

Commentary

The power of pain self-efficacy: Applying a positive psychology framework to pediatric pain

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Pain self-efficacy

Positive psychology involves factors that promote flourishing in contrast to the more traditional focus on variables impacting pathology (Seligman & Csikszentmihalyi, 2000). The resilience-risk model for pediatric chronic pain emphasizes the importance of examining positive psychological factors and highlights potential resilience resources (e.g. optimism, self-esteem) and mechanisms (e.g. pain-related self-efficacy, pain acceptance; Cousins et al., 2015). The current commentary examines the resilience mechanism of pain self-efficacy and aims to (1) define the construct, (2) briefly review relevant literature, and (3) discuss clinical implications and future research directions.

Self-efficacy refers to the expectation of success in performing behaviors required to meet a specific goal or outcome (Bandura, 1977). In health psychology, general self-efficacy might focus on positive outcomes (e.g. adherence, motivation) in the context of chronic health conditions (e.g. diabetes, arthritis; Marks et al., 2005). Meta-analytic findings suggest that general self-efficacy predicts lower impairment, pain severity, and distress in individuals with chronic pain (Jackson et al., 2014). Specific pain self-efficacy may interrupt the fear-avoidance cycle (Vlaeyen et al., 1995; Simons & Kaczynski, 2012) by reducing the impact of pain-related fear (Woby et al., 2007; Carpino et al., 2014), thus leading to lower disability. Exposure to and mastery of feared activities might further reinforce self-efficacy attributions, possibly leading

to increased self-efficacy to engage in those behaviors in the future (Bandura, 1977).

Brief review of current literature: pain self-efficacy and chronic pain

Pain self-efficacy research has been predominantly conducted with adults with chronic pain. In adult chronic and recurrent pain populations, higher pain self-efficacy is related to reduced emotional difficulties (Rahman et al., 2004; Turner et al., 2005; Nicholas & Asghari, 2006; Nicholas, 2007), fewer avoidance behaviors over time (Asghari & Nicholas, 2001), lower physical disability (Turner et al., 2005; Meredith et al., 2006; Nicholas & Asghari, 2006; Nicholas, 2007), greater pain acceptance (Fish et al., 2013), increased use of active coping techniques (Nicholas, 2007), and improved functioning (Strahl et al., 2000). Conversely, lower pain self-efficacy in adults with chronic pain is related to increases in pain (Lefebvre et al., 1999; Strahl et al., 2000; Rahman et al., 2004; Meredith et al., 2006), more frequent pain behaviors over time (Asghari & Nicholas, 2001; McCahon et al., 2005), and heightened perceived burden to caregivers (Kowal et al., 2012). Pain self-efficacy has also been identified as a mechanism of change (i.e. mediator) in the adult chronic pain literature, as it appears to explain how increases in pain intensity (Arnstein et al., 1999; Arnstein, 2000; Costa et al., 2011) or pain-related fear (Woby et al., 2007) may impact subsequent increases in disability in adult chronic pain populations (i.e. higher pain causes

lower pain self-efficacy, which in turn leads to higher disability).

In pediatric populations, greater pain self-efficacy has been related to improved school functioning, fewer depressive symptoms, and lower disability in children and adolescents with chronic headache (Kalapurakkel et al., 2015), fewer depressive symptoms in children with recurrent abdominal pain (Kaminsky et al., 2006), higher self-esteem and fewer somatic symptoms in children and adolescents with various forms of chronic pain (Bursch et al., 2006), and higher acceptance and lower disability in adolescents with chronic pain (Wallace et al., 2011). Pain self-efficacy was found to mediate the relation between pain-related fear and both functional and school-related disability in youth with headache pain (Carpino et al., 2014). Given that pain self-efficacy is associated with and may explain positive outcomes in adults and children with chronic pain, it may be an important target for intervention.

