of research assessing engagement with a nationally implemented digital programme. The National Health Service Digital Diabetes Prevention Programme (NHS-DDPP) is a nine-month digital behavioural intervention, delivered by independent providers. It is offered to adults in England who have been identified as high risk of developing Type 2 diabetes. This study reports engagement with the NHS-DDPP for a cohort of users enrolled onto the programme.

Methods: Anonymous usage data was obtained for a cohort of service users (n = 1,826) enrolled on the NHS-DDPP with three independent providers, between December 2020 and June 2021. Usage data fields were obtained for the following intervention features: self-monitoring and goal setting (via an app), receiving information (via educational articles) and social support (via health coaches and group forum), to allow patterns of usage of these key features to be quantified across the nine-month intervention. Median usage was calculated within nine 30-day engagement periods to allow a longitudinal analysis of the dose of usage for each feature.

Results: App usage declined from a median of 32 minutes (IQR 191) in month one to 0 minutes (IQR 14) in month nine. The magnitude of this decrease varied substantially between providers. Self-monitoring of behaviours (e.g. physical activity, diet) was used a median of 117 times (IQR 451) over the nine-month programme. The group discussion forums were utilised less regularly (accessed a median of 0 times at all time-points).

Conclusions and implications: There are some clear differences between providers which appear likely candidates for this variation in engagement (particularly health coach support). Future research should assess whether engagement with specific features is associated with patient outcomes such as reduced bodyweight.

●●

COMPASS – A digital therapeutic for treating depression and anxiety in long-term conditions: Findings from an individually randomized controlled trial comparing COMPASS with standard charity support

<u>Dr Joanna Hudson[1]</u>
[1]King's College London

Background: Depression and anxiety are prevalent in people with chronic physical long-term conditions but delivering effective treatments like cognitive-behavioural therapy at scale is a challenge for health care services. This study aimed to evaluate the clinical efficacy of COMPASS, a therapist supported digital therapeutic, on psychological distress (depression and anxiety) outcomes in adults with long-term conditions compared with standard charity support.

Methods: Adults with long-term conditions and clinical levels of depression and anxiety were recruited from five national long-term condition charities and individually randomised to receive COMPASS (11 sessions) with six 30-minute therapist support calls or standard charity support only. Self-report measures were collected at post-intervention (12-weeks). The primary outcome was psychological distress (Patient Health Questionnaire Anxiety and Depression Scale; PHQ-ADS).
Analysis used intention-to-treat principles with adjusted mean differences estimated using linear mixed-effects models.

Results: A total of 194 participants were randomised to receive COMPASS (N=94) or standard charity support (N=100). At 12-weeks post intervention, those randomised to the COMPASS arm had shown greater statistically significant improvements in their symptoms of psychological distress compared with those in the standard charity support arm (Standardised mean difference =0.71, 95% confidence intervals, 0.48-0.95 p<.001). No serious adverse events occurred.

Conclusions and Implications: The COMPASS therapist supported digital therapeutic offers an effective treatment for reducing psychological distress symptoms in adults with chronic physical long-term conditions. Its digital delivery method with limited therapist input offers a scalable model for roll-out across health services. Its effectiveness in real-world settings needs to be tested.

●●

A peer influence approach to reduce night-time use of interactive electronic devices and social media among adolescents (CLOCK OFF): intervention development using causal loop diagrams.

Dr Colin B Shore[1], Dr Anne Martin[1], Dr Ben Rigby[1], Carolyn Blake[1], Dr Holly Scott[2], Dr Heather Cleland Woods[2], Dawn Haughton[1], Dr Rhiannon E Evans[3], Alyson O'Brien[4], Prof Sharon Simpson[1]
[1]MRC/CSO Social and Public Health Sciences Unit, School of Health and Wellbeing, University of Glasgow, Glasgow, UK, [2]School of Psychology and Neuroscience, University of Glasgow, Glasgow, UK, [3]Centre for Development, Evaluation, Complexity and Implementation in Public Health Improvement (DECIPHer), Cardiff University, Cardiff, UK, [4]Sleep Scotland, Edinburgh, UK

Background: There has been a shift towards reduced sleep among young people which has recognised negative impacts on health and wellbeing. One factor contributing to delayed bedtimes and disrupted sleep is night-time use of interactive electronic devices (IEDs), including for social media. Peers can be a key influence on night-time IED use, particularly through social pressure to be online and fear of missing out. Conversely, peer influence can successfully be harnessed to improve the health behaviour of young people. The aim of this study was to co-develop and refine a programme theory to inform a future intervention to reduce night-time IED and social media use among adolescents.

Methods: Eighteen young people (mean age 13) were recruited from three schools to take part in online workshops. Each participant attended four facilitated workshops. Workshops were 90 minutes long and held during school hours via MS-Teams. Workshop one was a group casual loop diagram (CLD) exercise. Remaining workshops focused discussions on pre-established interventions (ASSIST, #SLEEPYTEENS, SleepScotland Peer-Mentor) and review of a draft logic model. Workshops were analysed using thematic approaches.

Results: Analyses of the CLD identified causal influences in IED use at different levels (i.e. individual, social, institutional), and key leverage points for potential intervention. Young people are aware of the importance of sleep and tackling problematic IED use. However, changing night-time IED habits may not be a high priority for some. For future intervention to be successful, communication, trust and relationships between young people, teachers and parents are vital. Knowledge and awareness were highlighted as the main outcome that could be achieved, more so than improved sleep.

Conclusions and implications: Conducting rapid collaborative and soft systems methods online with young people in school settings is a novel and feasible approach. Findings will inform the development of an intervention and revised programme theory.

●●

Characterising reporting behaviour of mobile app users for chronic disease self-management and the implications for predictive AI

Bethany Cliffe[1], Dr Chris Duckworth, **Dr Ben Ainsworth**
[1]University of Southampton, Southampton, England

Background: COPD is predicted to be the third leading cause of death by 2030. It is typically self-managed, and predictive AI can be used to identify exacerbation risk provided the data quality is sufficient to be used for machine learning. This study aimed to understand self-reporting behaviours and data quality in a COPD self-management app (MyCOPD).

Methods: Self-reported data collected from MyCOPD between January 2017 to October 22 was analysed. Data included symptom scores, COPD assessment tests, and medications logged. This data was explored graphically to identify trends in reporting behaviours and categorise users (e.g., unengaged, sporadic and super users) to understand the data quality, i.e., the frequency and amount of data reported. Qualitative data were collected via interviews with 7 MyCOPD users in October 2022. Interview data were analysed thematically.

Results: Most app users (60%) regularly entered large amounts of data. This is important as predictive AI requires high engagement levels. Moreover, the data that users entered was often 'useful', i.e., variations in symptoms aligned with associated medication increases/decreases or changes (e.g., taking a rescue pack). However, some users also reported 'uninsightful' data (showing no meaningful variation). Some users also entered data sporadically, where engagement typically increased around an exacerbation. The qualitative data suggested that 1) users find the app helpful for logging medication and tracking symptoms, 2) they lack understanding about exacerbations and find it difficult to identify them and medicate accordingly, and 3) that COPD patients have concerns and hesitancies around taking medications due to side effects and uncertainties around their purpose.

Conclusions and implications: These findings suggest that there is high quality data being self-reported in the MyCOPD app, meaning that predictive AI could be beneficial here. Nonetheless, ensuring that users understand their condition and the benefits of self-reporting could help to improve this.

●●

A novel method to collect anonymised social network and health behaviour data using Research Electronic Data Capture (REDCap)

Shangshang Gu[1], John Holmes[1], Paul Norman[1], Robin Purshouse[1]
[1]The University of Sheffield, Sheffield, UK

Background: Social network analysis (SNA) is a powerful tool to understand how social networks influence behaviours in a population. There has been a growing interest in utilising SNA to investigate complex health behaviours such as smoking and drinking in recent years. However, the lack of data has hindered the application of SNAs.
We argue this is partially due to the difficulties of achieving anonymisation while also allowing people to nominate named individuals as social contacts. To address this, we propose a novel method that uses REDCap, a non-profit clinical data collection platform, to collect network-behaviour data.

