CHAPTER 10

Global Mental Health

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▶ Introduction

In 2015, all nations united around a shared mission of achieving the Sustainable Development Goals (SDGs). This set of goals represented an exponential advance from the Millennium Development Goals (MDGs), which the SDGs replaced, both in its aspiration to encompass a substantially broader agenda and through its explicit recognition that these were global concerns, affecting all nations, and requiring global actions. One notable example of this transformative vision was the recognition that health burdens went beyond the MDG focus on a selection of infectious diseases and maternal and child health. Noncommunicable diseases, mental health, and substance abuse received recognition, and several targets related to these concerns were specified (TABLE 10-1). At last, it seemed that the decades of science and advocacy had finally allowed mental health to take its rightful place on the global development agenda.

The discipline of global mental health has played a key role in the inclusion of mental health in the SDGs. The field of global mental health was the product of decades of interdisciplinary research and practice in diverse transnational contexts. Governmental and nongovernmental organizations in the United Kingdom such as the Department for International Development (DFID) and the Wellcome Trust funded much of the early work in mental health research and services in low- and middle-income countries (LMICs)

in the later part of the 20th century. A series of publications drawing upon this large body of evidence generated by epidemiologists, clinicians, social scientists, and human rights advocates led to a "call to action" in 2007 to "scale up services for people affected by mental disorders built on the twin foundations of cost-effective interventions and respect for human rights" in all countries of the world, and in particular in LMICs, where the attainment of these rights was most seriously compromised (*The Lancet* Global Mental Health Group, 2007).

For the purposes of this chapter, we consider the definition of "mental health" to include all conditions that affect the nervous system that are leading causes of disease burden. Conditions with a vascular or infectious etiology, such as human immunodeficiency virus (HIV) infection of the brain or cerebrovascular diseases, are excluded here, as they are addressed in other chapters of this text. Mental disorders include intellectual disability, epilepsy, anxiety and mood disorders, psychoses (schizophrenia and bipolar disorders), substance use disorders (alcohol and drug use disorders), and dementia. Thus, this list of health conditions includes disorders that clinicians may categorize as psychiatric, neurological, or substance use disorders. This chapter uses the acronym MNS disorders (meaning "mental, neurological, and substance use disorders"), which is common nomenclature for the World Health Organization (WHO) and other health and development institutions.

TABLE 10-1 Mental Health in the Sustainable Development Goals

	United Nations' Sustainable Development Goals
SDG 3	Ensure healthy lives and well-being for all at all ages
SDG Target 3.4	Requests that countries: "By 2030, reduce by one third premature mortality from non-communicable diseases through prevention and treatment and promote mental health and well-being"
SDG Target 3.5	Requests that countries: "Strengthen the prevention and treatment of substance abuse, including narcotic drug abuse and harmful use of alcohol"
SDG Target 3.8	Requests that countries: "Achieve universal health coverage, including financial risk protection, access to quality essential health-care services and access to safe, effective, quality and affordable essential medicines and vaccines for all"

Modified from United Nations Sustainable Development goals: http://www.un.org/sustainabledevelopment/sustainable-development-goals/

This rich interdisciplinary treasure of knowledge laid the foundation for the landmark 2007 *The Lancet* series on global mental health. The authors of this series of articles arrived at the conclusion that the high burden and unmet needs for care constituted a global health crisis. They deliberated on what might be the most urgent, clear, and specific "call to action" for the global health community and, in the end, chose to focus on the needs of those individuals affected by a mental disorder, calling for actions to reduce the treatment gap by scaling up the coverage of services for mental disorders in all countries, but especially in LMICs (*The Lancet* Global Mental Health Group, 2007). The years following the publication of *The Lancet* series witnessed a tangible increase in the attention to the treatment gap in LMICs, as evidenced by the increase in development assistance for mental health, which more than doubled in absolute dollars in the years immediately after 2007 (Gilbert, Patel, Farmer, & Lu, 2015). In 2011, the Grand Challenges in Global Mental Health initiative, led by the U.S. National Institute for Mental Health (NIMH), emphasized implementation research questions as the priorities to reduce the treatment gap for mental disorders (Collins et al., 2011) (**TABLE 10-2**).

The publication of these priorities led to a slew of new research initiatives by the NIMH to support research and training in global mental health as well as a set of international "hubs" for research on task sharing and scaling up mental health interventions, while Grand Challenges Canada supported dozens of projects addressing some of these priorities in a number of LMICs. Simultaneously, a number of global institutions and coalitions began to advocate for mental health.

WHO launched its flagship mental health Gap Action Programme (mhGAP) to scale up care for MNS disorders in 2008 and developed a series of seminal publications that provide guidance to health practitioners in nonspecialist settings regarding treatments for MNS disorders (WHO, 2010); track the status of mental health systems at the country level (WHO, 2015); and establish standards of care for mental health facilities (see www.who.int/mental_health for a comprehensive listing of WHO resources for mental health). This culminated in the Comprehensive Mental Health Action Plan 2013–2020, which was agreed by all nations of the world in 2013, and the establishment of a roadmap for achievement of a broad range of mental health–related targets (Saxena, Funk, & Chisholm, 2013). The Disease Control Priorities Network published its recommendations, targeting governments and development agencies, for which interventions should be scaled up through diverse platforms from the community to specialist care, ultimately forming the mental and neurological health component of the package of interventions for universal health care (Patel et al., 2016). Notably, both the Comprehensive Mental Health Action Plan and the Disease Control Priorities Network recommendations took a much broader view of mental health, emphasizing the continuum from promotion of mental health to prevention of mental disorders, to treatment, long-term care, and inclusion of persons with mental disorders.

Preceding these developments were a number of reform initiatives in specific countries—for example, in Brazil and Italy—that sought to influence and promote a public health approach to mental health care. These efforts aimed to provide community-oriented

TABLE 10-2 Grand Challenges in Global Mental Health, 2011

Rank	Five Leading Challenges for Global Mental Health
1	Integrate core packages of mental health services into routine primary health care
2	Reduce the cost and improve the supply of effective psychotropic drugs for mental, neurological, and substance use disorders
3	Train health professionals in LMICs to provide evidence-based care for children with mental, neurological, and substance use disorders
4	Provide adequate community-based care and rehabilitation for people with chronic mental illness
5	Strengthen the mental health component in the training of all healthcare personnel to create an equitable distribution of mental health providers

Data from Collins, P. Y., Patel, V., Joestl, S., March, D., Insel, T. R., Daar, A. S. (2011). Grand challenges in global mental health. *Nature, 475*, 27–30.

care along with both medical and psychosocial interventions, while strongly emphasizing the priorities of those affected by mental disorders. The ultimate goal was to demonstrate that such approaches could improve access to quality care.

Reforms in Italy began in the 1960s, and reforms in Brazil can be traced to the 1990s, with the psychosocial community center program known as *Centros de Atenção Psicossocial* (CAPS) beginning approximately four to five years prior to the mhGAP initiative. Civil society partnership with mental health professionals to promote a shared vision continued to grow during the twenty-first century. The most notable example was the Movement for Global Mental Health (www .globalmentalhealth.org), which was launched in 2008 as a virtual global alliance. By 2015, the Movement included 170 member institutions representing diverse stakeholders, from academics to civil society representatives. Since 2013, the Movement has been led by persons affected by mental disorders. In several countries, prominent individuals have "come out" with their personal accounts of mental disorders, indicating the growing acceptance of this form of human suffering. The field of global mental health has become a respected discipline in its own right, complete with academic programs and centers in universities around the world, specialist journals and books on the subject, and an annual calendar of scientific events. Not surprisingly, the discipline has been described as having "come of age" (Patel & Prince, 2010).

This chapter is organized in three parts. First, it presents a brief history of global mental health prior to the *The Lancet* series. Next, it discusses four foundations of the discipline: the influence of culture and

social determinants on mental health; the burden and impact of mental disorders (including substance use disorders and neurological disorders); effective prevention and treatment strategies; and the ways that these strategies can be delivered in low-resource contexts. Finally, it considers the limitations of the field as it is currently conceptualized and the strategies for addressing global mental health issues in the future.

▶ Historical Development of Global Mental Health

The earliest developments of public mental health care can be traced at least as far back as the early Islamic world of the Middle East, North Africa, and Spain. Although accounts differ, it seems that the first hospitals that cared for persons with mental disorder were established by Islamic physicians during the ninth century CE in Baghdad and Egypt (Dols, 1987). Within a few hundred years, institutional care had spread 3,000 miles to the west in Marrakech (twelfth century) and Fez (thirteenth century), Morocco (Moussaoui & Glick, 2015). Influenced by the practices in Morocco, in the fourteenth century a hospital in Granada, Spain, began to accept persons with mental disorders. In the fifteenth and sixteenth centuries, hospitals for persons with mental disorders were established in at least five cities in Spain. In Northern Europe, there is evidence of the establishment of institutional care that coincides with or predates the founding of the hospitals in Spain (Mora, 2008; Pierloot, 1975). The most famous examples from Northern Europe are Bethlem

Hospital in London, which traces its establishment to the thirteenth century, and the Colony of Geel in Belgium, whose origins date from approximately the same time (Mora, 2008).

The beginning of modern public mental health can be traced to the late eighteenth century, when there was a decided shift in beliefs about the nature of mental disorder. Before this time, "madness" was associated with a loss of rationality, which meant that persons with mental disorders were considered as less than human and, in an effort to restore them to reason, were treated as brutes (Scull, 1989). "Moral treatment," which was developed simultaneously and independently in France (Weiner, 1992), England (Digby, 1985), and elsewhere (Scull, 2015), rejected the notion that mentally ill people lacked reason and suggested, instead, that tolerance and confinement in a well-ordered and pleasant environment could restore a person to rationality and mental health (Grob, 1994). The example of the York Retreat in England, which was established in the late eighteenth century as one of the sites in which moral treatment was developed, gave rise to "a wave of enthusiasm and optimism" for the curability of madness (Scull, 2015). This new perspective on mental disorders and their treatment brought about a powerful movement to abolish the abuses and to establish public systems of institutions that would offer beneficent care and the prospect of recovery to persons with mental disorders. One of the best examples of this advocacy was the work of Jean-Étienne Esquirol, who, after visiting a number of psychiatric institutions in France, wrote a report in 1819 in which he advocated for a state-run system of asylums (Goldstein, 2001). In 1838, France followed Esquirol's advice; other countries established similar systems in first half of the nineteenth century (Scull, 2015). The importance of this form of care for persons with mental disorders can be seen readily in the thousands of articles about asylums that were published in the nineteenth century in the leading English-language medical journals (Cohen & Minas, 2016).

As soon as the public asylums opened, they were filled beyond capacity. Throughout the second half of the nineteenth century, the notion of small curative institutions was abandoned due to increasing demands for services and a reluctance on the part of governments to allocate more funds for the care of mentally ill indigent persons (Grob, 1994; Scull, 1989). In addition, as conditions in the asylums grew worse, the effectiveness of asylum care—an assumption that had underpinned the widespread establishment of asylums—began to be questioned. These developments can be seen in publications in *The Lancet* over a period of 50 years. In 1827, the journal published a letter decrying the conditions in private asylums and called for "the establishment of public hospitals for insane paupers," and called to task the British Colleges of Physicians and Surgeons for not devoting more attention to these issues (Humanitas, 1827). Thirty years later, *The Lancet* (1857) published an editorial, "The Crime of Lunacy and How We Punish It," that questioned the efficacy of asylums: "They are . . . mere houses of detention." In 1875, the journal established the Commission on Lunatic Asylums to investigate "the treatment, in public and special institutions, of patients laboring under the various forms of mental disease" (*The Lancet*, 1875). The conclusions of the Commission were not positive: "It has been found impossible 'to formulate the system of treatment' either for cure or relief. Practically, there is no general 'system' beyond that which may be described as control" (*The Lancet*, 1877). Thus, by the late nineteenth century, public mental health efforts were inextricably associated with the wretched, overcrowded conditions in asylums: "the positive images of hospitals that had prevailed in the mid-nineteenth century [had given] way to far more negative ones associated with hopelessness, abuse, and ultimately death" (Grob, 1994).

Despite these concerns, the colonial enterprise saw the global expansion of institutional care for persons with mental disorders starting in 1567 when Spain established a psychiatric institution in Mexico City. The first institution of its kind in the Western Hemisphere, it heralded what later became known as colonial psychiatry. Nearly 200 years later, and continuing throughout the nineteenth century and into the first decades of the 20th century, "lunatic" asylums were established by British authorities in India (Basu, 2016; Weiss, 1983). Asylums were also established in French (Edington, 2013; Keller, 2008), Italian (Scarfone, 2016), Dutch (Pols, 2006), Spanish (Meyer, 2010), and other British (Ng & Chee, 2006; Sadowsky, 1997; Swartz, 1999) colonies. These institutions have often been depicted as being a form of racism and a means of exerting social control over indigenous populations (Goddard, 1992; Jackson, 1999; Schmidt, 1967; Swartz, 1999). However, it is also true that asylums in the colonies merely reflected the values and treatments in the home-country asylums of the colonial powers (Weiss, 1983).

Despite deteriorating conditions in asylums (rebranded as mental hospitals and psychiatric hospitals in the United Kingdom and the United States, respectively [Cohen & Minas, 2016]), the number of psychiatric inpatients continued to increase in the wealthy nations of the West. Then, beginning in the 1950s, efforts in North America, Western Europe, and Australia were initiated to remove long-term patients

from psychiatric facilities and provide treatment and care in the community. The incentive for what came to be called *deinstitutionalization* evolved from a convergence of several forces. First, encouraged by successful treatment of soldiers traumatized by their experiences in World War II, psychiatrists became optimistic about their ability to effectively treat mental disorders outside of hospital settings (Grob, 1994). Second, there was a growing awareness that the abusive conditions found in public psychiatric hospitals, as well as the negative effects on patients of long-term institutionalization, were at least as harmful as the chronic mental disorders themselves. Third, caring for patients in large institutions that did not provide effective care was expensive. Finally, the discovery in 1954 of chlorpromazine, the first effective antipsychotic medication, offered people with chronic mental disorders the prospect of living in the community rather than as inpatients (Greenblatt, 1992).

Together, these forces brought about dramatic changes in institutionalized populations. In the United States, for example, 559,900 people were in psychiatric hospitals in 1955; 25 years later, that number had decreased to 138,000 (Goldman, 1983). In Britain, the number of psychiatric inpatients peaked at 148,100 in 1954 and then steadily decreased; by 1985, there were only 64,800 such inpatients (Thornicroft & Bebbington, 1989). In Italy, deinstitutionalization took place somewhat later, but had similar results: Early in the 1970s there were about 75,000 psychiatric inpatients, but that number had dwindled to only 38,000 in 1981 (Morosini, Repetto, De Salvia, & Cecere, 1985).

Deinstitutionalization has had mixed reviews. Although large numbers of patients were discharged from hospitals, many came to be accommodated, at least in the United States, in prisons, nursing homes, and adult homes for mentally disabled persons (Scull, 1985), where the worst aspects of the old asylums were often recreated (Human Rights Watch, 2015; Levy, 2002a, 2002b, 2002c, 2002d). In Europe, some evidence suggests that "reinstitutionalization" has taken place. For example, as the number of psychiatric beds in hospitals has decreased, the number of persons with mental disorders in prisons and forensic hospitals has increased (Fakhoury & Priebe, 2007; Human Rights Watch, 2016; Priebe et al., 2005).

