UNRAVELING THE LINK BETWEEN PAIN COGNITIONS AND QUALITY OF LIFE IN SPINE-RELATED PAIN

Insights and interventions

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ABSTRACT OF THE RESEARCH

Spinal pain is a prevalent condition affecting up to 80% of the global population. Additionally, a large subgroup of people with low back pain also report associated leg pain (i.e., lumbar radiculopathy). Such spine-related pain conditions substantially impact patients' health-related quality of life. In recent years, pain neuroscience education (PNE) combined with either surgery or cognition-targeted exercise therapy has been shown to effectively improve health-related quality of life in this population. PNE specifically targets maladaptive pain cognitions (e.g., kinesiophobia, pain catastrophizing, and hypervigilance), which are known to facilitate the development of disability and chronic pain. However, currently, not much is known regarding the influence of these cognitions on health-related quality of life in people with spine-related pain. Therefore, the central aim of this thesis is to investigate the influence of pain cognitions on health-related quality of life in different subgroups of people with spine-related pain. Specifically, it provides insight into the direct relationship between pain cognitions and health-related quality of life, as well as the influence of these cognitions on the effect of the established PNE-based treatment strategies.

Part one of this thesis is a systematic review summarizing the current evidence on the predictive value of preoperative pain cognitions, particularly fear-avoidance beliefs, on postoperative health-related quality of life following surgery for lumbar degenerative disease. However, only limited or mixed evidence was found, indicating the need for continuous research regarding this relationship.

Part two comprises two cross-sectional studies detailing original research investigating the direct relationship between pain cognitions and health-related quality of life in people with spine-related pain. The first study describes the difference in health-related quality of life between the general population and people with lumbar radiculopathy scheduled for surgery. Additionally, it found significant associations between patients' pain cognitions and this difference in health-related quality of life. The second study relates the interactions between pain cognitions, pain intensity, sex, and pressure pain thresholds to health-related quality of life in people with chronic spinal pain. This study confirmed the negative relationship between pain cognitions and health-related quality of life and describes how patients' pain cognitions have an adverse effect on their physical health-related quality of life via a negative influence on their pain experience.

Part three includes three longitudinal studies investigating the role of pain cognitions in the treatment effect of several interventions on health-related quality of life in people with spine-related pain. Specifically, the first study identified kinesiophobia as a significant moderator for the effect of PNE combined with cognition-targeted exercises on patients' mental health-related quality of life. Similarly, the second study describes kinesiophobia moderating the treatment effect of perioperative PNE on health-related quality of life in people undergoing surgery for lumbar radiculopathy. The third study assessed the mediating role of pain cognitions in the treatment effect of perioperative PNE in this population. This study found that pain catastrophizing significantly mediates this treatment effect on physical health-related quality of life, indicating that favorable changes in patients' catastrophizing thoughts following PNE positively influence their long-term physical health-related quality of life.

Part four proposes a trial protocol introducing perioperative PNE in at-risk patients undergoing surgery for lumbar radiculopathy. It describes a preoperative screening of potential pain-related risk factors, including maladaptive degrees of pain catastrophizing and kinesiophobia, to identify patients at risk for unfavorable surgical outcomes. As perioperative PNE aims to address maladaptive cognitions, patients receiving this educational therapy will potentially benefit more and show a greater improvement in health-related quality of life than those receiving a biomedical-focused education.

CURRICULUM VITAE

Wouter Van Bogaert obtained both a Master of Science degree in Physical Education and Kinesiology and a Master of Science degree in Rehabilitation Sciences and Physiotherapy at the KU Leuven. In October 2018, he started his PhD at the Vrije Universiteit Brussel under the supervision of Prof. Dr. Jo Nijs, Prof. Dr. Koen Putman, Prof. Dr. Ronald Buyl, Prof. Dr. Iris Coppieters, and Dr. Eva Huysmans. From 2018 to 2020, he worked as a pre-doctoral researcher in the B²aSic-project which evaluated the effectiveness of perioperative pain neuroscience education in people undergoing surgery for lumbar radiculopathy. In 2020, Wouter obtained a PhD Fellowship in strategic basic research from the Research Foundation – Flanders (FWO). Since then, he set up and started a new clinical trial, the B²EARS-study, which focuses on perioperative pain neuroscience education in at-risk patients undergoing surgery for lumbar radiculopathy. Since starting his PhD, Wouter has co-authored 10 papers, published in peer-reviewed journals, and currently has 3 more under review. His primary research interests include pain neuroscience education for people with chronic musculoskeletal pain, as well as health-related quality of life in relation to pain.