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Abstract Booklet

Implementing remote consultations in primary care following COVID-19: perceived challenges and advantages according to General Practitioners and patients

Convenor: Dr Robert Kerrison, University of Surrey
Discussant: Dr Elena Cojocaru, Royal Marsden Hospital

The COVID-19 pandemic has transformed the delivery of healthcare all over the world. Indeed, a major shift in the delivery of primary, particularly, has taken place over the past two years, with many countries delivering primary care remotely. The purpose of this symposium is to present the latest research exploring how these changes in the delivery of primary care have affected general practitioners and their patients.
The symposium will comprise four presentations, which will be delivered by researchers at Cancer Research UK, University College London, the University of Surrey and Cardiff University. The first presentation will present the results of a rapid systematic literature review, which examined patients' and physicians' perceptions of remote consultations in primary care, during the COVID-19 pandemic. The second and third talk then explore these issues within the UK in more depth, and describe the results of interviews and surveys (respectively) with UK patients and general practitioners. Finally, the fourth presentation describes plans for, and lessons learned from preparing, future work, which will explore the impact of delivering remote consultations in primary care for people with learning disabilities, specifically.

The symposium will conclude with an academic GP reflecting on their own personal experiences with remote consultations in primary care, during the COVID-19 pandemic, as well as the four talks that have gone before. In particular, the discussant will reflect on the future role of remote consultations in primary care, and where there are opportunities for future research.

Patients' and physicians' experiences with remote consultations in primary care, during the covid-19 pandemic: a multi-method rapid review of the literature

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Background: During the COVID-19 pandemic, many countries implemented remote consultations in primary care to protect patients and staff from infection. The aim of this rapid systematic review was to synthesise the literature exploring patients' and physicians' experiences with remote consultations in primary care, during the pandemic, with the further aim of informing their future delivery.

Method: We searched PubMed and PsychInfo for studies that explored patients' and physicians' experiences with remote consultations in primary care. To determine the eligibility of studies, we reviewed their titles and abstracts, prior to the full paper. We then extracted qualitative and quantitative data from those that were eligible, and synthesised the data using thematic and descriptive synthesis.

Results: A total of twenty-four studies were eligible for inclusion in the review. Most were performed in the United States of America (n=7, 29%) or Europe (n=7, 29%). Patient and physician experiences were categorised into perceived 'advantages' and 'issues'. Key advantages experienced by patients and physicians included: 'Reduced risk of COVID-19' and 'Increased convenience', while key issues included: 'a lack of confidence in / access to required technology' and a 'loss of non-verbal communication', which exacerbated clinical decision making.

Conclusions and implications: This review identified a number of advantages and issues experienced by patients and physicians using remote consultations in primary care. The results suggest that, while remote consultations are more convenient, and protect patients and staff against COVID-19, they result in the loss of valuable non-verbal communication, and are not accessible to all.

Public views and experiences of GP remote consultations during the pandemic: qualitative findings from the COVID-19 Cancer Attitudes and Behaviours Study

Harriet Quinn-Scoggins[1], Jacqueline Hughes[1], Yvonne Moriarty[1], Rebecca Cannings-John[1], Ardiana Gjini[2], Mark Goddard[1], Detelina Grozeva[1], Julie Hepburn[3], Graham Moore[1], Kirstie Osborne[4], Michael Robling[1], Julia Townson[1], Jo Waller[5], Katriina Whitaker[6], Victoria Whitelock[4], Kate Brain[1]
[1]Cardiff University, [2]Public Health Wales, [3]Lay Research Partner, [4]Cancer Research UK, [5]Kings College London, [6]University of Surrey

Background: The COVID-19 pandemic caused a sudden, almost universal, shift from face-to-face to remote GP consultations. Public views and experiences were explored to understand help-seeking behaviour during the UK pandemic and acceptability of remote GP consulting to inform its future use in primary care.

Methods: Participants from the COVID-19 Cancer Attitudes and Behaviours Study cohort were purposefully sampled (by age, gender and symptom experience) for semi-structured paired telephone interviews. Interviews were conducted between September-November 2020 (Phase 1) and March-April 2021 (Phase 2). Participants were asked about their views and experiences of GP remote consultations as part of a wider interview. Data were analysed thematically, with 20% dual coded.

Results: Thirty participants were interviewed during Phase 1 and 27 followed-up in Phase 2 (n=17 males, 26-76 years). Participants who had contacted their GP during the pandemic were pleased with the care received and use of remote procedures (majority telephone based) however many commented that the prospect of remote procedures had put them off until they had experienced them. Participants were amenable to sustaining remote consulting in the knowledge that face-to-face appointments would be available based on clinical need and preference, and that the needs of those potentially excluded due to their use were considered. Initially, participants described understanding the need to protect the NHS and reduce contact by staying away from GP practices. At follow-up, they had assumed that the increased flexibility and efficiency afforded by remote consultations would translate into additional capacity and were very discouraged at finding it harder to get GP appointments again.

Conclusions and Implications: Remote consultations were broadly acceptable to the public, especially for non-urgent concerns, but enthusiasm waned as the pandemic progressed. Remote consultations are an important strategy for increasing access to primary care services, but considerations must be given to inclusivity and workforce capacity.

Remote consultation during COVID-19. Public and GP perceptions of impact on care and cancer diagnosis

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[1]Cancer Research UK

Background: Remote consultations in primary care have become more prevalent during the COVID-19 pandemic. This research investigated how GPs and the public experienced remote consultations and the potential implications for care with a focus on cancer.

Methods: Cancer Awareness Measure, online survey of UK public adults' attitudes, awareness and behaviours (n=2,446) conducted September 2021 via YouGov's online panels. Data presented from n=448 who had a remote consultation within the previous 6 months. GP Omnibus online survey of UK GPs via medeconnect's online panel. Data from November (n=1004) and December 2020 (n=1006). Questions repeated Dec 2021 (results will be available).

Results: 43% of GPs felt that patients feeling less comfortable disclosing symptoms made remote consultations more challenging. However, 68% of the public who had a remote consultation within the previous 6 months felt comfortable discussing their symptoms.
56% of GPs felt that identifying cancer symptoms was more challenging by phone than face to face for older adults and more than a third (36%) felt this for those from lower socio-economic groups. There was wide concern among the public that remote consultation may result in the wrong decision being made about their care (67% agreed), with C2DE adults more likely to be concerned (72%).
40% of adults felt their remote consultation wasn't helpful as they required a face to face appointment afterwards, and indeed 46% of GPs agreed that remote consultation results in multiple appointments for patients.

Conclusions and implications: Remote consultations can work well for some people and in some circumstances, but in the context of cancer, there may be implications for the assessment and management of symptoms that could delay diagnosis, potentially contributing to a poorer outcome or experience of care. Further research is needed to explore this further and identify useful mitigating actions.

Virtual consultations (VC) for people with learning disabilities (PwLD), their families and healthcare providers. A study overview and early-stage lessons learnt

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Background. Implementing virtual consultations (VCs via phone/email/video) has been expedited in recent months, but they can widen healthcare inequalities. Greater knowledge, guidance/education materials are needed to better integrate and positively change health/community practice, especially for specific vulnerable patient groups. This study is working with a range of key partners to co-design best-practice guidance and supportive resources for primary/community Health Care Professionals (HCPs), people with learning disabilities (PwLD) and their families to access and benefit from virtual consultations.

Methods. This study is based on an Experience-Based Co-Design (EBCD) approach using narrative story-telling, filmed interviews and joint events to elicit experiences from our different partners and to set priorities for service improvements. EBCD promotes service-user (PwLDs/families) and HCPs involvement to improve healthcare quality. We are in the early stages of this project. As such, this presentation is divided into two parts. The first part will provide a broad overview of the aims, purpose and methods used for our recently started study. The second part will focus on lessons learnt to date about effective partnership working between all research participants – PwLDs/family members, clinicians/community partners and academic researchers.

Results. We will provide an overview of the current data collection stage of the project to date; report on key lessons learnt so far (time/communication/ rapport, meaningful purpose/integration) and reflect on the challenges and opportunities that this work offers.

Conclusions and implications. We are still learning about how to best work with our multiple stakeholders, and to work within the context of the pandemic. Moving forward there are opportunities to work more closely with multiple partners – including academic partners and VC/AI industry providers to transform knowledge into practical/accessible tools for all user groups.

Using new technologies to speed up progress in early diagnosis of cancer: exploring the role of behavioural science

Convenor: Dr Jo Waller, King’s College London
Discussant: Dr Laura Marlow, King’s College London

The NHS Long Term Plan has a stated ambition of diagnosing three-quarters of cancers at an early stage (stage 1 or 2) by 2028. One aspect of working towards this goal is the development and roll-out of new technologies to facilitate cancer screening and earlier diagnosis. Alongside technological development and clinical validation, behavioural science plays an essential role in ensuring acceptability is high, uptake is equitable and psychological harms associated with testing are minimised. In this symposium, we hear from researchers working on the cutting edge of cancer screening and early diagnosis research.

Hannah Drysdale will present her work exploring the possibility of offering HPV self-sampling as an alternative to clinician sampling for all those invited for cervical screening, with a focus on socio-economic inequalities. Dr Christian von Wagner will discuss his work looking at acceptability of home-based ‘colon-capsule endoscopy’ testing in bowel cancer diagnosis and Dr Ignacia Arteaga will discuss her work on the new cytosponge device for the early detection of Barrett’s oesophagus. Dr Yasemin Hirst takes a different approach, exploring the potential of using loyalty card data on shopping behaviours as a novel means of picking up ovarian cancer early, while symptoms are vague and may not prompt help-seeking. Our discussant, Dr Laura Marlow, will reflect on the role of behavioural science in ensuring the success of new technologies for early cancer diagnosis, drawing on her own work in the field of multi-cancer early detection blood tests.

Self-sampling for cervical screening offered at the point of invitation: a cross-sectional study of preferences in England

Hannah Drysdale[1], Laura A.V Marlow[1], Anita Lim[1], Peter Sasieni[1], Jo Waller[1]
[1]*Cancer Prevention Group, KCL, London*

Background: HPV testing of self-collected samples has the potential to overcome both emotional and practical barriers to traditional cervical screening. This study assessed preferences for HPV self-sampling if offered as an alternative to clinician-based screening at the point of invitation for cervical screening.

Methods: An online cross-sectional questionnaire was completed by screening-eligible women living in England (n=3,672). The primary outcome was women's preferred screening choice, assessed after reading information on self-sampling and clinician screening. Logistic regression explored associations between demographic characteristics and screening preferences, stratified by previous screening attendance. Reasons for screening preferences were also assessed.

Results: Just over half of the participants (51.4%) intended to choose self-sampling, 36.5% preferred clinician screening, 10.5% were unsure and <2% preferred no screening. More irregular and never attenders chose self-sampling, compared with regular attenders (71%, 70% vs. 41% respectively). Among regular attenders, self-sampling was preferred more frequently by the highest social grade group, older women, non-heterosexuals and those with experience of blood self-tests. In the irregular attender group, older women and those with experience of blood self-tests were more likely to choose self-sampling. In 'never attenders', self-sampling was less popular in ethnic minority groups.

Reasons for selecting self-sampling included ease (81.9%), comfort (79.3%), privacy (77.7%), convenience (74.5%) and reduced embarrassment (69.5%). Women who preferred clinician screening had more confidence in the test being done correctly (85.7%) and greater trust in the results (84.9%).

Conclusions: If offered a choice of screening, around half of women in England may choose self-sampling, but a substantial proportion would still opt for clinician screening. Our findings show that the motivation to take part in screening may be higher than previously thought in non-attenders when they are offered a choice. Interventions will be important to help translate intentions into action, to maximise engagement with self-sampling.

Service evaluation of the At-home Colon Capsule Endoscopy (ACE) pathway: Early findings

Ioanna Parisi[1], Edward Seward[1], Sohail Badat[1], Maha Hassan El-Husseiny[1], **Christian von Wagner[2]**
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Background: Colorectal cancer is the second leading cause of cancer deaths. The gold standard diagnostic test is colonoscopy, an invasive and resource intensive procedure. Colon capsule endoscopy (CCE) is an alternative which could mitigate pressures on endoscopy services. Small Bowel Capsule endoscopy (SBCE) is an established procedure to investigate unexplained anaemia or suspicion of bowel inflammation (IBD). UCLH has developed a modified 'At Home' Colon Capsule endoscopy service for patients undergoing CCE and SBCE. On this ACE (accelerate, coordinate, evaluate) cancer pathway, the entire procedure is completed at home through telemedicine assistance. We report a preliminary review of the new pathway focusing on safety, success rates and patient satisfaction.

Method: Data on all procedures on the ACE pathway at UCLH were looked at prospectively. Demographics, completion and complication rates were recorded. All patients were asked to complete satisfaction questionnaires.

Results: 34 procedures were conducted on the ACE pathway: 13 CCEs and 21 SBCEs. 16 (47%) patient satisfaction questionnaires were returned. Mean age was 38 (17-73); 17 (50%) were males. Indications were FIT positive (3%), anaemia (15%), IBD (62%), other gastrointestinal symptoms (20%). 31 procedures were successful (91.1%), defined as complete with adequate bowel preparation. There were no complications or conversions to 'in-hospital' procedures. On a satisfaction scale from 1-10, twelve patients (75%) scored ACE as ≥8. 13 (81%) patients would choose to have ACE vs in-hospital CE. 12 (75%) patients would choose ACE as their preferred colonic investigation over CE in-hospital, colonoscopy and CT colonography.

Conclusion and Implications: A preliminary report on ACE showed similar safety and success rates to standard practice in-hospital CE. Three-quarters of patients preferred ACE over any other colonic investigation, implying its potential acceptability by the public as a CRC screening test. Ongoing research will validate these findings along with financial and ecological benefits of CE.

Achieving reassurance: An ethnographic study on the implementation of a cancer screening test

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Background: Investigating participants' involvement in early cancer detection research, including how their participation in clinical research fits in the context of their lives, is essential to understand novel screening technologies' social effects and wider acceptability. Drawing on ethnographic fieldwork in an early cancer detection clinic tasked with implementing a novel screening technology throughout the pandemic, I ask: What is cancer screening for?

Methods: This study draws on fieldwork between January and August 2021 comprising the observation of 19 clinical research appointments and two rounds of semi-structured interviews with 23 symptomatic participants undergoing the test in those clinics. Fieldnotes were used to add contextual and non-verbal nuances to research encounters. Using an ethnographic approach, the material was analysed to reveal participants' perceptions of the value(s) of the screening test and the difficulties they experienced throughout the process.

Results: This presentation pays attention to the 'reassurance' offered by the test as a value perceived by the vast majority of research participants and one of the underreported psychological benefits of screening technologies. I examine how this value adscription depends on the value participants put on participating in clinical research: for some essential for biomedical progress, but for others only meaningful when actionable results were offered. The actionability of results was perceived to be contingent on the time that elapsed between primary health-seeking, test deployment, and reception of results letter; and on contextual factors (i.e. family history, other medical conditions) that informed how participants experienced bodily sensations over time.

Conclusion: Unpacking how reassurance is achieved and put in tension in cancer screening provides insight into the acceptability of a screening test, shedding light on technologies' heterogeneous effects for people who experience their bodies and engage with cancer and research in diverse ways.

Cancer Loyalty Card Study (CLOCS): Feasibility and participation in a case-control study using past purchase information

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Background: Ovarian cancer symptoms are often vague and likely to be normalised before patients seek help from healthcare providers. Symptoms such as feeling bloated, back pain, and discomfort can be cared for with over-the-counter medication and/or managed with changes in health behaviours. Cancer Loyalty Card Study (CLOCS) investigates self-management behaviours of ovarian cancer patients prior to their diagnosis using loyalty card data collected by two UK-based high street retailers using a case-control study design (500 cases vs 500 controls). Here, we discuss the feasibility outcomes for this novel research.

Methods: From 1st December 2019, control participants were invited to the study using social media and opportunistic methods. Once consented, control participants were required to submit proof of identification (ID) for their loyalty card data to be shared. Cases were identified using unique NHS numbers (a proxy for ID) and were recruited through twelve NHS sites. Recruitment paused between March-September 2020 to address the impact of Covid-19 pandemic.

Results: As of 24th November 2021, 152 cases and 425 controls were included in the ovarian cancer risk dataset. 655 online submissions were made to the secure CLOCS server, with over 34% of the submissions excluded (e.g. duplicates, test submissions, invalid consent). Approximately 37% (n=159/425) of control

participants provided sufficient ID details. Ten individuals withdrew following reminders for ID verification. Women aged 60 and above were less likely to take part and provide identity details (31.4% controls vs 56.6% cases, $p<0.05$). No significant differences were found for ethnicity, number of people in the household, and loyalty card usage between cases and controls.

Conclusions: Our findings show that recruitment to a study aiming to understand self-care behaviours using loyalty card data is challenging but feasible. Barriers in data sharing mechanisms need to be addressed to maximise participant retention and increase data reliability.

Prize Winning Presentations - Wednesday 30th March 2022

Alphabetical by presenting author

Impact on alcohol selection and purchasing of increasing the relative availability of non-alcoholic versus alcoholic drinks: randomised controlled trial

Dr Natasha Clarke[1], Dr Anna KM Blackwell[2], Dr Jennifer Ferrar[2], Katie De-Loyde[2], Dr Mark A Pilling[1], Professor Marcus R Munafò[2], Dame Professor Theresa M Marteau[1], Dr Gareth J Hollands[1]
[1]University of Cambridge, [2]University of Bristol

Background: Excessive consumption of alcohol is a major risk factor for non-communicable diseases. Increasing the availability of non-alcoholic drink options is a promising population-level intervention to reduce alcohol consumption. This study aimed to estimate the impact of increasing the proportion of non-alcoholic (relative to alcoholic) drinks that are available in an online grocery store, on selection (with intention to purchase) and actual purchasing of alcohol.

