

Chapter 2

Basic Concepts in Morbidity Analysis

A number of concepts must be understood in order to examine the nature of sickness and disability within the US population. Some of these concepts are drawn from medical science while others have social science roots. Many are precisely defined while others are more subjective and characterized by amorphous definitions that may be situational in nature. The key concepts and terms useful for morbidity analysis are discussed below.

Morbidity

Morbidity refers to the level of sickness and disability characterizing a population. The term “morbidity” (and its root “morbid”) is derived from the Latin “morbus” for disease and “morbidus” for diseased. While the term has specific meaning for epidemiologists, “morbidity” and related terms may be used in various ways inside and outside of the scientific community. Thus, one hears reference to a “morbid curiosity” or the “morbid details,” and other terms that may not reflect the scientific meaning of the word.

Morbidity has been of interest to human societies throughout history as people have struggled to understand sickness and death. Demographers traditionally focused on the study of mortality (the end result of morbidity), and only in recent years has the emphasis shifted more in the direction of morbidity. As morbidity has come to play a greater role in shaping the nature of society than mortality, the interest in this topic has increased. Indeed, the current concern over disparities in health status—disparities most often described in demographic terms—has attracted increased attention to the perspective that demographers can bring to this discussion.

For our purposes, morbidity refers to the state of being ill, diseased or disabled. While most scholars would concur with this working definition, it does raise the question of what constitutes being ill or diseased. Does this mean that a condition has been “officially” diagnosed by a medical practitioner? Does the condition have to alter health status or affect one’s quality of life before it is counted? Is a physical disability really a disability if it doesn’t interfere with one’s activities? Ultimately, the application of the definition depends on the assumptions made by those evaluating the health of the population and the standards established by society.

Morbidity may be used to refer to a person or a group, with the former referring to the health status of an individual and the latter to the health status of a population. Demographers are, of course, almost exclusively interested in morbidity as associated with populations and seldom with the morbidity of individuals, thus the distinction between individual (clinical) morbidity and group (epidemiological) morbidity. The exception to this might be the situation in which the identified health status of individuals is available but population-level data are not.

This distinction raises the question of whether group morbidity is the sum of individual morbidity or, rather, population-based morbidity is qualitatively different from cumulative individual morbidity. Those coming at the issue from a clinical perspective are more likely to support the former representation, while those emphasizing a population health approach are likely to opt for the latter. A good case could be made that societal morbidity is more than the sum of its constituent parts. In fact, it could be argued that in communities that exhibit persistently poor health status, something of a “subculture of ill-health” emerges that fosters rather than inhibits poor health. This perspective would contend that health problems cannot be understood at the individual level (i.e., one patient at a time) and that a holistic approach is required that takes into consideration not only the affected individuals but also the environments that contribute to morbidity.

The morbidity level within a population can be quantified in a number of ways and these will be discussed in detail in Chap. 3. For our purposes here, we should note that distinctions can be made between measures of overall morbidity for a population and measures associated with specific diseases or health conditions. Further, morbidity can be objectively measured (e.g., through clinical tests) or subjectively measured (e.g., through self-reports by individuals). While the morbidity level for the total population under study is important, it may be necessary to determine the morbidity level for subsets within the population (e.g., subgroups based on geography or demographic attribute) in order to truly understand a population’s morbidity patterns.

Health

“Health” is perhaps one of the most difficult of healthcare terms related to morbidity to define. Not only is it a difficult concept to define in absolute terms, its meaning has changed over time. A variety of definitions have been proffered representing different perspectives, and none can be considered clearly right or wrong. As will be seen, the acceptable definition depends on one’s perspective.

The very notion of health is a social ideal and its conceptualization varies widely from culture to culture and from one historical period to another. For example, in the nineteenth century the ideal upper-class woman in Europe was pale, frail, and delicate. A woman in robust health was considered to be lacking in refinement (Ehrenreich and English 1978). In other periods, cultures, or subcultures, however, the ideal of health might be identified with traits such as strength, fertility, righteousness, fatness, thinness, or youthfulness. Thus, a society's view of health embodies a particular that culture's notions of well-being and desired human qualities.

The Medical Model

There are a number of models for conceptualizing the concepts of health and illness (Wolinsky 1988). The historically dominant model in US society is the medical model. The *medical model* had its genesis in the establishment of germ theory as the basis for modern scientific medicine. This perspective emphasizes the existence of clearly identifiable clinical symptoms, reflecting the conviction that illness represents the existence of biological pathology. Thus illness is a state involving the presence of distinct symptoms; health is the negative residual condition reflecting an absence of symptoms.

Health and illness are conceptualized within this context in terms of biological "normality" and "abnormality." Health is considered the normal state, one free of any biological pathology. This view of health and illness continues to be widely accepted, since it is the view supported by mainstream medical practitioners. The manner in which most health problems are conceptualized and managed reflects this orientation, with both medical education and the organization of the healthcare system reinforcing this perspective. Health insurance constitutes an excellent example in that no treatment is covered without a physician's (i.e., a medical-model orientation) diagnosis.