Method: Two sets of surveys were designed and deployed using REDCap to explore how social networks, (non-)drinking behaviours, and drinking consequences evolve among first-year students who reside in university accommodation.
A workflow was developed to achieve data anonymisation leveraging REDCap's built-in User Rights functionalities. We established three roles with different levels of access to data and denied core research team's access to any identifying information.

After collecting participants' baseline information, a participant list was generated with unique identification numbers to anonymise all names and email addresses.
The participant list was then used to code a dropdown list of names in the follow-up survey, for participants to nominate individuals who they considered important. These nominations were stored only as identification numbers and none of the names were visible to the research team.

Results: The participation rate reached 65.9% at baseline, out of 375 students who reside in a single university accommodation block. The retention rate was 91.2% for the follow-up survey and participants nominated 3.92 friends on average.

Implications: This method allows researchers to collect sensitive health behaviour and social network data without breaking anonymisation. Both the survey design and project workflow were turned into templates ready to be adapted for future research.

●●

What are the Key Influences on the Quality of Handover Instructions Prepared for Primary Care Teams at Patient Discharge?

Ola Markiewicz[1], Dr Fabiana Lorencatto[2], Dr Danielle D'Lima[2], Miss Natalie Sanford[3], Dr Mary Lavelle[4,1], Amish Acharya[1], Prof Janet Anderson[5,3], Prof Ara Darzi[1], Dr Gaby Judah[1]
[1]Imperial NIHR Patient Safety Translational Research Centre, London, UK, [2]Centre for Behaviour Change, London, UK, [3]The Florence Nightingale Faculty of Nursing, Midwifery and Palliative Care, London, UK, [4]School of Psychology, Queen's University Belfast, Belfast, UK, [5]Faculty of Medicine, Nursing and Health Sciences, Monash University, Melbourne, Australia

Background: Poor-quality handover instructions from hospital to primary care teams has been identified as a key threat to safe discharges. The aims of this research were to identify key behavioural influences impacting the quality of handover instructions and relevant behaviour change techniques (BCTs) to improve the quality of documentation and patient safety during discharge.

Methods: Mixed-methods study involving: 1) ethnographic observations (>80h) in five purposively sampled clinical areas of an urban teaching hospital, to investigate routine work and interactions of hospital staff involved in discharges; and 2) 12 semi-structured interviews with hospital staff (doctors, nurses, allied health professionals) to explore influences on preparation of handover instructions. Ethnographic fieldnotes and interview transcripts were thematically analysed using inductive and deductive approaches, respectively. Themes were mapped to the Theoretical Domains Framework and formally triangulated across data sources, identifying key influences. Potential BCTs to address key influences were identified using the Theory and Techniques Tool.

Results: Triangulation of findings from both studies generated a list of 13 key influences on the quality of handover instructions. Influences fell within 4/14 domains of the TDF: Knowledge (e.g. Lack of awareness of guidelines or guidance available on how to prepare discharge documentation), Skills (Experience of staff in writing discharge documentation), Environmental Context and Resources (Staff working patterns) and Social Influences (Feedback from primary care and hospital colleagues). Eleven BCTs were identified that could improve handover instructions (e.g. Behavioural rehearsal/practice, Instruction on how to perform a behaviour, Social support (practical)).

Conclusions and implications: The quality of handover instructions prepared by hospital staff for primary care teams is affected by influences related to Capability and Opportunity components of COM-B. Interventions therefore should focus on supporting staff to carry out this task to a high standard by ensuring adequate human and physical resources together with appropriate education and training.

•••

Assessing decision fatigue in general practitioners' prescribing decisions using the BEACH dataset

Mona Maier[1], Dr Daniel Powell[1], Dr Christopher Harrison[3], Dr Julie Gordon[4], Prof Peter Murchie[2], Dr Julia Allan[1]
[1]Health Psychology, Institute of Applied Health Sciences, University of Aberdeen, Aberdeen, UK, [2]Academic Primary Care, Institute of Applied Health Sciences, University of Aberdeen, Aberdeen, UK, [3]School of Public Health, University of Sydney, Sydney, Australia, [4]School of Health Sciences, University of Sydney, Sydney, Australia

Background: Over the workday, general practitioners (GPs) make numerous care decisions that impact patient outcomes. Lengthy periods of effortful decision making can result in decision fatigue: a gradual shift towards decisions that are cognitively less effortful. This study examines whether observed patterns in prescribing decisions over GPs' workdays are consistent with the decision fatigue phenomenon. We hypothesised that the likelihood of prescribing generally over-prescribed drugs (antibiotics, benzodiazepines, and opioids) will increase, and the likelihood of prescribing generally under-prescribed drugs (statins, osteoporosis drugs) will decrease over the working day.

Methods: This retrospective cohort study used nationally representative primary care data on GP-patient encounters from the Bettering the Evaluation and Care of Health (BEACH) program from Australia. The association between prescribing decisions and order of encounters over a GP's workday was assessed with two-level mixed effects logistic regression models which accounted for the clustering of encounters within GPs and adjusted for patient, provider, and encounter characteristics.

Results: In Progress – results available Dec 31st 2022. Among 1,417,148 patient encounters recorded by 15,647 GPs, antibiotic prescribing rates increased from 11% during patient encounters at the start of a GP's shift, to 18% for patients who attended the encounters latest in the shift. The prescribing rate for statins was 4.6% for the first patient encounter, which is more than double the prescribing rate at the last encounters (2.29%). Full information including Odds ratios, p values, and 95% Confidence Intervals on changes in prescribing likelihoods for all drugs will be available at the end of this month.

Conclusions and implications: GPs were increasingly likely to prescribe frequently overprescribed drugs and less likely to prescribe currently under-prescribed preventative drugs as the workday wore on. This is consistent with decision fatigue. These findings establish decision fatigue as a promising actionable target for optimising prescribing behaviour.

●●●

A pilot outcome and process evaluation of team-based rostering to reduce burnout in nurses and healthcare assistants

Dr Gaby Judah[1], Alix Brazier[1,2], Hazel Wright[2], Diane Benefer[3], Prof Ara Darzi[1]
[1]Imperial College London, London, UK, [2]Behavioural Insights Team, London, UK, [3]Imperial College Healthcare NHS Trust, UK

Background: Burnout is a significant problem in healthcare workers, with 41% of nurses and midwives reporting often/always feeling burnt out because of work. Team-based rostering (TBR) allows nurses to request when shifts are scheduled. This study assessed the impact of TBR on nurse burnout.

Methods: Pilot and process evaluation of TBR on one ward at a London trust over six months (with comparison ward). Outcomes were measured at baseline, interim (after requesting but before working TBR-scheduled shifts), and endline (after working three TBR-scheduled rosters). We measured burnout (disengagement and exhaustion, with Oldenburg Burnout Inventory), exploratory outcomes (satisfaction with roster, intention to remain working in role), and potential predictor variables (shift flexibility, empowerment, community, work-life interference). The process evaluation used multiple-choice and free-text questions to assess the intervention implementation, mechanisms of any observed effects, and suggested refinements.

Results: Neither the disengagement or exhaustion dimensions of burnout changed significantly from baseline to endline. However, 81% reported their mental wellbeing improved with TBR, and there was a significant increase in satisfaction (mean change baseline-endline 1.00; 95% CI 0.18-1.82; p=0.02; no significant change on comparison ward). 83% said they would like TBR to continue following the evaluation. Significant improvements were seen in shift flexibility (p=0.004), empowerment (p=0.02), and work-life interference (p=0.03) on the intervention (but not comparator) ward from baseline to endline. Intention to remain did not change significantly on either ward. Implementation was rated positively; free-text responses suggested TBR was helpful through promoting work-life balance, choice and control over work, and increasing sense of being valued. There were concerns about safe skill mixing, and future improvements were suggested.

Conclusions and implications: Though this pilot showed no significant impact on burnout from team-based rostering, impact on wellbeing and satisfaction was promising. Therefore, following refinements to guarantee safe staffing, the intervention warrants larger scale evaluation.

●●●

The Impact of STI Test Modality (self-sampling vs clinic testing) and Funding Source Reminder on Valuation, Compliance, and Intentions to use STI Tests: A UK experimental study

Elizabeth Barnes[1], Dr Simon McCabe[2]
[1]University of Stirling, Stirling, UK, [2]Aston University, Birmingham, UK

Background: The provision of online ordered STI self-sampling test kits has revolutionised STI testing services, but concern is growing about potential clinical wastage and inappropriate usage, notably of non-returned kits. This research provides evidence of whether test modality (clinic vs self-sampling) and the inclusion (or not) of a "Funded by the UK Taxpayer" reminder, impacts STI test valuation, likely use, and compliance.

