

## Editorial

# Moving Past the Normalization Heuristic to Unravel the Mystery of Pain

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## Editorial

Pain is a normal life experience and needed for survival, but living in pain is not normal. Unfortunately many people currently are living in pain. The Institute of Medicine's "Relieving Pain in America" report stated that about 100 million Americans are living with some form of persistent pain [1]. This staggering number of individuals and the representative suffering and costs associated with it has created a significant public health challenge. It has created challenges in areas regarding care for those individuals, education on the understanding of pain to clinicians and patients along with research gaps present in our understanding and care for individuals in pain. Pain has been given a concrete definition by the International Association for the Study of Pain: "An unpleasant sensory and emotional experience associated with actual or potential tissue damage, or described in terms of such damage" [2]. While this is an agreed upon definition, pain is far from concrete and is still an elusive item to understand and provide treatment for individuals experiencing pain. Quinter et al. referred to pain as an aporia, a mystery [3]. As clinicians and researchers we have to accept the limitations of our understanding due to the intangible nature of pain as a lived experience by individuals. This lived experience is not linear and thus eludes most traditional biomedical treatment models and research questions. Even though pain may be a mystery it does not stop it from having a profound real effect on so many individuals that seek help from health care providers. As researchers and health care providers we need to learn and understand as much about pain as we are able to help us and those we treat when we enter into the complex third space [3] from which therapy can arise.

Melzack [4] and Gifford [5] have given us conceptual models to begin to appreciate the lived experience of pain for individuals. Many traditional treatment interventions focused in on the sensory signaling systems of musculoskeletal inputs from the tissues. Clinically we need to address these, especially in light of any significant "red flag" pathologies that may be taking place in individuals seeking care secondary to pain. But in the same breath we need to be careful in our clinical reasoning process not to create "red flags" in areas that may be outside our belief of normal. This drift in our clinical reasoning process toward what Abernethy and O'Brien refer to as the normalization heuristic [6]; can lead us to treat things that are not causally related to the individual's condition. This misstep in treatment reasoning

can lead to over treatment and providing care with minimal to no value for the individual's condition. Correction of individual's posture, muscle imbalances, asymmetries, core stabilization and trigger points are common treatment interventions that may fall into the normalization heuristic. Ongoing research needs to look into these interventions to see if the benefits they provide are small and/or unnecessary considering the costs, risks and alternative intervention options that may be present, thus determining if we can substantiate these ongoing use.

Tissues do get injured but they begin the normal physiological process of healing through regeneration and/or repair as soon as the resultant forces leading to the injury are reduced. Therapy interventions need to take into consideration this normal healing process of the various tissues involved and provide an optimal environment of protection and gradual loading to assist with the normal healing process. Consideration of these tissue based inputs is important, but also short sighted when working with individuals in pain. Tissues always get injured in an environment and research has shown that these inputs from the environment that are interpreted by cognitive and emotion related brain areas also have an effect on the pain experience [7-10]. These cognitive and emotion related brain areas can stand alone and be all the inputs that are needed for the individual's neuro matrix to have a pain experience emerge from it. This is why we now know that it only requires "potential tissue damage" for an individual to have an unpleasant sensory and emotional pain experience [11,12]. This understanding should highlight even more importantly that we can no longer use the reasoning process that pain always equates to some tissue injury or abnormality that needs fixed or changed. Giving even more weight as to why we need to explore our evaluation tests and treatment interventions considering the potential pitfalls of the normalization heuristic with some of these assuming we are finding and treating the cause of an individual's pain.

Future research into evaluation tests and measures needs to keep in mind the large variation in individuals and work to better define normal ranges of the general public, but also specific patient populations and requirements for functional activity outcomes. As part of normal genetic variation, larger systems interaction and the aging process individuals will express significant physical variations. Caution should be raised when treating believed physical variances that may very well be a part of normal variation. Treating these variations on the assumption that it equates to tissue damage or the causal factor to pain and thus needs fixed is potentially a grievous error in clinical reasoning. Defining things such as minimal clinical important difference, numbers needed to treat along with financial implications for various treatment interventions and their effects on these evaluation outcome measurements and evaluative tests is vital as we move forward to become evidence based practitioners and work to optimize our care for individuals in pain.

Expanding our understanding of the emotional aspects of pain can only help us provide a more harmonious treatment interaction considering all pain is both sensory and emotional. We have evidence that from a neurological processing standpoint that nociceptive sensory signaling areas and emotional brain areas are always involved in acute through chronic conditions, but the emotional brain areas become more active as the pain experience persists [13]. During early intervention of injured tissues paying attention and understanding more about cues that may lead to progression of chronic pain states may be vital in the prevention or at least reduction in chronic pain states that effect so many millions of Americans living in pain. With the evidence in hand that we can improve chronic pain conditions through helping people better understand their pain through pain neuroscience education [14,15] research needs to dig deeper into the utilization of neuroscience education acutely to maybe prevent chronic conditions[16]. While we may never completely resolve the mystery of pain, as clinicians and researchers we need to step forward and past many of our traditional biomedical approaches and beliefs steeped deep in tissue pathology. These old beliefs and models may be wrought with false normalization heuristic principles as a focus of our efforts and lack much of the psychosocial understanding of the lived experience of pain individuals suffer with daily. We will need to continually refocus research efforts and develop adoption of these findings into our clinical practice for individuals in pain.

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