As Freund and McGuire (1999) note, the medical model assumes a clear dichotomy between the mind and the body, with physical diseases presumed to be located within the body. The philosophical foundations for this mind/body dichotomy are often traced back to Descartes' division of the person into mind and body. The practical foundations, however, probably lie in medicine's shift to an emphasis on clinical observation toward the end of the eighteenth century and on pathological anatomy beginning in the nineteenth century. This notion implies that the body can be understood and treated in isolation from other aspects of the person inhabiting it (Hahn and Kleinman 1983). This medical perspective sees the body as docile—something physicians could observe, manipulate, transform, and improve. Diseases are conceptualized in terms of alterations in tissues that are visible upon opening the body, such as during autopsy.

The medical model further assumes that illness can be reduced to disordered bodily (biochemical or neurophysiological) functions. This physical reductionism excludes the social, psychological, and behavioral dimensions of illness (Engle 1977). The result of this reductionism, together with medicine's mind-body dualism, is that disease is localized within the individual body. Such conceptions prevent the medical model from considering any external factors that might impinge upon health.

A related assumption of the medical model is the belief that each disease is caused by a specific, presumably identifiable agent. This assumption arose from the nineteenth century work of Pasteur and Koch, who demonstrated that the introduction of specific virulent microorganisms (germs) into the body produced specific agents with a causal link to specific diseases. This doctrine of specific etiology was later extended beyond infectious diseases to a wide range of other conditions.

A variation of the medical model compares the body to a machine. From this perspective, disease represents the malfunctioning of some component of the “machine” (e.g., an organ). Modern medicine has not only retained the metaphor of the machine but also extended it by developing specializations along the lines of machine parts, emphasizing individual systems or organs to the exclusion of the totality of the body. The machine metaphor further encouraged an instrumentalist approach to the body; the physician could “repair” one part of the body in isolation from the rest (Berliner 1975). Health is, thus, the reflection of an efficiently functioning machine.

The medical model has been widely accepted because of its scientific basis and its usefulness in addressing certain types of disorders. It has been criticized, however, for its focus on acute rather than chronic conditions, its inability to account for nonphysical and/or asymptomatic conditions, and its reliance on professional “consensus” on what is considered normal and abnormal (Wolinsky 1988).

The Functional Model

A second approach to defining health and illness is referred to as the *functional model*. This model contends that health and illness reflect the level of *social* normality rather than physical normality characterizing an individual (Parsons 1972). This approach de-emphasizes the biologically based medical model in favor of a model based on social role performance. The healthy person is one who is able to function in keeping with society’s expectations and is considered “normal” from a societal perspective. The absence of dysfunctional attributes indicates healthiness. The functional model is rooted in lay conceptualizations of health and illness rather than professional ones. From this perspective, the “diagnosis” is made by the social group based on societally based criteria rather than clinical ones. “Treatment” is geared toward restoring the affected individual to social normality rather than biological normality. The individual is seen as “cured” when he or she can resume social functioning, not when the clinical signs have disappeared.

Examples of the tension between the medical model and the functional model would include the alcoholic who, for years, is able to perform his job and maintain adequate family relationships. This person would be considered sick under the medical model but not under the functional model. Conversely, an individual complaining of chronic back pain would be considered sick under the functional model (assuming that the symptoms interfered with his or her social role performance), even if physicians could not identify any underlying pathological disorder. Another example would involve individuals with disabilities; an amputee, for example, who

may be considered sick from the medical-model perspective but actually be capable of performing all required social roles.

The Psychological Model

Although the medical and functional models are considered the dominant paradigms, the *psychological model* should also be introduced (Antonovsky 1979). Alternately referred to as the “stress model,” this is by far the most subjective of the three approaches. This model relies solely on self-evaluation by the individual for the determination of health and illness. If the individual feels well, he or she is well; if the same individual feels sick, he or she is sick. Similarly, only the affected party can determine when he or she is cured.

This approach focuses on the importance of stress in the production of sickness and argues that much of physical illness is a reaction to stress on the part of the individual. This perspective has gained some respect, now that the mind/body connection has been rediscovered and increasing emphasis is being placed on psychosomatic conditions. We now know, for example, that the effects of a positive attitude can be evidenced in every cell of the body as can the effects of a negative attitude. Further, we realize there are communities wherein all residents are exposed to constant stress with subsequent implications for health status.

The Legal Model

One final model that should be noted primarily applies to communicable diseases and mental illness. The *legal model* is applied in situations where the legal “health” or competence of the individual is in question. The ebola “scare” of 2014 reminds us of the importance of communicable disease control, and it is in this context that a legal definition of morbidity may come into play. Public health authorities have broad discretion when it comes to the containment of contagious diseases and the authority to declare a public health emergency if restrictions on travel and other social interaction are called for. Public health officials may even have priority over police in the management of individuals affected by some conditions, even something as common as sexually transmitted infections.