Methods: Using an online survey, 277 sexually active UK residents aged 18-34, were presented with a webpage advert for an ostensible STI testing service in a 2x2 between-subjects experiment. The key measures (dependent variables) were subjective and monetary value perceptions, compliance to complete the testing process as recommended, and likelihood-to-use the service. Additional covariates and relevant variables were measured for exploratory purposes.

Results: Test modality was impactful, $F_{(1,273)} =9.70$, $p =.002$, $\eta2p =.034$, with higher monetary valuation for clinic tests (M=29.62, SD=£54.15) than self-sampling (M=15.09, SD=£55.60). However, modality did not impact subjective valuation. A main effect of modality on likelihood-to-use was seen $F_{(1,273)} =23.26$, $p =.000$, $\eta2p<.079$, with higher ratings for self-sampling (M=8.84, SD=2.90) versus clinic testing (M=7.67, SD=2.82). Correspondingly there was a main effect for compliance $F_{(1,273)} =19.30$, $p <.001$, $\eta2p =.066$, resulting in higher compliance scores for self-sampling (M=9.38, SD=2.47) versus clinic testing (M=8.47, SD=2.40). Subjective valuation was associated with compliance $r_{(275)}$ =.415, $p <.001$ and likelihood-to-use $r_{(275)}$ =.473, $p <.001$, but not monetary valuation. There was no influence of the taxpayer message on the key dependent variables.

Conclusions: For UK residents aged 18-34, there is a greater likelihood of test compliance and usage for STI self-sampling tests than clinic testing. The monetary valuation of clinic testing is higher than self-testing. A funding source disclosure using the phrase "Funded by the UK Taxpayer" appears to have no impact on test compliance, usage, subjective or monetary valuation.

●●

What impact do behavioural factors have on time to initiation of bystander CPR in out-of-hospital cardiac arrest? Results from an analysis of 200 recorded ambulance calls

Dr. Barbara Farquharson[1], Dr Gareth Clegg[2], Prof Marie Johnston[3]
[1]University of Stirling, Stirling, UK, [2]University of Edinburgh, Edinburgh, UK, [3]University of Aberdeen, Aberdeen, UK

Background: Worldwide, out-of-hospital cardiac arrest (OHCA) is common and associated with exceptionally high mortality (~90%). Immediate CPR reduces mortality but is often not provided by bystanders, even when ambulance personnel provide instructions.

Aim: To identify behavioural barriers to CPR in recorded OHCA ambulance calls and explore relationship with time to CPR

Method: Content analysis of 200 randomly identified, pseudonymised, transcribed Scottish ambulance call-recordings involving OHCA (Jan 2019-Dec 2020). Data extracted about (i) the patient (ii) the caller (iii) 'time to get patient flat' and (iv) 'time from instructions to CPR initiation'. Barriers to CPR were coded (10% double-coded, confirmed reliability) and behavioural barriers identified.

Results: OHCA patients were mostly male (62%), aged 0-90+ (most 40-80). Callers were mostly female (62%) and known to patient. CPR was achieved in 86% of cases. Median time from instructions to initiation of CPR: 52 seconds (IQR 63.5). Time to get patient flat was significantly longer for female callers and where rescuer expressed concerns about (i) doing harm ($\chi2$:4.04, p<.05); (ii) being physically unable ($\chi2$:63.12, p<.001), patient being too heavy ($\chi2$: 26.23, p<.001),it being 'too late'/futile ($\chi2$:9.93, p=.019) or expressed emotion ($\chi2$:7.89, p=.048). Time from instructions to CPR was significantly longer for male callers and when rescuers didn't know how to do CPR ($\chi2$:9.44, p=.002) and felt physically unable ($\chi2$:9.99, p=.018)

Conclusion: Behavioural barriers are associated with longer delays getting OHCA patients flat (a crucial first step) and time from instructions to CPR initiation.

Implications: Behaviour-change techniques may be helpful in addressing these barriers and achieving CPR sooner. Work to develop behaviorally-informed instructions for ambulance call-takers is underway and will be tested empirically.

●●

Acceptability of alternative technologies compared with faecal immunochemical test and/or colonoscopy in colorectal cancer screening: A systematic review

Omar Ali[1], Dr Sunnia Gupta[2], Prof Kate Brain[1], Dr Kate J Lifford[3], Prof Shantini Paranjothy[4], Prof Sunil Dolwani[1,5]
[1]Division of Population Medicine, Cardiff University, Cardiff, UK, [2]Guy's and St Thomas' NHS Foundation Trust, London, UK, [3]PRIME Centre Wales, Division of Population Medicine, Cardiff University, Cardiff, UK, [4]School of Medicine, University of Aberdeen, Aberdeen, UK, [5]Department of Gastroenterology, Cardiff and Vale University Health Board, Cardiff, UK

Background: Colorectal cancer (CRC) is the third most common cancer and the second largest cause of cancer-related death worldwide. Current CRC screening in various countries involves stool-based faecal immunochemical testing (FIT) and/or colonoscopy, yet public uptake remains sub-optimal. This review assessed the literature regarding acceptability of alternative CRC screening modalities compared to standard care in average-risk adults.

Methods: Systematic searches of MEDLINE, EMBASE, CINAHL, Cochrane and Web of Science were conducted up to February 3rd, 2022. The alternative interventions examined were computed tomography colonography, flexible sigmoidoscopy, colon capsule endoscopy and blood-based biomarkers. Outcomes for acceptability were uptake, discomfort associated with bowel preparation, discomfort associated with screening procedure, screening preferences and willingness to repeat screening method. A narrative data synthesis was conducted.

Results: Twenty-one studies met the inclusion criteria. Differences between intervention and comparison modalities in uptake did not reach statistical significance in most of the included studies. The findings do suggest FIT as being more acceptable as a screening modality than flexible sigmoidoscopy. There were no consistent significant differences in bowel preparation discomfort, screening procedure discomfort, screening preference and willingness to repeat screening between the standard care and alternative modalities.

Conclusions and Implications: Current evidence comparing standard colonoscopy and stool-based CRC screening with novel modalities does not demonstrate any clear difference in acceptability. Due to the small number of studies available and included in each screening comparison and lack of observed differences, further research is needed to explore factors influencing acceptability of alternative CRC modalities that might result in improvement in population uptake within different contexts.

●●

Co-designing calorie labels for food delivery apps: A qualitative think-aloud study with twenty delivery app users

Dr Filippo Bianchi[1,2], Anna Keleher[1], Geetika Kejriwal[1], Frances Bain[1], Parita Doshi[1]
[1]Nesta, London, UK, [2]Behavioural Insights Team, London, UK

Background: Calorie labels in delivery apps, such as UberEats, could help to reduce obesity. The specific design of calorie labels could affect their acceptability, effectiveness, and potential harms on vulnerable people. We aimed to co-develop ideas with delivery app users for how to design and communicate about calorie labels.

Methods: We conducted a qualitative think-aloud study. Twenty UK adults placed hypothetical food orders using different versions of a simulated delivery app, each featuring a unique label prototype. During the task, participants narrated their experiences and we used semi-structured prompts to elicit opinions about the calorie labels.

Results: Participants expressed a wide range of views on calorie labels.

We co-generated four key ideas for how to enhance the effectiveness of labels and reduce their risks, namely: (1) including a filter that allows users to switch off the labels, (2) communicating recommended energy intake per meal (i.e. 600 kcal/meal) and not just per day (i.e. 2000 kcal/day), (3) providing information on the total calories in the basket and not just the calories of individual items, and (4) providing nutritional information beyond calories, upon request.

We co-generated four key ideas for how to communicate about calorie labels in a way that enhances the public support, namely: (1) presenting calorie labels as a way to fulfil customers' rights to information, (2) emphasising that labels are important for people who follow calorie-restricted diets for medical reasons, (3) outlining that labels can inform decisions on calorie intake across all meals over a day and not just the takeaway, and (4) framing labels as an aid to implement existing dietary goals.

