South West Clinical School Journal South West Clinical School Journal - Issue 3, Number 1, 2023

2023

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https://doi.org/10.24382/8w19-ch42
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South West Clinical School Journal
Online Journal of the South West Clinical School in Cornwall ISSN 2754-9461

Special Edition
#400WORDS: CHIEF NURSE RESEARCH FELLOWSHIP EVIDENCE IMPLEMENTATION PROJECTS

Looking to redesign the un-loader brace with older people living with frailty: a co-production project

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Submitted for publication: 07 March 2023

Accepted for publication: 26 March 2023

Published: 31 March 2023

Background

Osteoarthritis is one of the prominent causes of physical disabilities in the world affecting a growing number of the ageing population for which there is no cure. The healthcare costs associated with osteoarthritis, especially in the older population and has become a significant public health issue (Helmick et al., 1995 cited by Rizuwa et al., 2019). As we age, the structural and biomechanical changes in the knee joint result in common complaints of joint pain, instability, stiffness, deformities and limited range of movement and leading to sedentary lifestyle (Kellgren and Lawrence, 1957).

NICE guidelines recommend the use of knee braces, they offer a reasonable alternative to surgical realignment or replacement procedures (NICE, 2016). The un-loader brace uses two dynamic force straps to impart a force against the lateral or medial side of the knee as it extends reducing the load and pain to enable mobility (Hjartarson and Toksvig-Larsen, 2018). Local data shows that only half of the oldest (+75 years) take up the offer of such a brace. Anecdotal feedback suggests a number of barriers to uptake.

Review of the evidence

A literature review was undertaken to look at the evidenced enablers and barriers to uptake to inform a change project. Full text journal articles over the last ten years were reviewed from PubMed, Medline and CINHAL database. Search terms used to identify appropriate evidence included ‘unloader knee brace’, ‘elderly’, ‘older person’, ‘osteoarthritis’ and ‘orthotics’. One hundred and eleven papers were reviewed, finding six relevant papers.

The evidence reflects that compliance with unloader braces reduces with age (Giori, 2004, Squyer, *et al.,* 2013) despite significant improvement in patient’s quality of life, reduced pain and increased function, enabling participation in activities of daily living including paid work and leisure (Squyer, *et al.,* 2013).

Barriers to wearing the brace included problems with skin irritation and swelling, poor fit, difficulty applying and removing the appliance, its heaviness and bulkiness, especially on top of clothing. In addition, Grimshaw (2013) recognised that compliance in the older population needs to recognise wearers will have visual, cognitive or impaired hand dexterity affecting the choice of brace. Braces often seem to be designed for the young and sporty and manufacturers promotional literature that does not reflect a typical end user; the older person living with frailty.

Project plan

Utilising the JBI Evidence Implementation Model (Porritt et al., 2020), this project will bring stakeholders together to look at the evidence and review the products available. Older people living with frailty will inform the co-development and co-design of new product ideas to strengthen usability in this population.

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