Methods: Adults in England and Wales who regularly consumed and purchased beer and wine via online grocery retailers (n=737) were randomly assigned to one of three ranges of drinks: (i) More Non-Alcoholic (25% non-alcoholic, 75% alcoholic); (ii) Equal (50% non-alcoholic, 50% alcoholic); (iii) More Alcoholic (75% non-alcoholic, 25% alcoholic). Participants selected the drinks they planned to purchase in their next online grocery shop within a simulated online store, before completing their shop in an actual online supermarket (Tesco). The primary outcome was the number of alcohol units selected (with intention to purchase); secondary outcomes included purchasing.

Results: Of 607 participants included in the primary outcome analysis, those in the More Non-Alcoholic group selected 8.0 fewer alcohol units (-27.3%) than those in the Equal group and 11.9 fewer units (-40.5%) than those in the More Alcoholic group; hurdle models suggested both these reductions were significant (ps<0.001), with no evidence of a difference (ps>=0.178) between the Equal and More Alcoholic groups. Results for all other outcomes demonstrated a consistent pattern of results with amounts and proportions of alcoholic drinks selected and purchased always lowest in the More Non-Alcoholic group.

Conclusions and implications: Substantially increasing the proportion of non-alcoholic drinks relative to alcoholic drinks - from 25% to 50% or 75% - markedly reduces alcohol selection and purchasing in an online grocery shopping context. This intervention warrants evaluation in a wider range of real-world settings.

Patient prioritisation of items for the new Patient-Reported Impact of Dermatological Diseases (PRIDD) measure: a Delphi study

Rachael Pattinson[1], Nirohshah Trialonis-Suthakharan[2], Nasim Tahmasebi Gandomkari[2], Maria José Valencia López[2], Jennifer Austin[3], Professor Matthias Augustin[2], Professor Chris Bundy[1]
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Background: The Global Research on the Impact of Dermatological Diseases (GRIDD) team is developing the new Patient-Reported Impact of Dermatological Diseases (PRIDD) measure, a patient-reported outcome measure of the impact of dermatological conditions on the patient's life. We developed a conceptual framework through a qualitative interview study with 68 patients globally to derive impact items. This study aimed to seek consensus from patients on which items to prioritise for inclusion in PRIDD.

Methods: We conducted a modified Delphi study, consisting of two rounds, starting with outcomes from the interview study in lieu of an idea generation round. Adults (≥ 18 years) worldwide living with a dermatological condition were recruited through the International Alliance of Dermatology Patient Organizations' membership network. The survey consisted of a demographics questionnaire and 263 potential impact items and was translated into German, Spanish, French, Arabic and Chinese. Quantitative data were collected using Likert-type ranking scales and analysed against a priori consensus criteria. Qualitative data were collected using free-text responses that provided participants with an opportunity to provide additional feedback, and a Framework analysis conducted.

Results: 1154 people representing 90 dermatological conditions across 66 countries participated. Items were either removed, edited or added according to the consensus thresholds and qualitative feedback. The results generated the first draft of PRIDD, consisting of 27 items across five domains.

Conclusions and implications: This Delphi study informed the item reduction process and resulted in the first draft of PRIDD. The data triangulated and refined the conceptual framework of impact. This new measure can inform policy and clinical practice by identifying what people with dermatological conditions from around the world consider to be the most important issues impacting their lives. PRIDD has since been pilot tested with patients and is currently undergoing psychometric testing.

Oral Presentations - Wednesday 30th March 2022

Alphabetical by presenting author

Applying machine-learning to rapidly analyse large qualitative text datasets to inform the COVID-19 pandemic response: Comparing human and machine-assisted analysis techniques

Dr Lauren Towler[4], Dr Paulina Bondarek[2], Dr Trisevgeni Papakonstantinou[2], **Dr Ben Ainsworth[1]**, Dr Tim Chadborn[2], Dr Richard Amlot[2], Dr James Denison-Day[4], Professor Lucy Yardley[3,4]
[1]University Of Bath, Bath, United Kingdom, [2]UK Health Security Agency, London, UK, [3]University of Bristol, Bristol, UK, [4]University of Southampton, Southampton, UK

Background: Machine-assisted topic analysis (MATA) uses artificial intelligence methods to assist qualitative researchers to analyse large textual datasets. This allows qualitative researchers to inform and update public health interventions ‘in real time’, ensuring they remain acceptable and effective during rapidly changing contexts (such as a pandemic). In this novel study we aimed to understand the potential for such approaches to support intervention implementation, by directly comparing MATA and ‘human-only’ thematic analysis techniques when applied to the same dataset (1472 free-text user responses from COVID-19 infection control intervention ‘Germ Defence’).

Methods: In machine-assisted topic analysis, unsupervised topic modelling identified latent topics in the text. Human researchers then described the topics and identified broad themes. In human-only thematic analysis, experienced qualitative researchers developed an initial codebook and applied it to the dataset (critiquing and updating codes throughout). To understand similarities and difference, formal triangulation using a ‘convergence coding matrix’ compared the findings from both methods, categorising them as ‘agreement’, ‘complementary’, ‘dissonant’, or ‘silent’.

Results: Human analysis took much longer (145 hours) than MATA (40 hours). Both human thematic analysis and MATA identified key themes about that users found helpful and unhelpful (eg. Helpful: Boosting confidence in how to perform the behaviours. Unhelpful: Lack of personally relevant content). Formal triangulation showed high similarity between findings. All themes developed through MATA were ‘in agreement’ or ‘complementary’ to human themes. Where findings were classified as complementary, this was typically due to slightly differing interpretations or nuance present in the final human stage of interpreting themes.

Conclusions and Implications: Overall, the quality of MATA was as high as the human-only thematic analysis, with substantial time savings. For simple analyses that do not require in-depth or subtle understanding of the data, MATA is a useful tool to support qualitative researchers to interpret and analyse large datasets quickly.

Health behaviour change among UK adults during the pandemic: findings from the COVID-19 Cancer Attitudes and Behaviours study

Dr Philip Anyanwu[1], Ms Yvonne Moriarty[1], Dr Grace McCutchan[1], Dr Detelina Grozeva[1], Mr Mark Goddard[1], Dr Rebecca Cannings-John[1], Dr Harriet Quinn-Scoggins[1], Dr Jacqueline Hughes[1], Ms Julie Hepburn[1], Professor Michael Robling[1], Dr Julia Townson[1], Dr Victoria Whitelock[2], Ms Kirstie Osborne[2], Dr Ardiana Gjini[3], Dr Jo Waller[4], Dr Katriina Whitaker[5], Professor Jamie Brown[6], Professor Graham Moore[1], Professor Kate Brain[1]
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Background: COVID-19 related lockdowns may have impacted engagement in health behaviours among the UK adult population. This prospective observational study assessed attempts to change a range of health behaviours during the pandemic.

Methods: We recruited a UK adult population sample (n=7,543) using Cancer Research UK’s online panel and the HealthWise Wales platform, supplemented with social media. Online surveys were conducted in August/September 2020 (wave 1) and in February/March 2021 (wave 2). Measures included self-reported attempts to reduce alcohol, increase fruit/vegetable consumption, increase physical activity, lose weight and reduce/stop smoking. Multivariable logistic regression based on complete case analysis was used to assess individual health behaviour change attempts and moderation by age, gender, ethnicity, employment and education. Preliminary results are reported.

Results: In wave 1, around half of participants reported trying to increase physical activity (n=4176, 55.4%), increase fruit/vegetables (n=4017, 53.3%) and lose weight (n=3758, 49.8%), with 21.6% (n=1626) trying to reduce alcohol. Among people who smoked, 23.3% (n=733) were trying to reduce and 12.9% (n=406) to stop smoking completely. There were no statistically significant differences at wave 2 in attempts to increase physical activity (OR=1.01, 95% CI 0.63-1.60), increase fruit/vegetables (OR=0.97, 95% CI 0.61-1.54), reduce alcohol (OR=1.33, 95% CI 0.92-1.91) or lose weight (OR=0.92, 95% CI 0.66-1.29). The likelihood of being a smoker did not differ significantly over time (OR=0.97, 95% CI 0.88-1.08), nor did efforts to reduce smoking (OR=0.96, 95% CI 0.69-1.34) or stop smoking (OR=0.96, 95% CI 0.64-1.44).

Conclusions/implications: A substantial proportion of participants reported health behaviour change efforts in wave 1, notably for physical activity, weight and diet. Lack of change observed in these preliminary analyses may represent sustainment of a high prevalence of behaviour change efforts over time through the second wave. Further analyses are being conducted to assess interaction effects and add context to these findings.

A systematic review of inequalities in the uptake of, adherence to, and effectiveness of behavioural weight management interventions in adults

Mr Jack Birch[1], Miss Rebecca Jones[1], Dr Julia Mueller[1], Mr Matthew McDonald[2], Dr Rebecca Richards[1], Prof Michael Kelly[3], Prof Simon Griffin[1,3], Dr Amy Ahern[1]
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Background: Addressing health inequalities is a public health priority. The extent to which behavioural weight management interventions affect health inequalities is uncertain, as is whether trials of these interventions directly consider inequalities. We conducted a systematic review, synthesising evidence on how different aspects of inequality impact uptake, adherence, and effectiveness in trials of behavioural weight management interventions.

Methods: We included (cluster-) randomised controlled trials of primary care-applicable behavioural weight management interventions in adults with overweight or obesity published prior to March 2020. Data about trial uptake, intervention adherence, attrition and weight change by PROGRESS-Plus criteria (place of residence, race/ethnicity, occupation, gender, religion, education, socioeconomic status, social capital, plus other discriminating factors) were extracted. Data were synthesised narratively and summarised in Harvest plots.

Results: We identified 91 behavioural weight loss interventions and 12 behavioural weight loss maintenance interventions. Fifty-six of the 103 trials considered inequalities in relation to at least one of intervention or trial uptake (n=15), intervention adherence (n=15), trial attrition (n=32), or weight outcome (n=34). Most studies found no inequalities gradient. If a gradient was observed for trial uptake, intervention adherence and trial attrition, those considered 'more advantaged' did best; the evidence was more mixed when considering inequalities in weight outcomes.

Conclusions and implications: Our findings suggest that behavioural weight management interventions are equitable for those who reach the 12-month follow up. Future research should include standard measures of the PROGRESS-Plus criteria and consider alternative methods of data synthesis, such as meta-analysis of individual participant data, when addressing equity-focussed questions in trials of interventions. This would help to overcome limitations such as insufficient statistical power, in order to detect potential differences by measures of inequalities.

Understanding healthcare professionals' physical activity promotion behaviours when treating individuals with depression in primary care: a systematic review

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Background: Despite the evidence-based benefits of physical activity for depression, many healthcare professionals (HCPs) do not discuss physical activity (PA) with patients during consultations. Given how integral HCPs are in the use of PA for the management of depression, we need to further understand their PA promotion behaviours, and identify the barriers and facilitators they face.

Methods: A systematic literature search of databases was conducted to identify articles that reported qualitative and/or quantitative data on (1) HCPs working with individuals with depression, but not exclusively, and (2) HCPs barriers and/or facilitators to PA promotion/treatment for depression. This included knowledge, perceptions, behaviours and views of HCPs. Data were extracted and thematically analysed using the Theoretical Domains Framework (TDF).

Results: From 10,004 articles identified, 21 met the inclusion criteria. Barriers and facilitators were identified and mapped to TDF domains, with more barriers than facilitators found. Common barriers across multiple studies included lack of education or training, lack of infrastructure and low patient motivation. In contrast, facilitators differed across studies, and included HCPs acknowledging the biochemical processes of how PA affects depression, and being able to offer a non-pharmacological treatment to patients. HCPs perceived efficacy of PA in treating depression varied across studies, acting as both a barrier and facilitator, however many HCPs did indicate that they would advise, discuss, or recommend PA to patients with depression.

Conclusions & Implications: Despite depression being the most common mental disorder, no previous work has systematically reviewed HCPs PA promotion behaviours specifically for people with depression. This review presents a range of barriers and facilitators that could be targeted to increase HCP PA promotion behaviour for people with depression. Increasing our knowledge and understanding of HCPs PA promotion behaviours may also help to inform more targeted interventions for HCPs working with this sub-population of mental illness.

A systematic review of provider-and system-level factors influencing the delivery of cardiac rehabilitation for heart failure

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Background: Cardiac rehabilitation is an evidence-based complex intervention that can improve quality of life and decrease morbidity and mortality in heart failure patients. Cardiac rehabilitation programmes, despite evidence for their effectiveness and cost-effectiveness, are greatly underutilised in this clinical population. Many patient-level barriers that might contribute to this disparity are reported in the literature, yet little is known about provider- and system-level influences contributing to this translational (i.e. research-to-practice) gap.

Methods: We conducted a systematic review using narrative synthesis that aimed to a) determine provider- and system-level barriers and enablers that affect the delivery of cardiac rehabilitation for heart failure and b) match identified barriers with possible solutions. A comprehensive search strategy was applied to the MEDLINE, Embase, PsycINFO, CINAHL Plus, EThoS and ProQuest databases. Our inclusion criteria required the accepted articles to be empirical, peer-reviewed and describing factors influencing the delivery of cardiac rehabilitation for heart failure patients (in any setting and using any study design). During data synthesis, inductive thematic analysis was used to identify categories and themes and a triangulation protocol to identify convergence/contradiction between different data sources.

Results: Seven studies were included in the review. Thematic analysis identified nine overarching categories of barriers and enablers which were classified into 24 and 26 themes respectively. The most prevalent categories were ‘the organisation of healthcare system’, ‘the organisation of cardiac rehabilitation programmes’, ‘healthcare professional’ factors and ‘guidelines’. The most frequent themes included ‘lack of resources: time, staff, facilities and equipment’ and ‘professional’s knowledge, awareness and attitude’.

Conclusions/Implications: Our systematic review identified a wide range of provider- and system-level barriers and enablers impacting the delivery of cardiac rehabilitation for heart failure. Additionally, the review lists a range of potential solutions for overcoming barriers that may be useful for healthcare professionals to plan, deliver or commission cardiac rehabilitation services.

Is Self Determination Theory a useful basis for promoting regular exercise in older people with developing mobility limitations?

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Background: Self-Determination Theory (SDT) is a widely used theory in physical activity promotion. However, it is rarely tested in the context of large-scale intervention trials.

Methods: Within the REACT (Retirement in ACTion) randomised controlled trial, 777 older adults with developing mobility limitations were randomised to a SDT-based exercise and behaviour maintenance intervention or control group. A mixed methods process evaluation tested the underpinning behaviour change theory. Questionnaires representing key constructs of SDT (Autonomy, Competence, Relatedness) were given at 0, 6 and 12 months. Changes in SDT variables were related to changes in physical activity and exercise at 12 and 24 months and to engagement with the REACT intervention using multivariate modelling. Qualitative interviews with intervention group participants at 6 months (N=17), 12 months (N=15) and 24 months (N=19) were thematically analysed (Braun & Clarke, 2012).

Results: The intervention significantly increased Competence and Relatedness for physical activity and muscle-strengthening activity from 0-6 and 0-12 months, but not Autonomy. Changes in SDT variables were significantly associated with changes in muscle-strengthening exercise. Qualitative data indicated that participants were motivated to engage in the REACT programme primarily by health benefits and opportunities for social interaction. Although competence at six months derived mainly from REACT session leaders, at 12 months, participants derived competence more from their own achievements. Building autonomy and using a person-centred communication style were considered key to supporting maintenance, although these intervention components may not always have been delivered effectively.

Conclusions: Building competence and relatedness seems a valid and effective approach to promoting physical activity and exercise engagement in older people with developing mobility limitations. The REACT intervention did not successfully build autonomy. This did not stop participants from engaging in the programme, but may have impacted longer maintenance and so is a key potential target for future improvement of the programme.

Co-development of brief text messages to support adherence to adjuvant endocrine therapy in women with breast cancer: A mixed-methods approach

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Background: Adjuvant endocrine therapy (AET) reduces breast cancer recurrence, but up to three-quarters of women are non-adherent. Short Message Service (SMS) interventions are a low-cost strategy for supporting adherence behaviours, but psychological theory is rarely considered during development. Supporting medication taking to become habitual could reduce reliance on memory. We aimed to develop AET adherence support SMS messages, that are acceptable to women with breast cancer and have fidelity to behaviour change techniques (BCTs) targeting habit formation.

Methods: Four studies using mixed methods were conducted. In study 1, 10 behaviour change experts generated messages based on six BCTs during an online workshop, and rated messages on fidelity to the intended BCT. In study 2, five women with breast cancer discussed message acceptability in a focus group. In study 3, 60 women with breast cancer rated each message on acceptability in an online survey. In study 4, 12 new behaviour change experts rated the fidelity of each message to the intended BCT in an online survey. The messages were reviewed by a consultant pharmacist.

Results: Of 189 messages created in study 1, 92 messages deemed repetitious or unsuitable, and three with low fidelity were removed (scoring <5.5/10). In study 2, 13 messages considered unacceptable were removed. In study

3, all remaining messages scored above the acceptability scale midpoint (mean=3.9/5 [SD 0.9]). In study 4, 13 messages were removed due to low fidelity (scoring <5.5/10). All remaining messages showed fidelity to intended BCTs (mean=7.9/10 [SD 1.3]). Following a pharmacist review, two messages were removed and three were amended, leaving 66 messages.
Conclusions and implications: We have systematically developed a pool of SMS messages that appear acceptable to women with breast cancer and show fidelity to intended behaviour change techniques. These theory-based messages will be evaluated to assess effectiveness in supporting medication adherence.

ImPROving GROUP Treatment for People with Severe Obesity (PROGROUP): development of a group-based behaviour change intervention

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Background: Provision of NHS Tier 3 specialist weight management programmes is heterogeneous, poorly defined, and of uncertain effectiveness. Group-based interventions may offer a way to meet the vast demand for effective treatments, but can also provide opportunities for patients to build meaningful social connections with each other, and shared social identity, underpinning behavioural change. This presentation outlines the development of the PROGROUP intervention, a group-based intervention designed using the Social Identity Model of Behaviour Change.