Conclusions and implications: Using a qualitative think-aloud study we co-developed ideas for how to enhance the effectiveness and acceptability of calorie labels in delivery apps and reduce their potential harms.

Assessment of the feasibility of extending the WHO Child Obesity Surveillance Initiative (COSI) to England.

Dr Tania Griffin[1], Jemima Cooper[1], Cathy Griffiths[1], Georgina Wort[1], Prof Fiona Gillison[1], Prof Nick Townsend[1,2], Prof Harry Rutter[1]
[1]University of Bath, [2]University of Bristol

Background: The National Child Measurement Programme (NCMP) collects height and weight measures with children aged 4-5 and 10-11. The WHO Europe Child Obesity Surveillance Initiative (COSI), established in over 40 countries, similarly collects data on height and weight, but with children aged 6-9 years and includes a parent questionnaire on physical activity and eating behaviours. We hypothesise a representative sample of Local Authorities (LA's) integrating an additional measurement year into the NCMP would allow England to join COSI; the aim of this study was to explore the feasibility of this.

Methods: Key stakeholders who would be involved in COSI delivery, were it to be introduced, were invited to join an online semi-structured qualitative interview between February and June 2022. A thematic analysis was conducted.

Results: 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: (1) Potential benefits (2) Logistics and practicalities. The opportunity to compare childhood obesity rates in England to COSI countries was seen as a positive, as was an additional measurement point to prompt earlier intervention if needed. Participants emphasised additional data collection should lead to action and not simply act as surveillance. Countries spoke of the opportunities COSI provides including networking and the data informing public health policies. LA representatives spoke pragmatically about the extra resources to run COSI. There was agreement that correspondence to schools and parents would need to clearly justify the measurement and use appropriately sensitive language.

Conclusions and implications: There were perceived benefits of England joining COSI, despite some concerns about practicalities. It was evident for additional data collection to be feasible there must be a strong, clear justification communicated with sensitivity, it should be appropriately resourced and lead to visible action.

Free sugar intake at different eating occasions and in and out of school in secondary school pupils in the Midlands

Tessa Hewitt[1], Dr Marie Murphy[1], Abigail Stewart[1], Dr Breanna Morrison[1], Rhona Duff[1], Dr Alice Sitch[1], Prof Peymane Adab[1], Dr Miranda Pallan[1]
[1]University of Birmingham, Birmingham, UK

Background: This study aimed to explore how free sugar intake varies across eating occasions in secondary school pupils. Adolescents consume substantially more than the recommended amount of free sugar, increasing their risk of obesity, dental problems and later cardiovascular disease. Adolescents spend a large proportion of their time in school, therefore schools are often seen as key settings for interventions to improve nutrition.

Methods: Study participants aged 11-15 years were recruited between December 2019-April 2022 from secondary schools in the Midlands. Pupils completed a sociodemographic questionnaire, then recorded all foods and drinks consumed in the previous day by completing the online 'Intake24' tool, specifying at which eating occasion each item was consumed. We undertook descriptive analyses and multilevel regression modelling to explore patterns of sugar consumption across different eating occasions, and in and out of school. The study included 2,273 participants.

Results: Adjusting for energy intake and sociodemographic characteristics, participants' free sugar intake was lower at lunch (B=-7.86g; 95% CI = -8.88g, -6.84g; p=<0.001) and dinner (B=-11.83g; 95% CI -12.85g, -10.81g; p=<0.001) than at breakfast. Free sugar intake from snacks was higher than breakfast (B=7.69g; 95% CI 6.67g, 8.71g; p=<0.001). Snacks, on average, comprised 28.5% of 24-hour energy intake and 43.1% of 24-hour free sugar intake. Free sugar intake outside of school was higher than inside school (B=14.17g; 95% CI =12.12g, 16.21g; p=<0.001).

Conclusions and implications: Breakfast and snacks made the largest contribution to free sugar intake among adolescents in the study. Free sugar intake outside of school was much higher than that in school. This has important implications for the design of public health interventions aiming to reduce free sugar intake in adolescents.

The views of key UK stakeholders on the implementation of risk-stratified breast screening: An agenda setting meeting

Dr Lorna McWilliams[1]
[1]*University of Manchester*

Background: The PROCAS2 NIHR programme of research demonstrated it is now possible to accurately assess breast cancer risk at routine NHS Breast Screening Programme (NHSBSP) appointments, provide risk feedback and offer risk management strategies to women at higher risk. However, the NHSBSP currently invites nearly all women three-yearly, regardless of risk. Objectives: To identify the key uncertainties from the perspective of relevant stakeholders that need to be resolved before risk-stratified breast screening can be implemented.

Methods: A one-day agenda setting meeting took place in Manchester (March 2022) to discuss the feasibility and desirability to implement risk-stratified screening in the NHSBSP. Fifty-eight individuals participated (38 face-to-face, 20 virtual) with relevant expertise from academic, clinical and/or policy-making perspectives, including two service users. Presentations highlighted findings from PROCAS2 regarding feasibility of risk-stratified screening in the NHSBSP. Participants then discussed key uncertainties in seven groups, followed by a plenary session. Discussions were audio-recorded and thematically analysed to produce descriptive themes.

Results: Overall, there was general agreement that some version of risk-stratified breast screening was desirable. Five descriptive themes were developed that related to uncertainties that needed to be resolved for implementation: (i) risk and health economic modelling; (ii) health inequalities and communication with women; (iii); extending screening intervals for low-risk women; (iv) integration with existing NHSBSP; and (v) potential new service models.

Conclusions and implications: Risk-stratified breast screening is expected to be implemented in the future, pending effectiveness trials. The key issues that need to be resolved mainly concern minimising the exacerbation of pre-existing health inequalities.

●●

Sensory integration therapy for children with autism and sensory processing difficulties, a process evaluation

Elizabeth Randell[1], Sarah Milosevic[1], Lucy Brookes-Howell[1], Rhys Williams-Thomas[1], Sue Delport[1], Monica Busse[1], Rachel McNamara[1]
[1]*Cardiff University*

Background: The majority of autistic children have sensory processing difficulties, which can impact on participation in daily life, education and leisure activities. One therapy that may be helpful is Sensory Integration Therapy (SIT). SenITA was a UK randomised controlled trial of sensory integration therapy (SIT) plus usual care versus usual care alone for children with autism and sensory processing difficulties. It included a process evaluation which examined recruitment of participants and therapists; retention; fidelity; acceptability; adherence; adverse effects; contamination. We also sought to explore contextual factors that might influence the outcome of the intervention.

Methods: Quantitative methods were used to assess recruitment rates/patterns, attendance and intervention fidelity. Qualitative interviews were conducted with 30 carers and 13 intervention therapists. Interviews examined experiences of the trial procedures, acceptability and contextual factors. Data are reported thematically.

Results: Targets for recruitment and retention were achieved. 138 children were randomised (92% of those screened and 53.5% of those who expressed an interest) and 107 participants (77.5%) provided follow-up data at the primary outcome time point. Intervention delivered met fidelity. The majority of therapists scored an average of least 80/100 on process fidelity for at least 80% of their sessions. An 'effective dose' of 13 intensive stage SIT sessions was received by 78.3% participants. The intervention was safe with no adverse effects reported.
Usual care was significantly different from the intervention. Qualitative interviews reveal trial procedures and outcome measures were acceptable to carers and therapists. Carers in the intervention arm reported high levels of satisfaction and benefit of SIT, however there was no statistically significant change in carer stress. Overall, therapists found delivering the intervention a positive experience.

Conclusions and implications: Findings reveal the trial could be implemented as intended and create an insight into elements of the intervention that were important to parents.

●●

Smokeless tobacco cessation support in dental hospitals in Pakistan: Current practices, support needed and opportunities available

Dr. Shaista Rasool[1], Fiona Dobbie[1], Prof Linda Bauld[1]
[1]University of Edinburgh, Edinburgh, UK, [2]Khyber Medical University, Peshawar, Pakistan

Background: The South-East Asian (SEA) region where more than 85% of ST users live, shares the highest burden of disability adjusted life years and risk oral cancers from smokeless tobacco(ST) [2-4].Despite evidence on the effectiveness of tobacco cessation interventions in dental settings[5], implementation remains low in most regions[6]. This lack of real world implementation and scale up of tobacco cessation interventions[7], found effective in dental settings, requires an understanding of the influences that drive effective implementation. The purpose of this study was to develop an understanding of the influences governing the implementation behavioral interventions for ST cessation in dental hospitals.

