The Role of Cultural, Social, and Psychological Factors in Disease and Illness

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Abstract

Understanding the effects of social, psychological, and cultural processes on the body raises age-old questions that remain perplexing puzzles still today. Research by biomedical, social, and behavioral scientists on the role played by these factors in causing disease and people's subjective experience of it promises to advance understanding of issues about the connections between mind and body. This essay summarizes findings from relevant areas of research, identifies the most promising lines of inquiry to date, poses questions that remain to be investigated going forward, and concludes with speculation about possible applications of existing and prospective new knowledge in health-related and other arenas of social practice.

Among the various avenues of research relevant to this topic, three in particular stand out. They are (i) studies of the connections between stress and sickness, (ii) studies of persons' subjective experiences of physical symptoms, and (iii) studies of expectancy effects. Studies of stress document the physical effects of long-term exposure to adverse social, psychological, and environmental conditions, the role these play in causing disease, their effects on people's experiences of sickness, and on their ability to recover. Studies of symptom perception focus on people's subjective experiences of being ill, investigating ways in which aspects of culture, social environment, traits of personality, and psychological states affect our awareness of bodily symptoms, and how we interpret and experience them subjectively. Studies of expectancy effects, commonly referred to as *the placebo* or *the healing response*, aim to learn if beliefs alone can have physiologically measurable effects on bodily symptoms and on our perceptions of them, on how we feel and on how we respond to the treatments we are given.

Taken together, these areas of research support the conclusion that understanding sickness requires simultaneous knowledge of two factors: the biological conditions diagnosed on the basis of physical signs (disease) and an individual's subjective experiences of the physical symptoms that a disease manifests (illness).

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FOUNDATIONAL RESEARCH

Distinction between Disease and Illness

Fundamental to all studies of the role of social, cultural, and psychological factors in human, physical ailment is a distinction between disease and illness. Disease refers to the biological conditions that have been diagnosed by a physician or other similarly qualified medical expert who make this determination on the basis of physical signs and in light of established scientific knowledge. Illness refers to our subjective experiences of the physical symptoms we have. In effect, disease is what a medical expert determines is wrong with us; illness is our subjective experience of it (Eisenberg, 1977).

In most instances, objective physical signs of sickness and subjective experiences of symptoms occur simultaneously and interact with one another. However, this is not always so. Hypertension is a condition that is often be symptom free, exemplifying an instance of a disease but not an illness. However, certain treatments for hypertension entail use of medications with unpleasant side effects, resulting in a situation where the disease is effectively cured but yet the patient feels ill (Shapiro, 2001).

The Role of Stress in Illness and Disease

Studies of *stress* document how social conditions such as poverty, occupational strain, marital and family discord, social supports, and daily hassles disorganized environments and peoples' places in social dominance hierarchies are in one way or another implicated in causing disease, in affecting the timing of its onset, and in dictating the rate of recover from it (Kulielka & Kirschbaum, 2001).

Studies of stress link it in various ways—not yet fully understood—to disorders associated with the nervous, immune, cardiovascular, endocrine, neuromuscular, and skeletal systems (Kulielka & Kirschbaum, 2001). In each instance, the linkage is hypothesized to be mediated through the mechanism of allostasis, the body's capacity to respond to changes in the environment that protect against immediate, short-term sources of harm. The working hypothesis is that prolonged activation of the so-called "allostatic load" (i.e., wear and tear on the body) results in a physiological burden that can be damaging to bodily defense systems essential for averting disease (Biondi, 2001; Kulielka & Kirschbaum, 2001, pp. 15171–15172).

Symptom Perception

Research on *symptom perception* seeks to understand how cognitive and perceptual processes shape our subjective awareness and interpretation of

physical signs associated with disease. Awareness of symptoms, how we interpret them, what we decide to do about them, how we develop the sense that we are becoming sick, or are getting well again, are all affected by cultural beliefs, features of our immediate social environment, personality factors, and mood states.

Research on this topic begins with studies of initial perceptions of bodily symptoms of discomfort and supports three broad conclusions. First, emotional states play a critical role in sensitivity to physical symptoms. Those suffering from mood disorders such as depression and chronic anxiety, for example, are more attentive to bodily symptoms than those whose characteristic mood states are of hopefulness, optimism, and a desire for sociability (Pennebaker, 1982). Second, cultural heritage is related to sensitivity to symptoms. For example, people belonging to different cultural groups are found to differ in their sensitivity to bodily symptoms, with Italian and Jewish Americans in the aggregate showing greater sensitivity to internal bodily states than so-called "Yankees." Third, sensitivity to and thus awareness of internal bodily sensations are directly affected by characteristics of one's immediate environment. For example, those exposed to highly stimulating, distracting environments are much slower to notice symptoms of internal bodily states, if at all; alternatively, when the external environment is lacking in stimulation, attention is more readily directed toward the body and inner feeling states (Pennebaker & Lightner, 1980; for a review of studies of symptom perception, see Scott, 2010, pp. 151–155).