Methods: Development was guided by the MRC framework for developing and evaluating complex interventions. Stakeholders, including patients, clinicians and researchers in the field, were consulted at each stage, allowing for an iterative, cyclical approach to intervention development. The development involved three phases: a) Identification and prioritisation of modifiable determinants of obesity in those seeking treatment, which included mapping existing interventions and undertaking a behaviour prioritisation exercise; b) Articulation of the likely mechanisms of action and development of intervention content, drawing on previous research and through expert consultation; and c) Intervention refinement and manualisation.

Results: PROGROUP is a 5-month intervention compromising initial weekly group meetings to deliver key behaviour change content targeting dietary behaviour and physical activity, followed by less frequent meetings to promote longer-term maintenance of behaviour. Group sessions are designed to promote shared social identity amongst recipients and include opportunities for social support, group problem solving, and collective decision making. Parallel 1:1 sessions with clinicians in the weight management service allow personalisation of the intervention.

Conclusions and implications: PROGROUP is a group-based intervention for people with severe obesity, systematically designed to proactively manage development of shared social identity underpinning behaviour change. It will now undergo feasibility testing ahead of a definitive trial of effectiveness, and could potentially provide a pragmatic and scalable treatment for people with severe obesity.

Evaluation of the Cancer research UK ‘don’t put it off’ early diagnosis campaign in Wales 2021

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Background: Since the start of the COVID-19 pandemic, GP presentations have decreased and urgent referrals for suspected cancer are much lower. Evidence also shows there are several barriers to people seeking help for potential signs or symptoms of cancer (Quinn-Scoggins et al., 2021). In response to this, Cancer Research UK ran two generic (non-symptom specific) early diagnosis campaigns in Wales (campaign 1 from 7/6/21 – 18/7/2021, and campaign 2 from 16/7/2021 – 26/9/2021), targeting 50+ C2DE. The call to action was ‘if you notice something unusual, just contact your GP’.

Methods: Three online surveys (distributed by a market research agency), collected data on campaign performance, self-reported symptom experience and help seeking from three independent samples (n=1250 per wave, weighted to be nationally representative of Wales). These three surveys were run before campaign 1 (wave 1), after campaign 1 (wave 2) and after campaign 2 (wave 3).

Results:

- The target audience (50+ C2DE) were more likely to report seeing the campaign (62% wave 1 and 70% wave 2).
- 69% reported an intention to act at wave 2 and 66% wave 3, with a conversion rate of intention into action of around a quarter.
- Decreases in reported time to seek help and barriers to help seeking was identified, with significant shifts for 2 of the 3 targeted barriers to help seeking, however these returned to baseline levels at wave 3.

Conclusions/implications: The campaign performed well in terms of recognition, particularly within the target audience and demonstrated evidence of some success on the call to action (reported actions). There were more mixed results in terms of attitudes, barriers and timely help seeking. This provides some learnings for early diagnosis campaigns running in a constantly shifting environment. Next steps will involve analysis of routine data for GP presentations and urgent referrals.

Risk perception and disease knowledge in attendees of a community-based lung cancer screening programme

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Background: In England, a risk-based approach is used to determine eligibility for lung cancer screening. Ensuring effective communication and counselling of risk is therefore increasingly important. In this study, we explore the perception of lung cancer risk in attendees of a community-based screening service, located in socio-economically deprived areas of Manchester, and analyse responses based on demographic variables, calculated risk score and screening eligibility.

Methods: The Manchester Lung Health Check (LHC) programme invited ever smokers, age 55-80, to a lung cancer risk assessment in which their 6-year risk was calculated (using the PLCOM2012 model). Those at high risk (PLCOM2012 score ≥1.51%) were eligible for low dose CT (LDCT) screening. Prior to their assessment, attendees were invited to complete the study questionnaire, which assessed absolute and comparative risk perception, disease knowledge (incidence, survival, and risk factors), lung cancer specific worry, and mental health.

Results: 371 participants completed the questionnaire; 66% (n=243) had linked clinical data. Perceived absolute risk was markedly higher than calculated risk (median: 20% vs. 1%; $p<0.001$) and higher in women than men (25% vs. 15%; $p=0.001$). There was no correlation between perceived absolute and calculated risk. Overall, 30% classified themselves at higher, and 21% at lower, lung cancer risk compared to others their age. Median PLCOM2012 score increased with perceived comparative risk ($p=0.004$). Those eligible for screening were more likely to: classify themselves at higher comparative risk (41% vs. 21%; $p<0.0001$), report lung cancer-specific worry (27% vs. 10%; $p=0.001$) and have indications of depression (20% vs. 10%; $p=0.05$). Family history of lung cancer was significantly associated with higher comparative risk (adjOR 4.03, 95%CI 1.74-9.3; $p=0.001$).

Conclusion: Employing a comparative rather than absolute risk framework may assist pre-screening risk counselling. Further research is required to determine the optimal approach to risk communication in this setting.

Barriers and facilitators to using aspirin for preventive therapy: a qualitative study exploring the views and experiences of people with Lynch syndrome and healthcare providers

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Background: People with Lynch syndrome (LS) have an increased risk of developing several cancers, including colorectal cancer. The National Institute for Health and Care Excellence recommends daily aspirin to reduce the risk of colorectal cancer for people with LS. However, patients and their healthcare providers considering preventive therapy need to negotiate complex decisions that weigh up potential benefits and risks. We explored barriers and facilitators to using aspirin for preventive therapy in clinical practice.

Methods: We interviewed 15 people with LS, and 23 healthcare providers involved in the LS healthcare pathway (e.g. GPs, clinical geneticists). The interview schedules covered the 14 Theoretical Domains Framework (TDF) domains. We used reflexive thematic analysis to develop themes across both participant groups, which were mapped onto the TDF (presented in italics).

Results: Four themes included: 1) Weighing up risks and benefits; 2) Healthcare pathway; 3) Confidence acquiring or recommending aspirin; 4) Support needed to implement guidance. Healthcare providers, across primary and secondary care, viewed GPs as the main providers of aspirin (Social/professional role and identity). GPs were not confident in their knowledge of aspirin for preventive therapy (Knowledge), and wanted clarification from specialised clinicians about the evidence and dose to prescribe (Social influences). Not all participants with LS received information on aspirin from their healthcare provider (Environmental context and resources), and several were unsure who to discuss aspirin with. Some participants with LS who approached primary care for aspirin prescriptions encountered barriers, such as resistance to prescribe aspirin at higher doses (Environmental context and resources).

Conclusions and implications: General practitioners require support to implement guidance recommending aspirin for people with Lynch syndrome into clinical practice. Similarly, people with Lynch syndrome may benefit from standardised information on using aspirin for cancer prevention. This work is on behalf of the Aspirin for Cancer Prevention (AsCaP) group.

Interrupting prolonged sitting with light resistance exercise impacts psychobiological changes during an acute psychological stress protocol: a randomized controlled trial

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Background: Sedentary behaviour increases cardiovascular disease (CVD) risk, with dysregulated psychobiological reactivity to acute psychological stress a potential mechanism. Interrupting prolonged sitting lowers resting blood pressure (BP) and markers of systemic inflammation, which could promote healthier psychobiological stress responses. The study aim was to investigate breaking-up prolonged sitting with body-weighted resistance exercise on psychobiological responses to psychological stress.

Methods: Inactive participants (n=17, 9 men; mean ± SD age; 24 ± 0.5 years) completed two conditions in a cross-over design; 1) interrupting 4h of sitting every 30-min with light exercise consisting of 20s of half squats, 20s of calf raises and 20s of gluteal contractions with knee raises, repeated sequentially to total 4min of activity per break (EX) and 2) 4h uninterrupted sitting (SIT). After completing the SIT and EX interventions, cardiovascular (e.g., BP) and plasma interleukin (IL)-6 responses were assessed at baseline (rest) and in response to a stress protocol (consisting of an 8-min paced auditory serial addition test [PASAT] and 3-min cold pressor [CP], with a 45min recovery period after each stress task).

Results: There was a significant time-by-condition interaction for IL-6 (Wald $\chi2=10.75$, $p=.030$, $V=.14$), with significantly higher IL-6 during a 45-min recovery period after the PASAT in the EX (2.70±0.43 pg/ml) relative to SIT (1.71±0.23 pg/ml) condition ($p=.002$). There was a time-by-condition interaction for SBP (Wald $\chi2=13.42$, $p=.009$, $V=.14$), with post-hoc pairwise comparisons revealing SBP was higher in the SIT-condition versus the EX-condition at baseline ($p=.025$) and during the first 8 minutes of CP recovery ($p=.004$).

Conclusions and implications: Uninterrupted sitting appeared to yield reduced IL-6 but elevated BP changes after acute psychological stress, when compared to interrupting sitting with acute bouts of activity. Exploration of the underlying mechanisms, other inflammatory responses and long-term implications for cardiovascular disease are needed.

Supporting healthcare professionals to have healthy weight conversations with parents of children living with excess weight: a qualitative study

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Background: There has been a sharp rise in childhood obesity prevalence, with 25.5% of children aged 10-11 years in England currently living with obesity. Primary and community healthcare professionals (HCP) are well placed to support parents in addressing their child's weight. However, we need to understand the existing barriers for HCPs to having conversations with parents about their child's weight and identify strategies to overcome these. We conducted a qualitative study in which we aimed to explore HCPs' experiences of and barriers to having conversations about childhood overweight with parents, and identify strategies to provide future support to HCPs.

Methods: We recruited General Practitioners (GP) and Primary Care Nurses (PN) using primary care networks and social media, and invited them to participate in an interview. We recruited School Nurses (SN) from a community NHS trust and invited them to participate in focus groups (FG). Interviews/FGs were audio-recorded, transcribed and analysed using inductive thematic analysis.

Results: 13 GPs, 7 PNs, and 20 SNs participated. Identified barriers included structural (appointment length, lack of onward referral services), HCP-related (fear of damaging the HCP-patient relationship, limited understanding of different cultures) and family-related (complex family situations). Strategies to facilitate healthy weight conversations with parents related to structural factors and the provision of resources and skills development for HCPs, including: ready access to child weight assessment data; clear care pathways for children living with excess weight; support in developing cultural awareness; and tailored resources to help HCPs support family behaviour change.

Conclusion: Primary and community healthcare professionals perceive they are well placed to have conversations about healthier child weight with parents, but identify a range of barriers. Strategies to address these fall into two categories: structural changes within primary care and childhood obesity care pathways; and support for professionals in terms of skills development and resources.

The policy environment is not naturally conducive to complex systems approaches to physical activity promotion. Why is this? And what can we do about it?

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Background: Complexity and systems-thinking are increasingly considered in solutions to address behaviour-related public health issues such as physical inactivity. However, their application in physical activity policy contexts has avoided critical scrutiny. With a focus on agency, this paper provides an exploration of the understanding and influence of complexity among key policy stakeholders, and how to optimise the application of complex systems approaches to physical activity policy, including by whom, how and in what circumstances.

Methods: A half-day Zoom workshop was convened with a purposively sampled group of key PA policy stakeholders and academics. Facilitated breakout groups and plenary sessions were used to reflect on previous research, stimulating changes in systemic cultures and practices, and mobilising knowledge about complexity and systems. Data were captured using Padlet (a digital whiteboard), fieldnotes and audio-visual recordings. A realist-informed thematic analysis was performed to identify salient patterns in the data.

Results: Analyses resulted in four propositions for advancing complex systems approaches through physical activity policy: i) the policy environment is non-conducive to these approaches; ii) influencing policy is key to system change; iii) creating connections and dialogue fosters system awareness and affiliation; and iv) increasing the focus on agency can support those seeking to effect system change. Examples of the context and mechanisms that influence the propagation of these ideas are discussed.

Conclusions: This research sets out important considerations that have previously received insufficient attention, and rendered efforts to stimulate system change for physical activity promotion. Reorientation of focus across research, policy and practice will contribute to the mobilisation and application of complex systems approaches in both physical activity policy settings, as well as efforts to increase population-level physical activity behaviour more generally.

Development of the Mechanisms of Action Ontology for behaviour change interventions

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Background: Many behavioural theories propose mechanisms of action (MoAs), processes by which behaviour change interventions influence behaviour. However, different theories may use identical labels for MoAs with different definitions or different labels for MoAs with the same definitions. Ontologies (knowledge structures that specify labels and definitions for relevant entities and their inter-relationships) can serve as controlled vocabularies, supporting the communication and accumulation of evidence.

Aim: To develop an ontology of mechanisms of action of behaviour change interventions.

Methods: The MoA Ontology was developed in five steps: (1) MoAs were identified from 1733 constructs extracted from 83 behavioural theories; (2) These MoAs were grouped together based on shared attributes; (3) These initial groups were turned into a draft, hierarchically-structured ontology; (4) The ontology was applied to code MoAs in 135 behaviour change intervention reports and revised; (5) International stakeholder review of the ontology by nine behavioural science experts, considering whether the ontology was comprehensive and its labels and definitions clear.

Results: 1062 MoAs were identified from 1733 theoretical constructs and 104 groups were created. Drawing on these groups, the initial MoA Ontology was developed, including 202 classes on seven hierarchical levels. After coding MoAs in intervention reports, 35 classes were added and three removed from the ontology. Finally, based on behavioural science experts' feedback, 43 classes were added and 23 were removed from the ontology, leaving 254 classes on eight hierarchical levels. Key higher-level classes include 'mental process', 'affective process', 'belief', 'cognitive representation', 'personal capability', 'behavioural opportunity' and 'environmental system'.

Conclusions and implications: The MoA Ontology provides a comprehensive structure for describing and classifying MoAs of behaviour change interventions. It can serve as a shared vocabulary for specifying MoAs in intervention reports and coding MoAs in systematic reviews. Therefore, the MoA ontology can support more efficient accumulation of knowledge about MoAs.

"Really great to have as an option but not a substitute." A Comparison between Virtual and In-Person Exercise Class Identity, Enjoyment, and Effort

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Background: Due to the COVID-19 pandemic in-person group exercise classes were prohibited during lockdowns. Previous research has found that a sense of shared identity with fellow class members and between members and the leader were associated with increased participant enjoyment, effort, and attendance. The aims of this study were to understand if leadership and group identities translated to virtual classes and if participants noticed differences in their effort and enjoyment between virtual and in-person classes.

Methods: 362 virtual exercise class participants completed an online cross-sectional survey between August 6th, October 11th, 2021. Following each variable scale, participants who attended in-person group exercise classes (n = 288), were presented a visual analogue scale and open-ended qualitative space to compare virtual and in-person experiences.

Results: Quantitatve virtual to in-person comparison, we found statistically significant negative differences in the group class identity, shared identity amongst fellow members, physical effort, and overall class enjoyment. Qualitative analysis indicated that participants felt the virtual space did not facilitate the pre-class chats and physical presence of others that strengthened the group and shared identity amongst participants during in-person contexts. However, there was not a statistically significant difference in participants' identity with their class leader which was also reflected in qualitative responses. Moreover, participants noted that while their physical effort may have decreased in virtual classes compared to in-person classes, participants enjoyed the convenience and flexibility of virtual classes.

Conclusion: The lack of in-person class attributes (e.g., chats and support) may prevent a perceived shared identity with fellow class members in virtual settings. However, participants could still identify with their leader which was associated with class effort and enjoyment. Future research should look to address what specifically makes a leader successful in the virtual environment and if there are ways to develop a shared identity amongst class members.

Effects on retention of different weight assessment approaches during trials of Behavioural Weight Management Interventions (BWMI). Nested Study within a Trial (SWAT).

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Background: Only a small proportion of men, particularly those from disadvantaged backgrounds, attend behavioural weight management interventions (BWMIs). Digital interventions deliver BWMIs while enabling greater access to care especially for more disadvantaged populations often under-represented in BWMIs and trials. However digital interventions could diminish the interpersonal relationships which some studies link to improved outcomes and retention.

This SWAT aims to evaluate the effects on retention of two weight assessment approaches (delivered at 3 and 6 months) in the Game of Stones randomised trial (ISRCTN91974895).

Methods: Intervention group participants (n=390) from the main trial were randomly allocated to receive one of two protocolised weight assessments: 1) task-oriented assessment comprising weight verification tasks or 2) relational assessment comprising weight verification tasks and a focus on researcher-participant relationships. Participants completed a questionnaire at baseline including self-reported weight stigma (WSSQ). Thirty intervention participants will be invited to attend an interview after 12 and/ or 24 months follow-up visits.
Researchers (n=6), involved in recruitment and data collection, completed a baseline questionnaire including questions on self-reported weight stigma (Fat Phobia Scale and Revised Anti-Fat Attitudes Scale) and empathy (QCAE). Researchers were provided with a 1-hour virtual training session including instruction and demonstration of delivery of the two weight assessment protocols. Researchers evaluated adherence to protocols and quality of the relationship at 3 and 6 month weight assessments.

Results: To date 126 intervention participants have been randomised to the task-oriented assessment (n=63) and to the relational assessment (n=63) and completed baseline data. 28 protocolised 3-month follow-up weight assessments have been undertaken across the three centres involved in the main trial (Belfast, Bristol and Glasgow).

Conclusions: This SWAT will provide important preliminary data which will help inform trial methodology in relation to retention in addition to informing implementation of digital behavioural weight management interventions in public health.

What advice do clinicians give to people living with obesity to lose weight?

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Background: Guidelines recommend clinicians take every opportunity to talk to people living with obesity about their weight and evidence shows even very brief advice is associated with weight loss. However, little is known about what clinicians say when giving brief behavioural advice, and if it reflects evidence based recommendations for people living with obesity. Therefore, to understand what behavioural advice clinicians give, we categorised the content and delivery of clinicians' advice during brief interventions.