Methods: A multi-center exploratory qualitative study was conducted at two tertiary-care dental hospitals, in the Khyber Pakhtunkhwa (KP) province of Pakistan. Semi-structured interview guides; containing open ended questions guided by the Capability-Opportunity-Motivation-Behaviour (COM-B) model[8] were used, to capture the views of dentists (n=12) regarding behavioural interventions for ST cessation in dental hospitals. Framework approach was used to thematically analyse the data.

Results: Screening of ST users in routine dental practice was seldom practiced and the cessation support offered was brief advice. Common barriers identified included: fear of offending patients; stereotyping patients; lack of knowledge and skills; lack of privacy; lack of belief in the effectiveness of behavioral support; lack of time and workload pressure; ST use among dentists; lack of referral systems and the absence of a mandatory requirement of offering ST cessation support. Facilitators included: leveraging support from junior dentists and length of interaction between the dentist and the patient.

Conclusions: A range of influences that hinder and facilitate the implementation of behavioral support for ST cessation in dental hospitals in Pakistan were identified. These findings can inform the implementation of such for ST cessation in dental and other clinical settings in low and middle income countries.

●●●

Patient engagement with and experiences of virtual group interventions for prevention and management of common chronic physical conditions: a mixed-methods systematic review

Charlotte Reburn[1], Dr Sinéad McDonagh[1], Dr Emma Cockcroft[1], Laura Hollands[1], Dr Jane Smith[1]
[1]University of Exeter, Exeter, UK

Background: Virtual and group-based behaviour change interventions have become more common following adaptations made during the Covid-19 pandemic. Increasingly, these delivery modes have been combined, in the form of virtual group behaviour change interventions. As well as initiating behaviour change in a unique way, participants may engage with and experience these interventions in unique ways.

This review aims to explore participant engagement with and experiences of virtual group interventions, to optimise their future use in behaviour change.

Methods: We searched MEDLINE, Embase, APA PsycINFO, and CINAHL, and included virtual group interventions for common chronic physical conditions, according to a pre-defined protocol, from database conception until April 2022. Studies were screened independently by two reviewers. Key data were extracted in a first round of data extraction, including study setting and disease type. In a second round of data extraction, findings on patient engagement and experience were extracted. At the time of writing, this stage is ongoing. When data extraction is complete, findings will be synthesised using the convergent integrated approach to mixed-methods synthesis.

Results: At the time of writing, 20 interventions were included. The most common chronic conditions featured were overweight or obesity, type 1 diabetes, and cardiovascular conditions. Over half of the interventions were USA-based. Common markers of engagement included attendance and attrition rates, sometimes broken down by population group. Common descriptions of experience included interview transcripts and questionnaire responses. More detailed synthesis is to be conducted in early 2023.

Conclusions and implications: This systematic review explores the engagement and experiences of participants in virtual group interventions for preventing or managing chronic physical conditions. With increased understanding of how these are received by participants, we can help to shape how these interventions are delivered, to maximise the benefits for participants. Future work in this area will involve programme facilitators.

●●●

Using focus groups to design a digital health lifestyle intervention for midlife women

Hana Sediva[1], Dr Sanjoy Deb[1], Dr Tina Cartwright[1], Dr Claire Robertson[1]
[1]*University of Westminster, London, UK*

Background: Abundant evidence indicates that improving diet and physical activity behaviours is associated with increased health-related quality of life in people. However, little is known about the behavioural determinants that can lead to successful digital interventions tailored to midlife women.

Objective: The aim of the study is to explore factors (i.e., barriers and enablers) influencing healthy eating and regular physical activity in midlife women (aged 40 – 65 years) using focus groups. The behavioural influences are to be used as an input in the design of a digital BCI tailored to this population.

Methods: Seven semi-structured focus group discussions with midlife women in the UK (n = 33) explored healthy eating and regular physical activity barriers and enablers, the influence of menopause symptoms on lifestyle behaviours, and the use of digital health technologies. Both, inductive thematic analysis and deductive qualitative analysis were performed across the dataset where the TDF/COM-B were used as coding frameworks and BCTTv1 to code behaviour change techniques (BCTs).

Results: In total 43 unique themes and 39 BCTs were identified and mapped into 14 TDF domains. Identified were barriers (e.g., feeling tired, family responsibilities, lack of time, lack of planning, gym intimidation, low mood, low motivation) and enablers (e.g., self-monitoring steps walked, setting small achievable goals, attending group exercise classes, tracking meals consumed, social support from friends and family, personal trainer support, enjoying exercise, engaging in exercise challenges, kudos and rewards). New persisting behaviours were identified as a result of the COVID-19 pandemic (e.g., increased consumption of alcohol, meal planning, allowing oneself a treat, eating out and socialising, family walks and workouts, online exercise classes, awareness of own eating habits).

Conclusion: This qualitative study underpinned by COM-B/TDF framework applied to healthy eating and physical activity in midlife women provides a new set of targets for BCI development.

•••

Psychosocial factors influencing smoking cessation: a qualitative interview study with decliners from the Yorkshire Enhanced Stop Smoking (YESS) study

Dr Pamela Smith[1], Dr Harriet Quinn-Scoggins[1], **Dr Grace McCutchan[1]**, Hoang Tong[1], Prof Mat Callister[2], Prof Rachael Murray[3], Prof Kate Brain[1]
[1]*Cardiff University,* [2]*Leeds Teaching Hospital NHS Trust,* [3]*University of Nottingham*

Background: Lung cancer screening can detect early-stage disease and reduce mortality in high-risk populations. Embedding smoking cessation support within lung screening offers a teachable moment to quit smoking; however, little is known about why individuals decline smoking cessation support in this setting. This study aims to understand psychosocial influences on smoking cessation among those who declined smoking cessation support during lung cancer screening.

Methods: Qualitative interviews were conducted with thirty people who smoke, recruited via the Yorkshire Lung Screening Trial. Participants were those who declined to take part in a sub-study (the Yorkshire Enhanced Stop Smoking study) at multiple points: (1) declining to see a smoking cessation practitioner (SCP) at the time of screening, (2) accepting to see a SCP but then declining ongoing support after their appointment or (3) accepting support both at their appointment and for 4-weeks after but declining further smoking cessation support. Verbatim interview transcripts were thematically analysed, with 20% dual coded.

Results: Participants were highly resistant to changing smoking habits and faced a variety of barriers to initiating a quit attempt. Contextual barriers such as older age, COVID-19 and poor mental and physical health were found to influence smoking behaviour. Social isolation appeared to not only foster smoking behaviour but also discourage smoking cessation and smoking-related stigma encouraged secrecy and social withdrawal. Participants were unlikely to see quitting as a priority and considered smoking to be necessary to everyday coping and stress relief.

Conclusions and Implications: Interventions to promote smoking cessation among high-risk individuals participating in lung cancer screening should aim to address the wider determinants of smoking. Adopting a 'whole systems' approach may act as an important catalyst for behaviour change and focus attention on the interconnections between the individual, their community and other environmental factors that influence smoking and smoking cessation.

•••

Awareness and Knowledge of HPV and its Role in Cervical Screening Among Women in Great Britain: An Online Population-based Survey

Dr Jo Waller[1], Frances Waite[1], Dr Laura Marlow[1]
[1]*Cancer Prevention Group, School of Cancer & Pharmaceutical Sciences, King's College London, London, UK*

Background: HPV primary testing and concomitant extensions to screening intervals are being implemented around the world. Where this has not been clearly communicated, there has been public backlash. We explored HPV awareness and knowledge about primary HPV screening in Great Britain where it has been in place for several years. Scotland and Wales recently extended screening intervals from 3 to 5 years for 25-49 year-olds; England is yet to make this change.

Methods: Women aged 18-70 (n=1,995) were recruited by YouGov from their online panel in August 2022. The weighted sample was population representative by age, region, education, and social grade. We measured HPV awareness, knowledge (excluding those unaware of HPV) using eight true/false items, and understanding of the role of HPV testing in cervical screening. We also assessed demographic characteristics and screening status.

