

Psychological approaches to chronic pain management: where are we coming from and where might we go?

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ABSTRACT

Psychological treatments for chronic pain are widely appreciated and regarded as evidence-based. At the same time there are challenges in the future for these treatments, including the following: a) creating larger benefits for more people, b) matching people with the treatment that is likely to give them the best results most efficiently, c) identifying and then tracking and targeting specific mechanisms of treatment change, and d) maintaining treatment fidelity and therapist competency as treatment models develop. This short article discusses these challenges and some ways to deal with them, including the application of the psychological flexibility model and a treatment approach called Acceptance and Commitment Therapy (ACT) as examples. It is argued that psychological flexibility may be particularly helpful as a model because, and helps researchers and therapist follow a more mechanism or process oriented approach to treatment development. As for ACT, there are now more than 11 published RCTs and three related systematic reviews supporting its benefits for people with chronic pain. This model and treatment approach may provide the kind of focus that psychology needs to guide continuing treatment development, and yet these will not be our final answers, because certainly psychological treatments in the future will be different in some ways from the ones we do today.

Key words: Psychology, chronic pain, psychological treatments, psychological flexibility, acceptance and commitment therapy.

RESUMEN

Los tratamientos psicológicos del dolor crónico están ampliamente valorados y están considerados como tratamientos basados en la evidencia. Al mismo tiempo, existen retos en el futuro para estos tratamientos, entre los cuales encontramos: a) proporcionar mayores beneficios a más personas; b) ajustar a cada

persona el tratamiento que le proporcione los mejores resultados de la manera más eficiente; c) identificar y monitorizar los mecanismos específicos de cambio de tratamiento; d) mantener la fidelidad del tratamiento y la competencia del terapeuta a medida que se desarrollan los modelos de tratamiento. Este corto artículo discute sobre estos retos y alguna de las formas de abordarlos, incluyendo como ejemplos la aplicación del modelo de flexibilidad psicológica y el enfoque de la Terapia de Aceptación y Compromiso (ACT). Se argumenta que la flexibilidad psicológica puede ser particularmente útil como modelo, al ayudar a investigadores y terapeutas a seguir un enfoque más orientado al tratamiento o al mecanismo para el desarrollo del tratamiento. En cuanto a la ACT, actualmente existen más de 11 ensayos controlados aleatorizados publicados y tres revisiones sistemáticas que sustentan su beneficio para las personas con dolor crónico. Este enfoque de modelo y tratamiento puede proporcionar el tipo de abordaje que la psicología precisa para guiar la evolución continua del tratamiento. Sin embargo, estas no serán nuestras respuestas finales, porque ciertamente, los futuros tratamientos psicológicos serán diferentes, en algunos aspectos, de los que hacemos hoy.

Palabras clave: Psicología, dolor crónico, tratamientos psicológicos, flexibilidad psicológica, terapia de aceptación y compromiso.

INTRODUCTION

Psychological approaches to chronic pain are widely accepted and appreciated, and regarded as effective, but perhaps not always well understood. Certainly non-psychologists working in chronic pain can be forgiven for experiencing a sense of confusion over where psychologists are coming from or where they are going. While most researchers and clinicians see the value of psychological treatments such as Cognitive Behavioral Therapy (CBT) for chronic pain, their knowledge of psychology research, beliefs about the role of psychology, and their depth of

understanding of this role are likely to vary greatly. You see, unlike Biology with evolutionary theory, Chemistry with its periodic table, and Physics with general relativity and quantum theory, psychology is an exceedingly diverse enterprise, with many theories, models, variables, and applied technologies. It is no wonder that psychology in the context of chronic pain can appear difficult to pin down. Once in a while we ought to acknowledge the bewildering diversity that is Psychology and attempt to forge a clearer path. The purpose of this short focused review and commentary is to clarify this path.

PSYCHOLOGICAL APPROACHES TO CHRONIC PAIN ARE SUCCESSFUL SO FAR

If there is anything that can be said with certainty about psychological principles and methods in chronic pain, it is that they appear to produce benefits for people. In fact, bold statements are often made about the psychologically-based treatments, particularly those that are delivered in an interdisciplinary context. For example, based on comprehensive reviews of the evidence, comprehensive pain management programs are regarded as the “most efficacious and cost-effective treatment for persons with chronic pain, relative to a host of widely used conventional medical treatment” (1) (p. 779). The authors of this report point out that this result is particularly impressive as the type of patients seen in pain management programs have typically already failed other treatments. They therefore represent a selected population of people with relatively intractable problems. Are these bold claims justified? Yes, it appears that they are. Systematic reviews including meta-analyses support the case for good outcomes for chronic pain particularly from multidisciplinary or interdisciplinary treatments that are based on psychosocial models and focused on improving functioning (2,3). Evidence from these reviews demonstrates that these types of treatments significantly improve the functioning of people with chronic pain in areas of emotional functioning, interference or disability, and return to work.

