

providers together with components to develop self-regulation of exercise and dietary behaviour.

Discussion Revisiting complex interventions through a lens that accounts for complexity can facilitate action on a pressing public health problem like obesity and overweight. Though QCA is an inductive method, this innovative approach has enabled the identification of neglected critical aspects of WMPs, such as the nature of relationships within them, which were previously not considered to be as important as more concrete content such as dietary focus.

OP84

ARE WE THERE YET? A CUMULATIVE META-ANALYSIS OF THE ACCUMULATION OF EVIDENCE FOR PHYSICAL ACTIVITY PROMOTION

^{1,2}R Love*, ¹E van Sluijs, ¹J Adams, ²D Humphreys. ¹Centre for Diet and Activity Research (CEDAR), MRC Epidemiology Unit, University of Cambridge School of Clinical Medicine, Cambridge, UK; ²Department of Social Policy and Intervention, University of Oxford, Oxford, UK; ³Department of Social Policy and Intervention, University of Oxford, Oxford, UK

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Background Despite a large evidence base and increasing number of physical activity interventions, rates of physical inactivity and associated chronic diseases are rapidly increasing globally. It is an imperative time to examine if new intervention trials have contributed novel evidence to the field. The purpose of this overview of systematic reviews is to investigate the evolution of evidence for physical activity promotion interventions over time through the analysis of changes in effect sizes for physical activity (PA) and cardiorespiratory fitness (CR) outcome measures.

Methods The search process was conducted in two stages. In the first phase, the Cochrane Central Register of Controlled Trials, MEDLINE, EMBASE, CINAHL, PsycINFO and Web of Science were searched for systematic reviews that examined the effects of interventions targeted at increasing physical activity within individuals, and included randomised controlled trials. In the second phase, primary studies included within the eligible systematic reviews were pooled. Interventions aiming to increase physical activity in healthy adults at the individual level, assessed through randomised controlled trials, were included. A cumulative meta-analysis was performed separately for interventions with PA and CR outcome measurements.

Results When assessed through cumulative meta-analysis, the totality of the evidence demonstrates that intervention effectiveness has not changed very much over the past fifteen years and that further trials are unlikely to overturn the positive and stabilised findings. The analyses indicate that the effect size for interventions became precise and stable in 2001 after the conduct of 12 physical activity (PA) and 11 cardiorespiratory (CR) outcome trials. In the time following the attainment of these thresholds of stability and precision, 70 further full scale RCTs (59 for PA and 11 for CR outcomes) have been conducted.

Conclusion Substantial evidence exists demonstrating that physical activity interventions can modify individual behaviour. However, there is limited evidence of advancements in intervention effectiveness. Given the stability and sufficiency of the evidence base, researchers are urged to shift focus towards the optimisation and scaling-up of interventions across populations.

Methods

OP85

A QUALITATIVE EXPLORATION OF TRIAL-RELATED TERMINOLOGY IN A STUDY INVOLVING DEAF BRITISH SIGN LANGUAGE USERS

¹A Young*, ¹C Dodds, ¹R Oram, ¹C Nassimi-Green, ¹R Belk, ¹K Rogers, ²L Davies, ³K Lovell. ¹Social Research with Deaf People, School of Health Sciences, University of Manchester and MAHSC, Manchester, UK; ²Health Services Research and Primary Care, Institute of Population Health, University of Manchester and MAHSC, Manchester, UK; ³Division of Nursing, Midwifery and Social Work, University of Manchester and MAHSC, Manchester, UK

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Background British Sign Language (BSL) is a fully grammatical, living language, independent of spoken English. Deaf BSL users are routinely excluded from clinical trials either on grounds of language and/or assumptions of confounding factors associated with disability. Few clinical trials specifically targeted at Deaf people exist internationally. Appropriate terminology in BSL for key concepts in clinical trials is needed to support informed consent. Barriers to conceptual (mis) understanding of trial participation and sources relevant to the Deaf community are unexplored. This study set out to:

(i) Explore, in BSL, the meaning and understanding of key concepts and common vocabulary used in recruitment and informed consent to a clinical trial

(ii) Enable signs/signed expressions to emerge that are semantically accurate and support Deaf people's informed consent in any future trial

Methods A community participatory approach underpinned data collection. This comprised Deaf-led, qualitative, exploratory group discussions (19 self-selected participants in five groups), facilitated in BSL. Discussion was structured to explore the meaning of key terminology (such as trial, randomisation, consent) and through that exploration generate signed explanations of concepts to use in future trials. Data were video-recorded and analysed in BSL, using a phenomenological approach, built from the application of 4 themes and 8 sub-themes using NVIVO8 for visual data.

Results All participants were over 30 years old, with a self-declared 'strong Deaf identity'; BSL was their first or preferred language. Six necessary conditions for developing optimal trial information were identified. (i) developing appropriate expressions and terminology from a community basis, rather than testing out previously derived translations from a different language; (ii) paying attention to language-specific features which support best means of expression (in the case of BSL expectations of specificity, verb directionality, handshape); (iii) accounting for bilingual influences on comprehension; (iv) deliberate orientation of information to avoid misunderstanding not just to promote accessibility; (v) sensitivity to barriers to discussion about intelligibility of information that are cultural and social in origin, rather than linguistic; (vi) the importance of using *contemporary language-in-use*, rather than jargon-free or plain language, to support understanding.

Conclusion These conditions need to be met to develop signed participant information for Deaf people that is: acceptable, accessible, transmitted accurately and understood as intended. They are required to address the cultural preferences and lower background knowledge of Deaf people (using signed languages) as well as in spoken/written languages when

participants' language use is different from the dominant language of the country.

OP86

UNDERSTANDING INTERVENTION ACCEPTABILITY: CHANGING PARTICIPANT VIEWS OVER TIME AND THE IMPORTANCE OF CONTEXT

¹S Morgan-Trimmer*, ²J Gregory, ³J Townson, ³S Channon, ⁴I Chestnutt, ⁴B Chadwick, ⁵S Murphy, ⁶S Hutchings. ¹*Psychology Applied to Health Group, University of Exeter Medical School, Exeter, UK;* ²*School of Medicine, Cardiff University, Cardiff, UK;* ³*Centre for Trials Research, Cardiff University, Cardiff, UK;* ⁴*School of Dentistry, Cardiff University, Cardiff, UK;* ⁵*Centre for the Development and Evaluation of Complex Interventions for Public Health Improvement (DECIPHer), School of Social Sciences, Cardiff University;* ⁶*Simbec-Orion Group Ltd*

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Background Acceptability is an important aspect of the quality of health interventions and also has implications for the feasibility of future implementation. Process evaluations of complex interventions often assess the acceptability of interventions through qualitative interviews with participants, addressing participants' experience of, satisfaction with and preferences for treatment/services received. Acceptability can be influenced by multiple aspects of an intervention and its context. This paper reflects on two process evaluations which produced complex findings on acceptability: the Delivering Early Care In Diabetes Evaluation (DECIDE) study, a trial of home vs. hospital care following a diagnosis of Type I diabetes (T1D) in children, and the Seal or Varnish (SoV) study which compared fluoride varnish and fissure sealant dental treatments to prevent caries in children.

Methods In the DECIDE study, semi-structured interviews with 11 (pairs of) parents and seven children were conducted 15–20 months post-diagnosis about their experience of hospital or home care immediately following diagnosis of T1D. In the SoV study, all children completed a 'smiley face' acceptability questionnaire immediately after treatment. In addition, paired semi-structured interviews were conducted with children at the beginning (50 children) and end (32 children) of the intervention, within a few days of receiving treatment. Interviews were divided evenly between trial arms; questions included experience of and acceptability of the interventions, diabetes management (DECIDE) and management of dental health (SoV).

