

## Review

## The self in pain

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Chronic pain can be highly distressing, disabling and complex. The experience of living with chronic pain often leads to a fundamental struggle with one's sense of self and identity. In this article, we briefly review the wide range of conceptualisations of self in pain research. We then introduce a contextual behavioural conceptualisation of self, a more recent approach to self, and discuss its application and relevant evidence in chronic pain. We recommend that it is time to organize and integrate perspectives on self in relation to chronic pain so that research can proceed with less potential confusion or contradiction, and the contextual behaviour science approach can potentially provide a basis for this.

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### Introduction

Chronic pain can be highly distressing, disabling and complex. In addition, the experience of living with chronic pain can lead to a fundamental struggle with one's self and identity. To quote one participant in a recent BBC survey [1], chronic pain left her grieving for "the person she was", and she feels "I've lost every part of my life- I've lost me." Similar experiences of loss of self and related suffering are commonly reported by people with chronic pain. In a meta-ethnography study

that synthesized 77 qualitative studies on people's experience of chronic non-malignant musculoskeletal pain [2], a common theme of "struggling to hold on to the 'real self'" emerged. Indeed, along with changes in body, roles, and activities, people with complex chronic pain often suffer this most fundamental loss, the loss of "myself". Because of the nature of self as it is ordinarily experienced, people with chronic pain can also find themselves defending an "old self" as the "real self" that has been eroded by the experience of living with pain. At the same time, they experience the intrusion of a "new self", as a pain sufferer, an identity that they find, somewhat ironically, they need to prove as true. Unfortunately, this "new self" is considerably diminished in comparison with their "old self" or "real self". These numerous experiences of disruption in sense of self, in turn, can be associated with reduced emotional and social functioning, and satisfaction with life [3,4].

### The conceptualisation of self in pain

Self, or "sense of self" as it might more accurately be called, is of long-standing interest in psychology. The discussion of sense of self in modern history of psychology can be dated back to William James's conceptualisation of the self as including "I" (the knowing self) and "Me" (the known self) [5]. In the field of pain, self has been widely explored in relation to functioning and wellbeing. More recently, based on a systematic review of self-related concepts in people with chronic pain, fifteen distinct self-related processes were identified from fifty-four studies [6]. These included self-concept, self-esteem, self-schema, and body-self unity, to name a few, and these wide-ranging self-conceptualisations were generally found to be associated with depression, anxiety, general psychological health, and physical functioning, with the strength of association ranging from small to large. Self, almost no matter how it is conceived, clearly appears relevant to wellbeing and functioning in chronic pain, a statement that almost goes without saying.

Historically speaking, conceptualizations of the self have almost exclusively included self-as-description or self-as-evaluation. In the 1980's, the self-esteem movement rose to prominence in the United States, and a heavy emphasis in psychological research included demonstrating the benefits of self-esteem and how to increase it [7]. Unsurprisingly, self-esteem became one of the most examined processes related to the self in

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pain research. Overall, higher self-esteem was found to be associated with better mood and general psychological health in these studies [e.g. Refs.[8–10]], but a more critical perspective is that increasing self-esteem can help one feel better, while not affording further significant benefits or success in life [7]. For instance, no clear direction of causality has been established between self-esteem and school or job performance. Self-esteem has not been found to predict the quality or duration of relationships, and high self-esteem does not appear to prevent children from smoking, using alcohol or drugs, or engaging in early sexual activities [7].

Some previous research into self and pain is based on more sophisticated multidimensional conceptualisations of self, including different layers of this descriptive or evaluative processes, and their roles in emotional functioning. An example of this is research into self-discrepancies based on Self-Discrepancy Theory (SDT) [11]. SDT has been applied in numerous studies of people with chronic pain [e.g. Refs.[12–14]]. Essentially, SDT proposes that discrepancies between different self-states, including the actual self versus the ideal self, the ought self, or the feared self can lead to negative emotions. In line with the theory, self-discrepancies have been demonstrated as being associated, in predictable ways, with depression, anxiety, and psychosocial distress in these studies.

Another concept that is linked to SDT, and stems from pain research, is self-pain enmeshment [15]. Morley and colleagues [15,16] sought to explore if self-pain enmeshment, that is the degree to which one's future possible selves (hoped-for self and feared-for self) are dependent on the absence or presence of pain, could predict emotional distress. The researchers found some evidence supporting the role of self-pain enmeshment in relation to depression and pain acceptance. However, empirical studies on self-pain enmeshment are relatively limited.

