(e.g. group of mothers) and a few directly involved the participants' partner in the intervention. None used social network data to accelerate behaviour change among participants.

**Conclusion** Interventions often include social support from existing or created social networks as a BCT. There is a lack of interventions that purposefully utilise social network data. More qualitative research with participants and process evaluations are required. The findings of this review will be used to inform the development of a weight management intervention that mobilises social networks for behaviour change.

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## RF26 THE EFFECTIVENESS OF PHYSICAL ACTVITIY INTERVENTIONS FOR PEOPLE WITH OSTEOARTHRITIS AND COMORBIDITY: A META-ANALYSIS OF OBESITY

S Mckevitt*, C Jinks, EL Healey, JG Quicke. *Primary Care and Health Sciences, Keele University, Keele, UK*

**Background** Osteoarthritis (OA) is one of the diseases with the highest prevalence of comorbidity. Clinical guidelines recommend physical activity (PA) for people with OA irrespective of comorbidity. Research investigating the effectiveness of PA interventions in OA and comorbidity is needed. Objective: To synthesise existing evidence investigating the effectiveness of PA interventions in adults with OA and obesity.

**Methods** A systematic review with meta-analysis was conducted (PROSPERO Registration: CRD42017055582). Six electronic databases; MEDLINE, EMBASE, AMED, CINAHL, SportDiscus and CENTRAL were searched for studies from their inception to 29.03.17. Inclusion criteria were: randomised controlled trials (RCTs) comparing the effectiveness of any PA intervention to non-PA control group; including adults aged 45 years old and over with clinical or radiographic OA at any site; at least one of the comorbidities of interest (COPD, depression, diabetes, hypertension, obesity, T2DM); and measuring pain, physical function, quality of life, global health post intervention and adverse events. Included study risk of bias (ROB) was assessed using the Cochrane risk of bias tool. Two reviewers screened titles, abstracts and full text articles, checked data extraction, and carried out ROB assessment. Random-effects model meta-analysis pooled outcomes from sufficiently homogeneous studies to calculate effect sizes (Standardized Mean Difference (SMD) with 95% confidence interval (CI)). Meta-analysis findings of the OA and obesity subgroup are reported.

**Results** The literature search retrieved 8171 citations of which 14 studies (n=4224 participants) were included in the full review, with 9 (n=1382 participants) analysed in the OA and obesity subgroup. PA interventions included: aquatic, aerobic, strengthening and functional activity; of 1–18 months in duration.

Four studies of OA and obesity measuring either Western Ontario Osteoarthritis Index (WOMAC) pain, WOMAC function or Six Minute Walking Test (6 MWT) and were included in three meta-analyses. Best estimates showed PA to improve WOMAC pain (n=3 studies; n=547 participants; SMD=-0.09 (95% CI) $-0.65$, $0.47$), improve WOMAC function (n=3 studies, n=415 participants; SMD=-0.35 (95% CI) $-0.89$, $0.18$) and the 6 MWT (n=4 studies, n=573 participants;

SMD=-0.93 (95% CI) $-0.49$, $2.35$). However, results were not statistically significant. There was substantial between-trial outcome heterogeneity ($I^2$=89.4% (p=0.000); 77.5% (p=0.012); 97.8% (p=0.000); respectively); results should be interpreted with caution. ROB domain judgements were generally either low or unclear. A small minority of judgements were at high risk of bias.

**Conclusion** Best estimates suggest small beneficial effects of physical activity on WOMAC pain, WOMAC function and the 6 MWT. Mixed effectiveness among individual RCTs was likely due to heterogeneous intervention types, intensity and duration.

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## RF27 HOW DOES CHANGING THE PLACEMENT OF FOOD PRODUCTS IN SUPERMARKETS INFLUENCE CUSTOMERS' DIETS?

[1,2]J Baird*, [1]SR Crozier, [1]D Penn-Newman, [1,2]C Cooper, [1,2]C Vogel. *[1]MRC Lifecourse Epidemiology Unit, University of Southampton, Southampton, UK; [2]NIHR Southampton Biomedical Research Centre, University of Southampton and University Hospital Southampton NHS Foundation, Southampton, UK*

**Background** The dietary choices of women have a major influences on their children's diets, and childhood diet quality tracks into adulthood. Supermarkets are a major source of food for families, yet understanding of how the environment within supermarkets influences food choices is sparse. Evaluating environmental strategies to enable families, particularly those from disadvantaged backgrounds, to make healthier food choices is necessary to improve diet, reduce obesity prevalence and improve population health. We assessed the effect of improving the availability and placement of fruit and vegetables in supermarkets, and removing confectionery from checkouts, on the diet quality of women of childbearing age from disadvantaged backgrounds.

**Methods** This study was the pilot phase of a natural experiment with a prospective matched cluster design. The setting was a discount supermarket chain in England. The intervention had three components: i) new fresh fruit and vegetable section at store entrances, replacing smaller display at the back ii) frozen fruit and vegetables in the first aisle, and iii) removal of confectionery from checkouts. Women customers aged 18 to 45 years, with a store loyalty card, who regularly shopped at three intervention and three matched-control stores in England were recruited. Data on women's diet quality and demographic characteristics were collected via telephone survey before refurbishment, and three months after. Linear regression models adjusting for baseline diet were used to assess whether diet quality improved in women who shopped in intervention stores.

**Results** A total of 150 women were recruited (56 from intervention stores and 74 from control stores), and 138 provided complete data at baseline and follow-up three months after refurbishment. Participant characteristics at baseline were similar in intervention and control groups; median age was 36 years (IQR 31–41), 91% were white British and 55% were educated to GCSE level or below. Almost half (41%) reported that the discount supermarket chain was their primary supermarket. Diet quality was higher among intervention than control participants at three months: β=0.25 SD (95% CI 0.01, 0.49), equivalent to four additional portions of green salad per week. This relationship weakened slightly after adjustment

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