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INVITED COMMENTARY

Integration and Progress in Pain Research: a Comment on Esteve and Ramirez-Maestre

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Chronic pain is a huge and often complex problem. It certainly merits further study. While psychological treatment approaches for chronic pain, particularly those based on cognitive behavioral therapy, can produce significant benefits for people with chronic pain, there remain opportunities to improve these. For instance, these approaches appear to produce mostly small effects on such important outcomes as mood and disability, and the evidence that these effects last up to 6 months, or longer, is limited [1]. So, there is a need for further studies, such as the study of fear, experiential avoidance, and acceptance by Esteve and Ramirez-Maestre in this issue [2].

There are now many different theoretical models that help guide research into chronic pain [3]. The fear-avoidance model of chronic pain [4] and the psychological flexibility model, the model from which experiential avoidance and acceptance emerge [5], are reasonably well known. Both feature prominently in current work on chronic pain. Anxiety sensitivity, a trait- or personality-like variable, is often associated with the fear-avoidance model and has a considerable following among researchers into chronic pain as well [6]. This variable was originally developed in work on anxiety disorders and comes from its own conceptual model, one that may be less well known in chronic pain research, the so-called expectancy model of fear [7]. Resilience, also typically considered a trait-like variable, is a similar matter in some ways. There is certainly growing interest in this variable, particularly as a potential correlate of pain and psychological acceptance. While the theoretical basis for resilience has sometimes appeared ambiguous, there are attempts to clarify this basis, including a proposal that it be considered analogous to immune functioning and resistance to disease [8]. So, any study that includes measures of variables from these four areas of research essentially attempts to integrate variables from what are basically four different theoretical models. Such a study cannot be accused of an exclusive or blinkered approach to research.

Integration between differing theoretical models certainly could yield great benefits in chronic pain research and treatment development. In this field, there are now many more variables and measures for study and clinical use than ever before. These include variables related to pain behavior and social influences from the operant approach; the thoughts, beliefs, attention management, and coping strategies favored within the traditional cognitive behavioral approaches; and the acceptance and mindfulness-related variables from new cognitive behavioral approaches [9]. Those at the lead in producing new concepts and perspectives have seemed particularly adept during the last three decades at adding new variables to the list of interests, but perhaps less adept at discarding variables that might have fallen out of favor. When there are too many variables, it can be difficult to know where to focus, distinctions between these variables may be more apparent than useful, and those outside the field may find it particularly confusing. So, from this standpoint, some degree of integration, some reduction in the number of key psychological processes of interest, would be welcomed.

One way to create integration is on the basis of broad inclusion of measures from different models within the same study. Data from measures associated with different models can be submitted to statistical analyses for the purposes of combining or reducing the available variables to factors or latent constructs, and to see which variables do and which do not emerge as providing unique utility. Here, utility means the capacity to describe, predict, and produce methods to eventually improve, key treatment outcomes, such as emotional functioning, and disability. Esteve and

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Ramirez-Maestre [2] refer to this process in their study when they say "the current findings extend our understanding of the relationships between resilience, anxiety sensitivity, experiential avoidance, pain fear-avoidance, pain acceptance, and adjustment to pain, by integrating concepts from different research traditions within the same framework." So, this is a good job done, and similar work should continue. At the same time, this integration through wide inclusion, data reduction, and comparison is only partial integration. It misses a separate level of integration, the level of theoretical integration around a unifying model.

Different models are not simply differing sets of variables. Models include different assumptions and principles regarding the nature of causality, epistemological and ontological assumptions, goals, and strategy. One approach that attempts to be explicit about these assumptions is the contextual behavioral science approach [10]. This is the approach that includes psychological flexibility as a primary treatment process and Acceptance and Commitment Therapy as an approach to treatment [11]. Some argue that this psychological flexibility ought to be considered a "fundamental aspect of health" [12], suggesting that it may be both potentially important and widely applicable.

All concepts in psychological research carry baggage. They carry implications for how to view the world, the nature of human experience and behavior, and the assumed goals for research. This is not to say that everyone should agree on these. It is just to say that it is good to be aware of the baggage. It is also to say that there is this other level of integration we could do, integration around a unified model, a model set as a guide to the research, not as an expected result of the data.

Conflict of Interest The author has no conflict of interest to disclose.

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