Although deinstitutionalization is considered a global policy (WHO & Gulbenkian Global Mental Health Platform, 2014), it has occurred primarily in Western countries, with a few exceptions. For example, the number of psychiatric hospital beds has increased in South Korea (Kim, 2017). Not only does Japan have the highest rate of psychiatric beds in the world (28.4 beds per 10,000 people), but it also has

the longest average length of psychiatric hospitalization (Imai et al., 2005). Deinstitutionalization has not taken place at all in the great majority of LMICs, such that hospital-based care remains at the center of what exists of those countries' national mental health systems (Saxena, Thornicroft, Knapp, & Whiteford, 2007). A noteworthy exception is Brazil, which, between 1995 and 2005, reduced its number of psychiatric beds by 41% while increasing community services by a factor of 9 (Andreoli, Almeida-Filho, Martin, Mateus, & Mari, 2007). Other research suggests that while psychiatric beds decreased in six South American countries, including Brazil, prison populations have increased substantially (Mundt et al., 2015). It has been noted, however, that the increase in the prison population cannot be definitively attributed to deinstitutionalization (Winkler et al., 2016). More recently, other large middle-income countries have begun reforming their mental healthcare systems: India launched its first national mental health policy in 2014 with similar principles while China has greatly expanded coverage of care for mental disorders through its 686 Project, which refers to the first 6.86 million Renminbi (USD$ 829,000 in 2004) invested by the Chinese government to free patients from seclusion and restraints throughout the country (Ma, 2012; Patel et al., 2017).

Perhaps the best way to consider the positive and negative effects of deinstitutionalization is to ask the consumers of mental health services whose lives have been most affected by this policy. When that has been done, the answer is clear. Despite the difficulties of life outside the hospital, the relative lack of supportive services, and the effects of stigma and discrimination, former long-term inpatients generally agree they prefer living in the community (Davidson, Hoge, Godleski, Rakfeldt, & Griffith, 1996).

The development of community mental health services was both an impetus for and a product of deinstitutionalization. Although the potential for treating people with mental disorders outside of hospital settings was recognized prior to the discovery of effective antipsychotic medications, the evolution of community-based services came about with the recognition that treatment and care required a range of social and rehabilitation services and involved more than just dispensing medication. Thus, while the definition of community care may have once simply meant care outside hospitals, it now encompasses, at least ideally, professional services in community settings, social reintegration, and support services, such as housing, employment, medical care, and welfare (Tansella & Thornicroft, 2001). The provision of community services to individuals with mental

disorders is now a central principle of global mental health (Alem, 2002; Alem, Jacobsson, & Hanlon, 2008; Hanlon, Wondimagegn, & Alem, 2010; Semrau, Barley, Law, & Thornicroft, 2011; Thara & Padmavati, 2013; Thornicroft, Alem, Dos Santos, et al., 2010; Thornicroft, Tansella, & Law, 2008), though this remains an unfulfilled goal for the vast majority of persons affected by mental disorders globally.

The scientific and policy foundations of global mental health can be traced, at least in part, to activities at WHO that were begun soon after the establishment, in 1949, of a mental health division and an Expert Committee on Mental Health (Lovell, 2014). Two reports by the Expert Committee were of particular importance to the field that would become known as global mental health. The first of these reports, *Epidemiology of Mental Disorders* (WHO, 1960), sought to lay the groundwork for an international system for the classification of the psychiatric disorders and, more generally, to advance the ultimate goal of creating a scientifically rigorous approach to psychiatric epidemiology. Direct outcomes of this work included WHO's international studies of schizophrenia (Jablensky et al., 1992; WHO, 1973), as well as studies of schizophrenia in Mauritius (Murphy & Raman, 1971) and Sri Lanka (Waxler, 1979). In fact, there was a burgeoning of psychiatric research in developing countries during the 1960s (e.g., Lambo, 1960; Leighton et al., 1963; Lin, Rin, Yeh, Hsu, & Chu, 1969), 1970s (e.g., Harding, 1973; Jilek & Jilek-Aall, 1970; Kulhara & Wig, 1978), and 1980s (e.g., Harding et al., 1980; Kleinman, 1980; Kulhara & Chandiramani, 1988). The second of the Expert Committee's reports, *Organization of Mental Health Services in Developing Countries* (WHO, 1975), followed a *British Journal of Psychiatry* series on psychiatric problems in the developing world (Carstairs, 1973; German, 1972; Leon, 1972; Neki, 1973) and recommended many actions to address the burden of mental disorders in developing countries. One of the most farsighted statements in the report was the following: "A number of innovations have been recommended, notably the sharing of mental tasks by a wide range of health workers and by other community agencies."

WHO followed up these recommendations with a series of projects that attempted to integrate mental health services into primary care settings in seven low-income countries (Sartorius & Harding, 1983). Now, more than 40 years later, this strategy remains central to the development of mental health services in low-resourced settings.

As important as all of these projects were, perhaps the "founding" event of global mental health was the publication of the results of the first Global Burden of Disease (GBD) study, which introduced the concept of disability-adjusted life-years, a single measure that represented the burden imposed by both mortality and morbidity (the most recent findings of this initiative are described in more detail later in this chapter) (World Bank, 1993). Prior to this report, infectious diseases were prioritized by international public health efforts. However, the GBD study revealed that non-communicable diseases—neuropsychiatric disorders, specifically—accounted for a significant proportion of the GBD. These findings provided the most compelling evidence that mental disorders were priority public health disorders in low-, middle-, and high-income countries alike. Thus, the GBD study opened the way to the field that became known as global mental health.

▶ Culture and Mental Disorders

It is crucial to understand the role of culture in the experience, diagnosis, and treatment of mental disorder (Kirmayer & Swartz, 2014). Common elements in the definition of culture are "values, beliefs, knowledge, norms, and practices and the notion that that these are shared among a specific set of people" (Hruschka & Hadley, 2008, p. 947). Beliefs refer to conscious psychological processes. Norms are behaviors maintained by social sanctioning and affective responses. Values are valences placed on beliefs, knowledge, and norms that lead to engagement in or avoidance of behaviors. These beliefs, norms, and values shape both lay and professional understandings of mental disorder. This section addresses the following topics: (1) the role of culture in biomedical classification systems; (2) alternative approaches to mental disorder categorization across diverse cultural contexts; and (3) cross-cultural methods and approaches to improve mental health research and services.

Cultural Considerations for Biomedical Psychiatric Classification

Understanding the origins and assumptions of different diagnostic systems is vital to implement best practices in research and clinical care for diverse global populations. The classification of diseases leads, in theory, to more accurate diagnoses and effective treatments. Valid and reliable systems of classification make it possible to determine accurate prevalence and incidence rates and, therefore, should guide decisions about the development of services. The classification of mental disorders, however, presents some unique

challenges. Psychiatric diagnoses do not "carve nature at the joint" and the boundaries between different conditions may not be distinct (Blacker & Tsuang, 1992; Kendler & Gardner, 1998; Tsuang, Stone, & Faraone, 2000). Unlike other diseases, there are no specific and replicable pathophysiological pathways to distinguish most mental disorders in a clinical setting. Moreover, clinical classification in psychiatry is based on the symptom profiles, rather than on the disorders' etiology (as in the case of infectious diseases) or their pathology (as in the case of vascular disease).

Two main biomedical systems of psychiatric classification are used today: the *International Classification of Diseases* [ICD] (WHO, 1990) and the *Diagnostic and Statistical Manual of Mental Disorders* [DSM] (American Psychiatric Association [APA], 2013). These approaches to psychiatric categorization took shape in the late 1800s with the work of Emile Kraepelin and others who developed diagnoses based on standardized factors related to symptom presentation, prognosis, and hereditary risks (Jilek, 1995). Kraepelin and his followers also influenced modern frameworks regarding the incorporation of culture into psychiatric classification. Kraepelin traveled to Java, Sri Lanka, India, Singapore, and the Americas to evaluate his diagnostic criteria with non-European populations. He and his followers developed a model with a biological core for mental disorders (i.e., pathogenic), with cultural influences shaping the presentation of that biological core (i.e., pathoplastic) (Jilek, 1995). For example, hallucinations were considered a universal biologically-determined feature of psychosis whereas culture shaped the content of those hallucinations. Most current classifications (e.g., DSM and ICD) continue this approach with cultural considerations for different conditions while assuming conditions are grounded in a core of presumed universal psychiatric pathology.

These classification systems—DSM and ICD—and their assumption of biological universality are often considered *etic* perspectives in cross-cultural psychiatry. "Etic" refers to a universal classification systems and is contrasted with "emic," which refers to classifications specific to a culture, which may or may not overlap with etic categorizations (Hahn, 1995). The use of the DSM and ICD psychiatric categorizations as overarching etic frameworks applicable across all cultures has been critiqued by some psychiatrists and social scientists (Kleinman, 1988; Kleinman & Good, 1985; Littlewood, 2002). The DSM and ICD do not incorporate all emic divisions from other cultures and medical nosologies, such as Chinese, Ayurvedic, or Q'uranic classifications of

mental disorder. It is argued that classifications of psychiatric disorders largely reflect American and European emic concepts of psychopathology based on implicit cultural concepts of normality and deviance. In addition, the classification systems have not been comparably applied across racial/ethnic groups within the same clinical context. For example, in the United Kingdom and United States, African- and Caribbean-descent populations are more likely to be diagnosed with schizophrenia compared with white/Western European-descent populations with the same symptom profile; the latter are diagnosed with bipolar disorder more frequently than with schizophrenia (Bell, Williamson, & Chien, 2008; Louden, 1995). For a challenge to these claims, see the work of Selten and Hoek (2008) and Singh, Greenwood, White, and Churchill (2007).

Even when comparable symptoms are observed, the social and personal significance of the behavior or experience may not have the same meaning and their explanatory models may differ. Researchers have cautioned that there is a risk of confounding culturally distinctive behavior with psychopathology on the basis of superficial similarities of behavior patterns or phenomena, an assumption referred to as a "category fallacy" (Kleinman, 1987). Within European and North American cultural contexts, there also have been debates about the scope of depression and how it is—or is not—distinguished from normal grief (Wakefield & Demazeux, 2015).

Due to these shortcomings, cross-cultural studies in psychiatric epidemiology historically have suffered from several problems. For example, case identification techniques varied from site to site, and methods were not standardized (Gorenstein, 1992). These inconsistencies led to a movement to standardize the process of psychiatric measurement and diagnosis so that diagnoses would be more replicable among clinicians and across patient populations. In the United States, one expectation since the third edition of the DSM (APA, 1980) was that this kind of standardization would help to reduce bias and increase the reliability of diagnoses across populations and among clinicians. Similarly, the tenth revision of the ICD (ICD-10) was developed with the explicit purpose of being an international standard (WHO, 1990). Thus, efforts were made to ensure that the drafters of the ICD-10 were drawn from as many countries as was feasible, and the revised system of classification was field-tested by more than 700 clinicians in 39 countries from all continents. The vast majority of ICD-10 conditions have reasonable reliability (Sartorius et al., 1993).

In preparation for the ICD-11, which was due to be published in 2018, one approach to explore cultural bias has been to evaluate how clinicians across cultures categorize disorders based on their clinical experiences. In a study of 517 clinicians in eight countries ranging from Brazil to India to Japan, clinicians had strong inter-rater agreement regardless of their national or cultural origin (Reed et al., 2013). The same study found that the cross-cultural categorizations were generally consistent with DSM and ICD, but the clinician-generated categories were more consistent with the proposed changes for ICD-11 compared to the DSM-IV or ICD-10, in particular with regard to personality disorders.

Critiques of cultural biases in diagnoses are part of a broader movement in psychology that has detected biases when the vast majority of research is based on a single population demographic. This problem has been referred to as the bias of psychology research being dominated by WEIRD populations (Western, Educated, Industrialized, Rich, and Democratic), which account for 90% of psychology publications (Henrich, Heine, & Norenzayan, 2010b). When psychological studies have been conducted with non-WEIRD populations, researchers have discovered that presumed universal processes such as visual perception, spatial reasoning, and behavioral motivation related to fairness and cooperation have cultural variations. In addition, it is important to consider that diagnostic criteria of syndromes can and do change over time, as is well demonstrated by the regular revisions of international psychiatric classifications, and that these changes are considerably influenced by attitudinal, political, and historical factors. Anthropologists have investigated how diagnoses are developed out of specific social, economic, and political environments; for example, there are in-depth historical accounts with anthropological critiques of disorders including post-traumatic stress disorder (PTSD) (Young, 1995), bipolar disorder (Martin, 2007), and dissociative disorders (Hacking, 1998).

Fifty years of research suggests that concepts of psychosis are remarkably similar across diverse settings (Cohen et al., 2016). Cross-cultural reviews of depression, PTSD, and other conditions have found that some symptoms may vary across cultures, though they have also found many universals. In a systematic review covering 178 social groups (varied by location, ethnicity, culture, and/or geography), of which 115 were non-Western populations, DSM hallmark symptoms of depressed mood/sadness, fatigue/loss of energy, problems with sleep, appetite/weight problems, and suicidal thoughts were common across all groups (Haroz et al., 2017). At the same time, the review revealed that some symptoms with near universality are not captured in current biomedical classifications. For example, symptoms such as social isolation/loneliness, crying a lot, somatic complaints, and thinking too much were among the most common symptoms but are not included in DSM criteria. Even among Western populations, the symptoms of social isolation and crying a lot were among the top 10 most associated with depression. In contrast, DSM diagnostic symptoms such as psychomotor agitation/retardation, feelings of worthlessness/guilt, and poor concentration were not among the top 10 associated symptoms in Western and non-Western cultural groups.

A cross-cultural review of PTSD concluded that while this diagnosis is generally "valid"—that is, it reflects the reality of human experience across populations—there is considerable cultural variability (Hinton & Lewis-Fernandez, 2011). The PTSD review highlighted cultural differences in the meaning and interpretation of trauma symptoms, the prevalence of the diagnosis across groups, the prevalence of specific symptoms such as those related to avoidance and numbing, the likelihood that a person of one culture will develop PTSD compared to a person of another culture given the same trauma exposure, and the association with nontraumatic stressors.

These types of cross-cultural systematic reviews are helpful to identify potential cultural biases in psychiatric diagnoses and to point us toward approaches that may be more appropriate across populations.

Alternative Approaches to Categorize and Conceptualize Mental Disorders

Historically, classifications of mental disorders prior to the DSM and ICD have existed in different cultures. All cultures have some form of distinguishing normal from abnormal, or socially acceptable versus unacceptable behavior, and this is often the province of religious practitioners and traditional healers (Clifford, 1990; El-Islam, 1982; Kleinman, 1980; Kohrt, Hruschka, Kohrt, Panebianco, & Tsagaankhuu, 2004; Weiss et al., 1988).

As an example, the first Chinese Classification of Mental Disorders (CCMD) appeared in 1979; since then, the system has undergone several revisions. Its third and most recent version is heavily influenced by the ICD-10 and DSM-IV systems, but still retains local features. The main differences between the ICD-10 and the CCMD-3 are the CCMD-3's retention of the term "neurosis" and categories of neurotic disorders such as neurasthenia (Lee, 2001). Personality disorders are

less often diagnosed in Chinese populations; thus, two categories of personality disorders—borderline personality disorder and avoidant personality disorder—are excluded from the Chinese scheme. The CCMD also includes its own section of culture-related mental disorders such as *qigong*-induced mental disorder. *Qigong* is a trance-based form of a traditional Chinese healing system. The disorder is similar to a dissociative state, featuring identity disturbance, irritability, hallucinations, and aggressive and bizarre behaviors. These often acute, brief episodes are linked to excessive practice of *qigong* meditation by physically or psychologically ill subjects.

