

plausible causal inference to guide action, while accepting and adapting to the reality of the public health landscape rather than wishing it were otherwise. The traditional art of dry stone walling can serve as a metaphor for the more ‘holistic sense-making’ we propose.

P39 EVALUATIONS OF PUBLIC HEALTH INTERVENTIONS USING NATURAL EXPERIMENT EVALUATION DESIGNS AND THE ‘TARGET TRIAL’ FRAMEWORK

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10.1136/jech-2021-SSMabstracts.127

Background Natural or quasi experiments are appealing because they enable the evaluation of events or interventions that are difficult or impossible to manipulate experimentally, which is especially relevant for public health research in which the evaluation of policy and health system reforms is an important focus. There remains ambiguity about their definition and how they differ from randomized controlled experiments and from other observational designs. We conceptualise natural experiments in the context of public health evaluations and align the study design to the Target Trial Framework.

Methods A literature search was conducted, and key methodological papers were used to develop this work. Peer-reviewed papers were supplemented by grey literature.

Results Natural experiment studies (NES) combine features of experiments and non-experiments. They differ from planned experiments, such as randomized controlled trials, in that the assignment of exposure is not controlled by researchers. They differ from other observational designs in that they evaluate the impact of events or processes that resulting from changes in exposure. As a result they are, in theory, less susceptible to bias than other observational study designs. Importantly, causal inference relies heavily on the assumption of ‘as-if randomisation’ of exposure allocation. The target trial framework provides a systematic basis for evaluating this assumption and the other design elements that underpin the causal claims that can be made from NES.

Conclusion Although there will always remain some ambiguity about the strength of causal claims from natural experiment evaluations, there are clear benefits to harnessing these rather than relying purely on observational studies. This includes the fact that NES can be based on routinely available data and that timely evidence of real-world relevance can be generated. Aligning NES to the Target Trial framework will guard against conceptual stretching of these evaluations and ensure that the causal claims about whether public health interventions ‘work’ can inform public health action within a ‘practice-based evidence’ framework.

P40 IS THERE AN EVIDENCE BASE ON REDUCING LIFESTYLE RISK BEHAVIOURS IN DISADVANTAGED GROUPS? A SCOPING REVIEW OF SYSTEMATIC REVIEWS

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10.1136/jech-2021-SSMabstracts.128

Background Lifestyle risk behaviours are associated with an increased risk of non-communicable disease and mortality. There are socio-economic inequalities in these behaviours, with some behaviours being more prevalent in particular groups, such as prisoners, homeless people and Gypsies, Travellers and Roma. The aim of this scoping review was to identify and bring together existing evidence from systematic reviews on reducing risk behaviours in disadvantaged groups and highlight where there is insufficient evidence to inform policy.

Methods MEDLINE and Embase were searched up to October 2020 for English language reviews, with supplementary searching in Epistemonikos and Health Systems Evidence. Systematic reviews reporting behavioural outcomes of interventions targeting smoking, excessive alcohol use, unhealthy diet or physical inactivity in low income or socio-economic status (SES), unemployed people, homeless people, care leavers, prisoners, refugees or asylum seekers, Travellers, Gypsies or Roma, people with learning disabilities or deprived areas or communities were eligible. Reviews of population-level policies reporting differential effects for disadvantaged groups and qualitative reviews exploring barriers or facilitators to behaviour change were also included. The literature was mapped based on the group and behaviour targeted.

Results In total 9,336 records were screened, 262 full texts retrieved and 92 systematic reviews included. The majority of reviews included studies of people with low income or SES (n=68), with diet and low income the most frequently addressed combination. There were fourteen reviews on prisoners, 12 on deprived areas, ten on homeless people and nine on people with learning disabilities. Only three reviews included unemployed people and two included refugees or asylum seekers (both focusing on barriers and facilitators to healthy eating). No reviews were identified on care leavers or Gypsies, Travellers and Roma. In total there were 11 reviews targeting alcohol use. Sixteen qualitative reviews explored participants’ perceptions of barriers and facilitators to changing their behaviour.

Conclusion A large number of systematic reviews were identified but we found some evidence gaps where new syntheses or primary studies may be needed to guide policy, for example on care leavers, Gypsies, Travellers and Roma and refugees and asylum seekers. Other useful contributions might include an overview bringing together different interventions in low-income populations and an overview of the perceptions of disadvantaged groups about behaviour change, allowing common barriers to be identified as well as factors that are unique to specific groups.

P41 A SYSTEMATIC REVIEW OF INEQUALITIES IN THE UPTAKE OF, ADHERENCE TO, AND EFFECTIVENESS OF BEHAVIOURAL WEIGHT MANAGEMENT INTERVENTIONS IN ADULTS

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10.1136/jech-2021-SSMabstracts.129

Background Health inequalities are a public health priority. The extent to which behavioural weight management interventions impact health inequalities is uncertain, as is the extent

to which trials of these interventions consider inequalities. We conducted a systematic review synthesising evidence on how different measures of inequality impact the uptake of, adherence to and effectiveness of behavioural weight management interventions in adults with overweight and obesity.