As for psychological treatments delivered alone, the evidence is also high quality and positive for chronic pain. There is now a large number of systematic reviews and meta-analyses that support these treatments, particularly CBT. For example, in a review of 35 RCTs, small effects were found for CBT on disability and catastrophizing in comparison to active alternative treatments, and small to moderate effects on pain, disability, mood, and catastrophizing in comparison to treatment as usual or wait list (4). Unfortunately benefits at follow-up were smaller than immediately post treatment.

Results from evidence summaries in other specific chronic pain conditions also support the efficacy of psychological treatments. A review of 23 trials for fibromyalgia,

including a mix of RCTs and uncontrolled trials of psychological treatments, concluded that effects of treatment are “small but robust” and comparable to other available treatments (5). Benefits observed here included reduced pain, depression, and catastrophizing, and improved sleep and general functioning. And, finally, a systematic review and meta-analysis of CBT for low back pain also produced a positive conclusion (6). In a review of 23 RCTs small to moderate effects on pain and disability were found immediately post treatment compared to usual care or waitlist. This review also found that CBT was superior to other guidelines-based active treatments, in pain and disability reduction, at follow-up. However, the trials reviewed here were found to vary significantly in their methodological quality and treatment designs.

WHAT CHALLENGES NEED TO BE MET TODAY?

Although the role of psychology in chronic pain is widely appreciated and the evidence is regarded as positive there certainly are challenges to meet. These challenges include the following: a) creating larger benefits for more people, b) matching people with the treatment that is likely to give them the best results most efficiently, c) identifying and then tracking and targeting specific mechanisms of treatment change, and d) maintaining treatment fidelity and therapist competency when new models of treatment are found.

Primary among our current challenges is the most overarching one, the wish for more people to benefit to a larger degree and for these benefits to last. While results from psychologically based treatments are positive, the small to moderate average effects observed in the group data from these trials do not mean that all participants benefit at these levels. Analyses of treatment effects in practice show that only between one out of three and one out of seven people achieve clinically significant improvements in CBT, depending on the outcome measure used (7). So, at least from the perspective of practice-based evidence, the somewhat sobering conclusion is that perhaps most people do not achieve clinically meaningful benefits if considering one outcome at a time.

A challenge that is tightly related to the modest effects in research trials and in practice is the question about “what works for whom?” (3,4). While there were early attempts to identify subgroups of people with chronic pain who might respond differentially to interdisciplinary treatments (8,9), research in this area has not advanced as far as we could have hoped in the intervening years. In fact, findings of a lack of significant moderators or predictors of treatment outcome, or the identification of only weak or inconsistent ones, seems the norm in the many studies that have attempted to address this treatment matching problem (10-12). Of course

one strategy for producing better treatment effects, that are more lasting, for more people, is to address this question of “what works for whom?” in a way that finds answers.

We and others have suggested that improvements in treatment will come from a tandem process of identifying (a) specific participant characteristics that will lend themselves to effective treatment matching, as just described, and (b) necessary and sufficient therapeutic processes of change (13-15). These are also referred to as treatment moderators and mediators. In terms of mediators or what is sometimes called therapeutic mechanisms, or treatment processes, there is no doubt that there are current data on this. Quite a few studies, for example, suggest a role for reduction in catastrophizing as a therapeutic mechanism (16-18). There is of course a wider debate on whether it is necessary to change thoughts in CBT to produce the improvements observed (19). It would require a significant digression off the topic of chronic pain per se to do justice to this debate. Suffice it to say, most psychologists assume a role for mental or internal psychological causes or mediators of behavior. They are perfectly comfortable with catastrophizing as a cause of other behavior. Other psychologists assume a need to extend the analysis of cause to the point where a directly manipulable variable is found. For psychologists in this group, catastrophizing is a behavior pattern and not a cause all by itself, and a complete analysis will include identifying the situation that give rise to catastrophizing, to the other behavior it is assumed to “cause,” and to the relations between the two. The former group of psychologist can be said to be following a “elemental realist” or sometimes referred to as part-whole or mechanistic philosophy, while the latter group would be said to be following a contextual or functional contextual philosophy (20,21).

