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Commentary on Karsdorp et al.

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In this issue you will find a paper by Karsdorp et al., entitled "ATTENTIONAL CONTROL AND THE COMPETITION BETWEEN NONPAIN GOALS AND THE THREAT OF PAIN"

Until relatively recently pain research and management has been littered with explanations based on the idea that the intensity of a painful experience has a direct linear correlate in the extent of an injury or insult delivered to tissue. Although models such as the Gate Control Theory began the process of putting the brain, and in turn thoughts and feelings, into pain, the Cartesian approach is still all too common. Indeed, even today a large percentage of studies of pain in human subjects, both clinically and experimentally, operate from a starting point that the optimal way to assess pain is to stop the participant from performing their current task/mental operation, focus on the painful or potentially painful sensation and perform a cognitive judgement about this sensation (typically a pain intensity rating).

Current cognitive-affective explanations of pain propose that the function of pain is to capture attention away from current task demands and prioritise the processing of said pain, to promote analgesic and reparative behaviours. Furthermore, such accounts also propose that pain can distort cognitive priorities, biasing people towards processing pain-related information. These features of pain may lead to attentional, memory or interpretive biases. A substantive literature has examined both the nature and consequences of these attentional biases in chronic pain, under conditions of induced pain or in those showing current concern about pain. Findings are often contradictory, however, and interpretation is inconclusive. This was illustrated by a recent meta-analysis which showed a small effect size for attentional bias to pain stimuli in chronic populations with large variability in the sizes of reported effects (1). The authors concluded that a range of individual differences variables were likely key in explaining this inconsistency. As Karsdorp et al. (2) point out in their own introduction, a fully formed understanding of attention to pain also requires a consideration of the motivational context. Pain does not occur in isolation; people experience pain in conflict with other desired tasks with studies showing that commitment to non-pain task performance may lead to attentional bias toward the task rather than pain (i.e. 3). In designing studies to consider how people experience pain in the real world, outside of the laboratory setting we need to do more to consider not only the salience of the pain that people feel but also the salience and priority of other factors. For example, we would expect the prioritisation of pain to be greatly different if a person is waiting for an appointment with nothing to do, is working towards an important deadline or has to care for an ill relative.

In the current issue of the European Journal of Pain, Karsdorp et al. (2) present a novel approach to the question of non-pain prioritisation over pain by considering the role of trait attentional control. We would like to commend the authors for this important contribution to this growing area of research. Further to replicating the known attentional bias to pain and ability for non-pain goals to override this bias, the authors presented tantalising data to suggest that participants with higher self-reported attentional control showed greater bias to goal-related information over pain- or neutral-related information than participants with lower self-reported attentional control.

This growing field of attentional bias towards somatic cues is built upon complementary literature in the field of anxiety and phobias. There are, however, still a number of outstanding questions which need to be addressed within this field. One is how findings with highly threatening rapid onset phasic pain inputs relate to the more real-world experience of pain with slower and adapting tonic sensations. Another is how attentional bias to nociceptive inputs or stimuli which have been paired with nociceptive inputs are related to attentional bias towards pain-related stimuli (e.g. faces, pictures or words) in individuals with pain concern or who are in pain states, including

chronic states. These data address similar but different problems and a systematic examination of these literatures and questions will likely provide greater insight into the role of attentional bias in pain. Finally, work is needed to examine how attentional bias for pain or pain cues relates to other objective measures of the cognitive impact of pain, for example the cognitive disruption which can result from a concurrent painful experience.

Systematic research to understand the nature of motivation in the experience of pain in healthy individuals as well as chronic pain patients will play a major role in the understanding of pain experience in the coming years. This will, in turn, require the refinement of existing paradigms as well as development of novel and more fine-grained methods of identifying cognitive biases in relation to pain.

Dr. David Moore

Research Centre for Brain and Behaviour

Liverpool John Moores University

Liverpool

United Kingdom

Dr. Nina Attridge

School of Science

Loughborough University

Loughborough

United Kingdom

Correspondence

Dr. David Moore

D.J.Moore@ljmu.ac.uk

Conflict of interest

The authors declare that there is no conflict of interest in publishing this manuscript. Both authors contributed to the write up of the final manuscript

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