A legal definition also comes into play in cases where competence must be determined for involuntary hospital admission, guardianship, or custody decisions, and in cases where the individual’s ability to manage his or her affairs is in question. Although a physician is generally required to certify the individual’s competence, it is ultimately the courts that decide based on criteria established by the legal system. Thus, in the case of involuntary commitment, a psychiatrist must determine the extent to which the individual is a threat to himself or herself—or to others—and the extent to which he or she is competent to properly take care of himself or herself.

Although a psychiatrist performs the examination, the courts determine competence or incompetence in the final analysis.

The Biopsychosocial Model

One other definition of health that might be noted is the one formulated in the 1960s by the World Health Organization (WHO), the health arm of the United Nations. Health is defined by the WHO as a state of complete physical, psychological, social, and spiritual well-being and not merely the absence of disease and infirmity (World Health Organization 1999). While this rather idealistic definition was initially rejected as unworkable in the healthcare environment of the day, it has come to be accepted as the standard for defining health in contemporary society. Many Americans today expect to be healthy along all of the dimensions referenced in the WHO definition. It is ironic that American society has come to expect the scope of healthcare to extend far beyond the treatment of physical problems and into the management of psychological, social, and spiritual problems.

The modern view that many factors interact to produce health or ill-health may be attributed to the seminal work of George L. Engel, who put forward the *biopsychosocial model* of disease (Engel 1977). The biopsychosocial model takes a broad view of the factors that contribute to health and illness and argues that looking at biological factors alone—which was the prevailing view of disease at the time Engel was writing—is not sufficient to explain health and illness. According to Engel’s model, biological, psychological, and social factors contribute to the causes, manifestation, course, and outcome of health and disease, including mental disorders. Few people with a condition such as heart disease or diabetes, for instance, would dispute the role of stress in aggravating their condition. Subsequent research supports the validity of this model.

Engel’s model ultimately seeks to resolve the definitional dilemma by eliminating the either/or contention. It is not a matter of ill-health being caused by biological factors *or* social factors *or* psychological factors but rather a combination of the above. Everyone, it could be argued is exposed to disease organisms in the environment; this, however, is a necessary but not sufficient factor in the onset of disease. Other factors—social and/or emotional—may be required to trigger the disease episode. It is almost always the case with chronic conditions, in fact, that the condition results *only* through a combination of these three factors. Many people carry the indicator for rheumatoid arthritis in their blood, for example, but only a small proportion is affected. Those affected have typically had some social or psychological factors come into play that serve to activate the disease.

Ultimately, there is no *one* definition of “health.” In fact, the definitions posed by health professionals may be quite different from lay definitions. (See Exhibit 2.1 for a discussion of the subjective nature of health and illness.) Each of the examples above may be appropriate for certain purposes under certain circumstances. Each has its advantages and disadvantages. As will be seen, the medical model has lost much of its salience as the epidemiological transition has shifted the burden of disease from acute conditions to chronic conditions.

Exhibit 2.1: The Subjective Nature of Morbidity

While we typically think the presence of illness is determined based on clinical measures, this objective depiction of ill-health is not the only manner in which illness is conceptualized. It is, in fact, a “modern” notion of the nature of illness. Societies (and even individuals) are likely to develop notions of health and illness that are particular to the situation and the social context. For that reason, it would not be unusual to find a disparity between the clinically identified conditions within a population and the conditions members of that population recognize. While biologically based health conditions are concrete and finite, socially defined conditions are more abstract and elastic. To understand the true level of morbidity within a population, both the objective and subjective dimensions need to be considered.

All things being equal, the absolute level of need should not vary much from population to population. Researchers working independently should draw the same conclusions with regard to the level and types of health conditions characterizing a specific population. This notion of an absolute level of morbidity relates more closely to the concept of biologically based “illness” than societally defined “sickness.”

While epidemiologists are likely to find similar levels of morbidity from society to society, it is likely that the subjective levels will be quite different. Anthropologists tell us of societies where certain clearly identifiable diseases exist but society members insist that these are not manifestations of disease but while normal occurrences within this population. Malnutrition that might be identified by a scientist within a population may be considered normal by that population. In our own, society, we have individuals who deny the existence of disease even though it may be clinically identifiable. While the detrimental effects of obesity have long been known, there are still segments of the US population that consider extreme overweight as a positive and even desirable state. Certainly, many Americans who could be diagnosed with a mental disorder would deny—perhaps based on the norms of their social group—that any such condition exists.

There are plenty of examples of societies’ subjective view of illness that could be cited. Classic examples include the military induction center, where most prospective inductees are deemed disease free when there is high demand for servicemen but a “normal” amount of morbidity is discovered when there is no pressure on recruitment. Similarly, during the time of the Soviet Union, if a factory was not meeting its quota, the on-site physician might discover few cases of illness that would merit time off from work. On the other hand, if quotas were being met, a “normal” amount of morbidity was revealed.

The gap between “officially” defined morbidity and the level of morbidity perceived by any population will no doubt continue to be a fact of life. This situation must be kept in mind as definitions of health and ill-health are considered and the level of morbidity within the population discussed.