Catastrophizing is a particularly appropriate case in point on questions of mechanism. Certainly catastrophizing is obvious as a pathological process, and the data on it as a predictor of distress and disability are irrefutable. The trouble is that it may be a better predictor of outcomes than a guide for how to produce or influence outcomes. Again, within some approaches to psychology, including those following a functional contextual philosophy, catastrophizing is not regarded as a directly manipulable variable and is a better regarded as a dependent variable than an independent variable (21), as a pattern of behavior to understand in its own right, and not as a potential causal variable to employ in directly influencing other patterns of behavior. Again, this is to say that catastrophizing is not regarded as a cause when considered all by itself – it’s capacity to “cause” impacts in wellbeing or daily activity ultimately requires an appropriate context that affords it influence. Of course this view of catastrophizing is not a point that can be proven in data but is a philosophical assumption, made by some psychologists but not all.

Catastrophizing formally appeared in the pain literature more than 20 years ago (22,23) and, it is fair to say, has

spawned a virtually unprecedented number of studies. In fact, it is almost impossible to pick up a pain journal or attend a pain meeting without hearing it mentioned. It’s widespread appreciation and its consistent performance as a predictor of a range of outcomes certainly helps psychology to make a case for its role in relation to chronic pain. On the other hand, one might ask, from all of this research and attention to catastrophizing, in what ways have psychological treatments for pain evolved or improved? For all of the studies done, and the rather limited improvements in the quality or impact of treatments over the same time period (4), it is tempting to conclude that the concept has not performed as an efficient means for treatment improvement.

Wherever one stands on the question of treatment mechanism, the place of mechanism as a question should be clear. It is the “why?” in the extended version of our question “what works for whom, and why?” Or, we could also call this “how?” We could say that better treatment effects are an “outcome” goal in our field while identifying moderators and mediators and better targeting mediators are “process” goals, or how we will get there.

The final challenge mentioned concerns treatment provider competency and treatment fidelity. If one accepts the position that treatments need to drive specific mechanisms to exert their impacts, or if one accepts that perhaps therapeutic mechanism or process ought to be the defining feature of specific therapies, then one must require that therapy is delivered skillfully, and consistently with intended mechanisms, both for research purposes, and for patient benefit. In turn this means that we must understand treatment provider behavior or performance to understand treatment outcomes. This is because treatment provider behavior, in interaction with treatment recipient behavior, IS THE METHOD for driving mechanism.

We have just barely scratched the surface with regard to treatment provider behavior. We know preliminarily that aspects of psychological flexibility appear to play a role in rehabilitation workers well-being, processes of burnout, and in certain aspects of work-performance (24,25). There are fidelity measures used increasingly in funded trials as a way to verify that the treatment intended to be under study has been delivered. Of course neither measures of competency nor fidelity are typically used in practice, rather it is routine to believe that the treatment delivered is whatever the treatment provider says it is. This is probably a dubious assumption, as we know that it is commonplace for therapists to fail to deliver methods that they intend to delivery (26), part of a process referred to a “therapist drift.”

AN INTEGRATIVE PHILOSOPHY AND MODEL

At the outset of this short article it was mentioned that psychological approaches to chronic pain can appear to

include a bewildering number of relevant psychological variables. Even a rather cursory audit of the available literature yields a very large number of potentially important contender independent variables: coping, beliefs, illness perceptions, somatization, attention, fear, avoidance, hypervigilance, depression, anger, endurance, attachment, childhood experience, goals, pacing, motivation, self, and so on. We have argued elsewhere that such a large number of variables as exist today in psychological studies is unwieldy, not easy for others outside the field to understand, and not easy to use to guide research or treatment designs (15,27,28). Some of the elements in our large variable set are difficult to distinguish from each other and some apparent distinctions are probably unimportant or impractical. Besides that, the different variables that are in play today actually derive from different theoretical models with differing philosophical assumptions, meaning that they are not necessarily easy to integrate. However, what is clear is that some means of integration could help greatly to promote progress this field of study. From an integrating model a smaller number of widely applicable dimensions may emerge, thus considerably simplifying the focus of studies and the communication of findings from these studies to other working on related questions. We have suggested that what is known as the psychological flexibility (PF) model can provide this integration, at least as a next step (27).