Results: Overall, 76% of women were aware of HPV of whom 64% had heard about it in the context of cervical screening and 71% in the context of HPV vaccination. When asked to identify the statement describing how cervical screening works, only 12% correctly selected the statement reflecting HPV primary screening (13% in screening-eligible women). Mean knowledge score was 3.7 out of 8 (SD=2.2). Most participants aware of HPV knew that an HPV-positive result does not mean a woman will definitely develop cervical cancer (73%) but far fewer were aware of the slow timeline for HPV to become cancer (19%).

Conclusions and implications: Even though HPV testing has been used in the screening programme in Britain since 2011, only 3 in 4 women are aware of the virus, and knowledge of HPV primary screening is very low, even among women of screening age. This points to continued need for awareness-raising campaigns to ensure informed choice about screening and mitigate public concern when screening intervals are extended.

●●

Increasing the public support for fiscal measures promoting healthy and sustainable food systems: A randomised controlled trial

Dr Filippo Bianchi[1,2], Niamh Thompson[2], Bram Reitsma[2], Alice Worsley[2], Dr Giulia Tagliaferri[2], Dr Helen Brown[2]
[1]Nesta, London, UK, [2]Behavioural Insights Team, London, UK

Background: The National Food Strategy (NFS) suggests that the UK should cut its meat intake by 30% to reach net zero by 2050. However, taxation is often dismissed as a tool to reduce meat consumption due to its lack of public support. We aimed to explore how to increase the support for taxes promoting sustainable food consumption and production.

Methods: We conducted a factorial randomised trial. 7,566 participants were randomly allocated to read one of four versions of a tax, which varied on two factors: (1) whether the tax was framed as a way to change consumer choices or as a way to encourage industry to produce more sustainable foods and (2) whether the tax specifically targeted meat or any food with a high environmental footprint. Participants then indicated the extent to which they supported the tax from 1 (strongly oppose) to 5 (strongly support). Linear models assessed how the two aforementioned factors affected participants' support for and opposition to the tax.

Results: Only 27% of participants supported a tax on meat to encourage consumers to buy environmentally sustainable foods, and 51% opposed it. Presenting the tax as a way to encourage industry to produce more sustainable products rather than as a way to change consumer choices increased the level of support by 6pp (95%CI: 4pp to 8pp) and decreased opposition by 9pp (7pp to 11pp, all ps<0.01). Similarly, taxing any food with high environmental impact rather than only meat increased public support by 15pp (13pp to 17pp) and decreased opposition by 15pp (13pp to 17pp, all ps<0.01).

Conclusions and implications: There can be high public support for fiscal measures promoting sustainable food systems, depending on the details of how the tax is designed and on how it is presented to the public.

●●

An overview of systematic reviews of exercise-based interventions for people with long-term conditions

Dr Grace Dibben[1], Lucy Gardiner[2,3], Dr Hannah Young[4,5], Prof Sally Singh[2], Prof Rod Taylor[1,6]
[1]MRC/CSO Social and Public Health Sciences Unit, University of Glasgow, Glasgow, UK, [2]Department of Respiratory Sciences, University of Leicester, UK, [3]Wellcome Trust PhD Fellow, UK, [4]University Hospitals of Leicester NHS Trust, UK, [5]Diabetes Research Centre, University of Leicester, UK, [6]Robertson Centre for Biostatistics, University of Glasgow, UK

Background: Some 15 million people in England live with a long-term condition (LTC). There is a growing burden of multimorbidity (often defined as presence of ≥2 LTCs within an individual), associated with reduced health-related quality of life (HRQoL), functional decline, and increased mortality and healthcare utilisation. A systematic overview was undertaken to identify and summarise systematic review evidence of exercise-based interventions across a comprehensive list of 45 LTCs.

Methods: Database searches were undertaken in June 2022. Eligibility criteria included peer-reviewed systematic reviews of exercise-based interventions compared to usual care, no-exercise control or other interventions that did not contain structured exercise, in adults (age ≥18 years) who were diagnosed with an LTC. Outcomes included mortality, hospitalisation, exercise capacity, frailty, disability, physical activity and HRQoL. A narrative synthesis summarised the available evidence.

Results: Electronic database searches yielded 11,074 unique records, from which 617 eligible systematic reviews were identified. One 'best' systematic review per LTC was selected for further extraction and synthesis, based on recentness, comprehensiveness, focus, methodology and outcomes. Preliminary results identified 25 LTCs within which there is strong evidence that exercise is beneficial. There were 14 conditions for whom the benefits of exercise were unclear or conflicting. No evidence was identified for 5 LTCs.
Ongoing data extraction, quality appraisal and data synthesis will summarise the characteristics of exercise-based interventions, and methodological quality and numerical findings of selected reviews (due for completion January 2023).

Conclusions and implications: The LTCs identified with clear indications for exercise-based interventions will inform the population for inclusion in the NIHR funded Personalised Exercise Rehabilitation FOR people with Multiple LTCs (PERFORM) research programme, which aims to develop and evaluate a rehabilitation intervention for people with multimorbidity.

●●

Recommendations for future physical activity research for the prevention and management of diabetes

Prof Colin Greaves[1], Chris Bright[2], Jodie Chan[4], Dr Matthew Cocks[5], Prof Jason Gill[6], Dr Louise Goff[7], Prof Simon Griffin[8], Dr Ben Jane[9], Dr Florence Kinnafick[10], Anna Morris[4], Paul Robb[3], Michelle Roberts[11], Dr David Salman[12], Prof John Saxton[13], Chandrabala Shah[4], Prof Adrian Taylor[16], Dr Daniel West[14], Prof Thomas Yates[15]
[1]University of Birmingham, Birmingham, UK, [2]University of Exeter, Exeter, UK, [3]Expert by experience, UK, [4]Diabetes UK, London, UK, [5]Liverpool John Moores University, Liverpool, UK, [6]University of Glasgow, Glasgow, UK, [7]King's College London, London, UK, [8]University of Cambridge, Cambridge, UK, [9]Plymouth Marjon University, Plymouth, UK, [10]Loughborough University, Loughborough, UK, [11]Richmond Group of Charities, London, UK, [12]Imperial College London, London, UK, [13]University of Hull, Hull, UK, [14]Newcastle University, Newcastle, UK, [15]University of Leicester, Leicester, UK, [16]University of Plymouth, Plymouth, UK

Background: In March 2022, a workshop was convened by Diabetes UK to develop a position statement and research priorities related to the efficacy and effectiveness of physical activity interventions for people with or at risk of diabetes.

Methods: A one-day research workshop was conducted bringing together research experts in diabetes, research experts in physical activity, healthcare professionals, and people living with diabetes. Expert presentations on each theme were followed by moderated multidisciplinary discussions and presentation of recommendations. Notes were collated by Diabetes UK research support staff and then synthesised into research recommendations by the co-authors.

Results: Over 30 specific research recommendations were developed across five key themes. The key areas where increased multidisciplinary research focus is needed are: 1. Design and evaluation of multi-level approaches for physical activity promotion; 2. Promotion of sustained increases in physical activity across the life course; 3. Support of communities to make physical activity part of the daily routine (including more implementation-focused research and research to develop culturally-relevant interventions); 4. Better understanding of the physiology of exercise (e.g. factors influencing the physiological response to physical activity and beta cell preservation); 5. Design and evaluation of physical activity interventions for groups with multiple long-term conditions.

Conclusions: This position statement outlines research recommendations. The Diabetes UK statement represents a call to action for researchers from a wide range of disciplines, including behaviour change scientists, physical activity and health services researchers to develop research bids, and for health research funders (including Diabetes UK) to develop calls for research, in these recommended areas.

●●

The behaviours identified and the behaviour change techniques planned in health partnerships for antimicrobial stewardship

Rachel Hawkins[1], Panayiotis Panayiotis Michael[1], Prof Lucie Byrne-Davis[1], Dr Eleanor Bull[1], Richard Skone-James[2], Prof Jo Hart[1]
[1]Faculty of Biology, Medicine and Health, Manchester, The University of Manchester, Manchester, UK, [2] Tropical Health and Education Trust, London, UK

Background: Antimicrobial stewardship (AMS) interventions promote optimised use of antimicrobials by healthcare professionals. In 2019-2020, the Commonwealth Partnerships for Antimicrobial Stewardship (CwPAMS) supported twelve global health partnerships in low-and-middle-income countries to co-develop education and training interventions to improve AMS practices among hospital staff. This study aimed to describe 6 of the CwPAMS health partnerships' target behaviours and behaviour change techniques (BCTs) within their planned AMS interventions. In order to inform the extent to which projects are using interventions that are theoretically linked to the influences on behaviour they have identified.