Methods: Qualitative content analysis was applied to 160 audio recordings of consultations from the BWeL trial (Aveyard et al., 2016), where GPs gave brief weight loss advice to patients with obesity. Similar content was grouped into descriptive categories.

Results: The results comprised four categories. The first category describes the diet and exercise advice GPs gave, which was often superficial and varied. The second describes the everyday tips GPs gave, such as using smaller plates. The third captured the signposting advice that GPs gave, for example to read an information booklet. The final category captured how GPs delivered advice, showing GPs rarely gave personalised advice, nor gave reasons for their advice.

Conclusions and implications: The content of the GPs' advice reflects diet and exercise messages aimed at the general population. This type of advice rarely reflected evidence-based methods that effectively support weight loss. Advice was often not tailored to patients' existing knowledge and behaviours. The findings suggest that the effectiveness of brief interventions could be further improved if clinicians were given clearer guidance on specifically what is the best behavioural advice to give. We recommend that general diet and exercise advice should be avoided in time limited consultations.

Evaluation of the Call for a Kit intervention (CFAK) to increase bowel cancer screening uptake

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Background: The 'Call for a Kit' health promotion intervention was initiated to improve uptake of the NHS Bowel Cancer Screening Programme in Lancashire (an ethnically diverse county). To reduce language and cultural barriers, screening non-responders were called and invited to attend a consultation in their preferred language with a health promotion team member of the same sex at their local GP practice.
Method: We used data from 68 GP practices. The health promotion team called up individuals registered with the practice who did not return their test kit within 13 weeks after receiving their most recent bowel screening invitation. During the call, individuals were invited to a 15-minute in-person consultation at their GP practice. For individuals who were unable or refused to attend in-person, a brief phone-based consultation was offered to discuss the barriers, at the end of which individuals were offered a replacement test kit. Test kit return was checked by GP practices 13 weeks after issue of the replacement test kit.

Results: 10,772 non-responders were called in 2019. 5,303 (49.2%) answered the call and 3,529 (66.5%) accepted the invitation for a consultation. 2890 non-responders requested a test kit of which 1608 (55.6%) were successfully returned. Individuals with a black, mixed or a non-Indian/Pakistani Asian ethnic background were significantly more likely to accept the offer of an in-person consultation and return the test kit. Women and those registered with a GP practice in socioeconomically deprived areas were less likely to return the test kit.

Conclusion: The use of in-person or phone-based consultations with previous non-responders has been found to be highly effective. Further research should address how to optimise initial contact and understand the specific benefits to non-responders from ethnically diverse backgrounds.

The development of the Behaviour Change Intervention Ontology: a new tool for specifying behaviour change interventions

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Background: Behaviour change interventions, their contexts and evaluation methods are heterogeneous, making it challenging to synthesise evidence and make recommendations for research, policy and practice. Ontologies address this problem by representing knowledge formally as entities and relationships, using a common language that can bridge disciplinary boundaries.

Aim: To develop the Behaviour Change Intervention Ontology (BCIO), representing behaviour change interventions, their contexts and their evaluations.

Methodology: The upper level of the BCIO was developed in four steps. (1) behavioural and social science experts identified relevant entities and relationships, based on their knowledge of behaviour change interventions; (2) The outputs of the first step were critically examined by a wider group of experts; (3) Feedback on the prototype ontology was sought from three international ontology experts and by applying the ontology to annotate published reports.

Most of the upper-level classes in the BCIO, such as setting, population and engagement, have numerous subclasses. These “lower levels” of the ontology were developed systematically, combining review of existing ontologies for classes to reuse, iterative refinement through literature annotation, expert stakeholder review and inter-rater reliability testing. The BCIO was refined, with classes added or removed, and labels and definitions revised, after each stage.

Results: The upper-level BCIO contains 42 entities, representing key features of behaviour change interventions and their evaluations. The lower levels of the ontology are complete for setting (72 entities), mode of delivery (65 entities), source (140 entities) and population (144 entities), with others forthcoming.

Conclusions: The BCIO provides a comprehensive, systematic framework for representing behaviour change interventions. It can be used to enhance intervention reporting, code intervention features in systematic reviews and for computerised applications. By providing common terminology, the BCIO will facilitate more efficient evidence accumulation about the most effective behaviour change interventions for different contexts.

Symposia - Thursday 31st March 2022

Behaviour Change interventions that Deliver Better Oral Health for children and young people: Lessons from COVID-19

Convenor: Dr Sarah Peters, University of Manchester, UK
Discussant: Professor Belinda Borrelli, Boston University, USA

Poor oral health remains a major global public health concern and priority. In the UK, tooth extraction due to decayed teeth is the number one reason for hospital admission for young children, with high costs to children's wellbeing and development, families and society. Yet it is entirely preventable, caused by modifiable behaviours such as sugar consumption and oral hygiene behaviours. For the first time behaviour change features as a solution in policy recommendations to improve and maintain the oral health of the population. This is a major shift in dentistry from oral healthcare practitioners being 'problem fixers' to becoming more prevention orientated. However, important questions remain as to how this can be delivered, especially in a world managing a global pandemic. Moreover, are oral healthcare practitioners the only professionals who can provide behaviour change advice about oral health? This symposium examines the opportunities that have opened up to address poor oral health utilising behaviour change theory and a variety of health and education professionals.

Dental care for child oral health during COVID-19: a qualitative investigation of parents of primary school aged children

Sarah Peters, **Lauren Kilbee**, Jo Hart, Sarah Cotterill, Ian Pretty
University of Manchester

Background: Poor oral health is the greatest cause of disability amongst primary school children, leading to increased levels of pain and infections, along with difficulties eating, sleeping, play and socialising. In England 1 in 4 children have tooth decay by the time they start school, impairing their ability to successfully engage in the classroom from the outset of their school career. COVID-19 pandemic resulted in severe disruption to dental services, in particular the scope for 'teachable opportunities' during routine dental checks with young children and their families.

Aim: To investigate parents' experiences of oral health care and preventative dental practice during COVID-19.

Method: A purposive sample of 20 mothers of children took part in an individual semi-structured interview. Audiorecordings of the interviews were transcribed verbatim and subjected to thematic analysis.

Findings: Parents described how COVID-19 restrictions had created marked changes in their daily routines, which had largely negative consequences on oral health behaviours: new routines and distractions of home-schooling meant morning tooth-brushing was often missed. However for some families homeworking created more opportunities for parents to interact with children around tooth-kind behaviours. Emotional strains on parents reduced their motivation to enforce oral health care, and increased their use of sugary snacks to create compensatory treats. Dental care was restricted to emergency treatment, with parents uncertain where to access support and feeling the burden of responsibility.

Conclusions: COVID-19 pandemic impacted upon the opportunities and motivation for tooth-kind behaviours amongst parents, and revealed a lack of capability in dental services to provide preventative oral health care.

’Delivering Better Oral Health’ and behaviour change: Using policy to direct change

Dr Kara Gray-Burrows
University of Leeds

Background: Poor oral health is a global public health concern and poses risks to our overall systemic health. However, oral health is largely determined by our behaviour, thus oral diseases are preventable through behaviour change. ‘Delivering Better Oral Health: an evidence-based toolkit for prevention’ is government guidance that outlines how dental health professionals can improve and maintain the oral and general health of their patients, and in the newest edition has placed behaviour change at the forefront of its focus on prevention.

Aim: This presentation will outline how the new behaviour change chapter within the ‘Delivering Better Oral Health’ guidance was developed and its content.

Methods: A working group drawing on a UK wide collaboration of respected experts in public health, psychology, dentistry, and patient representatives was formed to develop a chapter on behaviour change in dentistry. A series of workshops were held to discuss the scope of the chapter and key questions, what key guidelines would be included, and produce practical case studies.

Findings: A chapter was written that includes contemporary behaviour change theory and is supported with practical examples as clinical case studies.

Conclusions: The new policy guidance on behaviour change marks a key shift within dentistry to a more preventative focus and aims to empower dental health professionals to have effective behaviour change conversations with their patients to improve oral health.

Outreach opportunities in early years education to support child oral health: qualitative investigation of early years and oral health providers

Dr Joanna Goldthorpe
Lancaster University

Background: Many children are not taken for regular dental check-ups, particularly those living in deprived areas. COVID-19 significantly reduced primary care dentistry’s capacity to deliver routine services and provide outreach services, further preventing children from accessing preventative dental care. Pre-pandemic levels of routine services are unlikely to return in the near future.

Aim: To explore opportunities for non-dental practitioners to have opportunistic oral health behaviour change conversations outside of dental practice settings.

Method: A purposive sample of 16 practitioners with experience of delivering oral health prevention interventions and working with children and families were interviewed. The COM-B model was used to analyse the capabilities, opportunities and motivations of practitioners in non-dental settings to initiate and hold behaviour change conversations with parents of children at risk of dental caries.

Findings: Participants viewed the inclusion of supervised tooth brushing in the Early Years Foundation Stage curriculum (2021) as providing a valuable opportunity to involve early years practitioners in delivering oral health outreach prevention work. Early years practitioners working in a variety of settings (nurseries, sure start children’s centres, childminders delivering care in their homes) reported opportunities to have behaviour change conversations with parents during their normal working day. Capability needs to be enhanced through appropriate training and access to resources. Motivation to have behaviour change conversations may be higher in those with managerial or supervisory roles, however early years practitioners felt that they and their colleagues are motivated by shared values around improving the health and wellbeing of children in their care.

Digital behaviour change interventions to improve the oral health of young people living in deprived areas

Professor Zoe Marshman
University of Sheffield

Background: Dental caries affect 1/3 of adolescents, and are closely linked to deprivation. Oral health interventions need to be accessible and acceptable to this population. Young people of lower socioeconomic status have better mobile phone access than their more affluent peers, suggesting a potential vehicle for a digital intervention beyond traditional dental services.

Aim: To describe the development of a digital behaviour change intervention to improve the oral health of adolescents.

Methods: A six-step process was used to develop the complex intervention: (1) Identifying the target behaviours (tooth-brushing with fluoride toothpaste), (2) Identifying the theoretical basis, (3) Developing the logic model, (4) Designing the intervention with young people, parents and school staff, (5) Specifying the intervention content and (6) Piloting and refinement.

Results: The resultant intervention included a quality-assured classroom-based session, embedded within the school curriculum and delivered by school teachers. This classroom session was followed by a series of texts delivered twice daily to student's mobile telephone. The content, duration and timing of the messages were informed by involving students and young people.

Conclusions: An intervention to improve the oral health of secondary school students through improved tooth brushing was rigorously developed based on behaviour change theory and work with young people, parents and school staff. It provides an opportunity to provide oral health support to adolescents across deprived settings. An RCT is underway to evaluate the outcomes. Findings from the intervention development and trial will be discussed in relation to lessons from COVID for delivering better oral health.

One size does not fit all – what will risk-stratification in cancer screening mean for people taking part?

Convenor: Dr Jo Waller, King's College London
Discussant: Dr Christian von Wagner, King's College London

There is increasing interest in the role of risk-stratification in cancer screening. People are currently invited for NHS breast, cervical and bowel cancer screening on the basis of age and sex. However, a more nuanced risk assessment could be used to tailor screening more accurately to risk level. Examples include offering screening at a younger age for people at higher risk; or making screening intervals longer for those at lower risk. It is even possible that those at lowest risk, who stand to benefit least from screening, may not be offered screening at all. Such changes require excellent communication to ensure the public understand the rationale for the change, which is challenging given the inherent difficulties of risk communication and the prevailing view that more screening is always better.

In this symposium, we will hear three talks from researchers engaged in understanding behavioural science aspects of risk-adapted cancer screening. Dr Joanne Cairns will describe a scoping review synthesising the international evidence on risk-stratified approaches to bowel cancer screening. Charlotte Kelley Jones will present a qualitative interview study exploring women's responses to the concepts of breast cancer risk assessment and risk-stratified screening. Finally, Dr Becky Dennison will present findings from a study using a community jury methodology to explore the public acceptability of using risk stratification to determine eligibility for cancer screening.

Our discussant, Dr Christian von Wagner, will draw together common themes from across the talks and facilitate a discussion, focusing on avenues for future research in this area.

What evidence do we have to inform risk-stratified approaches to bowel cancer screening? Findings from a scoping review

Dr Joanne Cairns, Ms Sarah Greenley, Dr Olufikayo Bamidele and Prof David Weller
Hull York Medical School

Background: There have been growing calls for cancer screening programmes, including bowel screening, to be risk-stratified, moving away from a ‘one size fits all’ approach to a more personalised one. In this scoping review we examine the international literature on risk-stratified bowel screening in to develop recommendations for future research, policy and practice.

Methods: Six electronic databases were searched from inception to October 2021: Medline, Embase, PsycINFO, CINAHL, Cochrane Database of Systematic Reviews and Cochrane Central Register of Controlled Trials. Backward and forward citation searches were also conducted. All relevant literature was included comprising of various study designs.

Results: Results showed that pilot risk-stratified bowel screening programmes can potentially improve diagnostic yield, but there was a lack of information on longer-term colorectal cancer (CRC) outcomes, and the cost-effectiveness of these approaches. Risk models do appear to show promise in refining existing risk-stratification guidance but most were not externally validated. Risk assessment tools in primary care have the potential for high levels of acceptability and uptake, and therefore could form an important component of future risk-stratified programmes but sometimes the screening recommendations were not adhered to by the patient or health care provider. The review identified important knowledge gaps, most notably in the area of organisation of screening services and what risk stratification might mean for health inequalities.

Conclusions and implications: We recommend that future research focuses on what organisational challenges risk-stratified bowel screening may face and a consideration of inequalities in any changes to organised bowel screening programmes.

UK Women’s views of the concepts of personalised breast cancer risk assessment and risk-stratified breast screening: a qualitative interview study.

Charlotte Kelley Jones, Suzanne Scott & Jo Waller
King’s College London

Background: Any introduction of risk-stratification within the NHS Breast Screening Programme needs to be considered acceptable by women. We conducted interviews to explore women’s attitudes to personalised risk assessment and risk-stratified breast screening. Specifically, we aimed to: (i) gain insight to women’s understanding of and prospective willingness to undergo multifactorial personalised risk assessment and, (ii) explore the prospective acceptability of possible risk-stratified breast screening scenarios in which screening frequency, age-range of eligibility and number of risk groups might vary.

Methods: Twenty-five UK women were purposively sampled by screening experience and socioeconomic background to take part in one-to-one interviews. Information about risk assessment and risk-stratified screening was provided during the interview. Interview transcripts were qualitatively analysed using Framework Analysis.

Results: Women expressed positive intentions for personal risk assessment and willingness to receive risk feedback to provide reassurance and certainty. Women responded to risk-stratified screening scenarios in three ways: ‘Overall acceptors’ considered both high- and low-risk options acceptable as a reasonable allocation of resources to clinical need, yet acceptability was subject to specified conditions including accuracy of risk estimates and availability of support throughout the screening pathway. Others who thought ‘more is better’ only supported high-risk scenarios where increased screening was proposed. ‘Screening sceptics’ found low-risk scenarios more aligned to their screening values than high-risk screening options. Consideration of screening recommendations for other risk groups had more influence on women’s responses than screening-related harms.

Conclusion and implications: These findings demonstrate high, but not universal, acceptability. Support and guidance, tailored to screening values and preferences, may be required by women at all levels of risk.

A community jury study exploring the public acceptability of using risk stratification to determine eligibility for cancer screening

Dr Becky Dennison, Rachel Boscott, Rae Thomas, Simon Griffin, Hannah Harrison, Stephen John, Sowmiya Moorthie, Stephen Morris, Sabrina Helena Rossi, Grant Stewart, Chloe Thomas, Juliet Usher-Smith
University of Cambridge

Background: Using risk stratification to determine eligibility for cancer screening is likely to improve the efficiency of screening programmes by targeting resources to the population most likely to benefit, but little is known about the general public acceptability of this. We aimed to explore the implications of such an approach from a societal perspective and understand views on the most acceptable stratification strategies.

Methods: We conducted three online community juries in 2021, each including 9-10 participants from across England. Participants heard presentations that included the potential benefits and harms of screening, ethical principles, and implications of different ways of introducing stratification, including using phenotypic and genetic risk scores. Participants then deliberated in order to reach a verdict on the acceptability of introducing risk stratification. Deliberations and feedback were recorded and analysed using thematic analysis.

Results: Across the juries, the principle of risk stratification was generally considered to be an acceptable approach for determining screening eligibility. In the absence of the option to increase capacity, the participants considered it beneficial to enable efficient resource allocation to high-risk individuals and could see how it might help to save lives. However, there were concerns regarding how it might be implemented fairly, particularly how widespread risk assessment would be performed and management of people at low-risk. Some favoured using the most accurate risk prediction model whereas others thought that certain risk factors should be prioritised (particularly those considered non-modifiable and relatively stable such as genetics and family history). Transparently justifying the programme and public education about cancer risk therefore emerged as important contributors to acceptability.

Conclusion and implications: Using risk stratification to determine eligibility for cancer screening was acceptable to informed members of the public, particularly when it would include risk factors they considered fair and when communicated transparently.

Oral Presentations - Thursday 31st March 2022

Alphabetical by presenting author

The acceptability of evidence-informed guidance for parents in talking to their children about weight

Fran Baber[1], Dr Elisabeth Grey[1], Dr Lou Atkinson[2], Professor Angel Chater[3], Alison Gahagan[4], Professor Fiona Gillison[1]
[1]University of Bath, Bath, United Kingdom, [2]Aston University, Birmingham, United Kingdom, [3]University of Bedfordshire, Luton, United Kingdom, [4]Public Health England/Office for Health Improvement and Disparities, United Kingdom

Background: The National Child Measurement Programme (NCMP) data in England show that one in four children have obesity by the end of primary school. Parents of children above a healthy weight are usually notified following measurement, but some fear that to take any action would involve talking to their child about weight which may harm their child's wellbeing or cause an eating disorder. A new evidence-based resource titled 'Talking to your child about weight' has been developed through a collaboration between academics, Public Health England and other stakeholders to provide guidance for parents. The present study aimed to explore how parents and professionals delivering the NCMP perceive the new guidance.