Once signs of physical discomfort come to conscious awareness, individuals tend to organize their perceptions about them around basic cognitive schemas. Such schemas are comprised of a mixture of elements including notions about what people believe ails them, its likely cause or causes, its characteristic symptoms, expectations about its duration and curability, appropriate ways of treating it, and signs to look for that one is getting better (Taylor & Crocker, 1978).

As with studies of sensitivity to symptoms, studies of illness-related schemas also show that culture plays a major role in the organization and content of the disease-related schemas people acquire. Specifically, they demonstrate that people from different cultural backgrounds possess different schemas for the same basic biological condition (Zborowski, 1952, 1969). Finally, once activated, illness-related cognitive schemata structure and guide perceptions, leading people to focus their attention on bodily sensations that provide them with confirming evidence for their initial "diagnosis" and leading them to ignore disconfirming evidence. Moreover, once schematic notions about "diagnosis" solidify, the resulting mental structures prove resistant to attending to disconfirming evidence. Instead, people tend to closely monitor bodily sensations for evidence that confirms

their provisional hypothesis and ignore the rest (Leventhal & Diefenbach, 1991).

Given that research on symptom perception is concerned with persons' subjective experiences of being sick, much of it has naturally focused on awareness of pain and pain thresholds irrespective of condition and on understanding how focus of attention, social context, and cultural expectations shape people's experiences of physical discomfort. This has led to a view of pain as a perceptual phenomenon in which information transmitted through the central nervous system is integrated, processed, and interpreted in the brain. Because the brain plays such an integral role in how we experience pain, in principle, any factor in the environment that impacts the brain can affect the level of pain people experience and their ability to cope with and tolerate it.

Expectancy Effects

Studies of *expectancy effects* aim to discover if beliefs and resulting expectations effect the way people respond to the treatments they are given and if so, how this happens. In the typical study, subjects are primed about how the sham treatments they are about to receive in experimental or clinical situations will affect them. Researchers then look for evidence of the effects of these implanted beliefs on uncomfortable sensations that either have been induced experimentally or are associated with the disease condition being treated. Several key findings emerge from this research.

One of the most consistent and striking of these pertains to pain analgesia—that is the subjective experience of gaining relief from physical discomfort. Under certain conditions, people primed to expect relief from pain actually report experiencing it. Another series of studies suggests that the manner and form in which placebos are administered affects the magnitude of the response. Administering a placebo more frequently produces better outcomes than administering the same placebo less frequently; some pill colors induce greater placebo effects than others; larger pills are more effective as placebos than smaller ones; injected placebos produce stronger effects than those that are orally ingested; and surgically induced placebo effects are strongest of all (Bausell, 2007, pp. 135–136; Moerman, 2001, p. 66).

Expectancy effects appear to be especially pronounced for certain conditions such as asthma, intractable warts, rashes and other skin conditions, nervous and mental conditions such as depression and anxiety, infectious disorders, stomach ulcers, a range of inflammatory reactions, and allergies. Other studies suggest that when care providers themselves have been misled into believing that the inert or sham treatments they are administering are real, evidence of placebo analgesia in patients also occurs. And finally,

for certain forms of physical ailments, such as intractable warts, expectancy effects can apparently result in permanent cure. More often, such effects do not cure, but there can be little doubt that they help people given placeboes feel better (for a review of relevant Research see Scott, 2010, pp. 129–133).

CUTTING-EDGE RESEARCH

Research on the role beliefs plays in perceptions of bodily symptoms and in expectancy effects demonstrates that the mind is central. In order for sham treatments to work, people must be aware that something has been given to them and "primed" to expect their likely effects; in the absence of this awareness, no expectancy effects are detected (Kraden, 2008). Does this then mean that symptom perception and placebo effects are no more than figments of the imagination, things that exist only in our heads? Recent research indicates that the answer to this question is an emphatic "no." Evidence in several recent studies shows that once activated, beliefs have detectable, measurable physiological effects that are real and help us to make sense of the subjectively perceived effects subjects report experiencing (Benedetti, 1996; Benedetti et al., 1998). One of the most exciting areas of such research involves efforts to study in what manner and precisely how beliefs become physiologically consequential and the form their effects take.

This research builds on the finding of earlier studies showing that the body is capable of manufacturing its own version of the pain killer morphine known as *endorphins* (endogenous morphine's), the so-called "the poppy fields of the mind." Physiologists have identified where in the body they are released, what triggers their release, and the biochemistry of what happens once they are activated (for a review of relevant research, see Scott, 2010, pp. 141–144). Subsequent studies using functional magnetic resonance imaging (fMRI) scans have pinpointed the precise regions of the brain where pain analgesia occurs and how it works. fMRI technology entails using magnetic resonance imaging technology to measure brain activity by detecting associated changes in blood flow. They show that areas of the brain where known pain receptors are located and activated when pain is administered to subjects, go "dark" when subjects are given placeboes they are told will curtail, diminish, or abolish their pain, and that regions where the manufacture of natural painkillers (endorphins) are initiated, "light up" following administration of the placebo medication (Wager et al., 2004).