Ill-Health

While Americans appear to be obsessed with their health, it is the sickness aspect of the health/illness continuum that is the focus of our discussion and, indeed, the focus of the US healthcare system. The system's emphasis continues to be on sickness and not on health, despite all the press coverage the wellness movement has received over the past two decades. It is "sick" people, after all, that the healthcare delivery system was established to serve, leading some to refer to it as a system of "sick care" rather than "healthcare."

The condition of "ill-health" could be considered the converse of the state of health described above, although, as will be seen, this greatly oversimplifies the situation. Like health, its opposite can be defined in different ways depending on one's perspective. According to the medical model, illness involves the presence of clinically identifiable biological pathology. The focus of medical education and practice is on the presence of pathology—that is, biological abnormality—with little attention given to what constitutes a state of health and virtually no concern for the nonbiological factors involved in ill-health.

An important consideration in defining what constitutes ill-health involves the party that is responsible for this judgment. Under the medical model, a physician (and *only* a physician) can determine whether a person is sick or well. No treatment can be provided until a physician makes at least a provisional diagnosis, and the patient remains just that—a patient—until a physician pronounces him cured.

According to the functional model, ill-health involves a state of social abnormality. Individuals who do not or cannot comply with social norms related to role performance would be considered "ill" under this model. While the intent under the medical model is to return the affected individual to biological normality, actions taken within the context of the functional model attempt to restore social normality by allowing the affected individual to reassume appropriate social roles (regardless of his or her biological condition).

The process of identifying illness in a person unfolds differently in the functional model from the medical model. In the case of the former, there is no one "gate-keeper" to evaluate the state of the person's health. Representatives of that person's social group—reflecting the norms of the larger society—serve as "diagnosticians" and determine that the individual is not adequately functioning and is, thus, in ill health. Similarly, the social group concurs that the patient is cured when he or she is once again adequately carrying out prescribed social roles.

According to the psychological or stress model, the individual is considered in ill-health if the individual so defines himself. An individual who feels "disordered," out of sync with his social environment, or otherwise emotionally in disequilibrium would be considered in ill health under this model. This condition may manifest itself in physical or social abnormalities although the root cause is some internally based condition. In this case, only the affected individual can determine whether he or she is no longer "ill."

A situation in which the legal definition might be applied to physical illnesses would be in the case of certain "reportable" diseases and conditions requiring quarantine.

A test for a sexually transmitted infection that comes back positive makes the affected person legally ill and allows public health authorities to take action to bring about treatment and/or limit the spread of the disease.

In the case of involuntary commitment to a mental institution, a psychiatrist must determine the extent to which the individual is a threat to himself—or to others—and/or the extent to which he is competent to properly take care of himself. The “judge” is generally not capable of making a judgment of “competence” but only “incompetence,” with competence reflecting a lack of evidence for incompetence.

These questions highlight the fact that ill-health, like health, is essentially a social construct and may be viewed in different ways in different societies or even by different groups (including demographic subgroups) within the same society. Cultures and subcultures may vary in their perception of what constitutes ill-health, what physical states are symptomatic of morbidity, and what the significance of a particular morbid condition is.

Illness vs. Sickness

There are a number of terms used to describe ill-health, and the same term may be used in different ways under different circumstances. “Illness” and “sickness,” for example, are terms used by demographers and the general public to describe ill-health. Although often used interchangeably, social scientists make a distinction between the two related concepts.

Illness refers to the individual, private, and, usually, biological aspect of ill-health. This perspective emphasizes the existence of clearly identifiable somatic symptoms, reflecting underlying biological pathology. Illness equates to the set of symptoms known primarily to the affected individual and in this sense is private as opposed to public. It is argued that illness (but not sickness) is a state shared by human beings with all other animals; that is, it is a state of biological dysfunction affecting the individual organism. The term may also be used to describe the condition that causes the ill-health (e.g., yellow fever is an illness that creates ill-health in the individual).

Cross-cultural studies of morbidity suggest that the level of illness is similar from society to society (Jurges 2007). All human populations share certain biological traits and, thus, the same susceptibility to certain diseases. Thus, it could be argued that differences in the morbidity patterns of a particular population are mostly a function of time and place. All things being equal, one could expect the same level of morbidity from one population to another in terms of the number of extant conditions, the differences being a function of the types of conditions common to the respective populations.

Sickness refers to the public or social component of ill-health. Illness is transformed into sickness when the condition becomes publicly known through announcement by the affected party, observation by significant others, or professional diagnosis. Thus, while illness is primarily a biological state, sickness is a social state. Sickness is social not only because it is recognized beyond the bounds of the individual but also because it has implications for social role performance and interpersonal interaction.

The transition from a state of illness to a state of sickness has implications for both the individual and the social group. Once the individual's condition becomes public the affected individual begins to see himself in a different light. Social relationships may be modified and social interactions affected. The person's self-concept is likely to undergo modification as he accepts the group's acknowledgement of his abnormality. At the same time, the social group comes to view the affected party in a different light. The individual is no longer able to perform valued social roles, is exempt from certain responsibilities, and may be consuming valuable societal resources. The affected individual cannot meet the expectations of society until he is restored to a state of normal functioning.