Methods: Remote, semi-structured interviews were conducted with 15 professionals and 11 parents from various local authorities across England. Professionals were recruited via local public health teams and parents were invited to participate via letters alongside NCMP correspondence. Interviews explored the acceptability and relevance of the guidance, and which elements were the most engaging. Data were analysed using Reflexive Thematic Analysis.

Results: Parents and professionals provided consistent, positive feedback endorsing that guidance for discussing weight with children is important and needed. The new guidance was perceived as reassuring and empowering for parents. Parents found the rationales for, and framing of, discussions about weight in terms of health and wellbeing acceptable, and felt the guidance reduced weight stigma. Case studies and quotes from children in particular prompted parents to challenge their thinking. Participants felt the guidance could boost parents' confidence in raising the topic of weight by acknowledging challenges and providing relevant, practical advice.

Conclusions and implications: The findings suggest that parents and professionals will find the resource acceptable and useful. Case studies and presenting children's perspectives may be particularly effective for engaging parents in talking constructively to their children about weight.

Key demographics and psychological skills associated with adjustment to progressive Multiple Sclerosis early in the diagnosis.

Dr Angeliki Bogosian[1], Dr Dat Fern, Dr Sam Norton, Prof Eli Silber, Dr Mohamed Sakel, Dr Basil Sharrack, Prof Rona Moss-Morris
[1]City, University Of London

Background: Being diagnosed with a progressive type of multiple sclerosis (MS) has been associated with worse psychological outcomes than the relapsing-remitting type. Previous studies of adjustment to MS have primarily focused on relapsing-remitting type MS. The present study examines psychological adjustment for people newly diagnosed with progressive multiple sclerosis.

Methods: This was a multicenter cross-sectional survey of 189 newly diagnosed with progressive MS. A composite measure of psychological adjustment was created from questionnaires measuring psychological distress, positive affect, perceived stress, life satisfaction and self-concept. Predictor variables included coping strategies, social support, relationship with a partner, psychological vulnerability, MS-related beliefs, and responses to symptoms. Data were analysed using a regularised regression model to indicate which variables are associated with adjustment.

Results: People who were older (b=0.17(0.07), p=0.02), in employment (b=0.40 (0.17), p=0.01), and with lower illness severity (b=-0.24 (0.08), p=0.001) showed better adjustment. Based on a Lasso regression, the most important psychological and demographic variables associated with lower adjustment (out-of-sample cross-validation R2=62.6%) were lower MS self-efficacy and higher avoidance, cognitive vulnerability, embarrassment avoidance, conflict, helplessness, and secondary progressive MS type.

Conclusions: Helping newly diagnosed people to find ways to tolerate anxiety-causing situations by encouraging acceptance may help people adjust to progressive MS by lowering their avoidance. Further, building confidence in managing the illness and addressing relationship issues are key focus areas in psychological interventions for people with progressive multiple sclerosis.

Prioritising and refining theoretically informed interventions to improve attendance at diabetic eye screening by young adults: an online stakeholder engagement study

Dr Martin Cartwright[1], Professor Jennifer Burr[2], Dr Fabiana Lorencatto[3], Dr Louise Prothero[1], Professor John Lawrenson[1]
[1]City, University of London, London, England, [2]University of St Andrews, St Andrews, Scotland, [3]University College London, London, England

Background: Annual diabetic eye screening (DES) is recommended for individuals aged 12+ with diabetes. The NHS Diabetic Eye Screening Programme (DESP) has reduced the risk of sight loss but young adults (YAs) (<35 years) are at greater risk of non-attendance. Having identified barriers and enablers of DES attendance in YAs and developed a range of theoretically informed interventions, we sought to elicit stakeholder input to prioritise interventions perceived to be most feasible and effective.

Methods: Two half-day online stakeholder engagement events (n=36) involving YAs with diabetes, healthcare providers, commissioners, national screening and public health policy makers and diabetes charities. Summaries of 16 interventions (ranging from individual-level behaviour change to organisational restructuring of the DESP) were shared in advance. At event 1, all interventions were discussed and participants each voted for five interventions they considered most likely to be (a.) feasible, and (b.) effective. At event 2, retained interventions were discussed in greater detail and suggestions elicited for improving implementability.

Results: At voting (event 1), seven interventions received higher levels of support (36-67%) and six received moderate levels (14-25%). Three interventions with low support (<12%) were excluded. At this point, some interventions were combined to leave 11 discrete interventions across four areas of action: Enabling and Empowering YAs with Diabetes (k=3), Flexibility and Accessibility of Services (k=3), Healthcare Professional Knowledge and Communication (k=3), and the Diabetes Care Pathway (k=2). At event 2, all interventions within an area were discussed by one of four mixed-stakeholder groups, highlighting opportunities for quality improvement, feasibility, implementation strategies and future research.

Conclusions and implications: Systematic and detailed stakeholder engagement with a large pool of participants is feasible using video conferencing. The retained and refined interventions could prove important for reducing the risk of sight loss in YAs and for other aspects of diabetes care and self-management.

Using health and wellbeing data to transform practice in the school setting: experiences from the Schools Health and Wellbeing Improvement Research Network (SHINE) pilot in Scotland

Dr Stephanie Chambers[1], Mrs Dawn Haughton[1], Ms Judith Mabelis[1], Dr Judith Brown[1], Dr Joanna Inchley[1,2]
[1]University Of Glasgow, Glasgow, United Kingdom, [2]University of St Andrews, United Kingdom

Child and adolescent mental health and wellbeing have received greater attention in recent years due to increases in mental ill health and reports of decreasing subjective wellbeing. The School Health and Wellbeing Improvement Research Network (SHINE) was established to create a national infrastructure to support Scottish schools to collect and use health and wellbeing data to inform school improvement action planning.

This study aimed to evaluate a pilot of SHINE's provision of school-level health and wellbeing data reports from the Health Behaviour in School-Aged Children survey and their impact on school action planning. Using a qualitative case study design, we collected data in four local authorities across Scotland via pupil and school staff focus groups (n=23 groups), and from interviews with senior leaders, school SHINE Leads, other relevant school-level stakeholders, local authority health and wellbeing and data leads (n=30 interviews).

Data analysis was supported using Normalisation Process Theory as a guiding framework. Implementation was at an early stage. Participants indicated that the data reports were an accessible and valuable source of local information to support the improvement agenda. SHINE's expertise supported lack of research capacity and strengthened Health and Wellbeing (HWB) data literacy skills in schools.

At the point of interview, data reports had not been shared widely within the school community, and there was some limited use of the reports to inform action planning around HWB. SHINE has the potential to support schools to help deliver national commitments to improving health and wellbeing.

Supporting the use of nasal sprays for respiratory tract infection prevention; intervention development using a Person-Based Approach

Dr Laura Dennison[1], Dr Sian Williamson[1], Dr Kate Greenwell[1], Dr James Dennison-Day[1], Dr Fiona Mowbray[4], Samantha Richards-Hall[5], Deborah Smith[5], Dr Katherine Bradbury[1], Dr Ben Ainsworth[2], Prof Paul Little[1], Dr Adam Geraghty[1], Prof Lucy Yardley[1,3]
[1]University Of Southampton, [2]University of Bath, [3]University of Bristol, [4]Kings College, London, [5]None- Patient and Public Involvement

Background: Common respiratory tract infections (RTIs) such as colds and flu lead to considerable social and occupational disruption and reduced quality of life. For patients with certain health conditions RTIs can cause disease exacerbations and hospitalisation. An emerging prevention approach is the use of nasal sprays. We used the Person-Based Approach to develop a digital intervention to encourage and support the use of nasal sprays. Within the intervention development process, we conducted two qualitative studies exploring people's perceptions of nasal sprays for preventing RTIs.

Methods: In Study 1 we identified 407 online consumer reviews of a RTI prevention nasal spray and used inductive thematic analysis to identify barriers and facilitators to use. These findings were used to develop the "Immune Defence" nasal spray intervention. In Study 2, 13 primary care patients who experience recurrent infections and/or risk factors for severe infections were interviewed about their reactions to and experiences of the intervention. A rapid analysis approach guided the refinement of the intervention, including modifications for use during the COVID-19 pandemic. We subsequently re-analysed the interviews using inductive thematic analysis.

Results: Both studies identified important influences on nasal spray uptake and continued use including: high motivation to avoid RTIs, particularly during the COVID-19 pandemic; fatalistic views about RTIs; beliefs about alternative prevention methods; perceived complexity and familiarity of sprays; personal experiences of apparent spray success or failure; tolerable and off-putting side-effects; medication concerns; and perceptions of the nose as unpleasant.

Conclusions And Implications: People who suffer regular or severe RTIs are interested in nasal sprays for prevention. They also have doubts, concerns and may encounter problems using sprays. Many of these may be reduced or eliminated through behavioural interventions which target these issues. We are currently evaluating the Immune Defence nasal spray intervention in a randomised controlled trial.

A Theory-, Evidence- and Person-Based Approach to planning a digital intervention for adolescents with asthma.

Stephanie Easton[1], Dr Ben Ainsworth[2], Prof Graham Roberts[1]
[1]University Hospital Southampton, Southampton, UK, [2]University of Bath, Bath, UK

Background: Despite appropriate pharmacotherapy, young people have poor asthma outcomes, particularly in relation to quality of life. This study aims to re-purpose and refine an existing, effective adult intervention (BREATHE), for adolescents with asthma.

Methods: A theory-, evidence and Person-Based Approach was used to undertake detailed intervention planning and explore key issues, needs and challenges of adolescents with asthma. A scoping review and semi-structured interviews with target intervention users (N=18, adolescents aged 12-17yrs with asthma and parents) were carried out to explore user perspectives, barriers and facilitators towards the intended behaviours (practising and using breathing exercises, self-managing asthma and engaging with the intervention) and potential intervention features. In addition to theory-based activities (behavioural analysis, logic modelling and theoretical mappings), this enabled iterative planning of a novel prototype adolescent breathing retraining intervention.

Results: Potential barriers towards the intervention included forgetfulness, over-reliance on quick-relief medication, lack of motivation, difficulty remaining calm and embarrassment in public settings. Facilitators included relatable peer-led demonstration videos, discretion of techniques, understanding the rationale of exercises, personalised reminders, visual stimuli and reducing reading burden. An engaging, quickly accessible, and intuitive intervention was identified as an important preference for this age group. Behavioural analysis identified six intervention functions (education, persuasion, training, modelling, environmental restructuring and enablement) and thirty behaviour change techniques. A relevant theoretical framework (self-determination theory) ensured that appropriate psychological constructs were targeted. A logic model has been created to map the programme theory and mechanisms which aim to lead to improvements in adolescent asthma-related quality of life.

Conclusions and implications: This research provides insight into the key behavioural issues and needs of adolescents with asthma and has been used to re-purpose a self-guided breathing retraining intervention. The findings may be used to optimise interventions that address the needs of this typically under-served group.

Understanding the impact of behaviour change supported by motivational interviewing on participant response: delivering what works for caries prevention in high-risk children.

Dr Marc Edwards[1], Professor Pauline Adair[1], Dr Girvan Burnside[3], Professor Cynthia Pine[2]
[1]Queen's University Belfast, Belfast, United Kingdom, [2]Queen Mary University of London, London, United Kingdom, [3]University of Liverpool, Liverpool, United Kingdom

Background: How behavioural interventions work is crucial to identifying mechanisms of change to explain treatment efficacy. This study analyses change processes from a successful randomised controlled trial (Dental RECUR) including: a) goals set collaboratively between parents of children with dental caries and a dental nurse; b) goal type and specificity and c) behaviour change techniques identified to support the achievement of goals.

Methods: Participants were parents of 5-7-year-old children due to have teeth extracted because of dental caries recruited at twelve centres across the U.K. Participants took part in a 30-minute therapeutic conversation guided by a dental nurse. Goal data was analysed from 115 parents who provided this information during the conversation. In addition, twenty-two interviews were transcribed and thematically analysed to explore parental approach to changing familial toothbrushing and dietary behaviour.

Results: 109 behaviour change goals were set, 94 (86%) related to changing sugar/diet and 68 (62%) to a brushing/oral hygiene behaviour. There were 50 single behaviour goals, 46% of total; of these 37 (74%) related to a sugar behaviour and 12 (24%) were for a brushing/oral hygiene behaviour. Specific familial goals included: ‘try a flavour-free toothpaste’; and ‘supervise bedtime brushing every night’. Agreed activities to reach the goal included: ‘swapping juice for milks’; and ‘not to buy chocolate in weekly shop’. Four themes were identified relating to toothbrushing (decisions dictated by path of least resistance, parental views of responsibility, lack of understanding of existing knowledge, extraction experience eliciting motivation for change) and dietary behaviour (parents’ perception and knowledge of effects of sugar on oral health, challenges of dietary control, changing eating behaviours and parental control, parents view of oral health and extraction process).

Conclusions and Implications: Analysing processes of behaviour change within RCTs can help identify what leads to successful outcomes and guide future interventions.

A behavioural intervention to increase CPR performance (BICeP): results of pilot before and after study

Dr Barbara Farquharson[1], Prof Diane Dixon, Dr Gareth Clegg, Prof Brian Williams, Ms Lisa Macinnes, Dr Pam Ramsay, Ms Claire Torrens, Ms Eileen Calveley
[1]*University of Stirling, Stirling, United Kingdom*

Background: Out-of-hospital cardiac arrest (OHCA) is common and associated with exceptionally high mortality (90%). Prompt cardio-pulmonary resuscitation (CPR) increases survival (up to x4) but most lay-people trained in CPR don't actually attempt it when required. Confidence and intentions to initiate CPR reduce in the months following training.

Aim: To develop a behaviour-change text-messaging intervention to increase lay-people's intentions to initiate CPR in OHCA

Methods: Working with lay-people and CPR training experts advisory we developed a series of 35 text messages comprising 14 behaviour change techniques designed to maintain/increase intentions to perform CPR. We conducted a before and after pilot study to evaluate the acceptability of the messages and explore participant responses (n=10 qualitative interviews). Intention to perform CPR (and theoretical predictors of intention) were assessed in relation to 4 scenarios before and after the intervention.

Results: Twenty lay-people (6F, 14M; aged 20-84) participated in the study. Seventeen received the complete intervention over 4-6 weeks, two received 20+messages and one a single message before opting out. Fifteen participants provided follow-up data. Intentions to initiate CPR in CPR scenarios were greater after the intervention than before (median pre:19.5 post:20.5) with all but one participant maintaining or increasing their original (very high) intentions. More positive attitudes (pre:57.5 post:63.0), increased perceived behavioural control (pre:50.0 post:58.0), self-efficacy (pre:74.5 post:81.0) and self-assessed competence (pre:19.5 post:20.5) were observed following the intervention. Qualitative data suggested the intervention was positively received and viewed as helpful in improving confidence by reinforcing and building on messages from training though additional options for delivery format and pace should be considered.

Conclusions and implications: We have developed a low-cost, scalable behaviour-change intervention that is acceptable both to the intended audience and CPR experts and which may be helpful in maintaining and improving intentions to perform CPR. A full-scale evaluation is planned.

Alcohol and belonging at English universities during a decline in youth drinking

Dr Laura Fenton[1], Dr Hannah Fairbrother, Dr Victoria Whitaker, Dr Madeleine Henney, Dr Abigail Stevely, Professor John Holmes
[1]*University of Sheffield, Sheffield, United Kingdom*

Background: While young people's alcohol consumption has fallen sharply in the United Kingdom and other high-income countries since the early 2000s, universities remain sites in which heavy drinking is routine and normative. This presentation explores how heavy drinking is part of how many students in their first year of university negotiate a sense of belonging and form personal relationships with peers.

Methods: We draw on qualitative interviews with students (N= 21) at English universities. The interviews are part of a larger qualitative dataset on the decline in youth drinking. The interviews were analysed thematically.

Results: Consistent with the decline in youth drinking, several interviewees had limited experience of heavy drinking prior to entering university, and some had little or no interest in drinking. In their first year of study, students often drank heavily in order to facilitate group bonding and to negotiate a sense of belonging in student housing and at student societies' social events. For some, heavy drinking felt obligatory. After the initial months of first year, many students either gave up or reduced their drinking.

Conclusions and implications: The decline in youth drinking means that many young people are introduced to routine heavy drinking when they start university. The obligatory nature of such drinking limits the capacity of students who do not wish to drink to negotiate friendships and a sense of belonging at university. Universities, student housing providers and student societies might better accommodate the desire for belonging for the increasingly large proportion of students with limited experience of or desire for alcohol by creating opportunities for students to become acquainted and form personal relationships with peers in ways that either do not involve alcohol or where alcohol is peripheral to the activity.

Eating out during the pandemic: A mixed-methods study exploring how enhanced takeaway services influenced consumers' behaviours and experiences around eating out-of-home foods during the COVID-19 pandemic

Dr Mackenzie Fong[1], **Dr Stephanie Scott**[1]
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Background: Regulations limiting access to out-of-home foods are used to address rates of obesity, which are relatively high in northern England. At the start of the COVID-19 pandemic, changes were introduced that allowed A3 and A4 Use ('Restaurant-Type') retailers to offer enhanced takeaway services, previously reserved for A5 Use ('Fast Food') retailers only. We explored the impact of these changes on consumers' behaviours and experiences around using different food retailers during the pandemic.

Methods: Seven-hundred adults in northern England completed a survey in May 2021 (outdoor hospitality reopened; T1), and June 2021 (indoor and outdoor hospitality reopened; T2). Changes in intake frequency were tested using Related-Samples Wilcoxon Signed Rank two-sided Test. Influence of participant characteristics on intake was explored using Poisson regression. Six focus groups explored experiences of eating out-of-home foods before and during the pandemic. Data were analysed using Framework Analysis.