Adding further credence to the idea that expectancy-induced pain analgesia is real are studies showing that analgesia that has been induced in laboratory studies can be neutralized using a drug (Naloxone) originally developed as an opioid antagonist in treating persons addicted to morphine. These studies have established that Naloxone blocks the effects of placebo-induced pain

analgesia in exactly the same way and to the same degree that it interferes with the pain numbing effects of morphine (Levine and Fields, 1978).

A second cutting-edge area of research that highlights the linkages between mental and internal physiological processes points to its direct relevance for the body's ability to ward off and fight disease. These studies monitored the physiological effects of psychological interventions aimed at uncovering enduring long-suppressed traumatic life events by allowing subjects to "open up" about them. A series of studies show that those given the opportunity to write about such events show a dramatic decline in reported episodes of illness as measured by use of health services, and activation of the immune system in the form of increases in T-cell counts that are both robust and long lasting (Glaser & Kielcot-Glaser, 1994; Pennebaker, 1990).

KEY ISSUES FOR FUTURE RESEARCH

The studies referenced in this essay provide compelling evidence that mind and body are tightly interconnected and show that human sickness cannot be fully understood without giving equal attention and weight to both. Research on this topic to date has established *that* mental processes and factors in the social and cultural environments affecting them can have measurable impacts on physiological processes. Only now are we beginning to understand *how* these effects happen; not at all understood is whether it is possible to capture the powers inherent in such phenomena as expectancy states, perceptions, beliefs, and other facets of mental processes and employ them *telically* to affect health outcomes in desired and intended ways. Although we know that placebo effects are real and can have real consequences, until we understand more fully how and why they do, and when they do not, why they do not, we cannot begin to fashion interventions that will allow us to tap into the power of belief in aid of clinical interventions. Herein lies one of the most promising and exciting areas of investigation for future research.

The beginning point for such research must be to acquire more complete and systematic knowledge about the various ways in which mind affects body, whereas many of the studies referred to in this essay came about in a somewhat haphazard, ad hoc fashion. Medical scientists invited social and behavioral scientists to affiliate with research programs relating to specific types of disease in the belief that the disease they study and treat has important behavioral and social components. The result of this way of proceeding has provided an important beginning, but at present yields something of a patchwork of findings, lacking clear conceptualization of the types of diseases that are most affected by social, cultural, and situational factors, and of the kinds of roles social and behavioral are likely to play in the genesis, onset, course, and outcome of different types of diseases. It is likely that all such

factors thus far identified do not play equally important roles for all forms of disease and at all stages of their development. Developing a scheme that brings conceptual clarity to this matter would not only advance knowledge but also provide a welcome corrective to the sometimes exaggerated claims made for the role of social and behavioral factors in illness (for a comprehensive assessment of this topic see Bausell, 2007).

To do this, it will first be necessary to devise a conceptualization of diseases based on the likely effects (or not) of culture, social environment, and mental processes on them, then to systematically monitor internal physiological states as measured by changes in blood chemistry, fluctuations in vital signs, immune system functioning, brain activity, and other facets of bodily functioning, and in turn to study linkages between these changes and variations in emotional states, mental processes, life events, sources of stress, and other features of the external social and cultural environment.

Doing this will require collaborative interdisciplinary teams of scientists drawn from fields such as of human biology, genetics, neuroscience, biomedicine, psychology, social psychology, sociology, and anthropology working together as unitary investigative wholes.

It will also require greater methodological rigor if we are to produce the kinds of findings that can intelligently inform clinical research and practice. For example, studies of expectancy effects need to be designed to correct a problem with the way many placebo studies have been conducted. Standard placebo studies compare two randomly assigned groups of subjects—those who receive treatments considered appropriate and effective for the condition in question and those who are led to believe they are receiving the same drug or procedure but in fact do not. The degree of the placebo effect is then inferred by comparing outcomes for the two groups. Critics of this design point out that it fails to take into account the fact that many illnesses are self-limiting and will go away of their own accord. To accurately gauge whether the placebo effect is genuine, a third group should be added—participants with the same condition who receive no treatment at all. When this is done, some (but not all) of the previously accepted evidence for the existence of the placebo effect becomes suspect (Hrobjartsson & Goetzsche, 2001, pp. 1594–1602).

Much of the research discussed in this essay has been about health and illness, but there is no reason to believe that findings of research on mind–body interactions should be limited to the area of human health alone. To the extent that future studies enable us to understand how to capture the force and power inherent in expectancy effects, perceptions, and the like, it should become possible to apply them equally to other domains of human experience such as, for example, the intentional management of mental landscapes that can produce changes in destructive mood states (Gentner, 2001; Pick,

2001), or enhance performance by heightening feelings of self-efficacy, hope, and optimism (Bandura, Coprara, Bararanelli, Gerbino, & Pastarelli, 2003).

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