Emic conditions (i.e., locally relevant categorizations) that are not typically observed in Western culture have been referred to as culture-bound syndromes (Simons & Hughes, 1985). Examples include *latah* (a startle-based form of distress in Southeast Asia), *koro* (a fear of genital retraction also noted in Southeast Asia), and *ode ori* (a West African form of distress characterized by thinking too much and attributed to a worm crawling in the skull) (Makanjuola, 1987; Simons & Hughes, 1985). Over time, the "bounded" aspect of culture-bound syndromes has been challenged due to findings of similar patterns of distress in disparate cultural settings, a lack of cohesive symptom presentation characterizing a syndrome, and the diversity in etiological attributions and vulnerable groups (Hahn, 1995; Kirmayer & Minas, 2000). Dissatisfaction with the term "culture-bound syndrome" has led researchers to propose other labels, such as "idiom of distress," "popular category of distress," "cultural syndrome," and "explanatory model" (Nichter, 1981; Weiss, 1997). In DSM-5, the term "cultural concept of distress" (CCD) attempts to aggregate these concepts without implying cultural exclusivity: "*Cultural concept of distress* refers to ways that cultural groups experience, understand, and communicate suffering, behavioral problems, or troubling thoughts and emotions" (APA, 2013, p. 758).

There is now a large literature indicating commonalities in emic categories of psychological distress. A systematic review (Kaiser et al., 2015) identified 138 publications mentioning "thinking too much," with examples from every populated continent including terms such as *kufungisisa* (Zimbabwe), *reflechi twòp* (Haiti), *pensando mucho* (Nicaragua), and *kut careen* (Cambodia), and, in more recent studies, *ucingaka-khulu* (South Africa) (Davies, Schneider, Nyatsanza, & Lund, 2016). Across cultures, "thinking too much" is characterized by ruminative, intrusive, and anxious thoughts that, if prolonged, result in a range of physical and psychological complaints. Common associated symptoms include low mood, anhedonia, poor concentration, social withdrawal, sleep disruptions, and somatic complaints across most populations. "Thinking too much" is associated with similar socioeconomic and traumatic stressors across populations. Moreover, coping mechanisms share commonalities across cultures, such as controlling or suppressing thoughts, distraction, and engaging in social activities—all of which overlap with evidence-based psychological treatments. This study is one of the few examples of how starting with a CCD rather than with a psychiatric category can help generate information on commonalities in psychological distress across populations.

A systematic review of CCDs and their overlap with DSM and ICD psychiatric categories demonstrates that the presence of a CCD increases the likelihood of persons meeting criteria for a psychiatric disorder (Kohrt et al., 2014). However, there is not a one-to-one match; that is, no CCD predicts a psychiatric diagnosis in 100% of individuals. On average, presence of a CCD does strongly predict PTSD, and to a lesser degree CCDs are predictive of depression and general psychological distress (**FIGURE 10-1**). Despite somatic complaints (i.e., physical symptoms such as headaches, digestive problems, and numbness and tingling) frequently being an aspect of CCDs, most CCDs are more strongly associated with common mental disorders than with somatoform disorders. Guidance for conducting rigorous epidemiologic studies of CCDs is now available with the tool known as Systematic Assessment of Quality in Observational Research for Cultural Psychiatry Epidemiology (SAQOR-CPE; Kohrt et al., 2014).

Cultural concepts of distress are increasingly recognized as an important component of culturally adapting mental health treatments, especially psychological treatments. Studies with the strongest effect sizes (i.e., those with the biggest improvements in mental health from pre- to post-treatment) do not utilize psychiatric categories when framing distress for patients and clients. For example, in India, depression and common mental disorders (CMDs) are often framed as "stress" or "tension" (Patel et al., 2010; Petersen et al., 2016), which are cultural idioms of distress that have many features of CMDs but are nonstigmatizing and facilitate treatment engagement (Weaver, 2017). In Zimbabwe, a lay health worker–delivered psychological treatment, "The Friendship Bench," uses the CCD *kufungisisa* (Shona for "thinking too much"; Patel, Simunyu, & Gwanzura, 1995) as a culturally acceptable way to discuss CMDs (Chibanda et al., 2016). Similarly, treatment of refugees and immigrants with culturally adapted cognitive-behavioral therapy has framed the interventions with CCDs (e.g., *nervios*-related conditions for
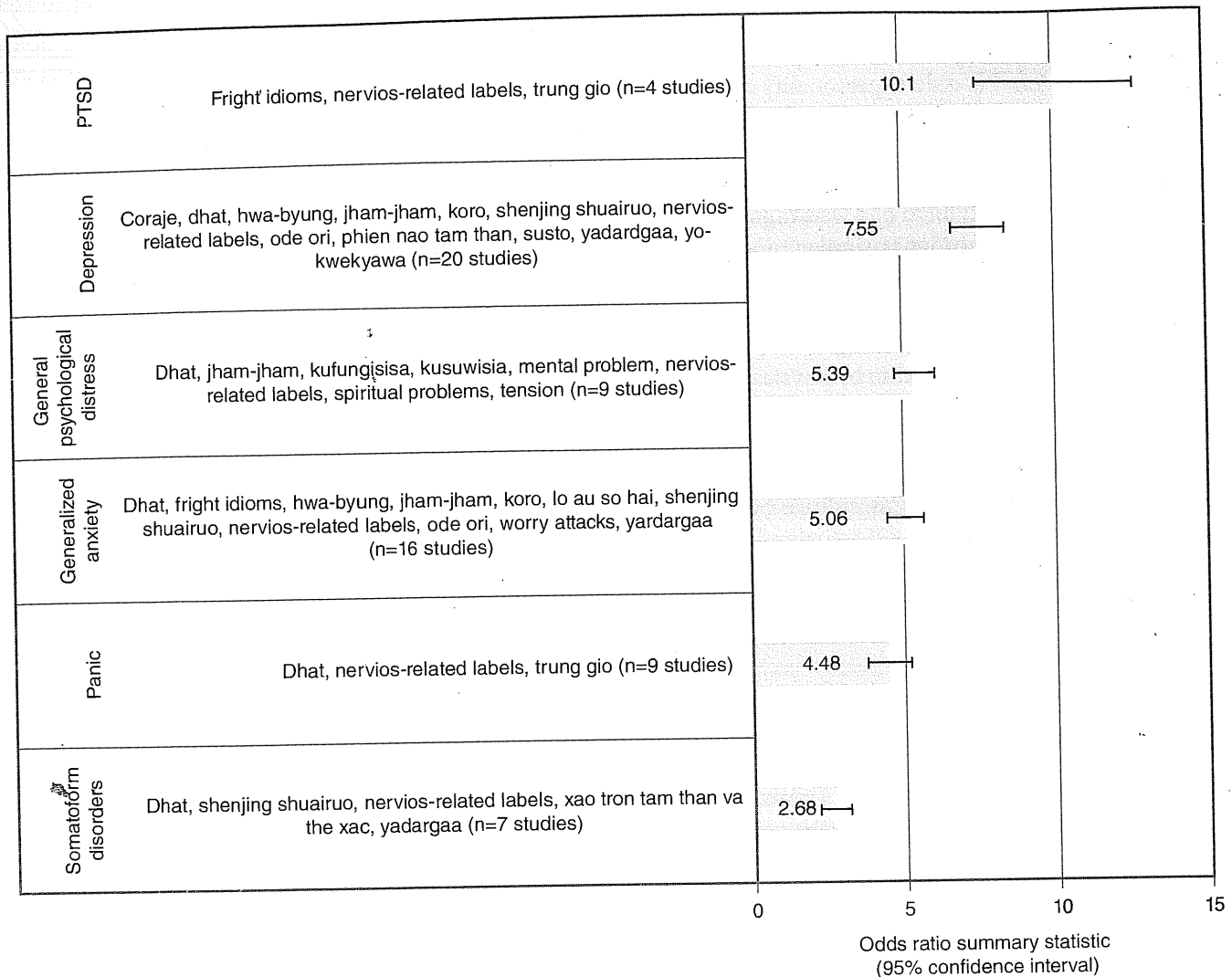
FIGURE 10-1 Psychiatric disorders and cultural concepts of distress.

Modified from Kohrt, B. A., Rasmussen, A., Kaiser, B. N., Haroz, E. E., Maharjan, S. M., Mutamba, B. B., de Jong, J. T., & Hinton, D. E. (2014). Cultural concepts of distress and psychiatric disorders: literature review and research recommendations for global mental health epidemiology. *International Journal of Epidemiology* 43(2): 365–406.

Latinos and *khyaal attacks* for Cambodians), and studies have shown significant improvements in both the CCDs and in reduction of depression and PTSD (Hinton, Hofmann, Pollack, & Otto, 2009; Hinton, Rivera, Hofmann, Barlow, & Otto, 2012).

Within high-resource settings in European and North American cultures, there are also concerns about the generalizability and conceptual assumptions in psychiatric nosologies such as the DSM. In the United States, NIMH has proposed the Research Domain Criteria (RDoC) as a way to look at processes from genes to functional neuroscience to environment in an effort to understand etiology and presentation and ultimately guide treatment (Insel et al., 2010). This more dimensional system provides an alternative to the categorical divisions between "mentally ill" and "normal," which have been contested by cross-cultural researchers (Bilder, 2015). Moreover, this approach can incorporate social genomics and social neuroscience methods that are increasingly demonstrating that culture and biology interact (Cole, 2014; Rule, Freeman, & Ambady, 2013). Individual and collective experiences including acculturation, especially during child development, determine much of the biological and psychological processes observed in adulthood.

Ultimately, much of RDoC focuses on the individual level. Nevertheless, there are increasing calls for an analogous approach to societal-level causal mechanisms that would be useful from a public and global mental health perspective (Stein, Lund, & Nesse, 2013). Going forward, there is potential for social neuroscience and cross-cultural psychiatry to find areas of convergence to develop more accurate diagnostic approaches to apply across diverse populations (Kirmayer & Gold, 2012b).

Cross-Cultural Methods and Approaches for Mental Health Research and Services

Ultimately, diagnostic categories are a moving target, as they are continually being transformed by improved biocultural research that seeks to better understand mechanisms and improve the fit between types of interventions and persons with psychological distress. As diagnoses continue to change, it is crucial to have a set of rigorous methodologies that can integrate culture into global mental health research and interventions. Examples of these rigorous methods are transcultural translation and validation procedures for assessment and the Cultural Formation Interview for clinical care.

Cultural equivalence is needed for psychiatric assessment tools used for research, screening, and treatment monitoring. Lack of cultural equivalence risks category fallacies and under-, over-, and misdiagnosis. A tool is considered to have cultural equivalence (i.e., measurement invariance) if it measures the same construct across cultures. Content, semantic, technical, criterion, and conceptual equivalence are needed to achieve measurement invariance (Flaherty et al., 1988). These are defined as follows:

- *Content equivalence:* Does the phenomenon in question occur and is it locally recognized as distressing within the target culture?
- *Semantic equivalence:* Does the meaning of each item remain the same after translation?
- *Technical equivalence:* How does the method used in data collection affect results differentially between cultures? Technical methods could encompass response options on scales, item structure, and administration format (e.g., pen and paper, computerized assessment, interview administered). Challenges have been identified with the use of Likert scales, statements versus questions, positive versus negative wording, and pictorial response scales (Kohrt et al., 2011; Weobong et al., 2009).
- *Criterion equivalence:* What is an instrument's relationship with previously established and independent criteria for the same phenomenon? According to criterion equivalence, there should be comparable psychometrics (e.g., sensitivity, specificity, positive predictive value, negative predictive value) with a known marker, oftentimes a structured clinical interview.

There are now best practices for transcultural translation and validation that incorporate qualitative methods followed by a clinical validation study to establish psychometric properties, which have been used for both adult and child populations (Kohrt et al., 2011; Van Ommeren et al., 1999). This transcultural translation approach involves qualitative interviews including focus group discussions with target groups and cognitive interviewing, accompanied by a series of translations and back-translations, followed by a clinical validation study.

Regarding clinical services in global mental health, the cultural formulation interview (CFI; **EXHIBIT 10-1**) in DSM-5 is a new tool that can be applied to any patient or population and assures that cultural factors are integrated in diagnosis, treatment planning, and delivering care (APA, 2013). The CFI was developed to assess five components: (1) cultural identity of the individual, (2) cultural explanations for an illness, (3) cultural factors contributing to psychosocial environment and functioning, and (4) cultural factors influencing the clinician–patient/client relationship. Value must be placed on both folk beliefs about mental disorder and the biomedical system of psychiatry. It is important to investigate patients' "explanatory models"—that is, how patients understand their problems, including their nature, origins, consequences, and remedies, as these

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EXHIBIT 10-1 Cultural Formulation Interview in DSM-5

This CFI is a tool for clinicians and treatment teams to improve mental health services by assuring that cultural factors are integrated into diagnoses, treatment planning, and delivery of care. The CFI includes four components:

- Cultural definition of the problem: Explanatory models including prominent idioms of distress, reasons for treatment seeking, and impact on functioning.
- Cultural perceptions of the cause, context, and support: Cultural models of causation, impact on and influence of one's social network, culturally relevant interpretations of social stressors, and cultural identity of the individual.
- Cultural factors affecting self-coping and past help-seeking: Self-coping, past help seeking, and prior barriers to care and recovery.
- Cultural factors affecting current help seeking: Patient preferences related to social networks and religion, and clinician–patient relationship factors. The provider must identify differences and similarities in cultural and social status that might influence diagnosis and treatment.

Modified from American Psychiatric Association. (2013). Diagnostic and statistical manual of mental disorders: DSM-5. Washington, DC. American Psychiatric Publishers, Incorporated.

aspects of understanding can radically alter patient–provider negotiations over appropriate treatment (Kleinman, 1988). The CFI can be used at individual, family, and community levels to inform clinical services and public health efforts in global mental health.

Ultimately, findings across diverse disciplinary approaches increasingly point toward commonalities for understanding mental disorder across cultural groups. As noted earlier, common manifestations and pathways for healing have been identified. Moreover, studies that have shown differences across groups have often shed light on the limitations of psychiatric practices that need to be changed to improve care in high-resource, Western cultural settings as well as in LMIC contexts. This point not only highlights the importance of cross-cultural work for global mental health in low-resource, non-Western settings, but also suggests how global mental health research can better inform mental health categorizations in high-resource, high-researched settings.

The Determinants of Mental Disorders

The etiology of mental disorders comprises a complex interplay among biological factors, most notably genetic predisposition, developmental factors, and psychosocial factors. Until the 1950s, the dominant notions about the etiology of mental disorders were hereditary and environmental in nature. For example, schizophrenia was attributed to abnormal parenting, and obsessive–compulsive disorder to "anal aggression." Beginning in the 1960s, however, a more balanced view emerged. Consensus was reached that both environmental and genetic influences contribute to the development of mental disorders. Psychotic conditions, which historically have been thought to arise predominantly from biological risk factors, have increasingly been shown to be strongly influenced by social determinants (Kirkbride et al., 2006; McGrath et al., 2004). The observation that many disorders have their onset in childhood and youth have placed focus on the developmental origins of these disorders (e.g., related to brain development during childhood and adolescence).

