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NARRATIVE REVIEW

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Self-efficacy as a mediator of the relationship between pain and disability in chronic pain patients: a narrative review

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Abstract

Self-efficacy is an important indicator of psychological wellness, devoted to prescribed medications, along with pain-coping strategies in individuals who have chronic pain, a psychological concept described as one's confidence in performing a specific activity. Poor self-efficacy is an impediment to rehabilitation and predicts long-term impairment. Higher self-efficacy can improve function and prolong physical well-being in people who have chronic pain. Recent findings show that coping mechanisms play a major role in chronic pain adaptation. SE beliefs are a significant determinant of coping habits. This article reviews the theory of SE, the importance of application of SE in treating chronic pain and disability.

Keywords: Self-efficacy, Chronic pain, Disability, QOL, KOA

Main text

The International Association for the Study of Pain reports this as "an uncomfortable sensory and emotional incident connected with real or possible damage to tissue." Pain is often subjective in that each person learns to apply the word through his or her own experience. For a part or parts of the body, it is always a feeling, but it is always painful, thus a negative emotional experience. Many of us encounter pain's effects fleetingly. Most of us have persistent symptoms that do not escalate to a function-interfering stage. The transition from healthy to sick is a quantitative variation involving risk factors of both primary (biological) and secondary (psychological, social, and cultural) nature. Acute pain is likely to result from tissue injury, called nociceptive pain, or pain that results from real or potential non-neural tissue damage and causes nociceptor activation. Chronic pain is defined as pain that lasts over 3 months and has at least some aspect of central sensitization, though this varies [1]. Negative psychosocial factors that also impede the achievement of treatment objectives by healthcare providers compound it. For instance, the model of fear-avoidance shows that negative psychosocial factors (example catastrophe, anxiety, and depression) play a potential role in conciliating impairment in chronic pain patients. Improving activities of daily living (ADLs) of patients' suffering should be a priority in treating chronic pain. Focusing on improving both ADLs and quality of life (QOL) using a multimodal approach includes rehabilitation, exercise therapy, cognitive behavioral therapy (CBT), and mindfulness, which are recommended for chronic pain management [2]. Furthermore, the prevalence of self-reported chronic back pain and chronic painful arthritis is 16%. The rate of widespread chronic pain is 10–11%. Females are more likely to experience chronic pain than males of all ages. The cost of chronic pain, directly and indirectly, of healthcare, is high. Those patients can be difficult to diagnose and treat [3].

In this review, the target symptoms for attention are pain and functional impairment. Varieties of physical and psychological causes believed to lead to increased impairment in patients with chronic pain. Pain severity

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is correlated with physical activity and shown to have a pessimistic association with going back to work in patients with chronic lower back pain (CLBP) [2]. Similarly, pain and disability are cardinal symptoms of patients with osteoarthritis. The patient can exhibit different disabilities at the level of activities, depending on the joint involved. Aside from that, it has been linked to limitations in performing social roles [4]. Various studies on chronic pain have looked at the relationship between pain severity and the range of activities that it restricts. Moderately high inter-correlations show that the more severe the pain, the more it tries to interfere with the patients' thoughts, emotions, and activities as an individual [5].

Self-efficacy

Self-efficacy refers to an individual's perception of how effectively an individual believes that, in specific circumstances, they should perform special behaviors. The significance of SE in one's ability to control pain has been demonstrated in cases of chronic pain and various types of discomfort. An increasing research base promotes that the extent of SE contributes to a patient's chronic pain. However, some researchers have presented evidence suggesting that depression frequently contributes to the impairments seen in people with chronic pain. Later, it was discovered that, when the effects of pain severity and self-efficacy beliefs are considered, depression does not significantly cause disability [5]. It has been demonstrated that self-efficacy in relation to pain affects the severity of pain, negative psychological variables, and impairment related to chronic pain. Additionally, it is claimed that SE reconciles the association between pain intensity and disability. Preceding research has proved that improved SE associated with pain is a preventive element that helps protect chronic pain progress and promotes an impact that is positive on treatment adherence behavior [2].

Self-efficacy on chronic pain and disability

Chronic pain patients suffer from physical discomfort and functional limitations that lead to disability and hinder the QOL of an individual [6]. Because the risk of disability in function increases with age, there is considerable debate about morbidity compression will characterize whether this growing population of older adults or by people simply living longer with higher disease and disability burdens. To date, extreme biological, disease-related causes, health patterns, and demographic variables have appeared to concentrate on much of this study. Apart from that, individuals have received less attention in models of functional disability, such as their psychological characteristics, and particularly in explaining differences in functional disability that are independent of underlying physical disabilities [7]. Psychological variables such as kinesophobia and SE have been found to be correlated with pain and perception of impairment in patients [6]. SE beliefs are one aspect that plays an important role in this relationship pattern as they represent the expectations or evaluations of the individual's capacity to produce certain levels of efficiency, to execute effective specific behaviors. People want to take part; in the time, they invest, in their perseverance in the face of challenges, and the patterns of thinking and emotional reactions they undergo. Specifically, people with weaker beliefs in SE limit their variety of tasks and bring less commitment to those they perform with less perseverance [7].

