Editorial

Coping with Chronic Pain: What Can We Learn from Pain Self-Efficacy Beliefs?

The perplexing question of what determines effective adjustment to chronic musculoskeletal (MSK) pain has been an important area of research for the past 3 decades. Despite a relatively large and growing body of scientific studies, however, there are few definitive answers. This is due partly to the complex nature of chronic pain, with its interlocking physical, psychological, and social factors, and partly to the heterogeneous nature of the chronic pain population.

Nevertheless, the continuing importance of this area of research is underlined by estimates that at any point in time, one in 5 members of the general population suffers chronic pain[1,2]. Chronic MSK pain, in the form of self-reported chronic back pain, chronic joint pain, and chronic widespread pain is far and away the largest contributor[3,4].

In addition, the direct and indirect healthcare costs of chronic pain conditions are very high. Studies indicate that individuals with chronic pain are frequent and repeated users of physician services and are commonly referred to specialists. The evidence shows that the vast majority use medications to treat their pain problems. Moreover, once a chronic pain condition develops, it is likely to persist for many years[5,6].

Clinically, these patients are challenging because the complex etiology of chronic pain frequently defies straightforward answers based on physical findings. Conservative therapy is commonly of little or no benefit. Treatment with other approaches is prolonged and complicated, with outcomes that are often less than satisfactory for both patients and clinicians[7]. Medications frequently provide, at best, only limited and short term symptom management, and at worst, exacerbation of symptoms. Many patients are, understandably, highly ambivalent about their use of the prescribed medications, and report feeling "trapped" between the pain relief they desire and the side effects they experience[6]. This leads to adherence and dependency issues that can further exacerbate their pain condition.

The study by Rahman and colleagues[8] of factors associated with pain self-efficacy in patients with chronic MSK pain adds to a small but growing body of research evaluating the psychological concept of pain self-efficacy as a means of clarifying relationships between the physical, psychological, and social components of chronic pain. Pain self-efficacy beliefs as measured by the Pain Self-efficacy Questionnaire refer to an individual's reported level of confidence to cope with pain, accomplish life goals, live a normal lifestyle, and maintain normal activities such as socializing, household chores, forms of paid and unpaid work, and pursuit of hobbies and leisure activities despite pain.

Previous investigations[9,10] have found that pain self-efficacy beliefs as well as pain intensity may be important predictors of disability and depression in different samples of chronic pain patients. The results of these studies clearly demonstrate the strong impact of high pain intensity as well as pain self-efficacy beliefs as important determinants in the development of disability and depressed mood. Thus pain intensity and pain self-efficacy beliefs may capture 2 important dimensions in better understanding what factors contribute to effective adjustment to chronic MSK pain.

In the current study, Rahman and colleagues approached the issue from a different direction, attempting to ascertain the determinants of pain self-efficacy beliefs. Their subjects are patients with chronic MSK pain recruited from a tertiary rheumatology clinic. Unfortunately, the cross-sectional nature of this study precludes any causal inferences. Nevertheless, the authors have argued that their results show that occupational status, reporting of depressive symptoms, and possibly distribution of pain sites, i.e., extensive or widespread pain versus limited or regional pain, are associated with significant differences in pain self-efficacy beliefs[8].

However, a more detailed review of their results suggests

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a more cautious set of conclusions is warranted. First, as the authors themselves acknowledge, differences in pain self-efficacy scores between those with extensive or widespread pain versus those with limited or regional pain are not statistically significant. This finding is further strengthened when the necessary corrections are made for conducting multiple comparisons to maintain an appropriate experiment-wise statistical significance level.

Second, a detailed review of their results indicates that across occupational status categories, both pain self-efficacy scores and pain intensity scores are significantly different. Unfortunately, this indication of a relationship between pain self-efficacy scores and pain intensity scores was not explicitly accounted for in subsequent multivariate analysis. This leaves open the likely possibility that the significant association of occupational status with pain self-efficacy scores identified by the authors may really be the result of differences in pain intensity scores across the categories of occupational status.

Thus a more cautious conclusion from the study's findings would be a reiteration of the previously identified significant association between pain self-efficacy beliefs and depressive symptoms. This conclusion is further support for the findings from earlier studies of pain self-efficacy as a significant predictor of depressive symptoms. However, although this result is a useful piece of corroborating evidence to earlier findings, it does not contribute any better insights to the authors' original goal of what factors may be determinants of pain self-efficacy beliefs.

In the absence of any further research findings at the present time, it may still be possible to offer useful insights and directions for future investigations in this area. In this regard it is important first of all to reiterate the conclusions of earlier studies that both pain intensity and pain self-efficacy beliefs appear to be important predictors of disability and depression. As the evidence shows, pain self-efficacy beliefs can mediate the impact of pain intensity on disability and depression, but they do not eliminate it. As has been noted high pain intensity itself has the strong impact on disability and depression[9]. This in fact is common sense for anyone who has suffered persistent pain. Moreover pain intensity itself has been shown to be strongly associated with self-efficacy beliefs related to coping with pain and managing work demands[11,12]. Thus pain intensity on its own may be an important determinant of pain self-efficacy beliefs. Unfortunately, very little research has been published that examines this issue.