Methods: Content analysis extracted behaviours and BCTs from partnership materials. Techniques used by partnerships with (n=2) and without (n=4) an embedded behavioural scientist were compared, to understand their added value.

Results: Nineteen AMS related behaviours for hospital staff were targeted; most commonly hand hygiene and antibiotic prescribing behaviours. Twenty-three BCTs were coded, with instructing participants on how to perform the behaviours the most prominent across all, including partnerships with a behavioural scientist. Intervention materials did not always report the context of the intervention being delivered, including who was delivering it and the target. Behaviours for change were also often not specified.

Conclusions: Partnerships varied in reporting their content and specific behaviours, impacting replicability of their interventions, and limiting knowledge exchange. An AMS behaviour change intervention resource is recommended to support clear specification of prospective AMS interventions.

Implications: The Commonwealth Partnerships for Antimicrobial Stewardship partnerships targeted a collection of antimicrobial stewardship and infection prevention and control-related behaviours. However, partnerships varied in reporting their content and specific behaviours, impacting replicability and limiting knowledge exchange. A simple and acceptable antimicrobial stewardship behaviour change intervention framework would aid the description of future health partnerships. This could support partnerships to use and contribute to evidence of what works in improving staff antimicrobial stewardship practices.

⋅⋅

A Person-Based Approach to the Development of Upper Limb Prostheses

Leen Jabban[1], Dr Benjamin Metcalfe[1], Dr Ben Ainsworth[2]
[1]University of Bath, UK, [2]University of Southampton, UK

Background: Upper-limb prostheses are designed to aid individuals with upper-limb differences in activities of daily living. Despite technological advancements, high abandonment rates still persist, in part due to a lack of understanding of user needs. In particular, frequent overuse of the intact limb can cause pain, reduce physical function and lower quality of life. Recently, 'sensory feedback' has been proposed as a feature to add to prostheses to allow users to trust their prosthesis by delivering sensations that relay information about the current state of the prosthesis. In this study, we aimed to improve the uptake of prostheses with sensory feedback by understanding user needs.

Methods: We used a person-based approach, including a survey (N = 37) and (N=15) semi-structured interviews with people with upper-limb differences, that were analysed using thematic analysis and data triangulation was used to develop guiding principles.

Results: While sensory feedback was viewed as a desired feature, participants highlighted that its benefits must outweigh the drawbacks. The results confirmed the desire for increased trust in the prostheses, which is contingent on the system's reliability and ability to provide input from several areas of the hand rather than just the fingertips. Other elements of the cost-benefit analysis include the ability to 'do more' and the influence of the system on the users' psychological well-being.

Conclusions and implications: The study enables a better understanding of the expectations and worries of users when considering sensory feedback. This understanding will guide the development, assessment, and clinical implementation of sensory feedback systems to reduce prostheses abandonment and improve quality of life. The next stage of the process, currently underway, is the iterative design of the system with users to enable them to reflect on the practical aspects they struggled to imagine during the interviews.

⋅⋅

Developing supportive conversations about type 2 diabetes: combining narrative interviews with patients and coaches using thematic analysis

Dr Jack Joyce[1], Carolyn Newbert, Dr Caroline Mitchell, Dr Charlotte Albury
[1]University of Oxford

Background: The "NewDAWN" trial aims to create a treatment pathway for people living with type two diabetes (T2D) to support remission. The pathway will be delivered by trained coaches who currently deliver NHS total diet replacement interventions. To understand how coaches can best support people on the pathway, we aimed to (a) understand the emotional impact of interventions, notions of success and failure, contextual factors that facilitate or hinder acceptance and perseverance, and (b) understand the capacity and desire to deliver the intervention. Results were used to create a 'script' for hub coaches to support patients.

Methods: We conducted narrative interviews with people with T2D and semi-structured interviews with coaches at UK diabetes hubs. We recruited a maximum variation sample until we reached information power (Malterud et al., 2016). We used Thematic Analysis to identify patterns and learnings in each group (T2D and coaches) and iterated throughout to address gaps in the sample. Findings were compared to determine similarities and contradictions between the datasets.

Results: Preliminary analysis of the patient data revealed a strong preference for being 'asked' rather than 'told'; for having diabetes explained; that "remission" is not commonly known or understood; that cultivating family/friend support is critical but patients lack knowledge on talking about diabetes; and experience feelings of failure despite successes. Coach data revealed similar feelings on cultivating support; explaining diabetes; and understanding the patient. Coaches also highlighted the significance of first meetings to establish a basis for future success.

Conclusions and implications: Our coach script encourages patients' self-discovery, cultivating of support, and foregrounds their perspective. We emphasised 'soft landings' being key to success; that coaches can couch advice in

personally relevant ways; and not to undermine the patient's self-learning. Combining two datasets from patient and provider assisted development of a more holistic and implementable intervention.

●●

Illness Perceptions in patients with Peripheral Arterial Disease: An exploratory study

Smaragda Lampridou[1,2], Layla Bolton Saghdaoui[1,2], Majd Rawashdeh[1,2], Prof Alun Davies[1,2], Prof Mary Wells[1,2]
[1]Imperial College London, London, UK, [2]Imperial College Healthcare NHS Trust, London, UK

Background: Peripheral arterial disease (PAD) is a chronic condition characterised by atherosclerosis of the lower limb arteries, affecting 20% of people over 60 in the UK. When left untreated it can lead to heart attack, stroke and amputation. Literature suggests that understanding more about patients' beliefs is essential to inform treatment planning decisions. However, there is a paucity of data regarding PAD patients. This exploratory study aimed to identify the illness perceptions of patients with PAD and their relation to sociodemographic and clinical factors.

Methods: Patients diagnosed with PAD attending the Imperial Vascular Outpatient Clinics between January and May 2022 were included in this study. Patients who did not speak English or were cognitively impaired were excluded. Participants completed the validated Brief Illness Perception Questionnaire (B-IPQ). Descriptive statistics and independent sample tests were performed using SPSS.

Results: 105 patients were included. 73.3% were male, with a mean age of 69.5 years. The total mean B-IPQ was 43.16 ± 14.03. The highest scoring B-IPQ domain was timeline (7.74 ± 2.83), whilst the lower scoring domain was personal control (mean 5.36 ± 3.19). A quarter of patients could not identify what caused their disease. ANOVA identified that the age is associated with emotional representation (ER) ($p=0.008$) and consequences ($p=0.022$) domains; the education level with consequences ($p=0.022$), coherence ($p=0.048$) and ER ($p=0.020$); the smoking status with personal control ($p=0.013$) and ER (0.038); and the years of disease diagnosis with timeline (0.026).

Conclusions and Implications: Patients with PAD have negative illness perceptions. Most patients perceive that their treatment can help them; however, they feel they have low levels of personal control. Age, education level, years of diagnosis and smoking status are associated with illness perceptions in patients with PAD. Both clinical decision making, and interventions aimed to address illness perceptions should consider these factors.

●●

Women's mental health: co-design of the UK's first research agenda for Premenstrual Dysphoric Disorder (PMDD)

Dr Lynsay Matthews[1], Julie Riddell[2]
[1]University of the West of Scotland, UK, [2]University of Glasgow, UK

Background: Premenstrual Dysphoric Disorder (PMDD) is a severe hormone-based mood disorder. It impacts the mental health of 1 in 20 women (and AFAB* individuals). In the UK, this is more than 580,000 women, of which 417,600 will experience suicidal ideation, 290,000 will self-harm, and 195,000 will attempt suicide. PMDD is growing in awareness and research opportunities. It is vital that future research reflects the interests of all stakeholders. Our project aims to co-design the UK's first PMDD research agenda with the goal of securing substantial funding to explore behavioural interventions.

Methods: We are undertaking a multi-step co-design process. Step 1: focus groups with five different groups of stakeholders (people with lived experience, health professionals, mental health crisis services, support organisations, and researchers). Step 1 is complete. Step 2: an open online consultation gathering insight from numerous stakeholders (due January 2023). Step 3: an online consensus workshop (due early February 2023). Step 4: development of the final research agenda (due late February 2023).