Unlike illness, the level of sickness varies widely from society to society and within the same society over time. Since the amount of sickness reflects the perceptions of society, a list of common sicknesses would vary from society to society. This means that the level of sickness is much more "elastic" than the level of illness, with the amount of sickness rising or falling based on changing social circumstances.

Physical Illness and Mental Illness

A distinction is made within the scientific community and by the general public between physical illness and mental illness. Because of this distinction, the US healthcare system addresses physical illness and mental illness quite differently, and the emergence of allopathic medicine in the twentieth century served to formalize the distinction between physical disorders and mental disorders.

Traditional societies typically viewed all illnesses under the same umbrella. Whatever the form of the malady, it was thought to be a function of disequilibrium on the part of the individual, the intervention of some supernatural force, or some other phenomenon of unknown origin. Differential diagnosis (i.e., the precise classification of disease) was not emphasized, and the etiology (i.e., the cause or source) of the problem was the main consideration in evaluating a symptomatic individual.

Modern Western thinking led to a clear distinction between the physical and the mental domains. This perspective was reinforced by the entrenchment of germ theory in the medical model paradigm. The biomedical model's emphasis on biological causes led to the separation of conditions that demonstrated clear biological pathology (physical illnesses) from those that did not (mental illnesses). This distinction is reflected in what is essentially a separate sector within the healthcare system for the treatment of mental disorders, complete with distinct facilities and practitioners. A clear distinction is maintained today between mental hospitals and general hospitals and, in medical practice, between psychiatrists and other physicians.

Physical illness and mental illness do differ from each other in a number of ways. Physical illness is generally characterized by clear-cut, clinically identifiable symptoms, while mental illness is not. The symptoms of physical illness reflect biological pathology while those of mental illness are more likely to reflect disorders of mood, behavior, and thought. Thus, the diagnosis of most mental disorders is more subjective than that of physical disorders because of the lack of clinical diagnostic tests. Although

a small portion of mental disorders can be attributed to some underlying biological pathology (e.g., nervous system damage), most mental conditions are thought to reflect either internal psychological pathology or the influence of external stressors (Scull 2015). Neither of these lends itself to traditional medical diagnostic techniques.

The definitions of mental health and illness reflect the same models or perspectives associated with physical health and illness. The medical model remains important, primarily due to the pivotal role of the psychiatrist in diagnosis and treatment. However, the functional model is particularly relevant in that mental pathology is more likely to be identified based on some functional impairment rather than a biological impairment. Indeed, most cases of mental disorder go undetected until social relationships are so disrupted that a response is required. Ironically, the psychological model probably has the least salience in that it assumes the individual making an assessment of healthiness is in his or her “right mind.” It should also be remembered that mental health or illness is sometimes defined from a legal perspective. The courts may be placed in the position of determining the mental capacity of the effected individual.

Mental illness also differs from physical illness in that most mental disorders are considered to be both chronic and incurable. The basic goal of medicine is the treatment and cure of disease, yet most mental disorders are considered to be permanent and not amenable to cure. They can only be managed. This makes the medical model of limited usefulness as a framework for viewing mental illness.

Mental illness is also perceived much differently by the general public than is physical illness. Mental illness carries more of a stigma than do most physical illnesses; one can recover from the latter it is believed, but not necessarily from the former. At the same time, the unpredictability of the behavior of the mentally ill tends to make the “normal” person uncomfortable in the face of psychiatric symptoms. Exhibit 2.2 discusses issues surrounding the definition of psychiatric morbidity.

Disability

Another term used to define morbidity is *disability*. In many ways, disability is even more difficult to operationalize than other morbidity concepts. “Disability” refers to any short- or long-term reduction of a person’s activity as a result of an acute or chronic condition. While it would appear simple to enumerate the blind, deaf, or otherwise handicapped, the situation is actually quite complex. Does lower back pain that interferes with work constitute a disability? When does an arthritic condition become disabling? How is mental retardation classified, and at what point? Even those disabilities that appear obvious defy easy categorization due to the subjective dimension of disability. There are many hearing impaired individuals and amputees, for example, that would take exception to being classified as disabled.

The dominance of the medical model has led to an acute care approach to disability. However, such a framework offers an inadequate view of disability for a number of reasons. Acute care perspectives are primarily restricted to somatic conditions, yet contemporary concepts of disability include conditions that may not exhibit physical signs or symptoms. Disability may limit an individual’s capacity to

live independently or care for him- or herself; it may interfere with maintaining or initiating relationships, pursuing career goals, or enjoying leisure activities. The effects of nonphysical injuries such as post-traumatic stress disorder (PTSD) have had to be increasingly considered.

Increasing attention has also been paid to developmental disabilities. Developmental disabilities are a diverse group of severe chronic conditions that are due to mental and/or physical impairments. People with developmental disabilities have problems with major life activities such as language, mobility, learning, self-help, and independent living. Developmental disabilities begin anytime during development up to 22 years of age and usually last throughout a person's lifetime.