The PF model is a general model of human wellbeing and effective performance (20,29). It is the capacity to interact with experiences in a way that is attuned to what situations afford, guided by goals and values, and to persist or change behavior accordingly. It is customarily regarded as having six facets: acceptance, cognitive defusion, present-focused awareness, a sense of self as perspective, and action qualities that are committed and values-directed (20,30). Accumulating evidence for the PF model is now quite considerable, including evidence for each of the facets listed here in their significant role in relation to the emotional, physical, and social functioning of people with chronic pain (31-33; see [34] for a recent short review).

ACCEPTANCE AND COMMITMENT THERAPY

Acceptance and Commitment Therapy (ACT, said as one word, not spelled as three letters), based on the PF model, is a recently developing form of CBT. There are now more than 100 published RCTs of ACT in a range of different conditions and applications, including a relatively large number in the area of chronic pain (www.contextualpsychology.org). In a systematic review we conducted in 2014 we found ten published studies that included RCT designs and addressed chronic pain in adults (35). We had a number of recommendations following that review, includ-

ing advice for researchers to formally designate their measures as primary, secondary, or process; to use more outcome measures of physical and social activity in addition to frequently used measures of pain and distress; to seek to decrease sources of bias in research designs, and include more measures of facets of psychological flexibility. We also found that treatment designs, populations, and effect sizes varied widely. With the caveats in mind, based on a narrative summary, we concluded that the ACT appears beneficial for chronic pain, particularly in terms of physical and emotional functioning (35).

In other systematic reviews, including in both cases meta-analyses, the benefits of acceptance and mindfulness-based approaches (36) and ACT (37) have been supported. In the review by Veehof et al. (36), 25 RCTs, including 1285 participants, were included. Positive results included significant effects on most outcomes, moderate effect sizes at post treatment on anxiety and pain interference and a large effect size at follow-up on pain interference. These authors concluded that acceptance and mindfulness-based treatment “can be a good alternative” to current conventional CBT.

The most recent systematic review and meta-analysis focusing on just ACT included eleven trials (37). They found that ACT was better than the comparison treatments that appeared in these trials, with significant medium to large effect sizes for pain acceptance and psychological flexibility and small to medium effects for functioning, anxiety, and depression. A limitation overall in ACT trials is that it is that few of these studies compare ACT to active alternative treatments.

PROCESS AND MECHANISM IN ACT

Consider for a moment all of the medications, interventional procedures, implantable devices, and alternative therapies used in chronic pain management and notice how little we know about mechanisms of action. Many pain therapies became pain therapies by accident, an observation of a beneficial side effect of a therapy designed for something else, for example. This is not the case with ACT as both experimental research findings, basic principles, and a therapeutic model are the basis for the design of ACT (38). So, proposed mechanisms appeared before the treatment designs, and a strategy of measuring mechanisms of action in trials and in routine practice has become common in ACT research and practice (32,33,39,40). Combined with this we have consistently followed a strategy to support this research by designing measures for relevant processes when they did not exist (41,42).

In one of the earlier small-sized trials of ACT for people with chronic pain from whiplash injuries (N = 20) the authors showed that ACT produced superior results to a wait list control condition but also that results were not mediated by changes in pain, anxiety, depression, kinesophobia, or

self-efficacy, but rather specifically as intended, by changes in psychological inflexibility (43). In a larger study, including an analysis of mediation in an internet-based ACT treatment compared to an expressive writing condition or waiting list, once again PF appeared as the larger mediator of pain, pain interference, and psychological distress outcomes in comparison this time to catastrophizing, and as a more direct mediator of pain interference (44). We have shown that one component of psychological flexibility, acceptance, appears to act in a mediating role in pain management treatment designed around conventional methods of CBT (45). In this study, employing structural equation modelling, compared with changes in perceptions of life control, affective distress, or social support, change in acceptance was more highly related to improvements in pain interference and depression outcomes. What is noteworthy about this study is that the treatment was not specifically designed to increase acceptance, so this suggests that it may be a general therapeutic process, possibly playing a role in a range of treatments, wherever improved functioning is achieved.

There are now relatively comprehensive tests of the role of facets of PF in improvements observed in intensive psychologically-based treatment for chronic pain (31,32). In our study on this topic we showed that improvements in acceptance, cognitive fusion, and committed action play a role both at post treatment and at a nine-month follow-up, accounting for more than 20% of the variance in improvements, particularly in social and emotional functioning (31).

