Biopsychosocial model of disease: 40 years on. Which way is the pendulum swinging?

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The biopsychosocial model came to prominence in 1977 when it was introduced by Engel who argued against the reductionist biomedical model of disease and for concomitant consideration of behavioural, psychological and social dimensions in understanding a person’s medical condition. This conceptual model was initially proposed within the field of psychiatry, but it quickly expanded to other fields of medicine. In 1987, Waddell proposed a new conceptual model for the treatment of chronic low back pain, which encompassed the biopsychosocial framework and brought it into the sphere of musculoskeletal disorders.

Few would question the merits of the model as it is unreasonable to separate the person and their personal circumstances from their medical condition and to regard physical and psychosocial components as independent entities. The model has relevance for all musculoskeletal pain states, acute or chronic, but it has been most widely advocated in chronic pain disorders. It has wide perspectives and promotes consideration and evaluation of all potential biological, psychological and social determinants of a patient’s presentation.

HOW IS THE MODEL JOURNEYING SOME 40 YEARS ON, IN ITS INTERPRETATION AND USE?

The biopsychosocial model is often presented graphically as three symmetrical circles which can mislead clinical reasoning. Such diagrams suggest ‘equal’ contributions of the three broad domains in every person’s clinical presentation at all times. This is far from reality. Rather, the relevance and contribution of each domain can vary greatly among patient presentations (figure 1). Likewise each domain’s relevance and contribution will most likely change as the patient progresses through the course of the disorder. The model provides a background philosophy to holistic evaluation, but there is no assumption of proportional representation of domains. Failure to recognise this ‘fluidity’ in the model lessens the appreciation of the variety within, the associations between and relative importance of each domain in the individual patient at initial and progressive time points which could negatively impact on management.

The biopsychosocial model is very broad, which is a major limitation. It does not guide, recommend or restrict which features should be evaluated in any domain. The clinician is free to choose from a variety of potential tests, so approaches to patient evaluation risk reflecting the professional or attitudinal bias of the clinician. Neither does the model inform on how one domain may or may not influence or interact with another domain.

The model has underpinned the growth of multidisciplinary rehabilitation programmes especially, but not exclusively, for chronic low back pain and with some success. Such programmes target features from the three different domains and are usually delivered by a multidisciplinary team of health professionals. Even though it has been used to support these programmes, the biopsychosocial model does not provide any specific guidance to what interventions should be implemented. This is a weakness as domains can feasibly be interpreted as interventional models.

WHICH WAY IS THE PENDULUM SWINGING?

It could be expected that in 40 years, there would have been widespread adoption and implementation of the biopsychosocial model, given its rapid initial adoption and the enthusiasm with which it was greeted especially in the chronic musculoskeletal pain field. Yet despite this history, the pendulum is continuing to swing!

In some quarters, the pendulum appears to have swung back to the biological model. For instance, there has been criticism of interventional pain medicine for its departure from the premises of a biopsychosocial model back to a narrow focus on nociception as a sole target of pain treatment without any due regard and consideration of pain-related psychological factors. In other quarters, the pendulum has swung in the opposite direction away from the biological domain to focus on psychosocial domains with behavioural treatments being the sole intervention. Yet chronic conditions are not always automatically accompanied by dominant adverse psychosocial features, and peripheral nociception and inflammation continue to play a role in many chronic pain conditions.

In recent decades, there has been an explosion of knowledge in pain neuroscience. From the simple Descartes’ pain pathway, there is ever increasing knowledge about central neural mechanisms to understand the patient’s pain experience. This has led some researchers and clinicians to focus treatment strategies on central nervous system processes.
example, a management regime of pain neuroscience education has emerged to manage chronic pain, in particular, chronic low back pain. In a broader application, a trial of pain neuroscience education is in progress to test its efficacy in preventing the transition from acute to chronic low back pain. Features in the biological domain for instance, deficiencies in motor output and sensorimotor control and any need for their rehabilitation are not considered.

It is time for the pendulum to steady. It is neither a biological model nor is it a psychosocial model, rather it is a biopsychosocial model. The model is not without its critics, but the sentiments of the model are highly commendable and should be embedded in research and patient care.

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