Results: Mean weekly intake of Fast Food increased from 0.96 (1.05) times at T1 to 1.08 (1.16) times at T2 ($p=0.0113$). For Restaurant-Type retailers, intake increased from 0.36 (0.69) times at T1 to 0.75 (1.06) times at T2 ($p<0.01$). Around 35% of participants used delivery services to access Fast Food; this was 10% for Restaurant-Type retailers. Participants who ate Fast Food more frequently were younger, educated to A-level or lower, had obesity, and experienced food access issues. These associations were not observed for Restaurant-Type retailers.

Eating from Restaurant-Type retailers was connected to special occasions, socialising and culinary experience. Fast Food intake related to convenience and reducing time on 'foodwork'. Experiences of eating on-premises were influenced by presence of COVID-19 safety measures.

Conclusion and implications: Policies concerning Fast Food retailers, including the role of delivery services, should be prioritised over those concerning Restaurant-Type retailers. Retaining COVID-19 safety measures at hospitality venues would enhance consumers' perception of safety.

Characterising smoking and smoking cessation behaviours among adults at risk and those not at risk of alcohol dependence in England

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Background: There is a strong shared association between smoking and drinking. Higher levels of alcohol consumption can make quitting smoking more difficult, though those receiving alcohol treatment are less likely to receive smoking treatment. This study aimed to describe smoking prevalence among the general population in England at risk of alcohol dependence and compare their smoking characteristics with drinkers not at risk of alcohol dependence.
Methods: We used cross-sectional data from a monthly, nationally representative survey of adults in England from 2014 to 2021 (weighted n=144,588). Smoking and smoking cessation characteristics were regressed on to alcohol dependence (drinkers at risk versus not at risk), adjusting for survey year.

Results: Among those at risk of alcohol dependence, past-year smoking prevalence

was 63.3% (95% CI=59.7-66.9) compared with 19.3% (95% CI=18.8-19.7) among non-drinkers. Among past-year smokers, drinkers at risk of alcohol dependence (compared with not) smoked more cigarettes per day (B=3.0, 95% CI=2.3-3.8) and were more likely to smoke their first cigarette within 5 (versus more than 60) minutes of waking (OR=2.81, 95% CI=2.25-3.51). No differences were detected in terms of making a serious quit attempt (OR=1.10, 95% CI=0.91-1.32), success in that quit attempt (OR=0.69, 95% CI=0.45-1.04), or receipt of GP advice and/or support (OR=1.26, 95% CI=0.92-1.70).

Conclusions and implications: In a representative sample of adults in England, past-year smoking prevalence was 63% among people at risk of alcohol dependence. Past-year smokers who were at risk of alcohol dependence had higher levels of cigarette dependence than those not at risk of alcohol dependence. This has important implications for policy and public health, as this group of drinkers at risk of alcohol dependence have a high smoking prevalence though are less likely to receive smoking treatment and more likely to have co-morbid health problems.

Acceptability and feasibility of an app-based ‘nudge’ behavioural intervention designed to increase the light exposure of office workers: A pilot randomised controlled trial

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Background: Daytime light exposure may offer numerous benefits for health and wellbeing. Generally, office workers have limited access to bright daytime light exposure. Typical light interventions focus on structural, rather than person-based solutions. It is unknown whether a behavioural intervention can increase an individual’s light exposure.

Methods: 34 healthy office workers (25-45 years) living and working within the Oxford Ring Road (UK) full-time were enrolled into a 4-week pilot RCT. Participants took part in the study whilst going about their normal day-to-day lives. Utilising a matched-pairs approach (age, gender, and PSQI scores), we randomised participants to either the intervention or control group on a 1:1 basis. Delivered via app-based notifications, the intervention group received light reminder nudges, whilst the control group received placebo random-word reminder nudges. Light exposure was measured as wrist-referenced photopic illuminance using actimeters (Condor ActTrust 1®). Our primary objectives were to descriptively assess the feasibility and acceptability of the intervention and study procedures. Participants and outcome assessors were blind to group assignments.

Results: Overall, the acceptability and feasibility of the study procedures and intervention were good. Outcomes relating to the minimisation of bias were successful (blinding, contamination, and co-intervention), and missing data was minimal. However, intervention fidelity was poor, with a mean percentage of 77±32% nudge notifications read by the placebo group, and 51±27% read by the intervention group. Further analysis revealed that this difference was driven by device type: Android users read a mean percentage of 77±34% of the nudges, whilst iOS users read 46±16%.

Conclusions and implications: A definitive main trial is both feasible and acceptable with modification to intervention delivery. This trial introduces a novel behavioural medicine approach to understanding and modifying light exposure, utilising an app-based format that is both inexpensive and scalable.

The shift to remote consultations: A qualitative exploration of patients' and clinicians' experiences in a secondary care setting.

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Background: The COVID-19 pandemic precipitated a rapid shift to conducting secondary care consultations remotely. The aim of this study was to explore patients' and clinicians' experiences of remote consultations (RCs), conducted during the first year of the pandemic, in order to identify markers of good practice that could inform future service delivery.

Methods: Semi-structured interviews were conducted via telephone or video-call with outpatients (N=12) and clinicians (N=12) of the rheumatology and cardiology departments of a hospital in southwest England in early 2021. Participants had experience of RCs conducted via telephone and were recruited using letters (patients) or emails (clinicians) that described the study aims and invited those interested to contact the research team. Inductive thematic analysis was conducted with transcripts.

Results: The majority of participants were white (patients: 100%; clinicians: 75%); 66% of patients and 42% of clinicians were female; ages ranged from 35 to over 75 years. Interviewees identified a range of benefits and difficulties with RCs; there was agreement across patients and clinicians that for routine check-ups, where a patient's condition is stable, RCs can be appropriate. However, a key theme from the interviews concerned the psychosocial elements of RCs and the findings suggest that it is harder in RCs to give or gather a holistic view of the patient, which can be detrimental to patient and clinician satisfaction.

Conclusions and implications: As secondary care providers are encouraged to permanently integrate RCs in their practice, findings from this study highlight the importance of ensuring, for each patient, that remote care is appropriate. The findings of this small study align with those of larger survey studies and build on these to provide deeper insight of people's experiences of RCs. Further support may be needed to help both clinicians and patients to gather and provide all information necessary during RCs.

Evaluation of a Talking Toolkit Programme: Focus Groups with Wellbeing Champions

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Background: As part of Tesco's workplace health programme, Tesco Health Charity Partners – British Heart Foundation, Cancer Research UK, and Diabetes UK – supported the launch of Tesco's Wellbeing Champion programme by providing resources on the three health conditions. One of the resources was the development of Talking Toolkits. Talking Toolkits (TTs) are a series of training tools and resources provided by the Charity Partners to educate and empower Wellbeing Champions as health ambassadors on prevention of cancer, type 2 diabetes, and health and circulatory diseases. Here we report on the qualitative evaluation of the first Talking Toolkit.

Methods: Two online focus groups were conducted (45-50 minutes each) with 21 Wellbeing Champions from multiple areas of the business and diverse UK locations. A thematic analysis was conducted.

Results: Some participants had heard of the TT, but few had used it. Participants suggested having content stored on a central online location accessible to all, with new content advertised via several internal communication channels. Resources for use with colleagues should be available in both physical and online formats. Participants found the TT useful, insightful, and to have a good level of expertise, and suggested that future content should support them to initiate conversations with colleagues. Participants also suggested having a structured approach such as a "topic of the month" with activities, to create an interest culture and facilitate conversations. Future topics could include myth-busting around health messages, and mental health and its impact on lifestyle choices.

Conclusions and implications: In addition to providing expert content, workplace health programmes with ambassador components should identify a range of methods of disseminating information to ambassadors, as well as assist them with encouraging conversations with colleagues and creating higher engagement.

“She wasn’t buying into that…”: Exploring healthcare professionals communication about children and young people with pain in paediatric rheumatology

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Background: Multi-disciplinary team meetings (MDT’s) in paediatric rheumatology regularly meet to discuss children/young people with complex conditions, in which chronic pain may feature. Little is known about healthcare professional to healthcare professional communication and how this may influence the care of children/young people with chronic pain. The objective of the current study was to explore this knowledge gap.

Methods: This study was a non-participant ethnographic observation of virtual and face-to-face MDT meetings. Three paediatric rheumatology centres participated. A structured observation checklist was used to capture field notes which were analysed using an inductive thematic approach.

Results: Ten meetings from each team (n=30) were analysed. Analysis was organised into three core inter-related elements of communication:

1) Describing the child/young person with pain: Personality characteristics (e.g. “He is mature” or “sensitive”) were frequently used in child/young person introductions. These were always accompanied by a description of parents’ personality traits (e.g. “Mum can shout”).

2) Interpreting pain: Familiarity with the child/young person and parents was important (e.g., “I haven’t got a handle on them”). Interpretations were also influenced by “gut feelings” or “vibes something else was going on”.

3) Managing the child/young person with pain: Healthcare professionals discussed the need for acceptance of pain (e.g., “She wasn’t buying into that explanation”, “He needs to get used to it”). Setting boundaries for accessing the team also featured in discussions (e.g., “I had to set expectations for mum because it was getting too much”).

Conclusions and implications: Findings suggest that healthcare professionals in paediatric rheumatology describe, interpret and manage the child/young person presenting with pain alongside the broader psychosocial (less frequently the biological) context. These findings will inform the methods and content of a new behaviour change intervention to improve pain communication amongst the paediatric rheumatology team of healthcare professionals in the UK.

Impact of wine bottle and glass sizes on wine consumption at home: a within and between households randomised controlled trial

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Background: Reducing alcohol consumption across populations would decrease the risk of a range of diseases including many cancers, cardiovascular disease and type 2 diabetes. The aim of the current study is to estimate the impact of using smaller bottles and smaller glasses on consuming wine at home.

Methods: The study was a randomised controlled trial with crossover randomisation to bottle size and parallel randomisation to glass size. Participants were 260 UK households consuming at least two 75cl bottles of wine each week. Households were randomised to the order in which they purchased wine in 37.5cl or 75cl bottles, to consume during two 14-day intervention periods, and further randomised to receive smaller (290ml) or larger (350ml) glasses to use during both intervention periods. The primary outcome was the volume (ml) of study wine consumed, using photographs of purchased bottles, weighed on study scales.

Results: 217 of 260 (83%) randomised households completed the study per-protocol. Accounting for pre-specified covariates, households consumed on average 146ml (3.6%) less wine when drinking from smaller bottles than from larger bottles (95% confidence intervals -336ml to 44ml; -8.3% to 1.1%; p=0.137). Similarly, households consumed on average 253ml (6.5%) less wine when drinking from smaller glasses than from larger glasses (95% confidence intervals -517ml to 10ml; -13.2% to 0.3%; p=0.065). When using smaller bottles and glasses together, households consumed on average 249ml (6.5%) less wine (95% confidence intervals -520ml to 21ml; -13.6% to 0.6%), compared with when using larger bottles and glasses (p=0.077).

Conclusions: Using smaller glasses to drink wine at home may reduce consumption. Greater uncertainty remains around the possible effect of drinking from smaller bottles.

Cigarette pack size and consumption: a randomised cross-over trial

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Smoking fewer cigarettes per day may increase the chances of stopping smoking. Smokers purchasing smaller pack sizes smoke fewer cigarettes, but the causal nature of this association is uncertain.

Objective: To test the hypothesis that reducing pack sizes from 25 to 20 cigarettes per pack reduces cigarette consumption.

Design: Randomised controlled cross-over trial with two 14-day intervention periods with an intervening 7-day period of usual behaviour.

Setting: Participants completed study procedures at home.

Participants: Participants were adult smokers in Canada who smoked from pack sizes of 25, recruited between July 2020 and June 2021. Of 252 randomised, 240 (95%) completed the study, and 236 (94%) provided sufficient data for the primary analysis.

Interventions: Participants were instructed to smoke their usual brand of cigarettes from a single size of cigarette pack in each of the two intervention periods: A) 25 cigarettes; B) 20 cigarettes. Participants were randomised to the order in which they smoked from the two pack sizes (AB; BA).

Main Outcomes and Measures: Primary outcome: mean number of cigarettes smoked per day in each intervention period.

Results: Participants smoked fewer cigarettes per day from packs of 20 cigarettes (n=234, mean = 15.7 SD = 7.1) than when using packs of 25 cigarettes (n=235, mean = 16.9, SD = 7.1). After adjusting for pre-specified covariates (baseline consumption and heaviness of smoking at enrolment) modelling estimated that participants smoked 1.3 fewer cigarettes per day (95% confidence interval = -1.7 to -0.9), equivalent to 7.6% less (95% CI = -10.1% to -5.2%) from packs of 20 cigarettes.

Conclusions and Relevance: Smoking from packs of 20 compared with 25 cigarettes reduced the number of cigarettes smoked per day. Regulatory limits on cigarette pack size could reduce consumption. However, the impact on population smoking rates remains uncertain.

Trial Registration: ISRCTN: 16013277 https://www.isrctn.com/ISRCTN16013277

A Randomised Controlled Trial of Sensory Integration Therapy plus usual care versus usual care alone for children with Autism and sensory processing difficulties (SenITA)

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Background: Carers report unmet need for Occupational Therapy (OT) addressing sensory difficulties in autism yet there is insufficient evidence to recommend a therapeutic approach. Objectives were to determine clinical and cost-effectiveness of Sensory Integration Therapy (SIT) for children with autism and sensory difficulties.

Methods: Parallel group randomised trial incorporating an internal pilot, health economic and process evaluations. Children 4-11 years were recruited via NHS/social services and self-referral (Wales, England). Inclusion criteria: autism diagnosis; mainstream primary education; definite/probable sensory processing difficulties. Exclusions: current/previous SIT; current Applied Behaviour Analysis therapy. Intervention: UC plus SIT over 26 weeks. Comparator: UC only. Main analyses were modified intention-to-treat. Semi-structured interviews were conducted (30 carers; 13 OTs) and analysed using a framework approach.

Primary outcome: irritability/agitation at 6 months (Aberrant Behavior Checklist). Secondary outcomes: problem/adaptive behaviours; functioning; socialisation; carer stress; quality of life; functional change; sensory processing; intervention and service use costs.

Results: 138 participants were randomised (1:1). SIT was delivered with good fidelity, adherence, minimal contamination and no adverse effects. Trial procedures were acceptable. Carers and therapists reported improved functioning. There were no significant main effects of SIT at 6 or 12 months. Subgroup differences were observed, including irritability/agitation for sex of child (intervention x female =6.42, 95% CI: 0.00 to 12.85, p=0.050) and ADHD (intervention x ADHD =-6.77, 95% CI: -13.55 to -0.01, p=0.050). Carer-rated goal performance and satisfaction increased across sessions (p<0.001): mean change 2.75 (95% CI: 2.14-3.37) for performance; 3.34 (95% CI: 2.63-4.40) for satisfaction. Health economic evaluation suggests SIT is not cost-effective compared to UC alone.

Conclusions: Intervention did not demonstrate benefit above UC: subgroup effects are hypothesis-generating only. SIT is likely effective for individualised goals though it remains unclear whether effects were in addition to UC or were maintained. Future work could further investigate subgroup effects.

Trial registration: ISRCTN 14716440.

How is the behaviour change technique content of the NHS Digital Diabetes Prevention Programme understood by participants? A qualitative study of fidelity of receipt

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Background: The NHS Digital Diabetes Prevention Programme (NHS-DDPP) is a nine-month behavioural intervention for adults at risk of developing Type 2 diabetes. It is delivered by four independent providers via apps, websites and remote coaching, and based on NHS England specifications which stipulate specific behaviour change techniques targeting dietary and physical activity behaviours. Assessment of fidelity is important to understand whether the programme has been designed, delivered and received as planned. This study addresses the receipt domain of fidelity by investigating how the BCT content of the NHS-DDPP is understood by participants.

Methods: Forty-five service users participated in two telephone interviews at 2-4 months and 8-10 months into the programme. Topics included participants' understanding of key self-regulation BCTs e.g. goal setting, and the support they received via the programme. Transcripts were analysed thematically and organised using the framework method.

Results: Participants valued the role of Health Coaches to support their understanding of BCTs, particularly when they provided feedback on tracked behaviours and answered questions; and felt accountable to their Health Coach. Self-monitoring of behaviours was understood with ease. Participants described how they could set goals, for both behaviours and outcomes, and could use this technique in conjunction with self-monitoring. Difficulties in describing understanding of action planning and problem solving was evident, and there was some variation by provider.

Conclusions and implications: This study highlights the central role of Health Coaches in supporting delivery of key components of the NHS-DDPP. These findings suggest that to increase understanding of BCTs in digital interventions, it important to consider coaching routes of delivery that offer additional support. We have highlighted the need to ensure delivery of the NHS-DDPP is optimised to make sure participants are able to understand all self-regulatory BCTs, though some BCTs may be intrinsically more difficult to understand in this population.

WebParC: evaluation of a Web-based intervention for Parents of Children with arthritis

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Background: Parenting a child with a chronic inflammatory disease such as juvenile idiopathic arthritis (JIA) is stressful. The aim of this study was to test the effectiveness of a web-based intervention ('WebParC') to reduce parenting stress among parents of children with JIA.

Methods: Design and setting: A randomised controlled trial was conducted at 16 NHS tertiary paediatric rheumatology services in England.

Participants: Parents of children with recently diagnosed (≤6 months) JIA were recruited when they attended a rheumatology clinic appointment with their child.

Procedures: Parents were randomised at a ratio of 1:1 to intervention or control arms. Parents in the intervention arm were given access to a website, which contained information about JIA and its treatment, plus a 'toolkit' based on cognitive-behavioural principles with strategies to help manage their child's JIA. Questionnaire assessments were completed before randomisation and 4 and 12-months post-randomisation.