More recently we have shown for the first time that change in what is called in ACT “self-as-context,” or perspective taking, combined with acceptance also correlates with improved functioning in ACT for chronic pain (34,46). Self-as-context is a process of experiencing a distinction (you are separate from) or a hierarchical arrangement (you are larger or greater than) between thoughts and feelings and the person who sees and acts on these experiences. This experience that “we have thoughts and feelings but are not just our thoughts and feelings” or the experience of being bigger than our thoughts and feelings can, it seems, particularly reduce the avoidance coordinating and functioning reducing influences of these experiences. This study is interesting because it looks at a newly investigated facet of PF along with a well-established one, but also because the newly investigated one touches on a variable of longstanding and especially central interest in psychology, a person’s sense of who they are, or self (47). The study actually shows that a person’s experience of who they are can shift in predictable, and theoretically consistent, ways in ACT for chronic pain.

SUMMARY AND CONCLUDING COMMENTS

The first sentence of this article included mention that Psychology related to chronic pain is not always well

understood – Psychology can appear confusing. This seems manifestly true in experience and is demonstrated over and over again at conferences and clinical team meetings where interdisciplinary conversations take place. It is also self-evident in the ever growing number of psychological variables being investigated currently, a number that seems to grow more so because we rarely completely discredit and eliminate any from our further investigations.

At the same time that Psychology can appear confusing much of the time it is also perceived, ironically, as mere common sense. This is the case even though many of the common sense views that appear within Psychology are not supported by evidence (48). Even when psychology is not assumed to be common sense we are often wrangled into a situation of treating as if it ought to be. This is because many psychological discussions related to chronic pain happen in interdisciplinary contexts with the emphasis on speaking so that all involved will understand the points being made. In such conversations nontechnical language, and speed and ease of understanding, are emphasized over and above precision, theoretical clarity, or in some cases evidence.

Of course, neither of the available views, that Psychology is either too confusing or too common sense, is necessarily very helpful for psychologists or for the field of chronic pain. We often say that psychological approaches, whether theoretical or applied, need to be complex enough to accommodate the subject matter (27) but should be no more complex than needed. For us this means there will be technical specialist terms and principles that will not be readily understood by non-specialists. To fill in gaps of understanding skilled specialists should be able to translate the meaning of these terms and principles. These terms and principles, however, certainly will not predominantly entail mere common sense. Psychologists should resist the impulse to “dumb down” psychology. If nothing else, they should be sure to keep track of the difference between terms directly related to technical scientific analyses they produce and the simpler versions of these terms from these analyses produced for ease of access. We will need to embrace the idea that there will be different terms for different purposes, such as terms used in design, engineering, and manufacturing, versus, on the sales floor. We ought to use term like “operant conditioning,” “arbitrarily applicable relational responding,” or “contextual sensitivity” with our treatment design colleagues, and terms like “behavior change,” “skills training”, and “goals” with clinicians from other disciplines or with treatment users.

In this short review and commentary a few of the challenges for psychological approaches to chronic pain have been described along with some ways that we can deal with them. Psychological treatments, such as those associated with CBT, should aim to improve. One way to do this is by improving the ways we match treatments specifically to the needs of treatment participants, track and target therapy

mechanisms known to produce good results, and improve our ability to delivery treatments with high competency and fidelity. These are strategies for focusing our efforts within the diverse field that Psychology is today. Of course this diversity makes this focusing task both all the more necessary, and difficult to do, at the same time.

The role of catastrophizing was taken as a case in point as treatment mechanism. And the advice was offered that not all predictors afford equal means for influence and control over outcomes. Catastrophizing is both a great success story of psychological approaches to pain but also a potential impediment to further progress. At some point, if a variable is useful, it will need to feed some more effective action on our part, or it is not serving a very useful purpose. PF and ACT were also taken as examples, in this case for how to integrate the diverse territory of current psychological approaches to pain, and for the kind of treatment approach that can emerge when one does.

In closing, it is useful to notice how Psychology is different from other fields of study. One of the problems with Psychology is that we all have our own point of view on the subject, in a way that is distinctly different from other fields. In essence we are both psychologist and psychology, both investigator and subject. By this I mean both trained psychologists and those not trained as psychologists are apt to act as psychologists. We apply what we see in our own experience to understand the behavior other others, and to pursue change in the behavior of others. This is risky business for the trained and untrained psychologist alike, because as human beings our analyses are open to numerous potential biases. One guard against being misled in our analyses is to be clear in what guides us. This includes our theories, principles, philosophy, and our goals, or what I loosely call here “where we are coming from and where might we go.”

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