Identifying Constructs of Health Belief and Their Role in Disabling Distal Upper Limb Pain

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Background: Pain in the distal upper limb affects approximately 1 in 12 UK adults annually and is often disabling. Evidence has demonstrated the importance of health beliefs in disabling low back pain; limited research has focused on the distal upper limb. Given its unique structure and function, the relative importance of different health beliefs is plausible. Epidemiological studies have investigated the role of health beliefs in disabling upper limb pain by analysing responses to single statements about pain cognitions or groupings of statements based on similarity. It is unclear if these approaches have captured distinct constructs and therefore calls into question the meaningfulness of reported associations. This study aimed to identify underlying health belief constructs in individuals referred to physiotherapy with distal upper limb pain and investigate whether these constructs predict or moderate disabling distal upper limb pain.

Methods: This cross-sectional study used baseline data from the Arm Pain Trial (ISRCTN79085082). Eligible participants were adults referred to physiotherapy with distal upper limb pain. Information on demographic factors (sex, age, employment), pain (severity, duration, widespread symptoms), disability (modified Disabilities of the Arm, Shoulder and Hand Questionnaire) and health beliefs (11 statements, 5-point Likert agreement scale) were captured through questionnaires prior to trial randomisation. Exploratory factor analysis (EFA) used responses to health belief statements to identify underlying constructs. Due to ordinal data, output from a polychoric correlation matrix was used for EFA using principal axis factoring. Oblique promax rotation determined the association of statements with constructs, maximized to produce the clearest structure (factor loadings > 0.3 regarded as significant). The number of underlying constructs was determined after consideration of findings from parallel analysis, balanced against clinical plausibility. Factor loadings were used to calculate scores for each participant for each construct. The predictive and moderating effect of each construct on disabling pain was assessed using linear regression. A multivariable model adjusted for demographic and pain-related factors.

Results: A total of 476 trial participants contributed data (age range 18–85 years, mean 48.8 (SD 13.7), 54% female, 69% employed). EFA identified five health belief constructs: hereditary factors, movement and pain, locus of control, life course/lifestyle factors and prognosis. In multivariable analysis only greater pessimism about prognosis predicted disabling distal upper limb pain (β = 1.20 (95% CI 2.07, 0.32)). This was also the only health belief construct that moderated the pain–disability relationship (β = 0.16 (95% CI 0.031, 0.29)).

Conclusion: Results suggest that at the time of referral to physiotherapy, individuals with mild to moderate distal upper limb pain but higher than expected disability may benefit from reassurance regarding prognostic outlook. These findings support a stratified model of care based on recovery expectations. Future investigations should confirm and validate the health belief constructs proposed and investigate their longitudinal impact on chronic disabling distal upper limb pain.

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