Results In the DECIDE study, most interviewees wanted to be randomised to the 'home' arm initially but expressed a retrospective preference for whichever trial arm they had been in. This shift in preference may have been influenced by 'positive attitude' coping strategies adopted by families. In the SoV study, acceptability immediately post-treatment was related to which treatment was received, but acceptability in the week following treatment was strongly influenced by wider aspects of treatment such as receiving a sticker and there was little difference in overall acceptability by trial arm. Perceptions of overall treatment may have been influenced by the intervention being delivered through a well-established, child-friendly dental service in a school setting.

Conclusion Both studies found that acceptability of an intervention can change over time, and indicated that participant restructuring of acceptability can be influenced by wider contextual factors of the intervention. Implications for future research are that the timing of data collection on acceptability may influence findings, and that acceptability (and implications

for future implementation) should be interpreted in relation to intervention context.

OP87

DAGITTY AND DIRECTED ACYCLIC GRAPHS IN OBSERVATIONAL RESEARCH: A CRITICAL REVIEW

^{1,2}PWG Tennant*, ³J Textor, ^{1,4}MS Gilthorpe, ^{1,4}GTH Ellison. ¹*Leeds Institute for Data Analytics, University of Leeds, Leeds, UK;* ²*School of Healthcare, University of Leeds, Leeds, UK;* ³*Department of Tumour Immunology, Radboud University Medical Centre, Nijmegen, The Netherlands;* ⁴*Leeds Institute for Cardiovascular and Metabolic Medicine, University of Leeds, Leeds, UK*

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Background Empirical researchers working with observational data have been slow to adopt modern statistical methods for causal inference, which remain poorly recognised among applied quantitative researchers. First introduced in 2010, DAGitty is a free web application (and R package) that enables empirical researchers to draw directed acyclic graphs (DAGs) and identify minimally-sufficient adjustment sets without explicit knowledge of graphical model theory. This review examines empirical research articles that have used DAGitty as an aid for analysing observational data.

Methods Articles citing 'DAGitty' published before 1 July 2016 were identified through searching Web of Science, Medline, Scopus, PubMed, and Google Scholar. Original articles describing the analysis of observational data were identified by inspecting the published manuscripts. Information on the use and presentation of DAGs and adjustment sets were extracted into a standardised table. Bibliographic details (including journal discipline) were obtained from Thompson-Reuter's Journal Citations Reports.

Results 124 original articles describing the analysis of observational data were identified from 151 unique articles citing DAGitty. Two (2%) were published in 2012, seven (6%) in 2013, 23 (19%) in 2014, 46 (37%) in 2015, and 46 (37%) in the first half of 2016. The first authors came from 18 countries, most commonly the USA (n=36, 29%), Germany (n=19, 15%), Australia (n=14, 11%), Sweden (n=12, 10%), the UK (n=10, 8%), and Denmark (n=6, 5%). The host journals represented 43 academic disciplines, most commonly 'Public, environmental, and occupational health' (n=29, 23%), 'environmental studies' (n=13, 10%), 'multidisciplinary sciences' (n=11, 9%), 'oncology' (n=10, 8%), 'nutrition and dietetics' (n=9, 7%), and 'immunology' (n=8, 6%).

29 (23%) articles included a DAG in the manuscript, 41 (33%) in supplementary material, while 53 (44%) contained no DAG. DAGs varied greatly in scope from three-variable overviews to graphs with 30+variables. Very few DAGs were saturated, whether completely or in order of transit. At the extreme, some researchers omitted all arcs except those that were explicitly evidenced. Adjustment sets were often modified beyond minimally-sufficient set(s) by adding: competing exposures (for 'improve precision'), mediators (to 'improve face validity'), and interaction terms; or by removing variables using stepwise (p-value) methods or criteria for 'minimum change'.

Conclusion Use of DAGitty in empirical research is increasing exponentially. There is however huge variation in practice, with many choosing to blend DAG-based methods with more traditional/accepted approaches to model specification. Guidelines for 'best practice' should be developed and included in teaching material and/or journal guidelines.