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Acceptance and Commitment Therapy for chronic pain: A diary study of treatment process in relation to reliable change in disability

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ABSTRACT

In chronic pain treatment, a primary goal is reduced disability. It is often assumed that a central process by which disability reduction occurs is pain reduction. Conversely, approaches such as Acceptance and Commitment Therapy (ACT) posit that pain reduction is *not* necessary for reduced disability. Instead, disability reduction occurs when responses to pain are changed, such that as unsuccessful struggles for pain control decreases and engagement in personally-valued activities increases. Treatment outcome studies have supported ACT's effectiveness; however, less work has examined how within-treatment patterns of change relate to treatment success or failure (i.e., decreased or sustained disability). The present study, therefore, sought to examine this issue. Specifically, struggles for pain control and engagement in valued activities were recorded weekly in 21 patients who completed a four week interdisciplinary ACT intervention for chronic pain. It was hypothesized that the presence or absence of reliable change in disability at a three month follow-up would be predicted by within treatment patterns of change in the weekly data. At follow-up, 47.6% of patients evidenced reliable disability reduction. The expected pattern of change occurred in 81.0% of patients – specifically, when pain control attempts decreased and engagement in valued activities increased, reliably reduced disability typically occurred, while the absence of this pattern was typically associated with a lack of reliable change. Further, changes in pain intensity, also assessed weekly, were unrelated to reliable change. Overall, these results provide additional support for the ACT model and further suggest some possible requirements for treatment success.

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1. Introduction

Chronic pain, typically defined as persistent pain that has continued for longer than three to six months, is common, costly, and frequently associated with significant disability (Breivik, Collett, Ventafridda, Cohen, & Gallacher, 2006; Gaskin & Richard, 2012). For example, chronic pain is associated with disruptions in functioning across multiple areas, including daily activity, vocational or scholastic achievement, interpersonal relationships, and emotional wellbeing (Breivik et al., 2006; Smith et al., 2001). In addition, chronic pain does not appear to readily remit, as several longitudinal studies indicate that the majority of pain sufferers will continue to experience long-term pain (Andersson, 2004; Elliott, Smith, Hannaford, Smith, & Chambers, 2002) and presumably long-term disability.

The strong relation between pain and disability has led to a focus on pain reduction for many treatment approaches. For example, analgesic medications, injections, invasive procedures, and devices (e.g., transcutaneous electrical nerve stimulators, spinal cord stimulators) target pain reduction as the primary objective and indicator of success (Breivik, Campbell, & Nicholas, 2008). It is likely that the prominence given to pain relief is based on the commonsense notion that pain reduction is a necessary precursor to disability reduction.

In contrast, psychosocial approaches to the treatment of chronic pain have historically focused, at least to some extent, on altering responses to pain such that these responses lead to disability reduction (e.g., Fordyce, 1976; McCracken, 2005; Turk, Meichenbaum, & Genest, 1983). A recent example is that of Acceptance and Commitment Therapy (ACT; Hayes, Strosahl, & Wilson, 2012), which has amassed considerable evidence with regard to treatment effectiveness (see Vowles & Thompson, 2011 for a review) and is considered an intervention with “strong” empirical support according to the American Psychological Association's (APA) Division of Clinical Psychology (APA, 2013). In

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attempting to change responses to the experience of persistent pain, the overarching focus of ACT is to assist pain sufferers in engaging in a flexible and persistent pattern of values-directed behavior while in contact with continuing pain and discomfort, particularly when efforts to control or reduce pain or discomfort have failed in the past or contributed to greater difficulties over the longer term (McCracken, 2005; McCracken & Vowles, 2014; Vowles & Thompson, 2011). Change in pain responses has, thus far, been operationalized in two ways: (1) reducing the occurrence of pain control efforts and (2) increasing the frequency of activities that directly contribute to valued living. It is assumed that this pattern of change within treatment will result in reduced disability over the longer term, even with continuing pain. Although supportive and corroborative evidence is provided by correlational studies (McCracken, Vowles, & Eccleston, 2005; Vowles, McCracken, & Eccleston, 2007; Vowles, McCracken, & O'Brien, 2011) and analyses of mediation (Vowles, Witkiewitz, Sowden, & Ashworth, 2014; Wicksell, Olsson, & Hayes, 2010, 2011), to date, no study has examined patterns of change in these treatment processes over the course of intervention at the level of individual patients in relation to the presence or absence of significant disability reduction. In other words, while several studies have indicated that average improvement in measures of ACT processes are related to average improvement in disability, it may be of use to examine data at the level of individual patients as these data allow for a more nuanced and informed evaluation of how change in pain control efforts and valued activity relates to changes in disability. For example, analyses at the level of the individual participant may afford information with regard to specific characteristics of successful or unsuccessful intervention, such as whether changes in pain control and valued activity are possible prerequisites for successful disability reduction.