Clinical implications

Pain self-efficacy is considered a critical mechanism of change in evidence-based pain management interventions as it reflects enhanced motivation towards goals and expectations of mastery. According to a recent systematic review (Thompson et al., 2016), relative to other pain-related beliefs, pain self-efficacy has the most empirical support in enhancing treatment adherence for adults with chronic pain in multidisciplinary rehabilitation programs. Self-efficacy might have other widespread positive impacts on functioning. For instance, individuals' confidence in functioning effectively despite pain may enable them to more easily access and utilize adaptive coping strategies, which might reinforce their ability to gain more control over the pain (i.e. augmenting internal locus of control). Finally, self-efficacy likely broadens related cognitive domains (e.g. psychological flexibility) and may foster problem-solving skills to pursue valued goals (e.g. activity pacing to increase functionality).

Patients' readiness to change is a key variable that may interact with self-efficacy. Motivational interviewing (Miller & Rollnick, 2002) not only considers patients' goals and values, but also

identifies readiness for treatment and assesses stages of change (Turk et al., 2008). For instance, an adolescent with chronic pain who embraces the mind-body connection and acknowledges that psychological factors contribute to the pain experience will likely demonstrate greater readiness to accept the importance of learning self-management skills. In a cyclical fashion, eliciting enhanced motivation for self-control and self-management will in turn promote pain self-efficacy. The motivational model for pain self-management (Jensen et al., 2003) specifically illustrates how increasing the perceived importance of pain self-management and individual self-efficacy may directly influence readiness to change, promoting engagement in adaptive pain self-management behaviors. Thus, it is critical to continuously assess and monitor patients' pain self-efficacy throughout treatment and utilize therapeutic techniques that foster autonomy, confidence, and mastery aligned with prescribed values and goals.

Cognitive behavioral therapy (CBT) and acceptance and commitment therapy (ACT) are common and widely-regarded pain management interventions (Logan et al., 2014). Using a CBT approach, pain self-efficacy can be enhanced by generalizing prior successes that highlight mastery and confidence to pain-specific contexts. For example, a patient who is a former competitive athlete may benefit from reflecting on the process of becoming proficient in a specific sport when introduced to the concept of activity pacing. When first starting the sport, the patient completed basic drills and over time, gradually increased stamina and endurance as his/her body became accustomed to the activity. Additionally, other therapeutic components of cognitive behavioral interventions (e.g. mindfulness, biofeedback) provide patients with self-control tools to more effectively manage pain. ACT's contextual behavioral framework also cultivates pain self-efficacy by fostering pain acceptance and movement toward valued goals, counteracting pain-triggered behavioral avoidance (Wicksell et al., 2015). Within CBT and ACT frameworks, utilizing graded exposure treatment to previously avoided activities and situations due to pain can also promote self-efficacy by replacing

fear-based perceptions with more adaptive, goal-oriented beliefs.

Future research directions

In accordance with the resilience-risk model for pediatric chronic pain, pain self-efficacy is an individual resilience mechanism that activates in response to pain and may reduce reliance on risk mechanisms, such as catastrophizing (Cousins et al., 2015). Important future research goals include increasing understanding of pain self-efficacy across genders, cultures, and age, in addition to contextual factors that influence patient self-efficacy (e.g. familial factors including caregiver distress, pain responses, psychological flexibility, and beliefs and thoughts about pain). Relations between pain self-efficacy and other individual resilience traits (e.g. hope, acceptance, optimism) and important outcomes such as disability should be further explored. Longitudinal examinations of pain self-efficacy would provide information about the stability of pain self-efficacy over time and across development. Studies focused on the implementation of interventions targeting pain self-efficacy would provide insight into the cultivation of pain self-efficacy and intervention effectiveness over time. For instance, it remains unclear whether it is more beneficial to (a) target and augment self-efficacy prior to starting evidence-based treatments to prevent non-adherence and discontinuation of treatment or (b) integrate sessions at the beginning of treatment specifically tailored for self-efficacy enhancement.

Conclusions

Pain self-efficacy is an individual resilience mechanism that relates to higher emotional functioning, greater pain acceptance, and less pain and disability. Pain self-efficacy has also been shown to be a mechanism of change in pediatric and adult samples. Expanding the study of pain self-efficacy in samples of youth with chronic pain will likely lead to enhanced interventions to improve functioning in this vulnerable population.

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