It is not the purpose of this review to exhaustively describe all conceptualisations related to the self in pain research. Nevertheless, it is clear that by far most of these investigations focus on self as “me, the known self” as conceptualised by James [5]. It is perhaps not surprising that “I, the knowing self” has also been explored in various forms, albeit to a more limited extent.

Key examples of the self-as-I perspective include research into processes called decentering and self-compassion. Decentering has been defined as the ability to observe one's thoughts and feelings as temporary events in the mind, rather than identifying with them as a reflection of who we are [17]. Among people with chronic pain, decentering has been found associated with lower depression, and better mental health and social

functioning [18,19], as well as lower pain-related distress and anxiety [20].

Self-compassion is relatively well-examined in people with chronic pain. Self-compassion has been referred to as how we relate to ourselves in instances of perceived failure, inadequacy, or personal suffering, including an attitude of warmth, care, and support, rather than judgement, avoidance, or rejection [21]. In a review of self-compassion in chronic pain [22], sixteen studies were included, among which nine directly examined the relationship between self-compassion and pain outcomes. Among these studies, self-compassion was found to be associated with pain self-efficacy and pain disability [23], pain distress [24], and pain-related coping and pain-related anxiety [25]. Pain intensity was consistently found to be uncorrelated with self-compassion. However, the evidence for other outcomes such as pain acceptance and pain catastrophising was inconsistent. Self-compassion has also been found to be associated with pain-related interference, work and social functioning, and depressive mood in people with chronic pain [26]. In a study of an interdisciplinary pain treatment, self-compassion was also shown to mediate the treatment effect on a range of treatment outcomes including disability, depression, pain-related anxiety, medical visits and analgesics intake [27].

### The contextual behavioural approach to self

Some recent developments in the research of sense of self, specifically in the application in chronic pain, include a contextual behavioural approach to self [28,29]. A contextual behavioural approach to self is linked to basic research of human language and cognition, namely Relational Frame Theory (RFT) [30], and a generic model of human functioning and wellbeing, called the Psychological Flexibility (PF) model [31]. From this contextual behavioural perspective, the self can be regarded as a learned behavioural repertoire, based on the ability of perspective-taking based on what is called deictic framing (I/YOU, HERE/THERE and NOW/THEN). We learn the capacity for perspective-taking through naturalistic exemplar training, by answering questions such as “Where are you now?” and “What were you doing then?”, as each of these questions requires taking and answering from a consistent point of view. The ability of perspective-taking then gives rise to three different patterns of verbal discrimination of one's own behaviour or self-discrimination [32]. Three self-discrimination patterns said to emerge from these behaviours are called Self-As-Content, Self-As-Process, and Self-As-Context.

Simply put, self-as-content, also known as conceptualised self or self-as-story, refers to a process of identifying with one's psychological contents, such as self-descriptions and self-evaluations. From the contextual behavioural perspective, it is not inherently problematic

to describe or evaluate oneself. It only becomes problematic when the conceptualised self is rigid, dominates experiences, restricts behaviour choices, and stops us doing what we want to do. For instance, when a person tightly holds onto the thought that “I am the best employee of the company”, they may find it difficult to refuse extra workload, which will then stop them from spending time with family or on their own hobbies, as an example.

Self-as-process, also known as the experiencing self, refers to ongoing awareness of the moment-to-moment experiences. Self-as-context, often referred to as a higher order, hierarchical, sense of self-as-container, entails an enduring sense of self that is distinct from and larger than one’s psychological contents. This is a sense of self as a perspective on one’s psychological experiences, where one sees what one sees and sees that one is seeing at the same time. When operating in self-as-process and self-as-context, the influence exerted by the psychological contents in one’s experience on one’s behaviour can be reduced, which can facilitate flexible behavioural choices. The “best employee of the company” may still have this self-descriptive thought, and they are able to step back and see that this is a thought they have, one that does not have to determine what they do, and still choose to do what they want to do.

### The contextual behavioural conceptualisation of the self in pain

In non-clinical contexts, self-as-context has been found to positively predict wellbeing among professionals in six and twelve months [33,34], and negatively associated with depressive symptoms in the general Portuguese population [35]. Self-as-context and self-as-process have also been found positively associated with mental health among adolescences, while self-as-content being associated with mental health in the opposite direction [36].