In summary, although it appears that ACT for chronic pain is effective, it is not the theorized pattern of change in pain control efforts and engagement in valued activity occurs or (b) that these patterns of behaviors are related to reduction in disability. Specifically, from the perspective of the ACT model, one would hypothesize that successful reduction in disability necessitates that pain control attempts decrease over the course of treatment, while engagement in personally-valued activities increase. Conversely, the absence of such a pattern of change should be associated with no change in disability. The primary purposes of the present study was to conduct an examination of these hypotheses in a sample of chronic pain patients completing an interdisciplinary course of ACT for chronic pain, as well as a three-month follow-up assessment of disability. In addition, a related purpose of this study was to examine how changes in pain intensity over the treatment period related to changes in disability at follow-up. With regard to this latter purpose, we hypothesized that changes in pain intensity would have an inconsistent relation with changes in disability and that pain reduction would not be a necessary precursor to disability reduction.

2. Method

2.1. Participants

Data were provided by 21 patients (61.9% female) who completed a four week interdisciplinary ACT rehabilitation program for chronic pain and a three month follow-up assessment. On average, patients were 44.8 years of age ($SD=11.9$) and had completed 14.0 years of formal education ($SD=2.9$). All participants were living in the United Kingdom and reported their ethnicity as White European. Almost half were married or co-habiting (47.6%) with smaller portions reporting they were single (23.8%), divorced (19.0%), or widowed (9.5%). Only a minority were working full or part time (14.3% and

9.5%, respectively), whereas the majority were not working because of pain (57.1%). The remaining individuals (19.0%) were either unemployed for a reason unrelated to pain or reported their vocation as homemaker. Most were in receipt of benefit, disability or wage replacement payments (71.4%).

Median pain duration across the sample was 3.3 years (range 0.3–30.8 years). The most frequently reported primary site of pain was low back (42.9%), followed by full body (23.8%), neck (14.3%), mid-back (9.5%), and upper limb (9.5%). Almost half of the sample (47.6%) also reported a secondary site of pain, which included lower limbs (19.0%), low back (14.3%), upper limb (9.5%), or abdomen (4.8%). For most patients (81.0%), diagnoses were of a general, non-specific, or descriptive nature (e.g., chronic nonspecific low back pain, chronic pain syndrome). When available, diagnoses were as follows: fibromyalgia (9.5%), sciatica (4.8%), and fracture-related pain (4.8%).

2.2. Measures

2.2.1. Disability

The Sickness Impact Profile (SIP; Bergner, Bobbitt, Carter, & Gilson, 1981), a 136 item scale which assesses functioning across multiple domains, was completed by all participants at the onset of treatment and at a three month follow-up appointment. The SIP is an established measure of disability in healthcare settings and has good evidence of psychometric properties and sensitivity to change (Vowles, Gross, & McCracken, 2007; Vowles & McCracken, 2008). Each of the SIP items lists an area of difficulty and patients are asked to endorse the items that apply to them on that day in relation to their health (e.g., “I spend much of the day lying down in order to rest.”; “I am going out for entertainment less often.”; “I am not doing heavy work around the house.”). Scoring on the SIP ranges from 0 to 1, with greater scores indicating higher levels of disability.

2.2.2. Within-treatment diary

At the mid-point of each of the four weeks of treatment, each patient completed a four item diary. Diary items are displayed in Table 1, each consisted of a 0–10 numerical rating scale (NRS) with verbal anchors at the endpoints and also specified a rating time-frame of the previous week.

2.2.3. Pain intensity

Average pain intensity over the past week was assessed via an NRS with the lower anchor labeled as “None” and the upper as “Worst Possible” (item 1 in Table 1). This method of assessing pain is both well-established and widely recommended (Campbell & Vowles, 2008; Dworkin et al., 2005; Jensen & Karoly, 1992; Nicholas, Asghari, & Blyth, 2008)

2.2.4. Pain control

Two items were constructed to assess the degree to which patients were engaging in the struggle for pain control. In many respects, the content of these items was based on existing validated measures in this area, such as the Chronic Pain Acceptance Questionnaire (CPAQ; McCracken, Vowles, & Eccleston, 2004), Brief Pain Response Inventory (McCracken, Vowles, & Zhao-O'Brien, 2010; BPRI), and Psychological Inflexibility in Pain Scale (Wicksell, Lekander, Sorjonen, & Olsson, 2010). As these items were intended to evaluate a more specific and narrow content area, struggles for pain control specifically, as opposed to the broader assessment of responses to pain in these measures and we therefore expected moderate correlation with established measures. The first of these items (item 2 in Table 1) specifically inquired about degree of effort put forth to control pain-related

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