Self-efficacy determines the confidence of a person in his or her personal skills. The effectiveness of pain reduction, management, coping, and everyday functioning standards will help assess the level of impairment. Self-efficacy helps assess how well a patient adapts to pain and may clarify the variability between the perceived levels of action of a patient and their actual performance. A precise assessment of a patient's disability and self-efficacy is helpful in reducing discomfort and enhancing physical functioning in chronic pain. It has been proven that increased self-efficacy is significantly linked to better physical activity in patients with chronic pain [6]. Even if pain is mild or moderate in severity, doubting one's own abilities (low self-efficacy) can be debilitating. Other research suggests that a lower level of impairment is correlated with higher levels of self-efficacy [8]. In females with knee OA (KOA), an increase in intensity and frequency of pain and reduced self-efficacy (SE) for baseline functional activities projected decreased walking efficiency over 2 years. The SE of the lower baseline also predicted decreased stair ascending efficiency. Although quadriceps strength or power at baseline solely projected change in mobility function, reduced ability of muscles interacted with poorer SE in predicting worsening stair ascent time over 2 years. These results indicate interventions aimed at maintaining or improving mobility in women with KOA need to concentrate on pain management and SE development. Strengthening the capacity of the knee muscle remains a significant goal in females with reduced SE [9].

Psychometric evaluation for self-efficacy

Pain Self-Efficacy Questionnaire (PSEQ)

The goal of the questionnaire is to assess people's confidence in their capacity to execute various tasks despite their suffering (also known as self-efficacy). The PSEQ is a 10-item questionnaire in which patients rate their level of confidence on a scale of 0 (not at all confident) to 6

(completely confident). Total scores are derived by adding the individual items' values, which range from 0 (low self-efficacy) to 60 (high self-efficacy) [10].

	Not at all confident	1	2	3	4	5	Completely confident
1. Despite the pain, I can enjoy things	0	1	2	3	4	5	6
2. Despite the pain, I can complete most home tasks (e.g., cleaning, dishwashing)	0	1	2	3	4	5	6
3. Despite the pain, I can socialize with my friends and family as frequently as before	0	1	2	3	4	5	6
4. In most cases, I can manage my pain	0	1	2	3	4	5	6
5. Despite the pain, I can work in some capacity. ("Work" includes housework, both paid and unpaid work.)	0	1	2	3	4	5	6
6. Despite my pain, I can still perform many of the things I enjoy, such as hobbies or leisure activities	0	1	2	3	4	5	6
7. I can manage my pain without the use of medicines	0	1	2	3	4	5	6
8. Despite the pain, I can achieve most of my life's objectives	0	1	2	3	4	5	6
9. Despite the pain, I can maintain a normal lifestyle	0	1	2	3	4	5	6
10. Despite the pain, I can progressively increase my activity level	0	1	2	3	4	5	6

Instructions: Please rate your confidence in your ability to do the following things right now, despite the pain. Tap one of the options on the scale beneath each item, ranging from "not at all confident" to "absolutely confident" to indicate your answer [10].

Interventions enhance pain self-efficacy

"Pain self-efficacy" is a belief in one's ability to handle and accomplish a task despite discomfort. A person's pain SE influences the ability to achieve functional and lifestyle goals. Increased pain self-efficacy is linked to reduced disability, pain, disease activity, less depressive symptoms, weariness, and emotional distress, as well as higher efficacy beliefs and physical activity adherence. In patients with chronic pain, pain self-efficacy enhances physical activity engagement and moderates treatment response. Cognitive behavioral therapy, guided imagery, exercise, and multicomponent therapies may help people with chronic musculoskeletal pain improve their pain self-efficacy. However, the type, frequency, intensity, mode, time, and rest intervals of therapies to promote pain self-efficacy differ. The study defined psychological therapies as pain-controlling interventions based only on psychological principles (e.g., cognitive behavioral therapy). Exercise interventions are modalities of exercise (e.g., aerobic or resistance training) that are used to treat pain. They characterized self-management interventions as those that promote an individual's self-confidence in managing the consequences and lifestyle adjustments that come with living with a chronic condition and only based on educational and/or self-management concepts. Multi-component interventions for pain management described as those combining a mix of several therapies (e.g., exercise plus psychological therapy or self-management strategies plus exercise). At follow-ups of 0 to 3 months, there was a minor effect of multi-component, psychological, and exercise interventions on improving pain self-efficacy. At follow-ups of 4 to 6 months, there was a slight effect of multi-component interventions on improving pain self-efficacy; and at follow-ups of 7 to 12 months, there was a minor effect of multi-component interventions on improving pain self-efficacy. After a year, no intervention increased pain self-efficacy. At any follow-up time, self-management therapies did not enhance pain self-efficacy. In people with chronic musculoskeletal pain, there was low-quality evidence of a minor effect of multi-component exercise and psychosocial therapies on enhancing pain self-efficacy [11].