Evidence for the role of the contextual behavioural model of the self in people with chronic pain has also been accumulating, especially in the context of Acceptance and Commitment Therapy (ACT) [37]. ACT belongs to the family of Contextual Cognitive Behavioural Therapies (CCBT), and is based in the psychological flexibility model [37]. The psychological flexibility model includes self-as-context as a core component, and clinical techniques are readily available in ACT to foster self-as-context. A measure based on this contextual behavioural model of self, called the Self Experiences Questionnaire (SEQ) has also been developed in people with chronic pain [38], and used to examine self-as-context in a series of studies in ACT for people with chronic pain.

In a treatment outcome study of an ACT-based interdisciplinary pain management programme for people

with mixed pain conditions [39], participants significantly improved in self-as-context after the treatment, and at nine-month follow-up, and the improvement in self-as-context was associated with the improvements in pain-related interference, work and social functioning, and mood. In cross-sectional studies, higher level of self-as-context were associated with less pain-related interference, better work and social functioning, better mood, less pain intensity, and less pain disability in people with fibromyalgia [40], or people with mixed chronic pain in the community [41]. In addition, in people with mixed chronic pain, self-as-context was negatively associated with suicidal thinking [42].

More recently, the contextual behavioural conceptualisation of the self has also been examined in people with chronic pain, using a measure called the Multidimensional Psychological Flexibility Inventory [43] (MPFI). The MPFI includes a component measuring self-as-context, and a component measuring self-as-content (in inflexible sense of self). In a Swedish cross-sectional study in people with chronic pain using the MPFI [44], higher levels of self-as-content were correlated with more pain-related interference, worse work and social functioning, and higher level of depressive mood, while higher levels of self-as-context were correlated with these measures of functioning in the opposite direction.

### Summary

“Self” clearly is a fundamental aspect of human psychology, an aspect commonly regarded as a cornerstone of healthy functioning and wellbeing, including in those with chronic pain condition. While it has been widely studied for many decades, conceptualizations of self have varied greatly and an integrative perspective on all of this has been missing. While key distinctions in perspectives on self were noted just prior to the turn of the 20th century, most of our conceptualizing of self in psychological research, including in pain research, has adhered closely to an everyday understanding of self, something akin to the notion that we are who we believe we are and that a healthy self is one framed in positive terms. It is only more recently that researchers have focused research on self not necessarily as something we *are* but also as something that we *do*. In this review, these two perspectives are called self-as-concept and self-as-context, respectively.

No matter how sense of self has been approached, the common goal of improving functioning and wellbeing, through a focus on sense of self as a mechanism, is clear. One can certainly see relations between self-related variables and measures of daily functioning and wellbeing, across all of the perspectives reviewed here. It was not the point here to recommend one perspective on the self as better than another in pain research. We

will recommend, however, that it is time to organize and integrate perspectives on self in relation to chronic pain so that research can proceed with less potential confusion or contradiction. Perhaps the psychological flexibility model, and the contextual behaviour science approach it is based on, provide a basis for this. We feel there is a positive and empowering message here, that this seemingly most fundamental aspect of being a human being is addressable, measurable, and even includes manipulable elements. It is certainly worthy as a topic for future research.

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### Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

### Data availability

No data was used for the research described in the article.

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- \* of special interest
  - \*\* of outstanding interest
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## Further Reading

22. This systematic review examined compassion-based psychological interventions and their changes in pain outcomes, and associations between self-compassion and pain-related outcomes, in chronic pain. The review included seven studies on compassion-based interventions that assessed pain outcomes, and nine studies investigating the association between self-compassion and pain outcomes. Conclusions could not be drawn due to heterogeneity of studies.
35. This study validated the Self Experiences Questionnaire in a Portuguese non-clinical sample. It was found that the relationship self-as-context and depressive symptoms was mediated by the ability to be behaviourally aware and to act according to personal values, but not by the ability to be open to experience.
41. In this paper, a very brief version of the Self Experiences Questionnaire, SEQ-2, was validated in people with chronic pain. It was found that self-as-context was associated with other psychological flexibility processes and functioning.
44. In this paper, the Multidimensional Psychological Flexibility Inventory (MPFI) was validated in a Swedish chronic pain sample. It was found that psychological (in)flexibility processes were associated with other theoretically-related processes, and pain intensity, daily functioning, and depressive symptoms.