Although risk factors for the majority of mental disorders present themselves in childhood and adolescence, the major burden of mental disorders is found in early adulthood (Murray et al., 2012). Indeed, a range of childhood adversities, such as neglect and parental mental illness, are strongly associated with numerous mental disorders in later life, presumably due to the impact of "toxic stress" on the developing brain. These factors can be divided into risk factors and protective factors. Risk factors make it more likely that an individual will develop mental health difficulties, whereas protective factors mediate and reduce the effects of risk exposure. Risk and protective factors can exist in the biological, psychological, and social domains (**TABLE 10-3**). Many risk factors for mental disorder also predispose persons to a host of physical health and social problems. Adverse childhood experiences (ACEs), such as child abuse and domestic violence, loss of caregivers, nutritional deprivation, and severe childhood illness, are exposures that increase the risk of physical diseases (e.g., cardiovascular and metabolic disease), mental disorders (e.g., suicide, substance abuse, and common mental disorders), and early mortality (Anda et al., 2006; Van Niel, Pachter, Wade, Felitti, & Stein, 2014).

The question was therefore changed from *which* factors were relevant for a specific disorder, to *how much* each contributed to the condition. Ultimately, this question, too, proved to be based on an incorrect assumption—namely, that the environmental, developmental, and genetic factors exert their influences in an additive and independent manner. There is now recognition that they exert their influences in an interactive manner, which develops over the life course. Contemporary scientists are attempting to address the question of *how* they interact.

The Social Determinants of Mental Disorders

The social determinants of mental disorders may be organized into five broad domains (Lund, De Silva, & Stansfeld, 2014):

- The economic domain, which includes poverty, income, consumption, assets, income inequality, and employment
- The social domain, which includes social capital, social cohesion, and education
- The demographic domain, which includes age, gender, and ethnicity
- The neighborhood domain, which includes the area-level social and economic arrangement of people's lives such as housing, water and sanitation, and transport
- The environmental events domain, which includes natural disasters, such as floods, earthquakes, and climate change, as well as civil conflict and forced migration

Each of these domains exerts its influence on population mental health by means of both distal factors

TABLE 10-3 Selected Risk and Protective Factors for Mental Health

Domain	Risk Factors	Protective Factors
Biological	▣ Exposure to toxins (e.g., tobacco and alcohol) during pregnancy ▣ Genetic tendency to psychiatric disorder ▣ Head trauma ▣ HIV/AIDS and other physical illnesses	▣ Age-appropriate physical development ▣ Good physical health ▣ Services provided at mother–baby clinics
Psychological	▣ Maladaptive personality traits ▣ Effects of emotional, physical and sexual abuse, and neglect	▣ Ability to learn from experiences ▣ Good self-esteem ▣ High level of problem-solving ability ▣ Social skills
Social		
Family	▣ Divorce ▣ Family conflict ▣ Poor family discipline ▣ Poor family management ▣ No family	▣ Family attachment ▣ Opportunities for positive involvement in family ▣ Rewards for involvement in family
School or workplace	▣ Failure to perform at the expected level ▣ Low degree of commitment to school or workplace ▣ Inadequate/inappropriate educational provision or training opportunities ▣ Experiences of bullying and victimization	▣ Opportunities for involvement in school or occupational activities ▣ Supportive, stimulating school environment that is tailored to children's developmental needs
Community	▣ Community disorganization ▣ Effects of discrimination ▣ Exposure to violence ▣ Social conflict and migration ▣ Poverty ▣ Transitions (e.g., urbanization)	▣ Connectedness to community ▣ Opportunities for constructive use of leisure ▣ Positive cultural experiences ▣ Positive role models ▣ Rewards for community involvement

Modified from World Health Organization (WHO). (2015). *Child and adolescent mental health policies and plans.* Retrieved from http://www.who.int/mental_health/policy/Childado_mh_module.pdf

("upstream" social and structural factors, such as social policy, macro-economic trends, and environmental disasters) and proximal factors (the manner in which these distal factors are experienced by individuals and their families, such as employment, housing quality, and trauma).

Environmental Events Domain

According to the United Nations High Commissioner for Refugees (http://www.unhcr.org/4981c3dc2.html),

as of 2007 an estimated 11.4 million refugees had fled their own countries, another 13.7 million were internally displaced, and 2.9 million were not considered citizens of any state. Many of these refugees have experienced enormous trauma in the form of violence, crime, or other humiliations; physical injury; economic dispossession; and disruption of family and community structures. Thus, the rates of mental disorders among these people would be expected to be at least as high as—and probably higher than—those for migrants in general. A study of more than 3,000 respondents

from postconflict communities in Algeria, Cambodia, Ethiopia, and Palestine found that PTSD was the most likely MNS disorder in individuals exposed to violence associated with armed conflict (de Jong, Komproe, & Ommeren, 2003). Other mental health consequences included mood and anxiety disorders.

In addition to exposure to trauma, a number of other factors may predispose refugees and immigrants to mental disorders, such as marginalization and minority status, socioeconomic disadvantage, poor physical health, the loss of social support systems, and cultural alienation in the new society. For illegal immigrants, there is also the constant fear of being found out and deported; as a consequence, access to possible sources of help is severely limited. In discussing these issues, it is relevant to note that the universal application of the concept of trauma-related mental disorders (in particular, PTSD) has been criticized because it is itself based on culturally influenced notions of how a person is supposed to react to trauma (see the earlier discussion on culture and mental disorders). While consensus exists that trauma does negatively affect a person's mental health, the question of whether this negative impact should be conceptualized in psychiatric terms (with the concomitant implications of diagnosis and treatment) or in social and cultural terms remains unresolved.

Economic Domain

There is now a substantial body of evidence demonstrating the relationship between poverty and socioeconomic inequalities with mental disorders. In the United Kingdom, for example, evidence has pointed to an association between a low standard of living and the prevalence of depression (Weich & Lewis, 1998). A systematic review located 115 studies in which the associations between poverty and anxiety and mood disorders in 36 LMICs were examined (Lund et al., 2010). Most of these studies reported positive associations between a range of poverty indicators and anxiety and mood disorders. Multivariate analyses showed that in community-based studies, 79%, 15%, and 6% reported positive, null, and negative associations, respectively. A robust association was found between anxiety and mood disorders and education, food insecurity, housing, social class, socioeconomic status, and financial stress. By comparison, the associations between anxiety and mood disorders and income, employment, and consumption were relatively inconsistent. People living in conditions of poverty are also at greater risk for physical health problems, and abundant evidence demonstrates the high degree of

comorbidity between physical and mental disorders (Prince et al., 2007). Studies in developed countries have shown that mortality and morbidity rates are more affected by relative, rather than absolute, living standards. A survey in the United States, for example, showed an independent association between low income and living in income-unequal states with depression in women (Kahn, Wise, Kennedy, & Kawachi, 2000). This finding suggests that it is not just having low income, but having low income in relation to others, that increases risk for depression.

Social Domain

The association between poverty and poor mental health may be mediated both by individual psychological factors, such as low self-esteem and frustration, and by a breakdown in structural factors in the community, such as less social cohesion and poorer infrastructure. Reduced prevalence of common mental disorders has been found in populations with higher individual cognitive and ecological social capital (Ehsan & De Silva, 2015). The lack of social support and the breakdown of kinship structures may be important stressors for the millions of migrant laborers in the urban centers of Asia, Africa, and South America, as well as for the millions of dependents who are left behind in rural areas and whose primary source of income consists of the remittances that their relatives send from distant cities. In high-income countries, increased mobility of labor has reduced family ties and also led to the decline of the extended family.

The social consequences of low educational levels are obvious, especially in LMICs that are facing a growing lack of security for employees as those countries' economies are reformed. Lack of secondary education may produce a diminished opportunity for persons who are depressed—especially women—to access resources to improve their situation (Patel, Araya, de Lima, Ludermir, & Todd, 1999). Education also plays an important protective role: A consistent finding across countries is that higher educational levels are associated with reduced prevalence of common mental disorders (Lund et al., 2010), and in the long term education is protective in reducing subsequent late-life depression (Chang-Quan, Zheng-Rong, Yong-Hong, Yi-Zhou, & Qing-Xiu, 2010).

Demographic Domain

Gender is a major determinant of mental health. As described later, the excess prevalence of depression for women has been demonstrated in most community-based studies in all regions of the world.

Women are disproportionately affected by the burden of poverty, which in turn may influence their vulnerability to depression. Women are far more likely to be victims of violence in their homes; women who experience physical violence by an intimate partner are significantly more likely to suffer depression, abuse drugs, or attempt suicide. Women who are sexually abused as children are significantly more likely to suffer depression in adulthood, and experience of sexual and other forms of violence in youth is associated with depression in adolescence.

As an example of how gender influences the risk of depression, a study with women in low-income townships of Harare, Zimbabwe, revealed the high proportion of events involving humiliation and entrapment that were related to marital crises such as being deserted by husbands and left to care for children, premature death, illness of family members, and severe financial difficulties occurring in the absence of an adequate welfare safety net. As another example, studies in South Asia have shown that the culturally determined value placed on boys (as compared to girls) adversely influences maternal mental health. The risk for postnatal depression was elevated in mothers who had a girl child, especially if the desired sex was a boy or if the mother already had living girl children (Patel, Rodrigues, & DeSouza, 2002).

The excess prevalence of alcohol abuse for men has been demonstrated in every community-based study from every region of the world although the disparities are greatest in LMICs. The wide sex differences in alcohol abuse in Latin American countries and the Caribbean have been attributed to a number of gender factors (Pyne, Claeson, & Correia, 2002). Women, for example, face strict social scrutiny about many behaviors, drinking among them. Men's consumption of alcohol takes place in the public realm, whereas women's drinking more often occurs in private. Drinking among men has social meanings, such as maintaining friendships, whereas refusing a drink can imply lack of trust and denial of mutual respect. At the other extreme, intoxication of men is more socially acceptable than that of women; indeed, women often tolerate their male partners' intoxication as being a "natural" condition of manhood. Drinking and drunkenness are more often perceived to be consistent with gendered notions of masculinity; thus, men who conform closely to cultural norms are more likely to drink. Drinking may also be a coping strategy when men face serious life difficulties, such as unemployment, and are unable to live up to the traditional expectations.

The evidence that gender plays a role in eating disorders stems from two observations: (1) the enormous sex difference in prevalence (females with these disorders vastly outnumber men with the same conditions) and (2) the very low rates of these disorders in cultures that have been relatively immune to the media-driven creation of the ideal body image for women. A study from Fiji demonstrated that the introduction of television in a media-naïve non-Westernized population is associated with a rise in attitudes favoring thinner body image and self-induced vomiting in girls (Becker, Burwell, Gilman, Herzog, & Hamburg, 2002), lending credence to the theory that the emphasis on women's thinness by the media and fashion industries is now leading to a rise in disordered eating in societies that, through the forces of globalization, are being increasingly influenced by Western imagery and values.

Another demographic characteristic associated with greater risk of mental disorders is belonging to an ethnic minority population, which has been shown to be associated with an increased risk of a range of mental disorders, including psychosis, anxiety, and depression (Veling, 2013). This relationship is attributed to a range of mechanisms related to discrimination and the traumatic experiences associated with dislocation and migration. Indigenous communities represent a particularly disadvantaged group for a range of social, historical, and political reasons, and they bear a disproportionate share of the burden of mental disorders (**EXHIBIT 10-2**).

Neighborhood Domain

There is now robust evidence indicating that the characteristics of geographical areas have an important effect on population mental health, independent of individual-level characteristics such as poverty, educational level, and gender. In the current context of large-scale global urbanization, the conditions of urban slums therefore have an important influence on mental health. For example, low neighborhood socioeconomic status has been significantly associated with worse mental health, independently of individual-level socioeconomic status (Truong & Ma, 2006).

▶ The Burden of Mental Disorders

This section describes how the burden of mental disorders (including neurological and substance use disorders) can be calculated using disability-adjusted life-years, discusses the limitations inherent in these measures, presents the burden estimates for 2015, and finally identifies important impacts of mental disorders that are not captured in burden of disease estimates.

EXHIBIT 10-2   The Mental Health of Indigenous Peoples

As many as 370 million indigenous persons may be living in approximately 5,000 distinct groups in more than 70 countries. They exhibit a wide diversity of lifestyles, cultures, social organization, histories, and political realities. Nevertheless, they share certain historical and political realities, including being subject to violence and genocide, depopulation from infectious diseases such as smallpox and measles, dislocation from their traditional lands, extreme poverty due to the destruction of their subsistence economies, and state-organized attempts to repress and eradicate their cultures. Given this history, it is not surprising that the indigenous peoples of the world are currently experiencing relatively high rates of depression, alcoholism, and suicide, as well as high rates of infectious diseases and relatively short life expectancies (Anderson et al., 2016).

The case of the indigenous communities of Australia serves to illustrate the confluence of these historical, political, social, and economic forces and contributes to our understanding of why the rates of mental disorders are higher among indigenous peoples. The indigenous peoples of Australia had a diversity of cultures dating back at least 40,000 years before the arrival of European settlers slightly more than 200 years ago. These societies had rich cultural belief systems that attributed spiritual importance to land. Social relationships were governed by codes of behavior, and local taxonomies of illness guided the treatment of health problems. The brutal history of colonization that ultimately led to the destruction and devastation of hundreds of indigenous groups, each with a distinct language and lineage, was marked by a number of severe social adversities. Notable among these were exposure to new diseases, removal from traditional lands, enslavement on white farms, imprisonment without trials, denial of basic political rights, brutal violation of human rights, sexual abuse of women, and, perhaps most tragic of all, the "stolen generations"—the children who were forcibly removed from their parents and fostered by white families in an effort to "breed" out the native population.

Among the indigenous peoples of Australia, the consequences of this history are reflected in socioeconomic, psychosocial, and health indicators of all kinds:

- High rates of unemployment, low levels of income, and poor educational status
- Age-specific mortality rates two to seven times higher, and life expectancies more than 15 years shorter, than those of the general population
- High levels of alcoholism and suicide

It is impossible to interpret the poor mental health experienced by these communities without considering the social and historical contexts of the systematic abuse of aboriginal communities. *Ways Forward*, the Australian national inquiry into indigenous mental health conducted in the early 1990s, prioritized holistic conceptions of emotional and social well-being among these groups. From these developments, greater emphasis has been given to providing access to culturally appropriate services within mainstream healthcare settings.

To understand the contributions that mental disorders make to the global burden of disease compared to other diseases and injuries, it is necessary to measure the impact of all disorders in the same way. A common metric is needed for measurement; otherwise, it is very difficult to quantify the burden imposed by cancer, for example, compared to that imposed by depression. A commonly used metric is the disability-adjusted life-year (DALY), a time-based metric that combines the years a person lives with disability (YLD) caused by a particular disorder with the years lost from life owing to a disorder (YLL). The DALY has been used by the World Bank, WHO, and in the Global Burden of Diseases, Injuries, and Risk Factors Studies to measure the gap between the health of the population at a point in time and living to a defined life expectancy in full health. Since DALYs, YLDs, and YLLs were first estimated for the year 1990, the data sources used have been greatly expanded and the methods applied to generate the estimates improved. The changes in methods

have included dealing with inconsistent coding of deaths over time and between countries, introduction of disability weights from population-representative surveys, more precise severity distributions, introduction of comorbidity adjustments, and propagation of 95% uncertainty intervals around all burden estimates. As new methods are introduced, it is necessary to recalculate GBD estimates from previous years so as to make comparison with previously published data possible. A detailed description of how these burden of disease metrics are estimated for mental disorders can be found elsewhere (GBD 2015 DALYs and HALE Collaborators, 2016).

