

On the suitability of medical analogies, from hypertension to broken leg

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Commentary

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There is little doubt that the brain, as the central information-processing organ of the body, governs all our mental faculties. Most of us will also accept the implication that every facet of our psyche has neurochemical and neuro-electrical correlates. When confronted with evidence, most of us will even endorse the brain's *causal* role in our thoughts and feelings. Yet, there is still considerable reluctance to see psychiatric disorders as brain disorders, that is, as diseases primarily affecting one organ of our body just as hepatitis, for example, primarily affects the liver. This inability to see psychiatric disorders as brain diseases is deeply rooted in a dualistic worldview shared by a significant proportion of the general population. It even manifests itself in scientific vocabulary. We speak of “mental disorders” when referring to psychiatric disorders but “neurological disorders” when referring to disorders dealt with in neurology. Indeed, the division of disorders of the nervous system into two medical specialties, psychiatry and neurology, is a manifestation of an “intuitive Cartesian divide”, as Jonathan Downar recently put it (Downar et al. 2016).

Should we draw public attention to this apparent fallacy? We think we should, and comparing psychiatric illnesses to other physical diseases can be a fruitful way of accomplishing this endeavor. Such analogies have gained a great deal of popularity in recent years, and many psychiatrists today like to compare having a psychiatric disorder with having hypertension, diabetes, or a broken leg. This is certainly well-intentioned and motivated by the demand for biomarkers in clinical practice. Unfortunately, we are still lacking such objective markers, although a recent consensus paper in this journal provides several potential candidates for future research (Schmitt et al. 2016). However, while appreciating the advantages, we must be aware of the limitations that come along with every chosen analogy (Kvaale et al. 2013). Indeed, the growing trend in drawing parallels between physical disease and “mental” illness has recently prompted strong criticism in an award-winning article in *The Guardian* – “It's nothing like a broken leg” (Parkinson 2018).

So, let us explore the suitability of the broken leg analogy. A broken leg itself does not readily reveal the source of why it is broken. It might well be caused primarily endogenously, due, for example, to an abnormal bone. More frequently, the reason for it can be found in the environment, in the sense of there being a substantial force that was applied to the bone. Perhaps the cause of a broken leg is the result of a combination of factors, such as running without caution (psychological) across a rough terrain with slippery stones (environment) during a mountain run (social) for which the runner is inadequately trained (biological). Indeed, the child of a champion runner might be less likely to break a bone given the specific physique that was passed on to him or her (genetics) and given the acquired habit of tenacious training (nurture).

The broken leg analogy may be a very useful tool to highlight a specific aspect of a psychiatric disorder, namely, the multifactorial etiology of a medical condition that is physical in nature. However, it may be less suited for capturing the comparably slow development of most psychiatric disorders such as major depression. Here, we may consider using the analogy of elevated blood pressure instead. Indeed, hypertension develops slowly over the years and has its root in a complex interaction between genetics and environmental factors such as lifestyle. The broken leg analogy, on the other hand, may be a useful parallel to illustrate the healing process. The process of fracture repair takes months, from inflammation, callus formation and replacement with lamellar bone, to bone remodeling. Similarly, neuroplastic modifications need time and often necessitate support from continued medication intake.

For illustrating the subjective quality of being depressed or for illustrating the profound psychological changes that define the state of depression, we may consider shifting the focus to the mind-altering effect of a psychoactive substance. Alcohol consumption is highly prevalent and more than half of the population in the Americas, Europe, and the Western Pacific are familiar with its impact on our mental faculties (World Health Organization 2018). Should this come as a surprise that such profound effect is a result of the chemical ethanol?

However, the use of a metaphor to illustrate the biological nature of a psychiatric illness must be preceded by an appraisal of the audience and of the circumstances in which we plan to use the metaphor. Lecturing our patients about the nature of a psychiatric illness should help, rather than hinder, the therapeutic process, and we may need to separate what we believe is the truth and what is therapeutically helpful. Indeed, it has been argued that the clinical and public utility of a purely neurobiological model of psychiatric illness has its limits. A disease model which is derived from a dialogue between the patient and the clinician that makes sense for the patient may be a more solid basis upon which successful treatments can be built (Malla et al. 2015).

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