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Feasibility and Acceptability of an Emergency Department Digital Pain Self-Management Intervention: An Randomized Controlled Trial Pilot Study

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Abstract : Background/Significance: Over 3.4 million acute axial low back pain (aLBP) cases are treated annually in the United States (US) emergency departments (ED). ED patients with aLBP receive varying verbal and written discharge routine care (RC), leading to ineffective patient self-management. Ineffective self-management increase chronic low back pain (cLPB) transition risks, a chief cause of worldwide disability, with associated costs >$60 million annually. This research addresses this significant problem by evaluating an ED digital pain self-management intervention (EDPSI) focused on improving self-management through improved knowledge retainment, skills, and self-efficacy (confidence) (KSC) thus reducing aLBP to cLBP transition in ED patients discharged with aLBP. The research has significant potential to increase self-efficacy, one of the most potent mechanisms of behavior change and improve health outcomes. Focusing on accessibility and usability, the intervention may reduce discharge disparities in aLBP self-management, especially with low health literacy. Study Questions: This research will answer the following questions: 1) Will an EDPSI focused on improving KSC progress patient self-management behaviors and health status?; 2) Is the EDPSI sustainable to improve pain severity, interference, and pain recurrence?; 3) Will an EDPSI reduce aLBP to cLBP transition in patients discharged with aLBP? Aims: The pilot randomized-controlled trial (RCT) study's objectives assess the effects of a 12-week digital self-management discharge tool in patients with aLBP. We aim to 1) Primarily assess the feasibility [recruitment, enrollment, and retention], and [intervention] acceptability, and sustainability of EDPSI on participant's pain self-management; 2) Determine the effectiveness and sustainability of EDPSI on pain severity/interference among participants. 3) Explore patient preferences, health literacy, and changes among participants experiencing the transition to cLBP. We anticipate that EDPSI intervention will increase likelihood of achieving self-management milestones and significantly improve pain-related symptoms in aLBP. Methods: The study uses a two-group pilot RCT to enroll 30 individuals who have been seen in the ED with aLBP. Participants are randomized into RC (n=15) or RC + EDPSI (n=15) and receive follow-up surveys for 12-weeks post-intervention. EDPSI innovative content focuses on 1) highlighting discharge education; 2) provides self-management treatment options; 3) actor demonstration of ergonomics, range of motion movements, safety, and sleep; 4) complementary alternative medicine (CAM) options including acupuncture, yoga, and Pilates; 5) combination therapies including thermal application, spinal manipulation, and PT treatments. The intervention group receives Booster sessions via Zoom to assess and reinforce their knowledge retention of techniques and provide return demonstration reinforcing ergonomics, in weeks two and eight. Outcome Measures: All participants are followed for 12-weeks, assessing pain severity/ interference using the Brief Pain Inventory short-form (BPI-sf) survey, self-management (measuring KSC) using the short 13-item Patient Activation Measure (PAM), and self-efficacy using the Pain Self-Efficacy Questionnaire (PSEQ) weeks 1, 6, and 12. Feasibility is measured by recruitment, enrollment, and retention percentages. Acceptability and education satisfaction are measured using the Education-Preference and Satisfaction Questionnaire (EPSQ) post-intervention. Self-management sustainment is measured including PSEQ, PAM, and patient satisfaction and healthcare utilization (PSHU) requesting patient overall satisfaction, additional healthcare utilization, and pain management related to continued back pain or complications post-injury.

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