At Issue: Will the Term Brain Disease Reduce Stigma and Promote Parity for Mental Illnesses?

by Daniel J. Luchins

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Abstract

The author questions both the scientific evidence and potential effect of the current trend to change the language used to describe certain serious mental illnesses (schizophrenia, schizoaffective disorder, or bipolar affective disorder) to “brain diseases.” It is argued that changing nomenclature will not be effective in reducing stigma unless the treatment and financial circumstances of the seriously mentally ill are improved. Finally, it is suggested that we need to expand our understanding and treatment of “physical illnesses” to encompass the social and psychological dimensions, not narrow our view of psychiatric illnesses.

Keywords: Stigma, mental illness, brain disease, schizophrenia, bipolar illness.


In an effort to reduce the stigma associated with mental illnesses and to win parity in medical insurance coverage for these disorders, advocates and professionals have taken the position that many of these disorders (e.g., schizophrenia, schizoaffective disorder, bipolar mood disorder, major depression) are brain diseases caused by a biochemical or structural abnormality. The public seems to accept this position. On the most recent General Social Survey done by the National Opinion Research Center, more than 50 percent of respondents cited a chemical abnormality as the cause of schizophrenia. Despite its appeal there are problems with this approach. First, it is less descriptively correct than the older terms, mental or psychiatric illness. Second, there is no compelling scientific evidence to support this change. Third, it promotes its own, different set of problems and distorted policies. Fourth, it will not mitigate the real causes of the stigmatization of the mentally ill. Finally, I will argue, what should be changed is our conception of physical, not mental illness.

No doubt mental or psychiatric illnesses involve the brain. But the term brain disease is already used to describe neurological illnesses, conditions for which it is more aptly descriptive. Regardless of their cause, neurological illnesses generally involve dysfunction associated with structural damage of discrete brain areas as occurs with strokes and tumors, or they are disturbances of brain physiology such as the generalized electrical discharge seen in epilepsy. Mental or psychiatric illnesses generally are disturbances of feeling, thinking, or behaving with basic brain function intact. In other words, they are, as the names imply, disturbances of higher psychological or mental functions.

Since we already have perfectly good terms for the illnesses with which we are concerned, what is to be gained by changing terminology? It might be argued that the term “brain disease,” even if not perfectly descriptive at least moves these illnesses out of the prescientific world of the psyche (Greek for soul) into the modern world of hard science, making them more like the other illnesses physicians treat. But this rationale represents a misunderstanding of physical medicine. Physical illnesses are themselves a complicated product of psychological, social, and biological factors. Coronary artery disease, the most common killer in our society, is almost nonexistent in many cultures. When aboriginal people adopt our culture, they develop comparable rates of coronary artery disease.
disease, indicating that it is our culture and not some physical/chemical difference that explains the prevalence of this condition in the Western world. The most important diseases in our society result from our lifestyles: cardiovascular disease, hypertension, obesity, diabetes, and lung cancer.

It could be argued that these physical illnesses, even if a product of culture, are nevertheless real, a part of nature, while mental illnesses are socially defined. In the *Diagnostic and Statistical Manual of Mental Disorders*, 4th edition, you find partial support for this viewpoint. Disorders such as Pathological Gambling (312.31) or Sexual Aversion Disorder (302.79) are newly described conditions, which in the recent past either were not recognized or at least not viewed as medical conditions. But, the same is true of recognized medical conditions. Until 20 years ago, Alzheimer's disease was a label used only to describe individuals who developed a dementia before age 65. Persons with similar conditions with later onset were suffering from senility, a condition that was seen as one of the stages of an individual's life. Despite the claim that up to 50 percent of people older than 85 have Alzheimer's disease, it is no longer seen as a regular feature of old age, but a distinct medical condition. The transformation of "impotence" to "erectile dysfunction disorder" follows the same pattern. Illnesses, as well as specific diagnoses, are social constructs.

