EVOLUTION

Good Reasons for Bad Feelings: Insights from the Frontier of Evolutionary Psychiatry.


In this volume, the author outlines a program of evolutionary psychiatry in which bad feelings and associated mental illnesses are viewed from the perspective of evolutionary biology; or, more specifically, the theory of adaptation through natural selection. Three general themes run through the book. First, mental illnesses should not be viewed as adaptations, but instead as extensions of normal mood patterns that occur in response to particularly stressful environmental circumstances. For example, clinical depression is not, in itself, a Darwinian adaptation that exists because it leads to increased genetic fitness, but is instead an extension of the same evolved biological processes that produce normal low mood (i.e., transient bad feelings). Nesse offers the analogy of physical pain: chronic physical pain is not an adaptation, but is an extension of the same evolved biological processes that produce acute physical pain.

Second, bad feelings, such as low mood, should not be viewed as constitutive of mental illness (e.g., depression), but as symptoms that occur as a result of adaptive biological responses to environmental stressors. Again, the author offers an analogy: in medicine, cough, pain, and fever are considered symptoms for which the underlying physical insult must be searched for; likewise, low mood should be viewed as a symptom for which the underlying psychological insult must be searched for. He further argues that antidepressant medications work in treating depression in much the same way that pain medications work for treating chronic physical pain. Both types
of medication disrupt a normal response system through various pharmacokinetic pathways (i.e., different classes of antidepressants and analgesics), are typically of modest efficacy, and have the potential for side effects, but are nonetheless helpful to many people.

Third, to say that mental illnesses have a genetic underpinning need not mean that they are the result of defective genes (or, as in the first point, genes that are adaptive in some counterintuitive and yet-to-be-discovered way). Instead, most mental illnesses are manifestations of normal (in the sense of normal functioning rather than statistical normality) gene-environment interactions that occur because of genetic tradeoffs and side effects, “fitness cliffs,” and changing environments. For example, humans with the genetic predisposition to be socially hyperactive in advantageous circumstances (e.g., good weather, lack of immediate threats/stressors) may have been more likely to survive and reproduce. This would have led to perpetuation of the genes that led to such social hyperactivity in advantageous circumstances. Because of individual variability, this tendency may, for some individuals when placed in certain modern environments, lead to extreme social hyperactivity that is diagnosable as mania. This example of what Nesse calls a “fitness cliff” can also be applied to other mental illnesses such as depression, schizophrenia, and autism.

Such “fitness cliffs,” in conjunction with changing environments, and genetic tradeoffs and side effects, are all examples of how evolution by natural selection does not—despite common misunderstanding—produce uniform traits that are engineered to achieve some purpose or goal. Instead, evolution results in genes that interact with environments to produce traits (for which there is individual variability) that build on existing biological structures in ways that, in a particular set of past environmental circumstances, led to statistically increased fecundity among those individuals who had the genes that interacted with environments in ways that produced that trait. Put another way, mental illness should not be viewed as difficult to reconcile with evolution, but as exactly what we should expect from a natural response of the human psyche to dynamic modern and socially complex environments. Understanding the latter is the goal of the program of evolutionary psychiatry as outlined by Nesse.

The author’s broad ideas represent cutting-edge science. But his nontechnical writing style is appealing and digestible for general readers as well as scientists, including those who may have no previous background in the relevant areas of psychiatry, psychology, or evolutionary biology. Perhaps because of this nontechnical style there is a lack of nuance in some areas; for example, in Nesse’s characterization of Dawkins’s selfish gene theory, his discussion on altruism, and his reference to “wanting” in the context of Berridge’s incentive salience theory. Having said this, I expect that each reader could, like I have done, pick out her/his own particular areas of interest and hope for more nuance. But this can hardly be considered a criticism given the author’s corpus of more technical writings and his broader goals in this book.

Finally, some readers may criticize Nesse for being overly speculative—the dreaded charge of the “just-so story” that seems to accompany any perspective on the Darwinian underpinnings of mind and behavior. I can only say that although the author is certainly guilty of such speculation, he clearly and repeatedly acknowledges this. As he notes in his conclusion, his goal is not to definitively answer questions about the evolutionary underpinnings of bad feelings and mental illness, but to provide a framework for asking such questions. His volume goes a long way toward accomplishing that goal.

David M. Williams, Behavioral & Social Sciences and Psychiatry & Human Behavior, School of Public Health, Brown University, Providence, Rhode Island