EDITORIAL

'Going round' the squirrel and whether neuroscience is relevant to clinical psychiatry

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DESCRIPTION

In one of his lectures on Pragmatism, William James relates the following story: While on a camping trip with some friends, they asked him to settle a debate. One of his colleagues had been chasing a squirrel around a tree but to no avail. The squirrel was always able to run around the trunk in order to evade his colleague's glance, leaving the tree constantly between the two. The group was arguing over whether the man was encircling the squirrel or not. James, in his pragmatic way, answered, "Which party is right, depends on what you practically mean by 'going round' the squirrel. If you mean passing from the north of him to the east, then to the south, then to the west, and then to the north of him again, obviously the man does go round him, for he occupies these successive positions. But if on the contrary you mean being first in front of him, then on the right of him, then behind him, then on his left, and finally in front again, it is quite as obvious that the man fails to go round him, for by the compensating movements the squirrel makes, he keeps his belly turned towards the man all the time, and his back turned away..." (1). While this story is sometimes used to caricature the philosopher's use of semantics to avoid questions of practical import, I see it as a way to settle the recent return to the debate over whether neuroscience is relevant to clinical psychiatry.

Last spring, JAMA Psychiatry published an article that sparked a debate over which frame of reference – the neuroscientific or the psychological – psychiatry should adopt with respect to understanding and treating illnesses of the mind/brain (2). Of course, there are many different theories and schools within the field of psychology, but the main question is whether psychiatry should adopt a reductionist model, where illness is understood in terms of being a brain disorder and diagnoses are based on objective laboratory measurements, or whether it should continue to use a non-reductionist model, where illness is mental, not simply neurological, and diagnoses are based on cognitive and behavioral symptoms. This is not a question of the neuroscience school of thought being data driven and the psychology school of thought being intuitive. Both sides of the debate are justified by empirical evidence; the difference between the two is in what is observed and how phenomena are explained.

The recent debate spilled into the New York Times and other lay periodicals, such as Scientific American, yet it is a question which the psychiatry, psychology, and neuroscience communities have been trying to resolve since the beginnings of the fields. The argument transcends mere disagreement over which conceptual schema is more accurate or true; there are major practical ramifications both for which types of treatment options might be available for patients and for how much funding might be allocated for which types of research. Neuroscience has been gaining ground over the past decade and a half, with the growing popularity of psychopharmacology over talk and cognitive behavioral therapies (which may have as much to do with insurance reimbursement practices as patients' wishes) as well as the shift in focus of the National Institute of Mental Health to fund brain-based research over psychotherapy research. Yet brain-based research has not proven that other methodologies are not accurate in explaining mental health and illness; rather, it has provided another frame of reference for understanding mental or neurological phenomena using different descriptions and different forms of measurement. The two different frameworks, i.e. that of neuroscience and psychology, are both productive, yet their respective descriptions of illness and of mental/neurological processes do not cohere in each other's frame.

For example, in one of the recent Scientific American articles on the subject, Daniel Barron describes the anxiety of a PTSD patient from the neuroscientific frame of an overactive sympathetic nervous system. A person with PTSD has an overproduction of adrenaline in the hypothalamic-pituitary-adrenal axis (3). Yet the overproduction of adrenaline does not produce anxiety; signals from one's memory or one's environment triggers anxiety in a person with PTSD. Conceptualizing anxiety only as a neurobiological response would be like seeing time simply as the moving of the second hand of a watch. While both might be ways to measure phenomena, i.e. anxiety or time, they do not comprise or even cause the phenomena. However, this does not mean that watches or neuroscience cannot help a person better formulate a strategy for how to spend his or her time or treat a person's anxiety. With respect to treatment of anxiety, because the perceptive, apperceptive, and emotional dispositions of a person will have neurological and physiological correlates – which are affected and, in turn, influence the reinforcement or extinction of those dispositions – we should be thinking about how neuroscience and psychology can work together without conflating them. We could then find positive sum strategies for clinical psychiatry therapy and research.

To go back to William James' response in the 'going round the squirrel' debate – the answer to how one thing relates to another must be understood in how the two relate in their mutual context as well as in terms of the purpose of their relationship. In the squirrel debate, when one conceives of the man and the squirrel as two opposing entities without any other contributing factor, then the two are always in a mutual stand-off, one never circling the other. However, when one conceives of the man and the squirrel as two entities that relate to the tree which they both go round, then the two should be seen as relating via the tree as two entities moving apace in concentric circles. Similarly, when neuroscience and psychology are conceived as two opposing fields of enquiry into the ways that the mind/brain works, they will then be in a mutual stand-off, since they understand the mind/brain through different conceptual frameworks and use different tools through which they measure health and illness. However, when one conceives of neuroscience and psychology as two entities that can improve the health and wellness of an individual, then, despite their different methodologies, they can relate to each other vis-à-vis their common goal of healing individuals. This relationship would not entail a rejection of either methodology; rather, it would recognize the complementarity of both and would allow for a fuller range of treatment alternatives.

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