Primary outcome: The Pediatric Inventory for Parents measure of illness-related parenting stress, which assesses the frequency (PIP-F) and difficulty (PIP-D) of stressful events.

Analysis: Trial arms were compared on parenting stress levels over the follow-up period using linear mixed models, adjusting for baseline.

Results: Parents of 203 children participated (220 parents - 183 mothers, 37 fathers - 106 intervention and 114 controls). A significant effect of trial-arm was found on PIP-F Communication (F=5.37, P=0.02 and Role Function (F=5.40, P=0.02) subscales, and on PIP-D Communication (F=7.43, P=0.006), Medical care (F=4.04, P=0.04) and Role function (F=4.37, P=0.04) subscales and the PIP-D total score (F=6.30, P=0.012). In each instance, participants in the intervention arm reported less frequency and difficulty of illness-related stressful events than controls.

Conclusions and implications: A website based on cognitive-behavioural principles reduced illness-related parenting stress in parents of children with arthritis. This approach could be adapted and evaluated for parents of children with other chronic illnesses.

Exploring Palliative Care Clinicians' Experience of the Rapid Implementation of Remote Consultations During the Covid-19 Pandemic

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Background: Palliative care is a holistic care approach aiming to improve the quality of life and symptom management with life-threatening illnesses. Due to the Covid-19 pandemic, and in accordance with the British government's guidelines, palliative care services had to be transferred remotely. Therefore, the aim of the current study is to explore healthcare professionals' experience and perceptions of remote consultations in Swindon's Prospect Hospice and the barriers and facilitators to their implementation during the pandemic.

Methods: Nine semi-structured interviews were conducted with healthcare professionals from Prospect Hospice who had used remote consultations in the form of telephone or video since the beginning of the pandemic, March 2020 and the data were analyzed using reflexive thematic analysis.

Findings: Three main themes were developed, (1) The Role of Communication in Tele-Palliative Care, (2) The Human Element and (3) Moving Forward: The Best of Both Worlds. Both communication and a patient-centered approach are core parts of palliative care, and the last theme explores the potential of integrating remote consultations into future palliative care practice.

Conclusions and implications: This study provides further insight into the experience of palliative care clinicians concerning the rapid implementation of remote consultations in their practice during the Covid-19 pandemic. The findings indicate that the integration of remote palliative care services is feasible and acceptable post-pandemic. However, because of the several challenges being posed, further technical support and communication-related training needs to be provided by the Hospice organization to the healthcare professionals. Also, it is crucial that each patient is assessed individually for their suitability to receive remote services. Lastly, further research is needed in order to examine the palliative care patients' perspective as well as consider the feasibility of remote palliative care consultations for urban, rural and remote areas.

Sedentary behaviour, but not moderate-to-vigorous physical activity, is associated with respiratory responses to acute psychological stress

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Background: Acute psychological stress perturbs cardiovascular and respiratory activity, with sympathetic activation a common mechanism. Higher sedentary behaviour (SED) and lower physical activity levels are associated with elevated sympathetic tone and heightened cardiovascular stress responses. Higher SED is associated with poor metabolic health, and markers of respiratory activity can be used as an indicator of metabolic activity level. This study aimed to test whether SED was related to measures of respiratory stress reactivity and hypothesised that higher SED would be associated with poorer respiratory responses to acute psychological stress.

Methods: Daily hours of sedentary behaviour (SED; thigh-mounted activPAL) and moderate-to-vigorous physical activity (MVPA; wrist-mounted ActiGraph) were assessed across seven days. Breath-by-breath respiratory measures (breathing frequency [BF], end-tidal carbon dioxide partial pressure [PETCO2], carbon dioxide output [V̇CO2] and respiratory exchange ratio [RER]) were assessed using a Cortex MetaLyzer3B and taken during a 20-min rest period and during an 8-min psychological stress task (Paced Auditory Serial Addition Test). Regression models were used to assess the relationships between SED, MVPA and respiratory parameters.

Results: Healthy participants (N=61, mean age ± SD = 25.7 ± 8.9 years) recorded high volumes of sedentary behaviour (9.96 ± 1.48 hours/day) and MVPA (1.70 ± 0.71 hours/day). In models which were adjusted for MVPA, and other a priori selected covariates, hours of daily SED were associated with stress-induced changes in BF (B=0.695, 95%CI=0.281—1.109, p=.014), VT (B=-0.042, 95%CI=-0.058— -0.026, p=.014), PETCO2 (B=-0.537, 95%CI=-0.829— -0.245, p=.014), V̇CO2 (B=-0.008, 95%CI=-0.014— -0.003, p=.030), and RER (B=-0.013, 95%CI=-0.021—-0.005, p=.022). Daily hours of MVPA were not linked with any parameter.

Conclusion and Implications: Sedentary behaviour, but not Moderate-Vigorous Physical Activity, was associated with stress-induced changes in respiratory reactivity. These relationships were observed despite high levels of Moderate-Vigorous Physical Activity. Future work should examine potential longer-term consequences for cardiometabolic or respiratory disease development.

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

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Background. Ecolabels have been shown to be effective at reducing the environmental impact of food selection in studies using an online experimental supermarket, but their impact in real-world purchasing contexts is unclear. This study aimed to examine the impact of ecolabels on the sustainability of food purchases in worksite cafeterias.

Methods. Worksite cafeterias (n=28) catering to staff working at manufacturing or distribution centres were randomised to either control (no labels) or ecolabel conditions. Between May and September 2021, sites in the ecolabel condition (n=13) were asked to place stickers indicating the environmental impact (in the form of an A (low) to E (high impact score) of each hot meal option next to the name of the meal on printed menus.

Results. Mixed effects models showed no evidence of an impact of ecolabels on the mean environmental impact of meals purchased, neither in intention-to-treat (0.97, 95%CI -3.07 to 1.13) nor per-protocol (-0.89, 95%CI -2.80 to 1.03) analyses. The majority of main meal options sold (between 55-60%) were rated ‘E’ in both control and intervention sites.

Conclusions and implications. In worksite cafeterias with a limited range of main meals available, we found no evidence that ecolabels influenced the sustainability of food purchases. Evaluations of the impact of labelling should also take into account any impact on supply, given that labelling can heighten awareness of the environmental impact of options, encouraging providers to increase availability of more sustainable options in the longer-term.

“Everybody is used to moving their body, but they may not be used to exercising their mind”: University Students’ Attitudes and Understanding of (Mental) Health Maintenance through Physical Activity and Mindfulness Meditation

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Background: The rapid rise in adverse mental well-being recently reported amongst university students requires new accessible, preventative interventions tailored to this population. When practiced regularly, physical activity and mindfulness meditation are two effective well-being techniques, with early research suggesting even greater impact in tandem. Literature is lacking on whether the two techniques and their combination are acceptable to students, particularly in a preventative context. The study aimed to explore students’ attitudes towards mental health and its maintenance through physical activity and mindfulness meditation.

Methods: Qualitative semi-structured interviews were conducted with a sample of 16 students from 10 UK universities (Mage=23 years, SD=3.22) with varied well-being symptoms, physical activity levels and experience with mindfulness meditation. Reflexive thematic analysis was used to elicit meaning from the data.

Results: Four main themes were constructed. Students overwhelmingly hold a 'Holistic view of health', in which mental and physical aspects are seen as distinct but connected. Maintaining health is recognised as important, yet this is more established for physical health, relative to mental health. A 'Low-point paradox', whereby looking after one’s health is (perceived as) most difficult when there is greatest need, was identified as a crucial psychological barrier across health behaviours. Several 'Mindfulness misconceptions' were discussed, including their inhibitory effects on (willingness to) practice and ways of overcoming them. Finally, students expressed intrigue at combined practice, supposing that the 'Whole is greater than the sum of its parts'.

Conclusions and implications: Effective preventive mental health strategies for students can draw on the recognised importance of physical health maintenance and should accommodate for common psychological barriers to health maintenance behaviours, including misconceptions surrounding contemplative practices, to present well-being techniques in ways acceptable to this population. Combining physical activity and mindfulness meditation is one promising preventative approach that warrants further investigation.

Effect of physical activity calorie equivalent (PACE) labels on energy purchased in cafeterias: a stepped-wedge randomised controlled trial

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Background: A recent meta-analysis suggested that using physical activity calorie equivalent (PACE) labels results in people selecting and consuming less energy. Only one included study was conducted in a field setting, in four convenience stores. The current study aimed to estimate the effect of PACE labels on energy purchased across 10 worksite cafeterias.

Methods: A stepped-wedge randomised controlled trial evaluating a PACE label intervention in which PACE labels (which include kcal content and minutes of walking required to expend the energy content) were added to food and drinks after a period of baseline. The setting was 10 worksite cafeterias based in England, which were randomised to the order in which they introduced the labels. The study ran for 12 weeks (April 2021 – June 2021) with over 250,000 transactions recorded on electronic tills. The primary outcome was total energy (kcal) purchased from intervention items per day. The secondary outcomes were: energy (kcal) purchased from non-intervention items per day, total energy purchased per day, and revenue. Generalised additive models were used to analyse the results.

Results: Models showed no evidence of an overall effect on energy purchased from intervention items during the intervention: -1.3% (95% CI -3.5% to 0.9%, p = .236). There was also no evidence for an effect on energy purchased from non-intervention items, -0.0% (95% CI -1.8% to 1.8%, p=.986), or total items -1.6% (95% CI -3.3% to 0.0%, p=.051). Revenue increased during the intervention, 1.1% (95% CI 0.4% to 1.9%, p = .002).

Conclusion: There was no evidence that PACE labels added to food and drink changed energy purchased across worksite cafeterias. There was considerable variation in effects between sites, suggesting potentially important unmeasured moderators.

Intervention development and optimization of a behavioural intervention on the adoption and use of Fractional Exhaled Nitric Oxide (FeNO) during primary care routine asthma reviews

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Background: Fractional Exhaled Nitric Oxide (FeNO) is an objective measure of airways inflammation used predominantly in specialist clinics. We developed an intervention to support primary care clinicians and patients to manage asthma using FeNO.
Methods: We developed an intervention following the Person Based Approach (PBA) with evidence and program theory using MCR guidance. We conducted think-aloud interviews with 7 patients and 11 health care professionals to optimise the intervention materials. Materials were tested in a feasibility study and we conducted a qualitative process evaluation with clinicians and patients from the 6 practices involved.

Results: The intervention included online training for clinicians to learn how to measure FeNO using point-of-care test, and a FeNO-guided algorithm for patients to receive personalised recommendations. We developed a handout for clinicians to support them to use the FeNO machine and to explain to patients how to do the test in the consultation, and a patient leaflet to introduce the FeNO test and explain what FeNO results mean. The interview feedback from clinicians and patients was positive overall. Patients found the FeNO test easy to do and were willing to have it as a regular component of their asthma reviews. Health care professionals suggested additional information that they would like to have included in the online training such as other factors that would affect the test result. Based on their feedback we added a printable page for patients on the agreed management plan to remind them to adhere to the personalised treatment.

Conclusions and implications: The PBA approach allowed us to increase acceptability of the FeNO test for patients with asthma and primary care clinicians, and understand, using patient and clinician feedback and consultation, the contextual factors that could affect test implementation. The intervention will be tested in a trial which will start in March 2022.

Co-design of a theory and evidence-based hospital deprescribing behaviour change intervention

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Background: To address infrequent deprescribing by geriatricians and pharmacists, five determinants have been prioritised and the following six Behaviour Change Techniques (BCTs) selected:
(1 & 2) Pros and cons and salience of consequences to address misconceptions that deprescribing is risky
(3) Restructuring pharmacists working to facilitate contribution to deprescribing
(4) Social comparison to address misconceptions that patients/carers are resistant to deprescribing
(5) Action planning to prioritise deprescribing
(6) Incentivising deprescribing
We aimed to co-design the content, mode of delivery and intensity of BCTs to develop the CompreHensive geriAtRician-led MEdication Review (CHARMER) intervention.

Methods: We sampled three hospitals representing contextual factors likely to influence CHARMER implementation. We recruited geriatricians, pharmacists and hospital staff likely to be involved in implementation to join one co-design panel per hospital. We convened two rounds of co-design workshops with each hospital to design a prototype for each BCT. We then prepared these prototypes for feedback at a final workshop attended by the three hospital panels.

Results: The six BCTs were operationalised into an intervention comprising:
(1 & 2) Workshop with pros and cons activities and videos of salient patient cases
(3) Weekly face-to-face pharmacist and geriatrician deprescribing discussion
(4) Videos of geriatricians navigating challenging deprescribing consultations
(5) Hospital deprescribing action plan template
(6) Dashboard to benchmark deprescribing activities

Automated prompts to flag high-risk patients for deprescribing and a primary and secondary care deprescribing forum were proposed as additional BCTs. These were later excluded as they did not align with the theoretical determinants of geriatricians' and pharmacists' deprescribing behaviours.

Conclusions: This study illustrates the integration of theory and co-design methodology with the target audience and implementation agents for a hospital deprescribing behaviour change intervention. The development of an intervention that remains faithful to the underpinning mechanisms of action of behaviour change is a strength of this approach.

A Systematic Review of Behaviour Change Techniques in Digital Health Interventions with Midlife Women

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Women in midlife experience health risks and menopausal symptoms that could be mitigated by engaging health-promoting behaviours, such as healthier eating and regular physical activity. It is often unclear what behaviour change theories and behaviour change techniques (BCTs) are applied in such interventions. The goal of this study was to assess how digital health interventions promote health-enhancing behaviours (i.e., improved diet, increased physical activity) in midlife women by evaluating the BCTs these interventions implemented.

Methods: Systematic review of digital interventions for improving lifestyle health-enhancing behaviours in midlife women. The type of BCTs, their mechanism of action, and intervention functions were evaluated using the behaviour change wheel (BCW). Reporting of psychological theory use within these interventions were explored using the theory coding scheme (TCS). Mode of delivery, psychological theory and BCTs were analysed for frequency and descriptive statistics.

Results: The included 13 interventions (n = 1308) comprised of 15 studies (n = 1661) show that the mean frequency of BCTs was 13 (SD 4.30, range 6 – 21) and the Goals and Planning Behaviour Change Category was used the most frequently with 77% of the interventions implementing at least one BCT from this category. The Behaviour Change Wheel (BCW) analysis shows that, 50% of the intervention content was delivered by increasing Capability, 42% by increasing Motivation, and 8% by providing Opportunity. Behavioural Regulation was the most frequently used mechanism of action at 15%, followed by increasing Knowledge at 13%, and Cognitive and Interpersonal skills at 10%. 69% of the studies indicated a psychological theory or a model.

Conclusions: High heterogeneity in the design and BCT selection suggest that the design itself may not be generalisable across various contexts and therefore a better approach may be to systematically co-design theory and evidence-based interventions with the target population of midlife women.

A systematic review of interventions delivered in the Emergency Department targets at improving long term asthma outcomes for adolescents and adults

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Background: Asthma is a chronic respiratory illness, affecting 12% of the UK population. When patients are discharged from the Emergency Department (ED) following an asthma attack, it is recommended an appointment is made with primary care, however only 34% of people attend an appointment within the recommended time, hence essential reviews are not undertaken. Interventions delivered before discharge from the ED have the potential to reach a hard-to-access population and provide a ‘teachable moment’ to improve asthma control.

Aims This review aimed to evaluate the effectiveness of ED interventions on long term asthma control, explore the characteristics of the interventions according to the theoretical domains framework and explore the barriers and facilitators to the implementation of the interventions.

Methods: A study protocol was registered on PROSPERO. We systematically searched seven electronic databases, and research registers, and manually searched reference lists of included studies and relevant reviews. Methodological quality was assessed using the Mixed Methods Appraisal Tool, and informed study interpretation. Findings were summarised narratively.

Results: The search identified 3527 records which following screening yielded 10 interventions meeting the inclusion criteria (6 randomised controlled trials and 4 non-randomised studies). Six interventions reported statistically significant improvements in one or more outcome measures relating to long-term asthma control, including unscheduled healthcare, asthma control, asthma knowledge or quality of life. We identified limited use of theory in the intervention design.

Conclusion: The results of this review show that ED asthma interventions may be capable of improving long-term outcomes. However, there was significant variation in the range of interventions, reported outcomes and duration of follow up. Future interventions would benefit from utilizing behaviour change theory. The findings from this study will be relevant for both primary and secondary care providers and have implications for the development of interventions aimed at improving long term asthma control.

Supporting women with breast cancer to adhere to hormone therapy: development and optimisation of the HT&Me web-app

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Background: Adjuvant endocrine therapy (AET) substantially reduces risks of recurrence and mortality in estrogen-receptor (ER) positive early breast cancer. However, 20% of women show poor adherence at two years and 50% at five years. It is crucial to develop effective tools to support women in taking adjuvant endocrine therapy as prescribed.

Methods: Informed by extensive formative research, underpinned by the Common Sense Model and Perceptions and Practicalities Approach, and with input from a Patient Advisory Group, we developed an interactive web-app as a core element of an intervention to help reduce poor adherence and improve quality of-life in women with ER-positive breast cancer. In the optimisation phase we used the Person-based Approach to maximize acceptability of, and engagement with, the web-app. Two studies each including 15-30 women collected feedback on a prototype of HT&Me web-app. Qualitative data were analysed thematically and informed changes to the layout, format and content of the web-app.

Results: The web-app was positively received by women, they were particularly keen on a short video explaining how hormone therapy works. Several barriers to engagement were noted. Some women found information in one section to be overwhelming, prompting changes to the structure of this section. Younger women did not feel represented on the web-app, which resulted in including more quotes from young women. Some women struggled with using the interactive diary tool (for recording medication taking and side effects), which resulted in simplifying instructions and the look of the diary calendar itself.

Conclusions and implications: A digital component of the intervention to support women in taking hormone therapy as prescribed appears acceptable and engaging. Valuable input from users demonstrates the importance of iterative pre-testing prior to a feasibility study.