DALYs are derived by summing YLDs and YLLs for each disorder, location, age group, sex, and year, and are now provided for more than 300 diseases and injuries. In interpreting the burden of mental disorders, one must recognize that the mortality-associated (YLL) burden estimates for mental disorders in the GBD studies should not be interpreted as suggesting

that premature death in people with MNS disorders is relatively inconsequential. Premature mortality has been repeatedly shown to be significant in populations with mental disorders (Walker, McGee, & Druss, 2015), with suicide being a major contributor and large contributions coming from cardiovascular disease and cancer (Lawrence, Hancock, & Kisely, 2013). Even in high-income countries, people with mental disorders often do not receive preventive services, such as immunizations, cancer screenings, and tobacco counseling (Druss, Rosenheck, Desai, & Perlin, 2002), and they often receive a lower quality of care for their medical conditions (Björkenstam et al., 2012; Laursen, Nordentoft, & Mortensen, 2014). Excess mortality estimates can be generated based on the GBD data; while MNS disorders were directly responsible for only 840,000 deaths in 2010, individuals with these conditions were estimated to have more than 13 million excess deaths using natural history models (Charlson, Diminic, Lund, Degenhardt, & Whiteford, 2014).

Notwithstanding these caveats, the GBD estimates show mental disorders contribute substantially to the global burden of disease, with mental and substance use disorders being the leading cause of disability globally (Whiteford et al., 2013; Whiteford, Ferrari, Degenhardt, Feigin, & Vos, 2015). The burden peaks in early adulthood for mental and substance use disorders, but is more consistent across age for neurological disorders. Females accounted for more DALYs for all mental and neurological disorders, except for mental disorders occurring in childhood, schizophrenia, substance use disorders, Parkinson's disease, and epilepsy, where males accounted for more DALYs. Overall DALYs are highest in the Eastern Europe/Central Asia regions and lowest in the East Asia/Pacific regions. The relative proportion of DALYs from MNS disorders within the overall disease burden has been estimated to be 1.6 times higher in high-income regions than in lower-income regions, largely due to the relatively higher burden of other health disorders such as infectious and perinatal diseases in LMICs. Because of their larger population, however, most of the global burden from MNS disorders is found in LMICs.

The burden estimates for 2015 are provided in **TABLE 10-4** and **FIGURES 10-2** and **10-3**. Table 10-4

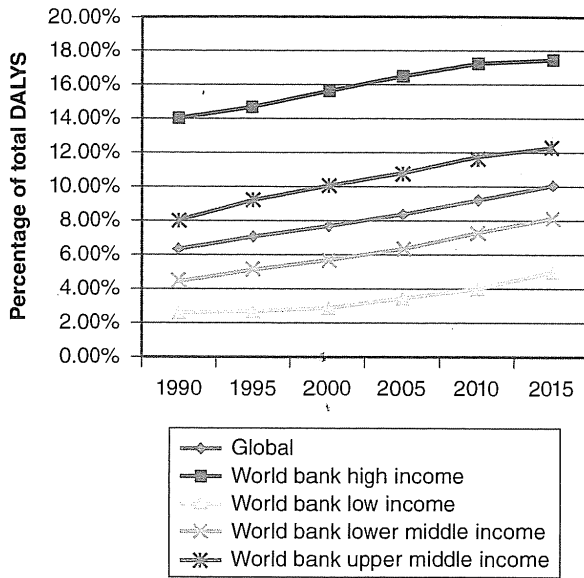| **TABLE 10-4** Total DALYs (Numbers and Proportions) Attributable to Mental, Neurological, and Substance Use Disorders in 2015			
Cause	DALYs per 100,000 Population	Proportion of All-Cause DALYs in GBD	Proportion of Mental, Neurological, and Substance Use Disorder DALYs
Neurological Disorders			
Alzheimer's disease and other dementias	238	1.0%	9.5%
Parkinson's disease	21	0.1%	0.8%
Epilepsy	124	0.5%	5.0%
Multiple sclerosis	12	0.1%	0.5%
Migraine	329	1.3%	13.2%
Tension-type headache	23	0.1%	0.9%
Medication overuse headache	92	0.4%	3.7%
Motor neuron disease	9	0.04%	0.4%
Other neurological disorders	24	0.1%	0.9%

(continues)

TABLE 10-4 Total DALYs (Numbers and Proportions) Attributable to Mental, Neurological, and Substance Use Disorders in 2015   *(continued)*

Cause	DALYs per 100,000 Population	Proportion of All-Cause DALYs in GBD	Proportion of Mental, Neurological, and Substance Use Disorder DALYs
Substance Use Disorders			
Alcohol use disorders	112	0.5%	4.5%
Opioid use disorders	121	0.5%	4.8%
Cocaine use disorders	10	0.0%	0.4%
Amphetamine use disorders	14	0.1%	0.6%
Cannabis use disorders	6	0.02%	0.2%
Other drug use disorders	19	0.1%	0.7%
Mental Disorders			
Schizophrenia	155	0.6%	6.2%
Major depressive disorder	442	1.8%	17.7%
Dysthymia	100	0.4%	4.0%
Bipolar disorder	90	0.4%	3.6%
Anxiety disorders	246	1.0%	9.9%
Anorexia nervosa	7	0.03%	0.3%
Bulimia nervosa	8	0.03%	0.3%
Autism	63	0.3%	2.5%
Asperger's syndrome and other autistic spectrum disorders	37	0.2%	1.5%
Attention-deficit/hyperactivity disorder	6	0.03%	0.2%
Conduct disorder	58	0.2%	2.3%
Idiopathic developmental intellectual disability	34	0.1%	1.4%
Other mental and substance use disorders	96	0.4%	3.9%

Data from *Global burden of disease study 2015*. Retrieved from http://ghdx.healthdata.org/gbd-2015

FIGURE 10-2 Mental, neurological, and substance use disorders, both sexes, all ages.

Data from *Global burden of disease study 2015*. Retrieved from http://ghdx.healthdata.org/gbd-2015

provides a global overview of the total burden from each MNS disorder included in the GBD study. The leading contributors to this burden are major depressive disorder, which accounts for almost 18% of the overall burden in the total group, with anxiety disorders and dementia both contributing close to 10%. Figure 10-2 shows that the proportionate burden from MNS disorders increased substantially in all countries, irrespective of their economic development status, between 1990 and 2015. For most disorders, the increased burden is being largely driven by population

growth and aging. In areas of the world undergoing major demographic change, such as sub-Saharan Africa, where the population is expected to double by 2050, projections suggest there will be an increase of 130% in the burden of mental and substance use disorders (Charlson et al., 2014). Figure 10-3 shows that the burden is greatest in the adolescent to middle adulthood period of life, when productivity is the greatest.

To be included in the GBD data, disorders must meet the threshold for diagnosis using ICD or DSM criteria. While the application of these diagnostic criteria may bias estimates downward in regard to the burden of mental disorders in some cultures, the adoption of common case definitions is necessary to promote international comparison (Whiteford, Ferrari, & Degenhardt, 2016). Another challenge for generating estimates of mental disorder burden, and subsequently investigating trends over time and differences between countries, is the limited coverage of epidemiologic data. This is particularly problematic in LMICs and in subnational locations. As a result, estimates often have large uncertainty intervals that can mask true variations in burden between countries and over time. Furthermore, it is necessary to generate better data on the relationships between risk factors, such as economic deprivation, and the variations in burden that might be explained by these risk factors.

Depressive and Anxiety Disorders

In 2015, the global age-standardized prevalence was 3% for major depressive disorder and 1.4% for
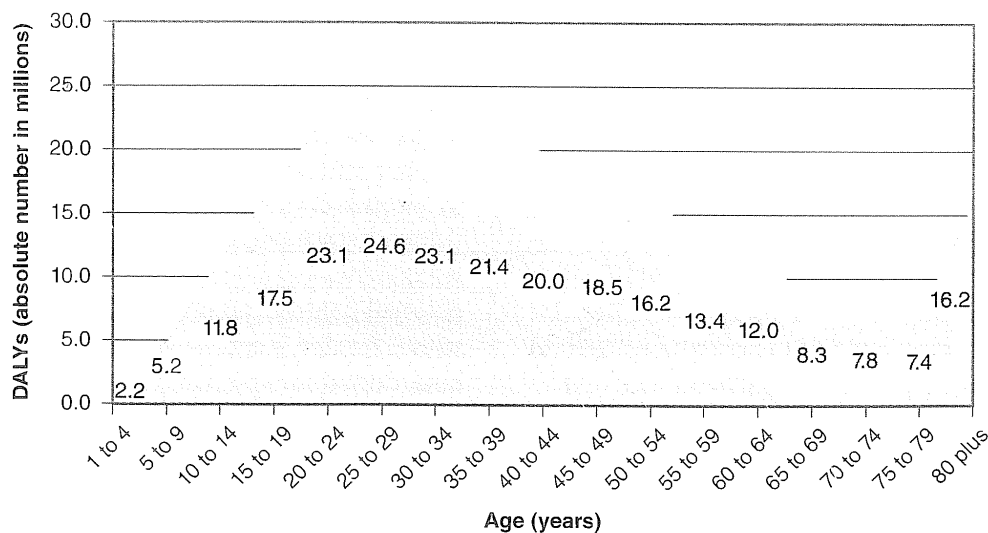
FIGURE 10-3 Global burden of mental, neurological, and substance use disorders.

Data from *Global burden of disease study 2015*. Retrieved from http://ghdx.healthdata.org/gbd-2015

dysthymia, making depressive disorders the largest contributor to the burden of disease, as measured by DALYs in the mental disorder group. The global prevalence is higher in females (5.1%) than in males (3.7%), and in countries where war and conflict are more prevalent. For example, Uganda had the highest rate of depressive disorder DALYs—although with the wide uncertainty estimates, this was not significantly different from the global mean. There is also a clear socioeconomic gradient in prevalence in many countries, with individuals having lower socioeconomic status also having increased risk for depression and anxiety disorders (Lund et al., 2010). Individual anxiety disorders are common and frequently co-occur with each other.

To prevent over-counting, GBD 2015 provides estimates for any anxiety disorder—a grouping that includes generalized anxiety disorder, panic disorder, and phobic disorders (agoraphobia, social phobia, and specific phobias) (Baxter, Vos, Scott, Ferrari, & Whiteford, 2014). It also includes obsessive–compulsive disorder, post-traumatic stress disorder, and acute stress disorders, although these are no longer classified as anxiety disorders in DSM-5. In 2015, the global age-standardized prevalence for all anxiety disorders combined was 3.6% (4.6% for females and 2.6% for males), making these disorders the second largest contributor to the burden of disease imposed by MNS disorders, as measured by DALYs. As is true for depression, there is considerable variability in the estimates, with anxiety disorder prevalence being impacted by factors such as sex, age, culture, conflict, urbanicity, and economic status (Baxter, Scott, Vos, & Whiteford, 2013). For example, a systematic review and meta-analysis of post-traumatic stress disorder alone in the general population in areas exposed to conflict found the prevalence to be 12.9%, after controlling for an extensive range of covariates (Charlson, Baxter, Cheng, Shidhaye, & Whiteford, 2016).

Schizophrenia

The age-standardized prevalence of schizophrenia was estimated in the GBD studies to be approximately 3% globally. This prevalence did not change from 1990 to 2015; however, the number of people with schizophrenia increased from 14.4 million to 23.4 million during this period, due primarily to population growth and aging. In 2015, schizophrenia contributed 15.5 million DALYs to the overall burden of disease globally, with roughly equal burdens noted in males and in females. Substantially higher prevalent cases and DALYs of schizophrenia were found lower-income regions of the world—a reflection of population size, but

also coinciding with the highest treatment gaps. For example, China had the highest rate of schizophrenia DALYs, but this was closely followed by the U.S. rate, and neither country's rate was significantly higher than the global mean.

Bipolar Disorder

The global age-standardized prevalence of bipolar disorder was estimated at 0.5% across both sexes. As with the majority of mental disorders, the prevalence of bipolar disorder remained unchanged between 1990 and 2015, but due to population growth and changing age structures, the number of people with bipolar disorder increased from approximately 30 million in 1990 to 44 million in 2015. In terms of burden, bipolar disorder was responsible for 9 million DALYs, equating to 0.35% of all global DALYs in 2015. The DALY rates were consistent across the globe, with the difference between the lowest country estimate (China) and the highest country estimate (New Zealand) not differing significantly.

Substance Use Disorders

The burden of substance use disorders varies considerably across and within countries, between subgroups in a given population, and according to the substance being abused. Unlike other mental and neurological disorders, variations in substance use burden are influenced by additional factors, such as supply and availability of drugs, which can change prevalence and, in turn, burden. If dependence on tobacco (arguably the most common substance to be abused) is excluded, alcohol use disorders (AUD) are the most common substance abuse disorder in most countries. While AUD can refer to the entire range of health conditions associated with drinking alcohol above the recommended limit established by WHO, alcohol use disorders in the GBD studies refer only to alcohol dependence as defined by the ICD. Illicit drugs are those substances whose use outside medical settings has been prohibited under international and national control systems. In the GBD study, the drugs whose burden is estimated are opioids (including heroin), cannabis, amphetamines, and cocaine.

Globally, AUD were the most prevalent substance use disorders, with 63.5 million estimated cases in 2015. Cannabis dependence and opioid dependence were the most common illicit drug use disorders (19.8 million cases and 16.7 million cases, respectively). There were substantial geographic variations in the burden of disease and contrasting patterns for the association between total alcohol and illicit drug-attributable burden and per

capita income. Alcohol burden was highest in LMICs (with Russia being the highest), while the burden from illicit drugs was highest in Eastern European countries and the United States.

Childhood Disorders

The majority of mental disorders have their initial onset during childhood and adolescence, making this a crucial period for early intervention and identification. While substance use disorders tend to demonstrate a sharp increase in prevalence (and therefore burden) from late adolescence onward, certain mental and neurological disorders demonstrate significant burden between ages 5 to 14 years. Across both sexes, conduct disorder, depressive disorders, anxiety disorders, and autism spectrum disorders are responsible for almost 7.5% of all DALYs worldwide in this age group. For neurological disorders, migraine and epilepsy make up the majority of the burden of disease for children and adolescents (1.8% and 1.4%, respectively).

The implications of these estimates are significant, given that 85% of children and adolescents live in LMICs that generally have few or no child- and adolescent-specific mental health services. Furthermore, as infectious diseases continue to be successfully prevented and treated, more infants in these regions will survive into childhood and adolescence and, therefore, reach the ages where the incidence of mental disorders is higher. As such, it is important for these disorders to be recognized as significant contributors to the burden of disease in children and adolescents and for health resources to be allocated based on both current and future needs.

Dementia

The population of almost all countries is aging, and the size of the older population is growing fastest in low-income countries. Between 2015 and 2050, the number of older people living in higher-income countries is forecast to increase by 56%, compared with 138% in upper middle-income countries, 185% in lower middle-income countries, and 239% in low-income countries (https://www.alz.co.uk/research/WorldAlzheimer Report2015.pdf). Dementia is becoming a major contributor to global burden, with the total DALYs doubling for both men and women between 1990 and 2015.