As a result of the challenges involved in defining disability in terms of specific handicaps, it has become common to conceptualize disability based on the consequences of a condition. In the National Health Interview Survey conducted by the National Center for Health Statistics, for example, "limitation of activity" refers to a long-term reduction due to a chronic condition in a person's capacity to perform the usual kind or amount of activities associated with his or her age group. Limitation of activity is assessed by asking respondents a series of questions about their ability to perform activities usual for people their age. These include inquiries on limitations in activities related to daily living, instrumental tasks, play, school or work, walking or remembering. With this approach, disability is assessed based on some type of limitation scale or in terms of days of restricted activity.

Exhibit 2.2: The Special Case of Psychiatric Morbidity

Mental illness is not diagnosed in the same manner as other chronic diseases. Heart disease is identified with the help of blood tests and electrocardiograms. Diabetes is diagnosed by measuring blood glucose levels. But diagnosing mental illness is a more subjective endeavor. No blood test exists for depression; no X-ray can identify a child at risk of developing bipolar disorder. Today, however, new tools in genetics and neuroimaging are assisting in deciphering details of the underlying biology of mental disorders, raising questions about the nature of mental disorders. For example, are mental illnesses simply physical diseases that happen to strike the brain...or do these disorders belong in a class all their own?

One school of thought insists that it all comes down to biology. This approach emphasizes the role of physical abnormalities in creating mental disorders, an approach championed by many at the National Institute of Mental Health. This orientation contends that mental illnesses are no different from heart disease, diabetes, or any other chronic illness. All chronic diseases have behavioral components as well as biological components, with the organ of interest here the brain instead of the heart or pancreas. This perspective argues that we are at the point with regard to mental illness that we were with cardiology a century ago when, as in the case of mental disorders, there were no clinical tests to determine the nature and extent of heart conditions. This does not eliminate the

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Exhibit 2.2 (continued)

behavioral component but suggests the need for a toolkit that indicates what is going on from the behavioral level to the molecular level.

In recent years scientists have made numerous discoveries about the function—and dysfunction—of the human brain. Genes linked to schizophrenia have been identified and brain abnormalities that increase a person's risk of developing post-traumatic stress disorder after a distressing event have been discovered. Researchers have also begun to flesh out a physiological explanation for depression. Understanding the underlying biology helps therapists and psychopharmacologists decide which type of treatment patients would benefit from.

Despite these advances most experts concede that some mental illnesses will never be described in purely biological terms, especially since it is impossible to control all variables that might influence mental health status. One of the biggest problems is that mental illness diagnoses are often catchall categories that include many different underlying malfunctions. Mental illnesses have always been described by their outward symptoms, both out of necessity and convenience. But just as cancer patients are a diverse group marked by many different disease pathways, a depression diagnosis is likely to encompass people with many unique underlying problems. That presents challenges for defining the disease in biological terms.

When it comes to mental illness, a one-size-fits-all approach does not apply. Some diseases may be more purely physiological in nature. For example, schizophrenia, bipolar disorder, and autism fit the biological model in a very clear-cut sense. In these diseases structural and functional abnormalities are evident in imaging scans or during postmortem dissection. Yet for other conditions, such as depression or anxiety, the biological foundation is more nebulous. Mental illnesses are likely to have multiple causes, including genetic, biological, and environmental factors, and our understanding of the interplay among those factors is nowhere near as well developed as it is for many chronic diseases. The danger in placing too much attention on the biological is that important environmental, behavioral, and social factors that contribute to mental illness may be overlooked.

This has led some to argue that too much emphasis is being placed on the biology of mental illness at this point in our understanding of the brain. Decades of effort to understand the biology of mental disorders have uncovered clues, but those clues haven't translated into improvements in diagnosis or treatment. Some conditions may even stem from a chance combination of normal personality traits. While the brain circuitry is equivalent to the hardware, we also have the human equivalent of software. Just as software bugs are often the cause of our computer problems, our mental motherboards can be done in by our psychological processing.

Source: Weir, Kristen (2012). The roots of mental illness. *Monitor on Psychology* 43(June):6.

Mortality as a Proxy for Morbidity

In the past, it has been common to use mortality data as a proxy for morbidity data. Historically, there was a fairly close correlation between common maladies and common causes of death. The immediate cause of death was typically the primary cause of death, with few complicating factors involved. Further, mortality data have long been relatively complete and easily attainable. The connection between mortality and morbidity can still be made today to a certain extent, in that the leading causes of death (heart disease and cancer) reflect common maladies within the population.

Over time, however, the mortality rate has become a less meaningful proxy for morbidity. In the US the mortality rate has dropped to the point that death is a relatively rare event. Further, the correspondence between mortality and morbidity has become diminished. Because of the preponderance of chronic disease within the US population, death certificates are less and less likely to capture the underlying disease. Chronic diseases typically do not kill people, but some complication (of diabetes, AIDS, or cancer, for example) is typically the proximate cause of death. This is not to say that mortality analysis cannot provide insights into morbidity patterns, but that the situation is much more complicated than in the past, and contemporary analyses of mortality data require a better understanding of disease processes (and the vagaries of death certificates). In subsequent sections, reference will be made to mortality as a proxy for morbidity with, however, the caveats expressed here. Exhibit 2.3 discusses the fluid nature of conditions considered morbid.