Results: Interim data from step 1 (n=25 stakeholders from 5 focus groups) suggests key research topics are: (1) suicide and/or self-harm prevention; (2) best approaches for psychological support; (3) impact of PMDD on education, employment and relationships; (4) treatment and management of PMDD; and (5) impact and support for hormonal life events. Interim findings will be explored further by the open consultation and consensus workshop. The final research agenda will be the first of its kind in the UK.

Conclusions and implications: Women (and AFAB) typically present with symptoms which have potential to be managed with behavioural interventions. Understanding the mechanisms of PMDD and its associated health behaviours is key to preventing suicidal and self-harm behaviour. This pioneering research agenda will bring exciting opportunities for funding, networking and collaboration in women's mental health.

[*assigned female at birth]

How does a restorative approach work? Supporting military veteran families affected by Post Traumatic Stress Disorder (PTSD)

Dr Hayley Reed[2], Dr Annie Williams[1], Dr Jeremy Segrott[2], Prof Alyson Rees[1], Dr Neil Kitchiner[3]
[1]CASCADE (Children's Social Care Research and Development Centre), Cardiff University, Cardiff, UK, [2]DECIPHer (Centre for the Development and Evaluation of Complex Interventions for Public Health Improvement) Cardiff University, Cardiff, UK, [3]Veterans' NHS Wales, Cardiff & Vale University Health Board, Wales

Background: Demands for more participatory, collaborative family support services have grown, however implementing such methods in practice has proved difficult. The use of a restorative approach (RA) within family services shows promise but little research has explored the provision of such services for families affected by parental mental ill-health.

Methods: To address this gap, this presentation reports findings from a three-year feasibility study of an innovative restorative family support service developed to support military veterans and families affected by a veteran's service-related mental health problem. Interviews and focus groups with service professionals (n=4) were conducted on the completion of programme development, and at regular stages during service implementation. Interviews were undertaken individually or in pairs with eight service user families, including six veterans, six partners and two children, and four veterans who chose not to take part in the service.

Results: The presentation will report professionals' experiences of service delivery and refinements made to support programme implementation, and the veteran and family opinion on service receipt, including the areas they identified that could be improved. It will also detail the restorative mechanisms which resulted in family changes, with the development of collective empathy being located as a crucial restorative mechanism which leads to positive effects.

Implications: Whilst the popularity of RA is increasing, this is the first project to report on RA mechanisms. This can support behavioural scientists to have a better understanding of the theory of change underpinning this approach to family services.

What role do significant others have in stress management for people with ME/CFS?

Tarnjit Sehmbi[1], Prof Sarah Peters, Prof Alison Wearden, Dr Kimberly Dienes
[1]University of Manchester, Manchester, UK

Background: Chronic fatigue syndrome/ Myalgic Encephalomyelitis (ME/CFS) is a long-term debilitating illness characterized by profound and persistent fatigue, plus other symptoms including headaches, sleep dysfunction, and post exertional malaise. Although it is apparent that people with ME/CFS encounter many daily stressors, the role partners play in the experiences of stress has not yet been explored. The current study aims to understand the role of significant others in the stressful experiences of people with ME/CFS.

Methods: This study adopted a qualitative, phenomenological design. We used online semi-structured interviews conducted on Zoom. Participants were people with ME/CFS (n = 21) recruited through ME/CFS support groups in the UK. All participants were in romantic relationships and lived with their partners. Interviews explored participants' experiences of stress and the perceptions of the role of others in relation to this. Interviews were analysed using thematic analysis.

Results: The results showed that for people with ME/CFS, the fluctuating nature of ME/CFS placed an emotional strain on their relationship. Stress could exacerbate symptoms, and significant others played a key role in helping manage the illness, including providing and accessing support. Although people with ME/CFS were commonly able to approach their partners for support, participants commonly spoke about the guilt attached to this. Participants also discussed what support would be helpful for partners.

Conclusions and implications: The results of this study suggest that significant others play a key role in the illness management of people with ME/CFS. The findings can be used to ensure people with ME/CFS are getting the appropriate support to deal with stressors effectively, as well as their partners being given appropriate support. Future research should focus on partners of people with ME/CFS, as this would provide insight into their experiences and be a gateway to identifying the types of support they require.

How do communication behaviours in romantic couples influence stress reactivity: A systematic review

Tarnjit Sehmbi[1], Prof Sarah Peters, Prof Alison Wearden, Dr Kimberly Dienes
[1]*University of Manchester, Manchester, UK*

Background: Romantic relationships are one of the most central relationships for most adults. Communication difficulties within romantic relationships can result in high levels of stress. Chronic stress is associated with poor mental and physical health outcomes. Communication difficulties may also affect biological stress markers such as cortisol levels in romantic partners, though research is mixed. This systematic review will explore how communication behaviours in romantic couples influence stress reactivity, and whether communication behaviours function as stressors or buffer against stress.

Methods: the databases PubMed, PsycINFO, Web of Science and EMBASE were searched for journal articles reporting on the impact that partner communication behaviours have on stress outputs, specifically measured via cortisol assays. A quality assessment of included publications was completed using the Mixed Methods Appraisal Tool.

Results: 1083 titles were reviewed after duplicates were removed, and 15 studies were included in the final selection. All studies assessed physiological stress output in response to various communication behaviours via a measure of cortisol. Both acute response to a stressor such as a discussion task (acute cortisol response), and diurnal cortisol patterns were included as outcomes. Fourteen/15 studies adopted a marital discussion paradigm as the stressor, and one study used a self-report likert type scale. The review found there were different patterns of acute stress reactivity associated with different types of communication behaviours. The results also showed gender effects in the dyads in some studies, which is explained in the results.

Conclusions and implications: The findings of this review fit with the idea of a downregulated HPA axis in stressed couples. This systematic review will provide insight for clinical professionals working with couples on how different communication behaviours impact their endocrinological reactivity, and the health implications these may have.

•••

Intervention Fidelity Assessment of the CRISP intervention. An intervention to reduce cardiovascular risk within the Abdominal Aortic Aneurysm screening programme

Dr Tom Withers[1], Prof Colin Greaves[1], Prof Matt Bown[2], Athanasios Saratzis[2]
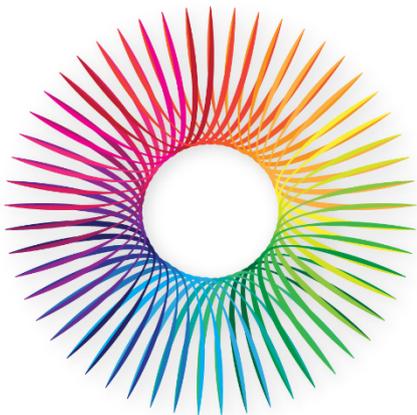[1]*University of Birmingham, Birmingham* [2]*University of Leicester, Leicester*

Background: Those diagnosed with an abdominal aortic aneurysm (AAA) through the NHS AAA screening programme are at elevated risk of both suffering from and dying of a cardiovascular event compared to age matched controls. The aim of the CRISP intervention is to address this by delivering a complex health behaviour change intervention aimed at reducing cardiovascular risk. The intervention was designed as part of the NHS AAA screening programme and was split into two parts. The first assesses the patients' personalised risk factors and produces, via a computer, a personalised risk factor profile. In the second part, patients choose which risk factors to focus on and the intervention facilitator delivers the appropriate intervention components. The delivery of the intervention in this study was complex, requiring individuals who deliver the program to use a dynamic and interactive style. The current study aimed to identify if the intervention was delivered to an acceptable standard and if any part(s) of the intervention delivery required improvement.

Methods: Audio-recordings of 78 CRISP intervention sessions were assessed independently by two reviewers using a bespoke checklist, each item being scored on a 0 to 5 scale, with a score of 3 being defined as "competent delivery". Inter-rater reliability was also assessed.

Results: Analysis has not yet been completed the results will be presented at the UKSBM meeting.

Conclusion and implications: The results from this study will indicate if the intervention was delivered to an acceptable standard. Further research will assess whether the intervention resulted in reduced cardiovascular risk.

•••