Wider Health Impact of Mental Disorders

The limitations imposed by the GBD study methodology means the full impact of mental disorders is not captured in the DALY metric. Debate has arisen about where and how the burden of disease estimates

related to mental disorders could be improved (Vigo, Thornicroft, & Atun, 2016; Whiteford, Ferrari, & Vos, 2016) in terms of measuring direct burden. One area where efforts to improve burden of disease estimates have been pursued is the relatively small number of deaths attributed to mental disorders. Suicide, for example, is recorded under "injuries" in the ICD cause-of-death coding guidelines. The inclusion of suicide deaths attributable to mental disorders into DALYs would have increased the burden of mental and substance use disorders in 2010 from 7.4% to 8.3% and increased the global ranking of these disorders from the fifth to the third leading cause of burden of disease (Ferrari et al., 2014).

The contribution that disorders make, as risk factors for other health outcomes, can also be dealt with through the comparative risk assessment (CRA) component of the burden of disease studies. The CRA quantifies the burden attributable to each risk factor exposure compared to an alternative (counterfactual) exposure distribution (GBD 2015 Risk Factors Collaborators, 2016). Mental disorders are considered risk factors if associated with elevated risk of mortality or disability from other diseases or injuries, though this area of the GBD studies is underdeveloped compared with the measurement of the direct burden of disease.

The burden of disease attributable to major depression as a risk factor for suicide and ischemic heart disease has been estimated (Charlson, Stapelberg, Baxter, & Whiteford, 2011; Li, Page, Martin, & Taylor, 2011). In 2010, major depression explained a further 16 million DALYs when it was considered as a risk factor for suicide. Overall, nearly half of DALYs originally allocated to suicide (included as intentional injuries in the GBD cause of death list) can be reattributed to major depression alone (Ferrari et al., 2013). Alcohol use and injecting-drug use as risk factors are now included in burden of disease estimates. In 2013, injecting-drug use was estimated to cause 39% of DALYs due to hepatitis C, 4% of DALYs due to HIV, and 1% of DALYs due to hepatitis B (Degenhardt et al., 2016). Injecting-drug use's contribution to the HIV burden of disease was highest in LMICs, and injecting-drug use's contribution to the hepatitis C burden of disease was highest in high-income countries. In 2015, DALYs attributed to alcohol use disorders were concentrated among transport injuries, cirrhosis, and cancers. Using DALYs per 100,000 population, Eastern Europe and southern sub-Saharan Africa have the highest estimated alcohol-attributable burden of disease, while Eastern Europe and North America have the highest illicit drug–attributable burden of disease.

This CRA area needs to be greatly expanded to capture the comorbidity between mental and other disorders. There is strong comorbidity between diet, diabetes, and mood disorders (Dipnall et al., 2015; Grigsby, Anderson, Freedland, Clouse, & Lustman, 2002), for example, and depression may increase the risk for diabetes (Rotella & Mannucci, 2013). Between 10% and 20% of people with schizophrenia have type 2 diabetes (Holt, Bushe, & Citrome, 2005). Depression is a risk factor for both ischemic heart disease (Charlson et al., 2013) and stroke (Pan, Sun, Okereke, Rexrode, & Hu, 2011). There is also strong evidence of the increased risk for depression *after* myocardial infarction (Strik, Lousberg, Cheriex, & Honig, 2004) and stroke (Aben et al., 2006). Infectious disease, cancer, diabetes, and cardiovascular disease are all more common with excess alcohol consumption (Rehm, 2011), with illicit drug use (Degenhardt & Hall, 2012), and in those persons with severe mental disorders (Hert et al., 2011).

In addition, anxiety and mood disorders and other common mental disorders (often called "somatoform disorders") can present in primary health care/general medical settings with physical symptoms (Escobar, Waitzkin, Silver, Gara, & Holman, 1998; Gureje, Simon, Ustun, & Goldberg, 1997). Such symptoms, which are sometimes termed "medically unexplained" because they cannot be attributed to physical disorders (Creed et al., 2012), are associated with considerable disability and high levels of help seeking and associated healthcare costs (Konnopka et al., 2012).

The coexistence of mental and physical disorders is also associated with worse outcomes of the physical disorder, through a variety of mechanisms. For example, depression after acute myocardial infarction has been associated with fatal and nonfatal cardiovascular events, adverse overall health status, and increased costs (Lichtman et al., 2014). Similarly, depression is associated with an increased risk of poor glycemic control and, therefore, increased mortality in people with diabetes (Lin et al., 2010). Similar findings have been reported for patients with HIV/AIDS, in whom depression is recognized as a predictor of worse clinical outcomes and poorer quality of life, often associated with a reduction in medication adherence (Nanni, Caruso, Mitchell, Meggiolaro, & Grassi, 2015). Clear recommendations have been made for improving the treatment of people with comorbid mental and physical disorders, especially those with severe mental disorders (Hert et al., 2011).

Another relationship that needs to be addressed is the strong association of mental disorders with a range of women's health concerns. Depression is strongly associated with dysmenorrhea, dyspareunia, and pelvic pain (Latthe, Mignini, Gray, Hills, & Khan, 2006). In some cultures in Asia, gynecologic complaints, such as abnormal vaginal discharge, are associated with depression (Patel et al., 2006). Maternal mental disorders are associated with a range of adverse outcomes in children, including low birth weight, premature birth, poor infant growth, and emotional, cognitive, and behavioral developmental delays that can persist into adolescence and beyond (Stein et al., 2014).

The Wider Social and Economic Impact of Mental Disorders

Just as one disease burden metric (such as the DALY) cannot capture the full health impact of mental disorders, it also cannot capture all of the social and economic impacts of these disorders on the individual, family, or society. Disease burden estimates do not account for the denial of basic human rights, ranging from limited opportunities for education and employment to torture and denial of freedom, sometimes within healthcare institutions. They also do not account for the time spent by family members in support and caring for the individual with mental disorder, the costs of treatment, or the productivity loss costs to the individual and his or her family.

A study undertaken for the World Economic Forum estimated that the cumulative global impact of mental disorders in terms of lost economic output may amount to $16 trillion over 20 years (Bloom et al., 2011). The Organisation for Economic Co-operation and Development (OECD, 2015) has conservatively estimated that the impact of mental disorders in high-income countries ranges from 2.3% to 4.4% of gross domestic product (GDP). Economic costs attributable to alcohol use and alcohol use disorders alone are estimated to amount to the equivalent of 1.3% to 3.3% of GDP in a range of high-income and middle-income countries, with more than two-thirds of this loss represented by productivity losses (Rehm et al., 2009). The global cost of dementia in 2015 has been estimated at $818 billion, equivalent to 1.09% of global GDP (Alzheimer's Disease International, 2015). Additionally, the social adversities associated with mental disorders, given the large and growing proportions of the global population affected by conflict or displacement due to environmental degradation and climate change, will likely increase the future burden of mental disorders.

In high- and middle-income countries, the productivity losses attributable to mental disorders have been shown to be very significant. As an example, the lost taxation revenue in Australia from people age 45 and older who retire early due to depression has been

estimated at AUD$ 278 million (USD$ 190 million), and income support for those individuals has been estimated at AUD$ 407 million (USD$ 278 million) in 2009 terms. The total impact on GDP of this group for this disorder alone was estimated at AUD$ 1.7 billion (USD$ 1.2 billion) (Schofield et al., 2011). The value of informal caring provided by family members was approximately AUD$13.2 billion (USD$10.3 billion) in 2015 (Diminic et al., 2016), much greater than the AUD$ 8 billion (USD$ 6.3 billion) that the national and state governments spent on mental health services in Australia.

Although the economic burden is large, increased spending within the health sector to increase treatment coverage for mental disorders appears to be more than offset by economic productivity gains and reduced outlays on social and income support (OECD, 2015; Wang et al., 2007). Evidence-based health and social interventions can avert the long-term cost burden and have a broad range of payoffs, both within the public sector and more widely, such as through better educational performance, improved employment/earnings, and reduced crime (Knapp, McDaid, & Parsonage, 2011). The view that treatment of mental disorders in LMICs is prohibitively expensive is a myth that needs to be dispelled. A fully scaled-up package of mental health care in sub-Saharan Africa and south Asia, based on a comparative cost-effectiveness analysis of 44 individual or combined interventions, has been estimated at USD$ 3 to USD$ 4 per person within a population (Chisholm, Naci, Hyder, Tran, & Peden, 2012). Of course, scaled-up treatment of common mental disorders globally can lead to large productivity gains. In a model consisting of 36 countries between 2016 and 2030, USD$ 230 billion was needed for scaled-up treatment of depression and USD$ 169 billion for scaled-up treatment of anxiety disorders (Chisholm, Sweeny, et al., 2016).

▷ Interventions

This section briefly considers the role of mental health policies, human resources for mental health care, and the evidence for the prevention and treatment of mental disorders.

Mental Health Policies and Plans

A mental health policy presents the values, principles, and objectives for improving mental health and reducing the burden of mental disorders in a population. It should define a vision for the future and help to establish a model for action. A policy should be distinguished from a plan, which is a strategy for implementing actions to achieve the objectives of a policy.

In some countries, mental health policies are restricted to psychiatric services. However, a broader scope is preferable—one in which mental health services in general are addressed. These services may include primary care and specialized care, as well as all aspects of intervention—that is, promotion, prevention, treatment, and ongoing care (WHO, 2003c). Policies need to address the coordination between mental health services themselves, as well as between mental health services and other services such as housing, education, and employment. Other key issues that policies should address include financial arrangements for the private and public sectors, expenditure prioritization, and individual and organizational capacity development (WHO, 2003a). Finally, policies need to provide for continuous evaluation of mental health outcomes to ensure that those policies remain appropriate to contemporary circumstances and lead to effective services.

A country's capacity to deliver appropriate mental health services to its population is seriously hampered by the absence of a mental health policy. Thus, it is cause for concern that only 68% of countries (77% of those that responded to the WHO survey) have mental health policies (WHO, 2014). LMICs are less likely to have these kinds of policies: For example, only 71% of countries in Africa have established such policies. This is, however, a substantial improvement in recent years: In 2001, only 50% of African countries in Africa had established mental health policies (WHO, 2001).

Partly in response to this shortcoming, WHO developed the Mental Health Policy and Service Guidance Package during 2000–2005. This package consists of a series of interrelated, user-friendly modules designed to assist with policy development and service planning. One module provides a series of steps that can be taken to develop mental health policies: (1) assess the population's needs; (2) gather evidence for an effective policy; (3) consult and negotiate; (4) exchange ideas with other countries; (5) set out the vision, values, principles, and objectives of the policy; (6) determine areas for action; (7) identify the roles and responsibilities of different sectors; and (8) conduct pilot studies (WHO, 2005b).

Human Resources for Mental Health Care

The implementation of mental health policies and plans depends on both the quantity and the quality of the personnel available to implement interventions. There are vast differences among regions of the world

in terms of the availability of mental health professionals (**TABLE 10-5**). In almost all countries, there is a gap between the supply of personnel and the demand for their services. The deleterious consequences of the low numbers of mental health professionals are magnified when one considers that the distribution of mental health professionals is frequently uneven between countries in each region, and within countries. The number of mental health workers per 100,000 population is considerably higher in urban areas, for example. Also, the available personnel are often not used efficiently, and staff may be demoralized and demotivated.

Mental health programs require a cadre of well-trained mental health specialists, such as psychiatrists, psychologists, social workers, mental health occupational therapists, and psychiatric nurses. They are responsible for functions such as the management of patients with complex conditions, supervision and training of other specialists and generic health workers, research, planning, management, and consultation–liaison. It is vital that specialists stay abreast of modern international developments that are relevant for the functions they perform, including honing their skills of evaluation, capacity building, and supervision (Patel, Simon, Chowdhary, Kaaya, & Araya, 2009). At the same time, the application of such developments should be informed by local research and experience. Training efforts for mental health

specialists should occur in parallel with training for generic health workers such as doctors, nurses, and community health workers, who provide the majority of care in LMICs. In keeping with the objectives of WHO's mhGAP program, a major initiative in recent years has been the training and supervision of nonspecialist health providers in the provision of basic mental health services—an approach known as "task sharing" or "task-shifting" (Kakuma et al., 2011). In keeping with the objectives of the Grand Challenges in Global Mental Health initiative (Collins et al., 2011), substantial research funding has been devoted to research in this area in LMICs, and the evidence in support of this approach is presented later in this chapter.

One sector that is particularly important in LMICs is the traditional health sector. In many LMICs, the majority of people seek care from traditional healers before seeing allopathic healers. There are several ways in which such providers can be engaged to provide mental health care. They can work side by side with allopathic mental health services, perhaps even operating from the same premises; they can be trained to recognize mental disorders and refer people suffering from them to allopathic services; and they can be recruited and trained to function as allopathic mental health workers. Whatever arrangements are made at an organizational level, individual mental health services providers should attempt to establish whether their patients are being subjected to any traditional

TABLE 10-5 Median Number of Mental Health Professionals per 100,000 Population in Each WHO Region and in the World				
WHO Region	Psychiatrists	Psychiatric Nurses	Psychologists Working in Mental Health	Social Workers Working in Mental Health
Africa	0.1	0.6	0.1	0.1
Americas	1.1	5.3	1.4	0.6
Eastern Mediterranean	0.9	3.1	0.4	0.3
Europe	7.0	24.1	2.7	1.7
Southeast Asia	0.4	2.6	0.1	0.1
Western Pacific	0.9	5.7	0.9	1.5
World	0.9	5.1	0.7	0.4

Data from World Health Organization (WHO). (2014). *Mental health atlas 2014.* Geneva, Switzerland: World Health Organization.

interventions that are harmful. If they are, they should receive education and counseling that aim to reduce exposure to such negative interventions. Conversely, traditional practices that are helpful can be incorporated into allopathic care (Institute of Medicine, 2001).

Prevention and Treatment of Mental, Neurological, and Substance Use Disorders

Interventions for mental disorders have progressed enormously in the past few decades. The *Disease Control Priorities*, third edition (DCP-3), released by the World Bank, provides a synthesis of the evidence base and recommendations for the packages for prevention and treatment of MNS disorders (Patel et al., 2016). These recommendations identify the specific interventions for each group of disorders (**TABLE 10-6**) and the platforms through which they can be scaled up (**TABLE 10-7**).

Population-Level Recommendations

Evidence-based population-level recommendations include legislative measures to restrict access to means of self-harm and suicide (e.g., limiting access to guns and pesticides, such as through the use of lockboxes) and limiting availability of and demand for alcohol (e.g., through taxation and increased prices). Effective interventions, strategies, and policies to prevent and reduce substance use disorders can be categorized as regulatory, community based (including education), and health services based.

Prohibition has been attempted for alcohol products and is currently in place in some countries; this policy is also used with classes of substances including opioids, cannabinoids, and cocaine in most countries. Although prohibition can dramatically reduce substance use disorders in the short term, its costs in terms of civil disobedience and crime are enormous—so much so, that, in general, prohibition is not regarded as an acceptable policy option, with the exception of specific circumstances, such as drinking alcohol and driving (Wolf & Midanik, 2013).

Regulatory interventions include taxation, restrictions on availability, and total bans on all forms of direct and indirect advertising. Increases in alcohol taxes, for example, have been shown to reduce both the prevalence and the consumption of alcohol products. For young people, laws that raise the minimum legal drinking age reduce alcohol sales and problems among young drinkers. Reductions in the hours and days of sale, numbers of alcohol outlets, and restrictions on access to alcohol are all associated with reductions in both alcohol use and alcohol-related problems.