Exhibit 2.3: The Fluid Definition of Morbid Conditions

The study of morbidity is complicated by the fact that what is classified as illness can change over time. These changes may result from a number of factors—diseases being eradicated (e.g., small pox), conditions being renamed or reclassified (e.g., homosexuality), newly discovered conditions (e.g., Legionnaire's disease), or a newly recognized condition (e.g., adolescent adjustment disorder). Some of this results from the emergence of truly new conditions recognized by health professionals. These could be newly emergent conditions such as human immunodeficiency virus (HIV) or antibiotic-resistant influenza. Or they could be newly introduced conditions that previously existed outside the US.

It is often the case that a nonclinical condition becomes redefined as a clinical condition. A symptom or set of symptoms that is common within a population may come to be defined as a disease. The management of pregnancy is a case in point. Historically pregnancy (and childbirth) was considered a natural process that should involve clinical attention only if a complication occurs. In the twentieth century pregnancy came to be seen as a

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Exhibit 2.3 (continued)

medical condition that required the attention of the healthcare system before, during, and after childbirth.

A number of “new” conditions have been similarly identified over time and added to the list of diseases affecting the US population. Among the conditions involving previously existing syndromes that have been newly added to the accepted list of clinical conditions are:

- Attention deficit hyperactivity disorder
- Adjustment disorder
- Irritable bowel syndrome
- Autism
- Obesity
- Menopause
- Premenstrual syndrome
- Chronic fatigue syndrome
- Post-traumatic stress disorder

It should be noted that none of these are actually new conditions but each involved symptoms that had not previously thought to reflect morbid states. They may have been accepted as normal aspects of living (e.g., hyperactivity in kids now identified as “ADHD”) or considered an understandable consequence of an experience (e.g., soldiers suffering from shellshock now defined as “post-traumatic stress disorder”).

There are other albeit less common examples of conditions being identified as morbid states in the past but now considered “normal” or at least not a morbid condition. For example, in the past alcohol abuse was classified as a disease and is still considered a psychiatric condition in the diagnostic manual used by mental health professionals. However, the contention that there was an underlying biological basis for alcoholism has been mostly rejected in favor of a more behaviorist explanation to alcohol abuse. Homosexuality is another condition whose status has evolved over time. At one time, homosexuality was officially identified as a medical condition and treated as such by the medical community. If not resulting from a biological defect, it was considered to be a serious psychiatric condition. The thinking has evolved to reflect a more contemporary perception of homosexuality and it has been removed from the list of “diseases.”

It is beyond the scope of this work to judge the merits of redefining commonly occurring states as morbid conditions or the motives for some of these reclassifications. The main point is that there are few absolutes when it comes to defining syndromes or states as diseases. Various syndromes may be defined as diseases in various places at various points in time. At the same time, conditions long accepted as pathological (e.g., “hysteria” in women) may be discarded as unworthy of the disease classification.

Other Useful Concepts

Acute Conditions

Health conditions are typically classified as either acute or chronic. An acute condition is a health condition characterized by rapid onset, usually short duration, and a clear-cut disposition (e.g., recovery, death). A more technical definition is utilized by the National Center for Health Statistics and reads: An acute condition is a type of illness or injury that ordinarily lasts less than 3 months, was first noticed less than 3 months before the date of data collection, and was serious enough to have had an impact on behavior. Pregnancy is considered to be an acute condition despite lasting longer than 3 months. Common acute conditions include respiratory problems, communicable diseases, parasitic diseases, gastrointestinal problems, and accidents.

Acute conditions are the dominant type of health problem in traditional societies (e.g., hunting-and-gathering, agricultural societies) and developing countries, and virtually everyone within these populations is at the same risk of morbidity. Younger populations are also more likely to be characterized by acute conditions with the prevalence of such conditions declining with age. Limited public health facilities, impoverishment, and a young age structure all contribute to a predominance of acute conditions. Further, the short average life expectancy characterizing some populations mitigates against the appearance of many chronic conditions—that is, people do not live long enough to develop conditions that reflect years of cumulative wear or old age.

Chronic Conditions

A chronic condition is a health condition characterized by slow onset, lengthy progression, and a usually indefinite disposition, typical of modern, industrial societies. The National Center for Health Statistics considers a health condition to be chronic if it lasts more than 3 months. Common chronic conditions include arthritis, cardiovascular disease, cancer, diabetes, epilepsy and seizures, and obesity. Conditions that are not cured once acquired (such as heart disease, diabetes, and birth defects) are considered chronic. An exception is made for children less than 1 year of age who have had a condition “since birth,” as these conditions are always considered chronic.