Discussion

The study explores the importance of self-efficacy on pain and disability. The study's main findings suggest that promoting self-efficacy can be an effective strategy in reducing pain and improving disability in patients. Implementation of CBT, aerobic or resistance training, combination of exercise plus psychological therapy can work on people with chronic musculoskeletal pain by improving their pain self-efficacy. Healthcare professionals may manage patients' self-efficacy in clinical practice by tracking changes in PSEQ scores as a measure of self-efficacy. A longitudinal observational study was conducted including 72 patients. It focused on the patients' psychological and physical variables before and after 3 months of treatment. Univariate regression analyses clarified that changes in Pain Self-Efficacy Questionnaire (PSEQ) ($\beta = -0.31$; 95% CI -0.54– -0.08, $p = 0.008$) and Numeric Rating Scale (NRS) ($\beta = 0.24$; 95% confidence interval [CI] 0.01–0.47, $p = 0.04$) was associated with reduction in Pain Disability Assessment Scale (PDAS). Multivariate regression analysis demonstrated that change in PSEQ ($\beta = 0.26$; 95% CI -0.50– -0.02; $p = 0.01$) was associated with a reduction in disability, independent of change in NRS. A study revealed that increase in self-efficacy was link to a decline in disability, regardless of the severity of the pain; changes in anxiety and depression were not associated to it. Patients, including those

with severe persistent pain, may perhaps improve with improved self-efficacy and be able to retain their social lives. The research suggests that physicians should pay attention to patients' self-efficacy as well as pain intensity since self-efficacy may help patients with chronic pain improve their ADL, which may then enable them to resume their social activities [2].

Self-efficacy beliefs are crucial for comprehending the functional decrease brought on by age and chronic illness. A prospective epidemiological trial, 480 men and women aged 65 years and older were included in the study. The patients were having knee pain on most days of the week and difficulties with daily activities followed for 30 months. In predicting both self-reported disability and stair climb performance, there was a significant interaction between baseline knee strength and baseline self-efficacy. Participants with low baseline levels of self-efficacy and strength experienced the greatest 30-month declines in these results. These findings highlight the crucial part that self-efficacy beliefs play in comprehending functional loss brought on by chronic illness and ageing. When older persons are, confront with muscle weakness in their lower extremities, self-efficacy beliefs seem to be most crucial to functional deterioration. The authors expect that combining physical rehabilitation with programs for pain management and self-efficacy development could improve the exercise programs already-demonstrated effectiveness on physical function in older persons with knee OA [4]. Furthermore, stronger self-efficacy beliefs will shield against the onset of perceived functional limitations over a 2.5-year follow-up, independent of underlying physical ability, according to longitudinal data from a cohort of older men and women, aged 70 to 79 [7].

Conclusions

This study provides evidence that increase levels of SE are highly associated with larger improvements in disability related to pain. Increasing our self-efficacy through developing our self-belief has a positive impact on our capabilities. A variety of new, healthy behavior patterns are stimulated by our growing confidence in our ability to bring about change. Considering CBT and interdisciplinary pain rehabilitation programs as a part of management can actually improve both SE and depression in chronic pain patients. The relationship between self-efficacy and other favorable outcomes has been proven, making it a potent indicator of behavior and situation. We should focus on targeting psychological factors during the treatment and increasing SE may be a primary target in chronic pain treatment.

Literature gap and future research

There are many articles published, which are supporting the interest of this paper. The primary motive to write this paper is to bring to the notice the importance of application of SE in treating chronic pain and disability. As there is a lack of knowledge related to SE and pain-related disability among health care professionals and patients, health care professionals focus on pathology, posture, overuse, muscle imbalance, and health patterns. However, they do not invest their time in focusing on the psychological factors and self-efficacy expectations, which are link to pain and disability. Future research should focus on this topic and more researches are required, so that it could benefit the individuals up to larger extent and can address the change in the pattern of treatment.

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