A meta-analysis of studies in LMICs found a strong inverse effect between alcohol consumption and alcohol price and/or taxation (Sornpaisarn, Shield, Cohen, Schwartz, & Rehm, 2013), which is comparable to the impact of increasing price/taxes and decreasing consumption in high-income countries.

At the population level, there is also good practice evidence for interventions that seek to raise mental health literacy and reduce stigma and discrimination (Thornicroft et al., 2016). Social contact interventions, in which people engage with persons with mental disorders in recovery, changes attitudes and has the potential to instill behavior change (Corrigan, Morris, Michaels, Rafacz, & Rusch, 2012). Interventions within the criminal justice system are effective means to reduce alcohol and drug use, and to treat behavior disorders in adolescents and psychosis among adults. For example, mental health input in the criminal justice system can prevent the inappropriate imprisonment of people with mental disorders, make treatment for mental disorders available in prisons, and reduce the mental health sequelae of imprisonment for prisoners and their families. In high-income countries, mental health training of police through crisis intervention teams (CIT) reduces incarceration, increases mental health treatment, and reduces violence experienced both by police and by persons with mental disorders (Compton, Broussard, Munetz, Oliva, & Watson, 2011). There is increased attention to CIT and similar models in LMICs. For example, in Liberia, CIT training of police both improved mental health outcomes and reduced use of physical force against persons in acute psychological distress during the 2013–2016 Ebola outbreak (Kohrt, Blasingame, et al., 2015).

Community-Level Recommendations

Community-based mental health care is a major objective of the World Psychiatric Association and other mental health advocates and practitioners (Thornicroft et al., 2010). Life-skills training in schools to build social and emotional competencies is an example of a best practice to reduce the burden of MNS disorders. Systematic reviews of mental health promotion for children and adolescents have shown that school-based programs improve self-esteem, motivation, and self-efficacy (Barry, Clarke, Jenkins, & Patel, 2013; Fazel, Patel, Thomas, & Tol, 2014). Community mobilization and education have been used to prevent substance abuse in many countries. A crucial setting for prevention is in schools, where the goal of most alcohol education programs is to change adolescents' drinking beliefs, attitudes, and behaviors, or to modify factors such as general social skills and self-esteem

TABLE 10-6 Effective Interventions for the Prevention, Treatment, and Care of MNS Disorders

Type of Disorder	Preventive Interventions	Drug and Physical Interventions	Psychosocial Interventions
Mental Disorders in Adulthood			
Schizophrenia (5.3% of total MNS DALYs) — Chronic or relapsing condition characterized by delusions, hallucinations, and disturbed behavior		▪ Antipsychotic medication***	▪ Family therapy/support** Community-based rehabilitation* ▪ Self-help and support groups*
Mood and anxiety disorders (41.9% of total MNS DALYs) — Group of conditions characterized by somatic, emotional, cognitive, and behavioral symptoms; bipolar disorder is associated with episodes of elated and depressed moods	▪ Cognitive-behavioral therapy for persons with subthreshold symptoms**	▪ Antidepressant, anxiolytic, mood stabilizer, and antipsychotic medications*** ▪ Electroconvulsive therapy (ECT) for severe refractory depression**	▪ Cognitive-behavioral therapy*** ▪ Interpersonal therapy**
Mental and Developmental Disorders in Childhood and Adolescence			
Conduct disorder (2.2% of total MNS DALYs) — Pattern of antisocial behaviors that violate the basic rights of others or major age-appropriate societal norms	▪ Life skills education to build social and emotional well-being and competencies** ▪ Parenting skills training** ▪ Maternal mental health interventions**		▪ Parenting skills training** ▪ Cognitive-behavioral therapy*
Anxiety disorders (2.3% of total MNS DALYs) — Excessive or inappropriate fear, with associated behavioral disturbances that impair functioning	▪ Parenting skills training** ▪ Maternal mental health interventions**		▪ Cognitive-behavioral therapy**
Autism (1.6% of total MNS DALYs) — Severe impairment in reciprocal social interactions and communication skills, as well as the presence of restricted and stereotypical behaviors			▪ Parental education and skills training* ▪ Educational support*

Attention-deficit/hyperactivity disorder (ADHD) (0.2% of total MNS DALYs)

- Neurodevelopmental disorder characterized by inattention and disorganization, with or without hyperactivity–impulsivity, causing impairment of functioning

- Psychosocial stimulation of infants and young children*

- Methylphenidate**

- Parenting skills training**
- Cognitive-behavioral therapy**

Intellectual disability (idiopathic) (0.4% of total MNS DALYs)

- Significantly impaired cognitive functioning and deficits in two or more adaptive behaviors

- Psychosocial stimulation of infants and young children**
- Perinatal interventions (e.g., screening for congenital hypothyroidism)**
- Population-based interventions targeting intellectual disability risk factors (e.g., reducing maternal alcohol use)*

- Parental education and skills training*
- Educational support*

Neurological Disorders

Migraine (8.7% of total MNS DALYs)

- Episodic attacks where headache and nausea are the most characteristic attack features; the headache itself, lasting for hours to 2–3 days, is typically moderate or severe and likely to be unilateral, pulsating, and aggravated by routine physical activity

- Prophylactic drug treatment with propranolol or amitriptyline***

- Drug treatments: Aspirin or one of several other nonsteroidal anti-inflammatory drugs [NSAIDs]***

- Behavioral and cognitive interventions*

Epilepsy (6.8% of total MNS DALYs)

- A brain disorder traditionally defined as the occurrence of two unprovoked seizures occurring more than 24 hours apart with an enduring predisposition to generate further seizures

- Population-based interventions targeting epilepsy risk factors (e.g., preventing head injuries; neurocysticercosis prevention)*

- Standard antiepileptic medications (phenobarbital, phenytoin, carbamazepine, valproic acid)***
- Epilepsy surgery**

Dementia (4.4% of total MNS DALYs)

- A neuropsychiatric syndrome characterized by progressive cognitive impairment, behavioral, and psychological symptoms (BPSD) and functional difficulties

- Cardiovascular risk factors management (healthy diet, physical activity, tobacco use cessation)*

- Cholinesterase inhibitors and memantine for cognitive functions; medications for management of BPSD*

- Caregiver education and support and behavioral training, and environmental modifications**
- Interventions to support carers of people with dementia**

TABLE 10-6 Effective Interventions for the Prevention, Treatment, and Care of MNS Disorders   *(continued)*

Type of Disorder	Preventive Interventions	Drug and Physical Interventions	Psychosocial Interventions
Substance Use Disorders			
Alcohol use disorders (6.9% of total MNS DALYs)	▫ Harmful use: "A pattern of alcohol use that causes damage to physical or mental health" ▫ Alcohol dependence: A cluster of physiological, behavioral, and cognitive phenomena in which the use of a substance takes on a much higher priority for a given individual than other behaviors that once had greater value	▫ Excise taxes*** ▫ Restriction on sales** ▫ Minimum legal age** ▫ Measures to prevent drunk driving** ▫ Advertising bans* ▫ Restrictions on density* ▫ Opening hours, closing hours, and days of sale** ▫ Family interventions*	▫ Naltrexone, acamprosate*	▫ Family support* ▫ Motivational enhancement, brief advice, cognitive-behavioral therapy** ▫ Screening and brief interventions*** ▫ Self-help groups*
Illicit drug use disorders (7.8% total MNS DALYs)	▫ A pattern of regular use of illicit drugs characterized by significantly impaired control over use and physiological adaptation to regular consumption as indicated by tolerance and withdrawal	▫ Psychosocial interventions with primary school children (e.g., good behavior game or strengthening families program)*	▫ Opioid substitution therapy (e.g., methadone, buprenorphine)***	▫ Self-help groups, psychological interventions (e.g., cognitive-behavioral therapy)*
Suicide and Self-Harm			
Suicide and self-harm (1.47% of GBD; 22.5 million YLLs or 62.1% of suicide YLLs were attributed to mental and substance use disorders in 2010)	▫ Suicide: The act of deliberately killing oneself ▫ Suicide attempt: Any nonfatal suicidal behavior; includes intentional self-inflicted poisoning, injury, or self-harm that may or may not have a fatal intent or outcome	▫ Policies and legislation to reduce access to the means of suicide (e.g., pesticides)** ▫ Decriminalization of suicide* ▫ Responsible media reporting of suicide*	▫ Effective drug interventions for underlying MNS disorders** ▫ Emergency management of poisoning**	▫ Social support; psychological therapies for underlying MNS disorders*

TABLE 10-7 Intervention Priorities for MNS Disorders by Delivery Platform

Problem Area	Platform for Intervention Delivery		Healthcare Platforms			
	Population Platform	Community Platform	Self-Care and Management	Primary Health Care	First-Level Hospital	Specialized Care
All MNS disorders	Awareness campaigns to increase mental health literacy and address stigma and discrimination Legislation on protection of human rights of persons affected by MNS disorders	Training of gatekeepers (e.g., community workers, police, teachers) in early identification of priority disorders, provision of low-intensity psychosocial support, and referral pathways Self-help and support groups (e.g., for alcohol use disorders, for epilepsy, parent support groups for children with developmental disorders, and for survivors of suicide)				
Adult mental disorders	Child protection laws		Physical activity Relaxation training Education about early symptoms and their management web- and smartphone-based psychological therapy for depression and anxiety disorders	Screening and proactive case finding for psychosis, depression, and anxiety disorders Diagnosis and management of depression and anxiety disorders* Continuing care of schizophrenia and bipolar disorder	**Diagnosis and management of acute psychoses** Management of severe maternal depression* Management of depression and anxiety disorders in mothers, people with HIV, and people with other noncommunicable diseases*	Electroconvulsive therapy for severe or refractory depression Management of refractory psychosis with clozapine

TABLE 10-7 Intervention Priorities for MNS Disorders by Delivery Platform   (continued)

Problem Area	Platform for Intervention Delivery					
	Population Platform	Community Platform	Healthcare Platforms			
			Self-Care and Management	Primary Health Care	First-Level Hospital	Specialized Care
Child mental and developmental disorders	Child protection laws	**Parenting programs in infancy to promote early child development** **Life skills training in schools to build social and emotional competencies** Parenting programs in early and middle childhood (2–14 years) Improve the quality of antenatal and perinatal care to reduce risk factors associated with intellectual disability	Web- and smartphone-based psychological therapy for depression and anxiety disorders	Screening for developmental disorders in children and maternal mental health interventions Parent skills training for developmental disorders Psychological treatment for mood, anxiety, ADHD, and disruptive behavior disorders*	**Diagnosis of childhood mental disorders such as autism and ADHD** Stimulant medication for severe cases of ADHD Newborn screening for modifiable risk factors for intellectual disability	
Neurological disorders	Policy interventions to address the risk factors for cardiovascular diseases (e.g., tobacco control)		**Self-managed treatment of migraine** Self-identification/ management of seizure triggers Self-management of risk factors for vascular disease (e.g., healthy diet, physical activity, tobacco use)	Diagnosis and management of epilepsy and headaches Community-based screening for detection of dementia Interventions to support caregivers of patients with dementia Management of prolonged seizures or status epilepticus	Diagnosis of dementia and secondary causes of headaches	Surgery for refractory epilepsy

| Alcohol and illicit drug use disorders | **Regulate the availability and demand for alcohol (e.g., increases in excise taxes on alcohol products, advertising bans)** Penalize risky behaviors associated with alcohol (e.g, enforcement of BAC limits) | Awareness campaigns to reduce maternal alcohol use during pregnancy | Self-monitoring of substance use | **Screening and brief interventions for alcohol use disorders** Opioid substitution therapy (e.g., methadone and buprenorphine) for opioid dependence | *Management of severe dependence and withdrawal* | Psychological treatments (e.g., CBT) for refractory cases* |
| Suicide and self-harm | **Control the sale and distribution of means of suicide (e.g., pesticides)** Decriminalize suicide | Safer storage of pesticides in the community and farming households | Web- and smartphone-based treatment for depression and self-harm | Primary health-care packages for underlying MNS disorders (as described above)* Planned follow-up and monitoring of suicide attempters* *Emergency management of poisoning* | Treatment of comorbid mood and substance use disorder* | Specialist health-care packages for underlying MNS disorders (as described above) |

Abbreviations: ADHD, attention-deficit/hyperactivity disorder; BAC, blood alcohol concentration; CBT, cognitive-behavioral therapy; MNS = mental, neurological, and substance use.

Italic type denotes urgent care; underlined type denotes continuing care; normal font denotes routine care.

Recommendations in **bold** = best practice; recommendations in normal font = good practice.

* There is no fixed time period for the management of these complex conditions. For example, in the management of depression, some individuals need relatively short periods of engagement (e.g., 6–12 months for a single episode) at the one end, while others may need maintenance care for several years (e.g., when there is a relapsing course).

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EXHIBIT 10-3 Community Care for Severe Mental Disorders in Low-Resource Settings

A community mental health program for severe mental disorders in a rural setting in India was initiated in partnership with Ashagram ("village of hope"), a nongovernmental organization (NGO) working toward the rehabilitation for people affected by leprosy. The NGO was located in Barwani, one of the poorest districts in India. Mental health care was routinely provided through an outpatient clinic that required patients to travel to the hospital to be assessed and to receive treatment.

A community-based rehabilitation (CBR) model was devised for patients with chronic schizophrenia, based on a three-tiered service delivery system. CBR relies on the active participation of the disabled and their families in rehabilitation and takes specific notice of prevailing social, economic, and cultural issues. The highest tier was outpatient (OP) care. All patients were started on antipsychotic medication. The second tier consisted of mental health workers (MHWs) drawn from the local community. After a 60-day training program, the MHWs worked with patients, families, and the local community in providing services. Each MHW served five or six contiguous villages and carried a total caseload of 25 to 30 patients, including some of the study subjects. The third tier consisted of family members and other key persons in the community who formed the local village health groups (*samitis*). These groups served as a forum for the members to plan relevant rehabilitation measures and reduce social exclusion.

The evaluation of the CBR program showed that, among patients who actively participated, this model was more effective than standard outpatient treatment, as determined by a range of clinical and functional outcomes (Chatterjee, Patel, Chatterjee, & Weiss, 2003). A four-year follow-up of the cohort of persons in the CBR care arm showed that adherence with medication and participation in self-help groups predicted a favorable outcome (Chatterjee, Pillai, Jain, Cohen, & Patel, 2009). A subsequent randomized controlled trial of this intervention in three sites confirmed its beneficial effects in reducing levels of disability in people with chronic schizophrenia in India (Chatterjee et al., 2014). Because a lack of professional resources is a reality in LMICs, the CBR method takes advantage of active local community participation and low levels of technical expertise to deliver services.

that are assumed to underlie adolescent drinking. Structured universal interventions for children in settings of armed conflict have positive effects for behavior, self-esteem, and coping.

The most effective promotion initiatives take a multicomponent approach by integrating their activities with programs on topics such as microfinance or reproductive and sexual health education. Stand-alone mental health promotions, such as only doing cognitive-behavioral therapy, have produced fewer benefits. Other good practices include parenting programs with infants for early child development.

Community care using locally available resources is a key strategy for enabling people with severe mental disorders and disabilities to remain in the community. One such example is the Ashagram model in rural India (**EXHIBIT 10-3**).