Chronic conditions are common in more industrialized societies and in those with an older age structure. The acute conditions common to younger populations are supplanted by chronic conditions that reflect lifestyles, health behaviors and the accumulative effect of a life of stress and wear and tear. In populations where chronic conditions predominate a significant portion of the population is likely to be affected since, unlike acute conditions, chronic conditions do not go away. The

CDC reports that today more than half of the US population is affected by at least one chronic disease (National Center for Health Statistics 2013). Exhibit 2.4 presents a comparison of the attributes of acute and chronic conditions. Exhibit 2.5 provides a case study in the identification of a “new” disease.

Exhibit 2.4: Characteristics of Acute and Chronic Conditions

	Acute condition	Chronic condition
Etiology	Simple/singular	Complex/multiple
Rate of onset	Rapid	Slow/insidious
Distinctiveness of onset	Clear-cut	Difficult to diagnose
Duration of illness	Short-lived	Perpetual
Treatment	Counter pathogens	Manage symptoms
Course of disease	Recovery or death	Slow progression
Goal of care	Cure	Management
Duration of care	Short-term	Lifelong
Contribution to mortality	Direct	Indirect

Source: Thomas, Richard K. (2005). *Society and Health: Sociology for Health Professionals*. New York: Springer

Comorbidity

Comorbidity refers to the concurrent existence of two or more disease processes. The term is used both to refer to conditions that exist simultaneously but independently within a single patient and to a condition that is caused by the primary condition. It is also used to refer to the state produced by the presence of of comorbidity. There is no “official” definition of comorbidity and it is defined differently by different parties.

In the mental health arena, comorbidity refers to the presence of more than one diagnosis occurring in an individual at the same time. In psychiatry, comorbidity does not necessarily imply the presence of multiple diseases, but instead can reflect our current inability to supply a single diagnosis that accounts for all symptoms. Psychiatric comorbidity is often found in those with addictions, major depressive disorders, and personality disorders.

Comorbidity is a common characteristic of patients, with some observers considering it the norm rather than the exception. Autopsies often reveal the existence of comorbidities that were undiagnosed in the living person. With the ascendancy of chronic diseases within the US population, the number of patients with comorbidities has increased. This is due to both the independent emergence of conditions among older patients (e.g., heart disease, arthritis, and glaucoma) and the spillover effect of another chronic condition (e.g., blindness or amputation caused by diabetes).

Exhibit 2.5: The Discovery of a New Disease: The Case of Menopause

A variety of factors may contribute to the discovery of a “new” disease. This may involve the identification of a here-to-fore unknown condition (e.g., Legionnaire’s disease or AIDS) and the subsequent classification and naming of it. It may involve the discovery of a syndrome involving a set of symptoms not previously connected (e.g., Alzheimer’s disease). Or it may involve the redefinition of an existing condition as a health problem (e.g., alcoholism).

The last means of disease recognition is relevant to menopause which was added to the list of diseases in the *International Classification of Diseases* in the 1980s. Although menopause is considered to be a normal biological process, it has become increasingly “medicalized” over the past 50 years. During this period, the condition was transformed from symptoms that were essentially “all in the head” of affected women to a clinical condition involving estrogen deficiency or ovarian dysfunction.

Despite the universality of menopause among women regardless of the society, there are remarkable differences in the biophysical, social, and emotional dimensions of the condition from culture to culture. However, the social connotations and expectations associated with menopause are mostly ignored by modern Western medicine. The condition is reduced to a set of biochemical processes presumed to characterize all female bodies, regardless of social or cultural context. The notion of menopause as a pathological condition originated with a specific body of research but, once the condition was isolated, the “disease” took on a life of its own unaffected by subsequent research.

Early research, for example, was based on women who had experienced surgically induced menopause or who suffered from extreme conditions that involved unusual physical side effects. The findings drawn from an abnormal population were extrapolated to the general population, and the notion of menopause as a disease became firmly entrenched. More recent research utilizing “normal” subjects has found no evidence of pathology or medical problems. Not only do most women not experience abnormal symptoms but, among the few who do, there are typically other health problems accompanying the onset of menopause. Thus, it could be argued that other health conditions contribute to problem menopause and not the other way around.

To a great extent, the identification of menopause as a pathological condition was a result of a “campaign” by a handful of endocrinologists who were proponents of menopause as a hormonal disorder during the 1930s and 1940s. Other physicians were willing to accept this notion because it fit well with their medical model concept of disease. As is often the case, the identification of a syndrome as a disease was facilitated by the availability of a “cure” (in this case inexpensive synthetic estrogen). Not only could a pathological state be identified, but a medical treatment had become available for its management. Thus, despite the fact that 15 % or less of American women experienced

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Exhibit 2.5 (continued)

problem menopause, in 1975 it was found that 51 % of women had taken estrogen replacement drugs at some point.

Despite the risks now known to be associated with estrogen replacement therapy, the medical community continues to debate the existence of menopause as a disease. The fact that there are proponents on both sides of the issue reminds us that the formal identification of a disease is often a function of the perspectives of the health professionals involved. It could be argued, in fact, that there are very few diseases in an absolute sense, with the identification of disease being as much a social phenomenon as a clinical one.

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