Methods We updated a systematic review from the US Preventive Services Taskforce to identify (cluster-) randomised controlled trials of primary care applicable behavioural weight management interventions in adults with overweight and obesity published prior to 5th March 2020. Two investigators independently screened articles for eligibility and conducted risk of bias assessment. We curated publication families for each trial. The PROGRESS-Plus framework (place of residence, race/ethnicity, occupation, gender, religion, education, socioeconomic status, social capital, plus other discriminating factors) was used to consider a comprehensive range of health inequalities. Data on trial uptake, intervention adherence or attendance, and weight change outcomes by PROGRESS-Plus criteria were extracted. Data were synthesised narratively, and Harvest plots were produced to summarise the impact of each criterion on uptake, adherence, and effectiveness.

Results One hundred and three studies (89 from previous review; 14 from updated search) were identified. The majority (n=91) are trials of behavioural weight loss interventions; 12 are trials of behavioural weight maintenance interventions. At baseline, all studies reported age (n=103) and 101 (98%) reported gender/sex; 67 (65%) studies reported race/ethnicity and 57 (55%) education. The least reported criteria were place of residence (n=3, 2%) and religion (n=1, 1%). Ten studies (10%) examined the impact of at least one PROGRESS-Plus criteria on uptake, 10 (10%) on intervention adherence or attendance, 31 (30%) on trial attrition, and 30 (29%) on weight change. Due to heterogeneity in intervention type and measures used to assess PROGRESS-Plus criteria, a meta-analysis was not conducted. Further results will be synthesised by August 2021, including Harvest plots summarising inequalities at each stage by different PROGRESS-Plus criteria.

Conclusion We identified a lack of consideration of inequalities in trials of behavioural weight management interventions for adults, especially in relation to trial uptake and adherence, and substantial heterogeneity in measures used to assess PROGRESS-Plus criteria. Current evidence does not align with public health policy which prioritises health inequalities. Researchers should consider health inequities in the design, conduct and targeting of interventions to best inform policy decisions and practice.

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WHAT IS THE EVIDENCE BASE SURROUNDING PARENTAL PHYSICAL ACTIVITY? A SYSTEMATIC SCOPING REVIEW OF THE LITERATURE

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10.1136/jech-2021-SSMabstracts.130

Background Despite the known benefits of physical activity (PA) to physical and mental health, many people fail to achieve recommended PA levels. Given parents are less active than non-parent contemporaries, they constitute a large potential intervention population. Interventions should be based upon in-depth understanding of the target behaviour and its

determinants. This scoping review (based on Arksey and O'Malley's guidelines (2005)) therefore aimed to provide an overview of the current evidence base for parental PA.

Methods Four databases (Medline, Embase, PsychInfo, Scopus) were systematically searched to identify peer-reviewed articles focusing on parental PA from 2005 onwards, including interventional, observational or qualitative study designs. Title and abstract screening was followed by duplicate full-text screening. Data extracted for all articles (100% checked by a second reviewer) included study design, proportion of fathers in sample, and ages of children. For quantitative studies, PA assessment method and factors examined based on the Socio-Ecological Model were extracted, as were intervention target and approach for interventional studies, and questions addressed in qualitative studies. Narrative methods, tabulations and graphs were used to summarise results.

Results Of 14,913 unique records retrieved, 213 articles were included; 27 reported on multiple study designs. 173 articles reported on quantitative data (81 cross-sectional, 26 longitudinal, 76 interventional) and 58 qualitative. The majority of articles originated from North America (62%); 53% included only mothers, whilst 2% included only fathers. Articles most frequently represented parents of infants (55% of articles), toddlers (51%), preschoolers (50%), and primary-school aged children (49%). Parents of young and older adolescents were only represented in 28% and 18% of the articles respectively. The majority of quantitative articles only included self-reported PA (69%). Observational articles focused on individual correlates/determinants (90%) and to a lesser extent on interpersonal and environmental factors (27% and 25% respectively). The majority of interventional articles related to full trials (71%), rather than pilot or feasibility studies, and involved parents alone (59%). Qualitative articles predominantly obtained information from focus groups or group interviews (47%) or individual interviews (45%), and most explored PA barriers and facilitators (57%).

Conclusion A range of quantitative and qualitative research has been conducted on parental PA. This review highlights areas for conducting systematic reviews of related articles, such as those focused on the PA of parents of specific groups of children. It also identifies gaps in the literature, for example around paternal PA, to inform intervention development.

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A SYSTEMATIC REVIEW OF THE EFFECTIVENESS OF PERSONAL LETTERS TO HEALTHCARE PROFESSIONALS IN CHANGING PROFESSIONAL BEHAVIOURS

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10.1136/jech-2021-SSMabstracts.131

Background Letters are regularly sent by healthcare organisations to healthcare professionals to encourage them to take action, change practice or implement guidance (e.g., regarding immunisation, blood pressure measurement, prescription, referral). However, whether letters are an effective tool in delivering a change in healthcare professional behaviour is currently uncertain. A systematic review was conducted to identify what information and behaviour change techniques (BCTs) within letters have the potential to optimise behaviour change in healthcare professionals.