A Qualitative Longitudinal Study of teenagers' Experiences of Covid-19 in The UK (TEC-19)

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Background: The COVID-19 pandemic has disrupted life and affected our health and wellbeing. Young people being particularly impacted as they navigate key developmental and life transition points which heavily depend on human connection. Young people have experienced the most anxiety out of any age group in the UK during the pandemic, potentially leading to chronic stress and adverse health impacts. This study examines the experiences of UK young people as the first year of national pandemic mitigation measures disrupted their lives, including their education.

Methods: This study used longitudinal qualitative methods. A total of 80 young people (10 friendship groups) were recruited to participate in seven waves of online focus groups between March 2020 and March 2021. The data were analyzed using longitudinal narrative enquiry, in which human dimensions of experience over time are systematically gathered, analyzed, and represented, whilst considering relationships between individual experiences and cultural context.

Results: Findings suggest that: 1) Younger adolescents coped better than older adolescents throughout the pandemic; 2) Technology may have protected many of the young people from social isolation and anxiety in a way that would not have been possible in similar crises/emergencies before; 3) Individuals who did well during the pandemic were those who found ways to be goal directed and put a structure in place in their lives; 4) Young people built resilience through the pandemic, having to face changing plans made them better prepared for future lockdowns and difficult situations.

Conclusions and Implications: With this tendency to self-right, young people are in a good position to build resilience through their experiences during the pandemic. Resilient individuals rebound from stressful experiences efficiently and are less likely to be chronically affected by stress and associated poor physical health. Building resilience is enhanced when we can provide young people with the right resources.

The effects of mindful eating on subsequent hunger, snack intake, and eating rate

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Background: Mindful eating is associated with healthier eating but the reasons for this association are unclear. This study (a) sought to replicate effects of mindful eating on subsequent snack intake, and (b) explored the possibility that effects are brought about by a slowed rate of eating that reduces hunger due to increased orosensory exposure.

Methods: Females (n = 211) were randomised to mindful eating (MINDFUL), slowed eating (SLOW) or normal eating (CONTROL). After rating their hunger, they ate 12 cookie pieces (snack 1) at a slowed rate (MINDFUL and SLOW groups) or their normal rate (CONTROL group). Those in the MINDFUL group were also instructed to attend to the sensory properties of snack 1. Participants then provided a second hunger rating before completing a bogus taste test (snack 2) followed by a third hunger rating. Participants were videoed via a webcam. (Pre-registration at https://osf.io/xbjpt.)

Results: There were no group differences in hunger following snack 1. Mean consumption of snack 2 was significantly lower in the MINDFUL and SLOW conditions compared to the CONTROL condition ($p = 0.028$, $d = 0.50$; $p = 0.027$, $d = 0.48$) but there was no difference between the MINDFUL and SLOW conditions. Rate of consumption of snack 2 showed a trend toward a group difference ($p = 0.055$, $\square_{p}^{2} = 0.038$) with slower eating in the MINDFUL compared to the CONTROL condition ($p = 0.068$, $d = 0.45$).

Conclusions and implications: Mindful eating reduced subsequent snack intake. The observation that equivalent reductions in consumption occurred when participants ate more slowly is consistent with the hypothesis that effects are brought about by increased orosensory exposure. Since research shows that mindful eating can also increase food enjoyment, it may represent an acceptable and effective strategy for protecting against weight gain.

Developing a behavioural intervention to increase intentions to initiate CPR in the event of Out-of-Hospital Cardiac Arrest

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Background: Prompt, effective bystander cardiopulmonary resuscitation (CPR) is the single most important factor determining survival from out of hospital cardiac arrest (OHCA), increasing survival up to 4-fold. However around 40% of people trained in CPR don’t attempt it when required. Therefore, the aim of this study was to develop a text-based intervention incorporating psychological theory and behaviour change techniques (BCTs) to increase the proportion of trained bystanders who attempt CPR in an emergency.

Methods: The text message prototype was developed in 3 stages and followed MRC guidance. Stage 1: The content was informed by the existing literature in relation to CPR and behaviour change theory. Stage 2: A qualitative study explored the relevance and acceptability of the draft text messages through individual interviews (n=10) conducted virtually. Stage 3: Co-production with volunteers from the general public (n=7) and stakeholders. The study team incorporated the findings from phases 1 and 2 into a series of text messages. A public involvement group and expert advisory group reviewed, provided feedback and reached a final consensus for the text message prototype. The messages were then independently assessed for BCT content.

Results: The current literature identified barriers to bystander CPR and BCTs within existing training programmes and the Health Action Process Approach (HAPA) provided the theoretical framework for the texts. The main themes arising from thematic analysis of participant interviews were the message type, the message form, who delivers the message, barriers and facilitators to implementation and the experience of CPR. 14 BCTs were verified by both assessors as being present across the 35 texts. The BCTs identified included: Action planning, anticipated regret, credible source and reduce negative emotions.

Conclusion: A text message intervention, consisting of 35 texts and incorporating 14 BCTs, was produced to be delivered over 6 months after initial CPR training.

Investigating within-person patterns and trajectories of dual e-cigarette and tobacco use

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Background: The full benefits of switching to e-cigarettes for cancer prevention are only realised if complete abstinence from tobacco occurs. However, a third of e-cigarette users in the UK continue to smoke tobacco (dual use). Aims are: 1) to investigate within-person patterns and trajectories of dual use behaviour and how these vary between individuals; 2) to identify within-person predictors of patterns of use; 3) to understand participant perspectives on their dual use behaviour.

Methods: An Ecological Momentary Assessment design with observational repeated measures single-case (N-of-1) datasets (N=20) with subsequent qualitative interviews. Participants were purposively sampled recent dual e-cigarette and tobacco users. Participants complete repeated (daily) measures for 90 days under naturalistic conditions on their e-cigarette use (objective and self-report), self-reported tobacco use, and on theory-informed psychological, social and environmental factors as potential predictors of behavioural patterns. Generalized Additive Mixed Models (GAMM) were used to analyse time-series data with thematic analysis used to analyse qualitative data. Findings from quantitative and qualitative data will be integrated during interpretation.

Results: For aim 1, we have generated descriptives of both intra- and inter-individual dual use patterns and trajectories. For aim 2, have assessed predictors of short-term episodes of exclusive tobacco use, relapse to exclusive tobacco use and full switching to exclusive e-cigarette use. For aim 3, qualitative interviews have been undertaken, prompted by a summary report of each participant's survey data to explore their perspectives on their patterns of use.

Conclusions and implications: The findings identify predictors of a return to exclusive tobacco smoking and of tobacco abstinence among dual users and help inform a typology of dual use with situated, person-centred explanations for changes over time.

Poster Presentations

Alphabetical by presenting author

Changes in school lunch behaviours during the COVID-19 pandemic

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Background: The COVID-19 pandemic has brought school lunches sharply into focus due to replacement meal strategies, new menus and delivery criterion and oncerns have been raised about nutritional quality and uptake by those in receipt of free school meals (FSM). Regional data in Tayside showed that 54.6% of primary children eligible for FSM took these during the pandemic compared to normal uptake of 66%. The current work aimed to assess menus and identify teachers' views on food provisioning in primary schools in Tayside from August to December 2020.

Methods: Menu assessments were modelled on Obesity Action Scotland school meals food-based standards https://www.obesityactionscotland.org/media/1507/eating_not_feeding_2020_ts.pdf
Using an online survey (21 questions combining multiple choice formats and open text) and interviews, primary school teachers shared their experiences of food quality, quantity, choices, meal delivery and factors influencing uptake. Interviews were recorded, transcribed and thematically analysed.

Results: Menu analysis showed that provision of vegetables and fruit were sub-optimal. Sugar and calorie content of some puddings were higher than recommended raising concerns about low nutrient density.
The online survey was completed by 41 primary school teachers, of which eight were followed up for interview. Around one third of respondents (29%) believed the quality of lunches had decreased and cited poor visual appearance of food, use of takeaway containers and food wastage. The lunch format was viewed fairly negatively by teachers, principally relating to the substitution of the hot lunch with a cold sandwich format, portion sizes, choice and perceived value for money. Significant concerns were expressed about whether these offerings were acceptable for children and how far they contribute to food security.

Conclusions and implications: Further work needs to be undertaken on food provision in emergency situations to provide to provide a nutritional safety net for vulnerable children.

Considerations for Future Melanoma Early Detection Programs for Men

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Background: Melanoma is the deadliest skin cancer. Middle-age men are often diagnosed with more advanced melanoma, have worse prognosis, and face higher mortality rates compared to women in the same age groups and younger men. There is a scarcity of early detection interventions that specifically target men. This study explored first-hand accounts from men diagnosed with melanoma to identify barriers to participation, along with content and delivery preferences of a future melanoma prevention intervention for high-risk men.

Method: Semi-structured interviews were conducted in English in the United States with men who had a confirmed melanoma diagnosis and received treatment from Boston's Massachusetts General Hospital between 2012 and 2017. Transcripts were coded using Atlas.ti software to develop a comprehensive understanding of recommendations for future prevention interventions. Thematic analysis was conducted across the entire sample, and we looked for similarities and differences in patient perspectives.

Results: The sample included 38 men (Mage diagnosis=63.5 years, SD =11.8, 21 with advanced stage (2-4mm tumour thickness), 84% first melanoma diagnosis). Male participants identified three main aspects to consider when developing an early detection intervention for men. As per intervention content, future interventions might include the use of shock factor, survival testimonials, and pictures of problematic moles. As per modality of delivery, future interventions could be delivered via email reminders, awareness pamphlets, or public events. As per barriers to accessing future interventions, participants identified privacy concerns, time constraints, and feelings of invincibility as possible deterrents.

Conclusion and Implications: Our study suggests that future interventions targeting men's risk for melanoma might benefit from designing the intervention with the three main considerations in mind, with the hopes of creating an intervention that would appeal to a larger audience. Our next step is to conduct a factorial design study to test the most effective combination of intervention components.

Know Your Numbers: A pharmacy weight management campaign evaluation

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Background: Obesity is one of the major risk factors for type 2 diabetes, cancer, and heart and circulatory diseases. The Know Your Numbers campaign launched in December 2020 as part of the Tesco Health Charity Partnership with Diabetes UK, British Heart Foundation, and Cancer Research UK. It aimed to raise awareness amongst Tesco Pharmacy customers of the impact of weight on health and the importance of 'knowing your numbers' – waist circumference and body mass index (BMI) – in addition to getting their measurements taken and signposting to further support.

Methods: Campaign evaluation included: (1) Customer engagement and pharmacy referrals (2) Digital metrics: number of visits to charity websites signposted from resources (3) An online post-campaign survey to pharmacy teams gathering insights on feeling supported by the partnership and feedback on resources.

Results: The campaign ran in 350 Tesco pharmacies, and resulted in 4,312 customer engagements, and 986 referrals to specialist weight management programmes. There was an increase in visits to charity webpages during the time of the campaign. Survey results (N=349) showed that: 94% of pharmacy teams felt positive about the Tesco Health Charity Partnership; 87% felt supported by the partnership; and 81% felt confident in their ability to access relevant resources from the partnership. More than 96% of pharmacy teams felt confident giving advice on healthier living to customers, and more than 73% found the campaign leaflets and posters moderately to very helpful. Participants cited the need for patient-friendly material/booklets, signposting resources, interactive training sessions for pharmacy teams, and tools to support in weight conversations as part of future campaigns.

Conclusions and implications: Overall, the campaign was well received, and supported pharmacy teams with their customer conversations. Future campaigns could include more training and a range of supporting tools and signposting resources to increase confidence among pharmacy teams.

DIAMONDS: Theory & evidence plus partnership-based development of a type 2 diabetes self-management intervention for people with severe mental illness

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Background: Type 2 diabetes (T2DM) is 2-3 times more common in people with severe mental illness (SMI). Self-management is crucial, with challenges faced by people with SMI. We created an intervention development approach supporting use of evidence in co-design of a T2DM self-management intervention for people with SMI.

Methods: Ranking MOAs and expert panel discussion
An expert panel ranked MOAs identified by systematic review (Coventry et al. 2021) for association with self-management of diabetes among people with SMI, and modifiability. MoAs scoring above a threshold were discussed, and those selected progressed.

Ranking of behaviour change techniques (BCTs) linked to identified MOAs
MoAs selected were mapped to BCTs: pairs with evidence according to Theory and Techniques Tool were included in a 2nd Expert Survey; MoA-BCT pairs with no link were dropped; and remaining links (inconclusive/absent evidence) were rated as relevant/irrelevant. Ratings were combined, those below threshold were dropped. Remaining MoA-BCT links were reviewed, and those selected went forward.

Stakeholder survey: One operationalisation of each BCT for each MoA was generated. Deliverability and acceptability were assessed. Those above threshold progressed.

EBCD: The research team prioritised MOAs-BCTs based on APEASE criteria, thereby parameterising the intervention. Following a trigger film, in a discovery workshop, stakeholders prioritised T2DM self-management behaviours. The intervention was developed using evidence in three theory-structured co-design workshops attended by stakeholders and designers.

Results: 15 MoAs were prioritised for the intervention. BCTs were selected that offered most promise and where possible targeted multiple MOAs.17 BCTs were prioritised and used in EBCD workshops.

Conclusions and implications: It was feasible to engage stakeholders with evidence for MoAs and BCTs and structure co-design activities using these constructs. The theory, evidence and experience-based co-designed modular intervention aims to support self-management of T2DM, addressing SMI-specific challenges, is currently in early stages of feasibility assessment.

Assessing the barriers and facilitators to physical activity in older adults with hearing loss: a semi-structured interview study

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Background: Hearing loss in older adults is independently associated with an increased risk of developing non-communicable diseases, including cardiovascular disease, diabetes, and dementia. Observational evidence from cross-sectional and prospective cohort studies suggests that physical activity may mediate this association, since older adults with hearing loss are more likely to be physically inactive or sedentary. Nevertheless, there is a dearth in research investigating the barriers to physical activity in this specific population.

Methods: Twelve older adults with hearing loss completed individual semi-structured interviews via Microsoft Teams video conferencing software. The interview schedule was conceived in accordance with the Capability, Opportunity, Motivation, and Behaviour (COM-B) model.

Results: Older adults with hearing loss reported experiencing barriers and facilitators to physical activity that were both general and hearing-specific. General barriers included a lack of physical opportunities (e.g., time, financial resources), while facilitators related to automatic reflective motivation, such as enjoyment. Hearing-specific barriers centred around lack of psychological capability (e.g., mental fatigue), as well as social and physical opportunity, including fear of alienation and stigma. Hearing aid use acted as both a facilitator in terms of improved communication, as well as a barrier arising from discomfort and concerns related to cleanliness.

Conclusions: This study suggests that older adults with hearing loss experience several general and hearing-specific barriers that prevent them from being physically active, highlighting the unique obstacles faced by this population. Subsequently, the next step in our research will be to link the themes identified to appropriate intervention functions and corresponding behaviour change techniques. These intervention components could then be incorporated into an intervention to improve physical activity in older adults with hearing loss, enabling them to live longer and healthier lives.

A qualitative study of sensory integration therapy for children with autism and sensory processing difficulties.

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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), however there is currently insufficient evidence on its effectiveness. This qualitative study explored the potential benefits of SIT from the perspectives of parents and occupational therapists. This qualitative study was nested within 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.

Methods: Semi-structured interviews were conducted with parents and carers of 20 children who received SIT as part of a randomised controlled trial, and 13 occupational therapists who delivered the therapy. Interviews were transcribed verbatim, anonymised and analysed using a framework approach.

Results: At the time of trial randomisation, the children in the interview study were aged between 4 and 10 years (mean 7.6, SD 2.0). The majority were male (15), most were White British (14) and just over half (12) lived in an area more deprived than the national average. Changes in children following the SIT were perceived to have a positive impact on family life; for example, some parents/therapists felt children became calmer, were better able to tolerate everyday tasks, and increased in confidence and independence. Parents also reported that the therapy helped them to develop a better understanding of their child. However, observed changes were not always sustained, some therapists did not believe that SIT was the most appropriate approach for all children, and outcomes were dependent on parental engagement.

Conclusions and implications: Findings emphasise the importance of facilitating an effective working relationship between parents and therapists, and enabling therapists to tailor their approach to meet the needs of individual children.

Walking can put a spring in your step - The impact of the Spring 2021 Step Count Challenge on participant physical fitness and mental wellbeing in Scotland

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Background: The impact of sedentary behaviour on health has led to the development of programmes designed to increase physical activity levels within workplaces where sedentary behaviour is often prevalent. An example is the Step Count Challenge (SCC): organised by Paths for All across workplaces in Scotland, in which teams of five colleagues complete as many steps as possible during either a four- (Autumn) or eight-week (Spring) period. The aim of this study was to examine how participation in the Spring 2021 challenge impacted participant's physical fitness and mental wellbeing.

Methods: Participants (N=475) were recruited using SCC's online platform and were asked to complete the Two-Minute Step Test on three occasions (at four-week intervals), and the Warwick-Edinburgh Mental Wellbeing Scale (WEMWBS-Short) fortnightly during the 8-week challenge, to assess physical fitness and mental wellbeing respectively. The longitudinal data were analysed using repeated measures ANOVAs.

Results: The overall impact of SCC participation on physical fitness was positive with participants showing increased step test performance across the challenge, ($F(2,184) = 20.85$, $p < .001$, $\eta^2 = 0.19$). The impact of SCC on mental wellbeing of participants was also found to be positive with participants reporting improved WEMWBS scores throughout the challenge, ($F(3.36,208.39) = 9.29$, $p < .001$, $\eta^2 = 0.13$).

Conclusions and implications: These findings demonstrate that participation in the Step Count Challenge appears to have an overall positive effect on both physical fitness and mental wellbeing. Further research regarding step counts and seasonal differences is required before any policy claims can be made, but these results are encouraging for the prospect of workplace walking programmes in the future.