You might argue that these medical conditions, although brought on by cultural factors and/or socially defined, nevertheless, manifest themselves physically. Persons with Alzheimer's disease do have distinct brain pathology. Persons with erectile dysfunction have specific sleep plethysmograph findings. But don't mental illnesses have real physical manifestations? Don't depressed people have changes in sleep and appetite? Don't people with anorexia have dramatic weight loss with the associated changes seen in starvation? Moreover, what does the concept of a brain disease imply? In the case of physical illnesses, such as heart disease, the term disease usually means one of three types of abnormalities have been documented. It could mean a structural abnormality (narrowed coronary arteries), a biochemical abnormality (elevated lactate in ischemic areas), or a functional abnormality (an arrhythmia). Do comparable abnormalities exist in serious mental illnesses?

**Structural Brain Abnormalities in Mental Illness**

The major psychiatric illnesses such as schizophrenia, bipolar disorder, and major depression have no definitive pathological bases. It is true that many neurological diseases manifest with syndromes indistinguishable from psychiatric ones. Probably 50 percent of stroke victims develop a major depression. Neurological diseases affecting deep brain structures, such as the basal ganglia (Huntington's chorea) or temporal lobes of the brain's cortex (temporal lobe epilepsy), can present with symptoms of schizophrenia. Although abnormalities in specific brain areas associated with neurologic illnesses can manifest with what resembles mental illnesses, the corollary doesn't hold. Studies of the brains of persons with psychiatric illnesses do not invariably report these specific abnormalities. Usually no abnormality or abnormalities in other brain areas are reported.

The search for a neuropathological basis for serious mental illnesses goes back to their original description in the late 19th century. The pursuit of the neuropathological basis of schizophrenia has produced so many findings (often not replicated or contradicted by other findings) that it is known as "the graveyard of neuropathologists." Curiously, during at least the first half of the 20th century it was the more "progressive" in the field who questioned these organic theories, partially out of concern that they lead to therapeutic nihilism and despair. Today, if we can believe the advocates, changing the nomenclature to brain disease will inspire society to provide expensive care and instill hope in those afflicted.

Possibly the search for the neuropathological basis of these illnesses is ill informed because it denies the unique nature of brain anatomy. When I attended medical school, the first year of anatomy covered the whole body except the brain, and the second year was spent learning neuroanatomy. This is because the anatomy of other organs is relatively homogeneous (one part of the heart, kidneys, or liver is pretty much like another part), because all the parts of these organs do pretty much the same thing (contract to pump blood, metabolize toxins, excrete waste products). Also, we generally understand how these organs function (their physiology) and therefore understand their dysfunction in illness (their pathophysiology). The brain is extraordinarily complex anatomically, with different areas having very different functions. Furthermore, although we know a good deal about how these areas are connected and how nerves communicate, we have little understanding of how this communication produces thoughts or complex behaviors. In neurologic illnesses, specific deficits in sensation, motor activity, or cognitive processing can be ascribed to particular areas of the brain. For example, injury to the upper part of the left motor cortex produces loss of control of movements in the right leg. But there is no reason to believe that more complex dysfunctions that might underlie psychiatric symptoms, such as paranoia or hallucinations, have the same simple one-to-one relationship to abnormalities in a
particular brain area. They could be due to subtle dysfunction of many parts or to more profound dysfunction of one of many parts. There is no reason to believe that the major psychiatric illnesses have a definitive neuropathology.