However, pain intensity alone is not the only determinant of mental appraisals such as pain self-efficacy beliefs. In the original formulation of self-efficacy theory, Bandura[13] outlined 4 basic processes by which individuals establish or change their beliefs about self-efficacy. The most vital are direct mastery experiences, where people can retain information about how they previously performed successfully in similar situations. Next to direct experience are learning processes such as modeling, where people may benefit from seeing the responses of others who they perceive as similar to themselves in the same situation. A third process influencing self-efficacy beliefs is persuasion, particularly when it involves the opinions of others who the individual perceives as experts or authorities in this area. The fourth process proposed by Bandura involves educating and training people to reinterpret somatic information in less aversive ways.

However, the success of efforts to promote increased pain self-efficacy beliefs through mastery experiences, modeling by others, persuasion, or reinterpretation of somatic symptoms can be quite mixed. To achieve mastery experiences usually requires sustained changes in behavior. Rothman[14] has noted that studies show that appraisals such as self-efficacy are important to initiate behavior change but have little value in sustaining behavior change. He argues that sustaining behavior change depends on other appraisals related to the actual outcomes achieved by the behaviors and the person's satisfaction with those outcomes. Thus a person's self-efficacy beliefs, that is, their confidence to successfully engage in particular behaviors, likely depends on other appraisals of their satisfaction with the outcomes of these behaviors, such as how the behaviors make them feel, whether the behaviors help them do what they want, to what extent the behaviors help them maintain their self-identity, and how the behaviors help them maintain quality relationships[14,15].

Rothman's conclusion that appraisals such as self-efficacy beliefs are important factors in initiation of behavior change but not the sustaining of behavior change appears to be contradicted by the findings from an earlier study, in which higher Pain Self-Efficacy Questionnaire scores were predictive of total pain behavior and avoidance behavior over the 9 month study period, controlling for factors such as pain intensity, disability, and depression[10]. This apparent inconsistency can be addressed by closer examination of the items included in the Pain Self-Efficacy Questionnaire.

In his original formulation of self-efficacy, Bandura had described it as the confidence to engage in specific discrete behaviors. Further elaborations have incorporated the importance of the outcomes produced by the behaviors as a modifying element. However, examination of the items in the Pain Self-Efficacy Questionnaire suggests that it is no longer simply the confidence to engage in discrete, specific behaviors but also a mental approach, an attitude or orientation that goes well beyond confidence to complete discrete behaviors.

Items such as, "I can enjoy things, despite the pain"; "I can live a normal lifestyle, despite the pain"; "I can accomplish most of my life goals, despite the pain" are clear examples of this attitude, approach, or orientation. This is further reinforced by the instructions that remind respondents,

"Remember, this questionnaire is not asking whether or not you have been doing these things but rather how confident you are that you could do them at present, despite the pain."

This suggests that many of the Pain Self-Efficacy Questionnaire items are not about self-efficacy, i.e., the confidence to engage in specific, discrete behaviors, but rather about a type of commitment to a mental approach or an orientation. Unlike self-efficacy beliefs that are driven by the reinforcement that comes from engaging successfully in discrete behavior, this type of commitment is fostered by the intrinsic meaningfulness of pursuing a line of action in recognition of adverse consequences (i.e., despite the pain). Patients who espouse these statements are not endorsing a self-confidence to engage in specific behaviors so much as they are endorsing an overall attitude about their lives. Clinically, these are the patients we love to see walk into our offices; the ones who inspire us with their upbeat determination, full lives, and cheerful manner, despite the pain.

This clarification helps explain the apparent contradiction between Rothman's conclusions and the findings from the Pain Self-Efficacy Questionnaire. Rothman's review involved a broad array of behavior change studies that used more typical self-efficacy measures that are more consistent with Bandura's self-efficacy formulation. These measures tap psychological processes that depend on reinforcement to sustain behavior change. On the other hand, scores from the Pain Self-Efficacy Questionnaire capture a very different dimension: the meaningfulness or intrinsic motivation respondents associate with their behaviors. Evidence from the psychological literature shows that under aversive conditions, it is this intrinsic dimension that is far more likely to sustain behavior change. This is borne out by the findings from the earlier study[10].

Thus to return to the initial question posed by this editorial of what determines effective adjustment to chronic MSK pain, it is pain self-efficacy beliefs but not the self-efficacy beliefs postulated by Bandura. Those beliefs are important for initiating behavior change, but are unlikely to sustain the behavior. To sustain behavior change, especially when it likely involves aggravation of persistent pain, it must be associated with an intrinsic meaningfulness. This meaningfulness in turn fosters a sense of commitment or intrinsic motivation that sustains the behaviors, despite the pain. This is at least an answer to the initial question and perhaps offers a useful insight and impetus to further research in this area.

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