

CAUSAL MECHANISMS OF A HEALTH BEHAVIOUR INTERVENTION FOR PATIENTS WITH MUSCULOSKELETAL PAIN

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Introduction and purpose: Low back pain and knee osteoarthritis are common conditions with a high global burden. Health behavioural risk factors may adversely influence the clinical course of LBP and knee OA and are hypothesised treatment targets to reduce pain and disability. The purpose of this study was to test the causal mechanisms of an integrated clinical and lifestyle focused intervention for patients with LBP and knee OA who are overweight or obese. **Methods:** Causal mediation analyses of aggregated data (n=280) from two RCTs; which included patients chronic low back pain and knee osteoarthritis. Participants were randomised via one central randomisation schedule, to receive health behaviour intervention, or usual care. The intervention involved clinical advice and education, and referral to a six-month telephone-based healthy behaviour coaching service focusing on behaviour change to support weight loss, physical activity and diet modification. We hypothesised the primary mediator was weight, and alternative mediators were diet, physical activity and pain beliefs. Outcomes were pain, disability and quality of life (QoL). Data were analysed using causal mediation analysis with sensitivity analyses for sequential ignorability. All mediation models were specified a priori in a published protocol. **Results:** The health behaviour intervention had no effect on pain intensity, disability or QoL in patients with low back pain or knee osteoarthritis. The intervention did not reduce weight, or the alternative mediators (diet, physical activity, pain beliefs), and these mediators were not associated with the outcomes (with one exception; poor diet was associated with lower mental quality of life). **Conclusions:** The health behaviour intervention delivered primarily using the telephone did not change the intended targets of weight, diet, physical activity and pain beliefs. The hypothesised mediators were not associated with the outcomes, meaning their role as treatment target might be questioned for treating musculoskeletal pain. However, targeting these mediators, in particular the lifestyle risk factors, may offer other health benefits such as improved cardiovascular disease risk, particularly for overweight or obese patients.