Biochemical Basis for Mental Illness

Currently, despite extensive indirect study of brain chemistry in living individuals and neurochemical analysis of autopsy material, there is no established biochemical abnormality known to underlie the major psychiatric illnesses. Despite these negative findings there is a consensus among both professionals and the general public that these illnesses are biochemical. The basis for this belief is that because they respond to medications that affect brain chemistry, they must represent biochemical abnormalities. This reasoning, in which the mechanism of action of a treatment is assumed to reveal the underlying etiology or pathophysiology of disease, is suspect. (If this were true the success [or failure] of psychoanalysis would support [or disprove] the role of the Oedipus complex in hysteria.) The failure of this logic becomes clearer if we compare it with the rest of medicine. For example, heart failure in our society is most often due to arteriosclerotic coronary artery disease, which (as I’ve mentioned) is associated with our diet and lifestyle. The mechanism by which this illness’ most common treatment, digoxin, works tells us nothing about the underlying cause of heart failure. Digoxin changes the permeability of ions across the heart membrane, indirectly strengthening contractions and increasing cardiac output. But patients with heart failure do not have an abnormality in ionic permeability; actually the digoxin (in a sense) produces one. Nor, of course, do they have a digoxin deficiency state. The mechanism of action of a drug to treat heart failure tells us nothing about this condition’s etiology or pathophysiology. Likewise, the fact that antipsychotic drugs block dopamine receptors, or antidepressants alter other neurochemicals, doesn’t tell us that psychoses or depressions are caused by abnormalities of these neurotransmitters. In fact, different antidepressants work at different neurotransmitters (selective serotonin receptors at serotonin, bupropion at dopamine, mitrazapine at norepinephrine), suggesting these are not the specific biochemical abnormalities underlying major depression. That all these drugs take the same period of time to work (2 weeks), reduce symptoms in the same order (improved sleep, appetite, and energy, before mood), and are effective in 70 percent to 80 percent of depressions suggest that there is some common final pathway for all these neurochemical mechanisms of actions. Is this common final pathway the biochemical basis of major depression for which the proponents of the term brain disease have been searching? These drugs are effective in panic disorder, phobias, generalized anxiety, eating disorders, and smoking cessation. Do these all have the same biochemical basis? If so, what does the concept mean?

Physiological or Functional Abnormalities in Mental Illnesses

Sudden cardiac death in otherwise healthy young adults can be due to a disturbance in heart physiology. Despite normal structure and chemistry, there can be a disruption of the electrical activity that coordinates cardiac contraction. There may be similar disturbances of brain physiology, for example, the massive electrical discharge that underlies a seizure. These are clearly non-physiologic events. However, is the normal physiology that accompanies an abnormal psychological state evidence of brain disease? For example, when exposed to a phobic object, the phobic patient can be expected to show many physiological changes: Increased heart rate and altered galvanic skin response as well as electrical and metabolic activation of brain areas related to emotional arousal. Aside from the technical wizardry used in acquiring these images of brain activity, why does the brain image make phobias any more a brain disease, and less psychological or mental, than the cardiovascular findings?

Since a picture is worth a thousand words, positron emission tomography (PET) scans and other functional brain imaging techniques such as functional magnetic resonance imaging (fMRI) are currently the most popular evidence to support the idea that mental illnesses (and substance abuse) are real and brain diseases. A PET scan of a person with schizophrenia might show decreased frontal activity while at rest but increased activity in auditory speech areas when hallucinating. But people who can’t concentrate or perform well on tests that involve higher executive functions have decreased frontal activity; people listening to real, not hallucinatory, speech light up these auditory areas. Obviously, a person with schizophrenia “hearing” a hallucinatory conversation is using the same brain areas that people use all the time while listening and decoding speech. But why does imaging of the brain activity when a person is showing behavioral dysfunction make this dysfunction real? When method actors express an emotional state, they can recreate the gestures, facial expressions, and even the brain blood flow pattern of a person having that actual emotion. Is Brando shouting “Stella!” in “A Streetcar Named Desire” really angry, (a) because he looks and sounds angry, (b) because he has activated brain areas associated with anger, (c) both, or (d) neither. I would argue the correct answer is “d.”
Untoward Effects of the New Terminology

Diseases are embedded in cultures and are defined socially. The attempt to pull certain psychiatric illnesses out of this context and refer to them as brain diseases has little scientific basis. In itself the emptiness of this claim may not be grounds for dismissal. A flower by the name *Rosciretia domestica* sounds a lot more scientific than a rose. If the term brain disease could reduce stigma and make the lives of those affected better, so be it. But the term comes with its baggage, the greatest of which is the tendency to reduce mental health treatment into medication treatment. If these are biochemical abnormalities, it follows that medications should correct or at least ameliorate the abnormality. Although there is compelling evidence that the available medications do reduce symptoms and suffering, by themselves they are not able to return seriously mentally ill persons to normal lives. Currently, 85 percent of persons with serious and persistent mental illnesses are unemployed. One-third to one-half of this population have drug or alcohol problems. Compared with the general population, they have a 10-fold chance of homelessness, and a 6-fold chance of contact with our criminal justice system. These statistics were not true 50 years ago, before the advent of our modern psychotropic agents. Obviously, the medication did not produce these problems. They are an outgrowth of failed social policies such as deinstitutionalization. But the important lesson is that medications did not prevent these outcomes and better medications don’t seem to be reducing these problems. In the past decade there have been new and to some degree better medications for depression (the selective serotonin inhibitor fluoxetine and its cousins), schizophrenia (the new generation antipsychotics such as olanzapine), and bipolar illness (anticonvulsants such as divalproex sodium). Despite the advent of these drugs, there has been no perceptible decline in social misery. Again, it would be unfair to say that this is necessarily a failure of the newer medications. When coupled with the other treatments that have been shown to be effective, such as assertive community treatment, social skills training, family psychoeducation, supported housing, and supported employment, they do offer advantages over the older medications. But, over the past decade there has been almost no commitment of new resources for these psychosocial treatments, while literally billions of new dollars have been committed to provide these new and very expensive medications. Does the idea of brain disease make it more or less likely that these equally important psychosocial interventions will be made available?

Another problem with the concept of brain disease is the attempt to use it selectively to refer to those serious mental illnesses for which advocates want greater public acceptance. But what is good for the goose is good for the gander. Many mental illnesses that are not the current subject of this advocacy can justifiably be described as brain diseases. Personality disorders such as antisocial personality disorder have very high hereditability and, although far less well studied, are also associated with various anatomical, biochemical, and functional abnormalities. Are these brain diseases? Should persons with antisocial personalities be dealt with like other persons with brain diseases? Should they be allowed an insanity defense? Should they be treated in psychiatric hospitals? Should this treatment be supported by medical insurance? This speculation is not too far fetched most States have defined sexual predators as suffering from a psychiatric condition that requires treatment against the individual’s wishes and even after they have served their criminal sentences. If the repeat rapist is suffering from a psychiatric illness that can be treated with antiandrogens, why is this not a brain disease? If the person with antisocial personality is suffering from a brain disease, if the sexually violent predator is suffering from a brain disease, then how will this phrase evoke more sympathy and less prejudice than the term mental illness?

How Should We Reduce Stigma?

Clearly, the concept of a brain disease does not resolve fundamental issues about how society should deal with different deviances and disabilities. Instead it simply shifts language and the terms of the debate. I suggest that if we want to reduce stigma we need to do something more fundamental than change nomenclature.

The stigma against the mentally ill is fed by two sources that are remedial. First, the seriously mentally ill are poor. There is a certain truth to the adage that if you’re mentally ill and poor you are mad, but if you are rich you are eccentric. Our image of the mentally ill is shaped by their poverty. The great majority subsist on less than $600.00 a month of Social Security Insurance. This is not enough money to support adequate housing in any city in the United States. With poverty and unemployment come all the other social consequences of being underclass—vagrancy, panhandling, substance abuse, and crime. Yet, with appropriate resources for supported housing and job placement, the panhandling, disheveled, homeless mentally ill person can become just another neighbor in the relative anonymity of the urban landscape. For other disability groups, not only the physically handicapped but also those with mental retardation, significant strides have been made in creating supported housing and employment opportunities. For the mentally retarded, who 50 years ago were also locked away in institutions, community living in group homes and a job are normative. For the more
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impaired, that job may be in a sheltered workshop, while for the higher functioning, it may be in a regular work site with special accommodations (if necessary). The job is accompanied by a paycheck that they can spend or save. Even when this check is not enough to prevent their needing other forms of income support, they are still able to feel useful and maintain their dignity. Why can't we provide the same dignity to the mentally ill?

The other source of stigma against the mentally ill is fear of violence. Social survey research suggests this is the major justification for peoples' fear of the mentally ill. For those who believe that such views can be reduced by adopting the term "brain disease" it is noteworthy (as pointed out in the Surgeon General's Report on Mental Illness) that between 1950 and 1990 the public has become more willing to see serious mental illnesses as due to biological causes and more likely to believe that those with these illnesses are dangerous. Those with serious mental illness, as a group, do have higher rates of violent behaviors such as murder. No amount of advocacy can obfuscate that fact and the resulting fear. But we can change those facts. As has been documented by John Monahan and his MacArthur Foundation-funded colleagues, those persons with serious mental illness who do commit acts of violence do so in the context of treatment noncompliance and substance abuse. Without those factors, the violence rate is comparable with nonpsychiatric populations. We have the clinical tools to treat this population more effectively than we do currently. There are several empirically proven programs for person with occurring substance abuse and mental health problems. Also, Assertive Community Treatment programs that provide linkage to those discharged from jail or prison have been successful. If necessary, we also have the legal means to deal with the small minority who refuse humane and clinically appropriate services. Laws providing for involuntary hospitalization exist in every State, and outpatient commitment to treatment in at least 37 States. There are also lessons to be learned from the drug abuse field, where therapeutic jurisprudence has inspired the development of drug courts. Currently, there is Federal legislation to promote an expansion and replication of the few existing mental health courts.

We have the clinical and legal tools; what we don't seem to have is the clarity of vision or political will to do something concrete. Could it be that we avoid these steps because changing nomenclature is so much more expedient?

Further Implications of Parity

Instead of promoting the idea that mental illnesses are brain diseases, so that they might be viewed as similar to other diseases, perhaps we should change peoples' views about other illnesses. As I had previously mentioned, the major killers in our society (heart disease, diabetes, and cancer) occur because of our social environment and are intimately related to behavior. One of the best lectures during my medical education was by Rene Dubos, speaking on the social context of illness. We live in a sea of pathogens and toxins. That a particular one causes an epidemic usually has less to do with something new and different about the putative cause and more to do with a change in the social environment. The devastation of indigenous peoples by disease during the period of European exploration and conquest was not due to new viruses or bacteria, but to their introduction to naive populations. Paralysis due to polio became endemic during the first half of the 20th century because of early weaning and good hygiene among the middle and upper classes. Instead of being exposed to the poliovirus while still suckling, and being protected by their mother's antibodies, the advantaged child didn't encounter the virus until swimming during a summer school break.

Of course, most illnesses don't selectively affect the upper classes. The strong linear relationship between social status and longevity suggests this to be the exception. In fact, for almost every illness, the prevalence is greater or the prognosis is poorer as you descend the socioeconomic ladder. I would argue that it is to avoid accepting the implications of this particularly vexing aspect of illness that attention is usually focused on physical and not social factors.

In 18th century England, gin (an early, cheap hard liquor) was seen as a scourge promoting dissolute behavior among the lower classes: public drunkenness, prostitution, men abandoning their families and women, their children. Parliament enacted various "gin laws" to restrict access (while also trying to maximize tax revenue). Today, we have a "crack cocaine" epidemic with the same consequences. We also have PET scanners that demonstrate that cocaine use alters dopamine receptors in the brain. So today, as in 18th century England, we believe the physical substance is the cause of this epidemic and control of its use the solution. Yet in both situations, when the middle and upper classes consumed the same active ingredient in some other form (brandy or powder cocaine), these were considered less dangerous substances and their abuse a less serious offense.

This brings us to what drives the lack of parity in insurance coverage between mental and physical illnesses. The problem is less related to differences in the illnesses than in their treatment. In theory, people who do not believe they are sick don't choose medical or surgical procedures, even if the cost is subsidized. But when the treatment is something people, sick or not, might want,
this creates what the insurance industry has dubbed "a moral hazard." The parity problem is not primarily that insurers or public programs are less willing to pay for psychiatric medications than other medications, but that they are less willing to pay for social interventions that are also known to be necessary and effective: psychotherapies, psycho-education, vocational rehabilitation, supported housing. Demand for these services may be subject to "moral hazard," since most people, especially if they are poor, might want them. The same reluctance to provide these services applies to social interventions for physical conditions. There are no private insurers and few public programs to provide this same wide range of psychosocial interventions that might reduce the prevalence or severity of nonpsychiatric illnesses among the poor and minorities. Perhaps, it is so hard for us to see mental illnesses as similar to other illnesses because it would so dramatically change not only how we think about all diseases, but also what we should do to ameliorate them.

The Author

Daniel J. Luchins, M.D., is Chief of Public Psychiatry, Department of Psychiatry, University of Chicago, and Chief Medical Officer, Division of Mental Health, Illinois Department of Human Services, Chicago, IL.