Preventive efforts directed toward reducing the risk factors for epilepsy and developmental disabilities have focused on improving prenatal care and promoting safe delivery. Other preventive strategies include better fever control in children; strategies aimed at reduction of the causes of brain injury, such as children's use of safety seats and helmets; control of infectious and parasitic diseases that infect the brain; genetic counseling; screening programs for conditions that are known to be associated with mental handicaps, such as hypothyroidism; micronutrient supplementation, such as with iodine; and reductions in environmental levels of toxins such as lead.

Healthcare-Level Recommendations

Best practices at the healthcare level include self-management psychological interventions, such as web-based psychological therapy for depression and anxiety. Given the tremendous treatment gap, the lack of available mental health specialists in most of the world, and the desire to move treatment from institutions to communities, numerous efforts are being made to deliver mental health through primary care (Gwaikolo et al., 2017; Lund et al., 2012; Petersen et al., 2016; WHO, 2010). A key innovation to attain this goal is to address the supply-side barrier of inadequate mental health specialists through task sharing of front-line interventions with nonspecialist health workers. A growing evidence base testifies to the effectiveness of nonspecialist providers in facilitating management of a range of mental disorders, typically in primary care and community settings (van Ginneken et al., 2013).

Perhaps the strongest evidence base supports task sharing of psychological treatments among primary care workers, community health workers, and non-healthcare providers in the community (**EXHIBIT 10-4**). In Uganda, interpersonal therapy (IPT) was adapted so that it could be delivered by highly supervised lay

EXHIBIT 10-4 Do Talking Treatments Work in Low-Income Countries?

Things were already going pretty badly for Florence Manyande. Then one day last spring, while walking down the street, she was hit by a car.

"This woman saw, and she pulled me out of the road," recalls Manyande, 50. "She tried to talk to me, but I couldn't talk then. I had a lot on my mind."

Her run of bad luck had begun in 2010, when Manyande's husband skipped out on her and her three kids. "I had no way to pay school fees for my children," she says, and no way to pay rent. "Even my relatives were shunning me. They couldn't take me in because they said, 'We have our own problems.'"

By the time Manyande had her accident, she was thinking about killing herself.

Then her fortune took a turn. The woman who found her, injured, on the road happened to be a health worker. She took Manyande to the clinic to get bandaged up. "While I was there," Manyande says, "she introduced me to the 'Friendship Bench.'" (Singh, 2017)

There has been skepticism about the applicability of psychological treatments—such as cognitive-behavioral therapy (CBT), interpersonal therapy (IPT), and dialectical behavioral therapy (DBT)—for mental health problems in low-resource, non-Western cultural settings. Lack of clinical psychologists and different cultural belief systems have been seen as barriers to applying these psychological treatments. However, a rapidly growing evidence base suggests that lay persons can be trained and closely supervised to effectively deliver psychotherapies (Singla et al., 2017).

In developing the "Friendship Bench," Dixon Chibanda, a psychiatrist from Zimbabwe, adapted problem-solving therapy by integrating local cultural psychological concepts such as *kuvhura pfungwa* ("opening of the mind"), *kusimudzira* ("uplifting"), and *kusimbisa* ("strengthening"). Moreover, rather than focusing on psychiatric labels that could be stigmatizing, such as "depression" or "general anxiety disorder," the treatment employed culturally acceptable idioms of distress, such as *kufungisisa* ("thinking too much"). The intervention was delivered in a nonstigmatizing setting—a bench outside of health clinics, leading to the "Friendship Bench" name for the program.

Six months after receiving the Friendship Bench psychological intervention, only 13% of patients had depression, compared with 50% of persons in a basic treatment comparison group (Chibanda et al., 2016). Numerous other psychological treatments delivered by nonspecialists in LMICs—such as the Thinking Health Program, Healthy Activity Program, and Problem Management Plus (PM+)—have shown similar benefits. These interventions demonstrate both the effectiveness and the feasibility of psychotherapy for mood and anxiety disorders in settings that vary by culture and resource availability around the world.

community members for treatment of depression among war-affected adults and youth (Bolton et al., 2007; Bolton et al., 2003). Cognitive-behavioral therapy (CBT) was adapted for treatment of perinatal depression by female community health volunteers through the Thinking Healthy Program in Pakistan, which is now being replicated in diverse settings in LMICs (Rahman, Malik, Sikander, Roberts, & Creed, 2008). Behavioral activation has been adapted as a lay health worker–directed Healthy Activity Program for treatment of depression in India (Patel et al., 2017); Counseling for Alcohol Problems is a similar lay psychological treatment adapted from motivation interviewing for treatment of harmful alcohol use (Nadkarni et al., 2016). A Common Elements Treatment Approach (CETA) has also been developed so that closely supervised nonspecialists can provide trans-diagnostic care that incorporates elements from multiple psychological treatments (Murray et al., 2014). All of these non-specialist interventions have demonstrated superiority to the usual treatments. In fact, when all nonspecialist psychological interventions for common mental disorders were reviewed (24 studies as of 2016), there was a pooled effect size of 0.49 (Singla et al., 2017), which approaches the effect sizes observed in psychological treatments delivered by specialists in high-income countries (Huhn et al., 2014).

In task sharing, nonspecialists take on detection, diagnosis, and management of health conditions in conjunction with training, supervision, and referral support by specialists (WHO, 2008). Thus, a key component of task sharing is the recognition that integration is not a simple matter of training nonspecialist health workers. A collaborative care delivery model, in which primary and community care practitioners work together with specialists, is an essential element for integrating mental health in primary care (Patel et al., 2013). Furthermore, primary care mental health services, although essential, cannot meet all of the mental health needs of any given population. This is especially true for people who are suffering from psychotic disorders and who need access to community mental health and rehabilitation programs, as well as emergency inpatient facilities (Patel, Farooq, & Thara, 2007).

Studies have explored the role of lay community health workers in primary and secondary prevention (Mutamba, van Ginneken, Smith Paintain, Wandiembe, & Schellenberg, 2013). For example, prevention studies in LMICs have shown that such interventions can reduce the burden of depression and PTSD in adults. Antenatal programs to prevent postpartum depression have led to improvements in other health outcomes related to children and mothers, such as mother–infant engagement (Rahman et al., 2013). There is also a growing evidence base on "early interventions," such as supportive psychotherapy and low-dose antipsychotic agents, that may delay or prevent progression to a first mental disorder episode (McGorry, 2015). Reducing the duration of untreated psychosis at the onset of schizophrenia can dramatically impact the life course of the illness (Fusar-Poli et al., 2009). This consideration is especially important in LMICs, where the duration of untreated psychosis can average two years, and it is not uncommon to go more than five years without initiating treatment (Thirthalli et al., 2011).

According to DCP-3 guidelines, at the healthcare level, hospital care is recommended as a best practice for delivery of MNS specialty services for severe, refractory, and emergency presentations of MNS disorders. In addition, mental health care should be integrated into other specialty services ranging from obstetric and gynecologic care to infectious diseases services to oncologic treatment.

Humanitarian Emergencies

Mental health services are especially important to address the acute and chronic needs of populations affected by complex humanitarian emergencies, such as war, environmental disasters, earthquakes, and other causes of forced displacement. Refugees, internally displaced persons, and other survivors of collective trauma are at an increased risk of MNS disorders. Unfortunately, populations affected by humanitarian emergencies live in settings where the health, and especially the mental health, services sector may have been limited or nonexistent even before the disaster. There is a heightened need to identify and allocate resources for providing mental health care and psychosocial support in these settings, both for those with disorders induced by the emergency and for those with preexisting disorders.

Guidance on mental health and psychosocial response is available through the Inter-Agency Standing Committee (IASC, 2007). WHO (2015) has also released a Humanitarian Intervention Guide version of mhGAP, which provides treatment recommendations for acute emergency response and includes trauma and grief-related conditions not covered in the basic mhGAP. In a number of countries, such emergencies have actually provided opportunities for systemic change or services reform in public mental health (WHO, 2013c).

Delivering Effective Treatments and Scale-up

Despite the evidence presented earlier, the fact remains that only a small proportion of people suffering from mental disorders receive effective interventions. This failure to provide effective treatments to all people who need them, which has been termed the "treatment gap," is evident in all countries, but is more marked in LMICs. Globally, only one in five people with depression in high-income countries receives minimally adequate treatment; however, the situation is far worse in lower-middle income countries, where only one in 27 people with depression receives minimally adequate care (Thornicroft et al., 2017).

Factors contributing to the treatment gap may be categorized as supply-side barriers and demand-side barriers. The supply-side barriers include lack of trained mental health workers, availability of culturally competent providers to address diverse ethnic and social groups, lack of transportation, and lack of affordable services. As mentioned earlier, there is a severe shortage of specialists in LMICs, where the bulk of the resources available for mental health services are devoted to large psychiatric hospitals and services are concentrated in a few urban settings (WHO, 2014)—this represents a major supply-side barrier in these countries. The demand-side barriers include lack of recognition among the public about mental disorders, lack of awareness that mental disorders can be treated, and stigma that prevents individuals from seeking care.

A challenge to implementing recommended prevention and treatment programs, as described in the DCP-3, is lack of political will—evidenced by less than 1% of the total health budget being allocated to MNS care in most national health systems. Similarly, less than 1% of development assistance goes toward MNS services. Given that 30% of the countries in Africa and 26% of countries in the Americas rank NGOs as the second major funding source for mental health care (WHO, 2015), it is clear that these development funds are stretched incredibly thin. In one out of five countries around the world, households

are the main source of funding for mental health care, mainly through direct out-of-pocket expenses and private health insurance coverage. Governments in Africa and the Americas are more likely to put the financial burden for such care on households. Additionally, health insurance in many countries specifically excludes or greatly restricts reimbursements for mental health care.

Even when government, employer, or private insurance policies do fund mental health care, there may not be *parity* with physical health services—that is, only a limited number of outpatient visits or inpatient treatment days may be covered by insurance. Mental health leaders from the United Kingdom, Canada, Australia, and New Zealand have led efforts to achieve parity in mental health care around the world (Royal College of Psychiatrists, 2012, 2013). In contrast, the United States has traditionally lagged behind other high-income countries, with major disparities being noted in coverage of mental health services compared to physical health: For outpatient services, 77% to 90% of plans place limits on mental health care that are not imposed on physical health care and 66% to 74% limit inpatient MNS services (Thalmayer, Friedman, Azocar, Harwood, & Ettner, 2017). The U.S. Mental Health Parity and Addiction Equity Act of 2008 required parity in insurers' coverage of mental health and physical health. In LMICs, recent national mental health policies in South Africa, India, and Liberia exemplify initiatives to increase government engagement in and support of mental health services.

Lack of financial investment in mental health services is related to high levels of stigma and lack of mental health literacy that lead to low demand from constituents, as well as lack of technical leadership to design and implement MNS treatment programs. Strategies for health-system strengthening include efforts in the following areas:

- To enact WHO's Comprehensive Mental Health Action Plan (WHO, 2013b); to adopt a mainstream rights-based perspective
- To update health policies, plans, and laws to be consistent with international human rights and standards, such as the United Nations' Convention on the Rights of Persons with Disability (UNCPRD)
- To address stigma and enhance mental health literacy to increase demand for care
- To increase advocacy by mental health service users
- To improve MNS services financing through diversion of taxes (alcohol, tobacco, marijuana),

promotion of low-cost generic drugs, and de-implementation of harmful or ineffective treatments (e.g., benzodiazepines and vitamins in primary care)
- To include MNS disorders in health management information systems as national indicators

There have been a number of recent initiatives in implementation science to address both the mental health treatment gap and the efficacy–effectiveness gap. The Program for Improving Mental Health Care (PRIME) is integrating mental health services into primary and community care, based on WHO's mhGAP program, in South Africa, Uganda, Ethiopia, India, and Nepal. PRIME's objectives include developing packages of care for integration of mental health services into primary care, based on mhGAP; training primary care workers to deliver mental services; and advancing policy to create sustainable mental health services that can be scaled up from proof-of-concept districts to country-wide services (Lund et al., 2012). Emerging Mental Health Systems in Low- and Middle-Income Settings (EMERALD) is a six-country program (PRIME countries plus Nigeria) that addresses the gap in health systems' ability to scale up packages because of inadequate policy, human resources, funding, and infrastructure. Building on the work of PRIME, EMERALD's objectives include evaluating health-system inputs (e.g., resourcing with WHO's OneHealth tool, fair and sustainable financing), evaluating health-system processes (e.g., policy, legislation, governance, consumer participation), and evaluating health-system outputs (e.g., development, implementation, and monitoring of mental health indicators and performance) (Semrau et al., 2015). Another resource to support best practices in global mental health and advance from research to implementation is the Mental Health Innovation Network (MHIN; www.mhinnovation.net). These initiatives hold promise for addressing the needs of women, men, and children with mental disorders around the world. **EXHIBIT 10-5** outlines examples of national scaling-up in three countries across the spectrum of economic development.

Involving a range of sectors is a key aspect of responding to this call to action in all settings, and arguably even more so in LMICs, where formal mental healthcare systems are typically inadequately developed. Intersectoral, community-based action has been used to prevent alcohol and drug abuse and for rehabilitation models for schizophrenia. Another sector that has made important contributions to mental health care and reforms in high-income countries

EXHIBIT 10-5 Scaling Up Mental Health Initiatives

The "686 Project": China (Ma, 2012)

The "Central Government Support for the Local Management and Treatment of Severe Mental Disorders Project" was initiated in China in 2004 with a first financial allocation of 6.86 million renminbi ($829,000 in 2004 dollars). The program was subsequently referred to as the "686 Project." Modeled on WHO's recommended method for integrating hospital-based and community-based mental health services, this program provides care for a range of severe mental disorders through the delivery of a community-based packages by multidisciplinary teams. The interventions are functionally oriented, and are provided as free outpatient treatment through insurance coverage (New Rural Cooperative Medical Care system) and as subsidized inpatient treatment for poor patients. The program covered 30% of China's population by the end of 2011.

Program evaluation showed improved outcomes for the more than 280,000 registered patients. The proportion of patients with severe mental disorders who did not suffer a relapse for five years or longer increased from a baseline of 67% to 90%, and there were large reductions in the rates of "creating disturbances" and "causing serious accidents." The program investment by the government amounted to 280 million renminbi in 2011, and its key innovations were the increased availability of human resources, including both the involvement of non-mental health professionals and intensive capacity building; the latter has added one-third of all psychiatrists now working in China.

The National Depression Detection and Treatment Program: Chile (Alvarado & Rojas, 2011)

Programa Nacional de Diagnóstico y Tratamiento de la Depresión (The National Depression Detection and Treatment Program) is Chile's national mental health program that integrates detection and treatment of depression in primary care. The program is based on the scaling-up of an evidence-based collaborative stepped care intervention in which most patients diagnosed with depression are provided with medications and psychotherapy at primary care clinics, while only severe cases are referred to specialists. Launched in 2001, the program operates through a network of 500 primary care centers, and presently covers 50% of Chile's population. The program has added a large number of psychologists in the primary care system, with a 344% increase in the number of these providers occurring between 2003 and 2008. Enrollment of the patients in the program is growing steadily, with approximately 100,000 to 125,000 patients starting treatment each year from 2004 to 2006 and close to 170,000 patients starting treatment in 2007. Universal implementation of the program has led to a greater utilization by women and less-educated individuals, contributing to reduced health inequalities. The program's success can be attributed to the use of an evidence-based design that was made available to policy makers, teamwork, and proactive leadership, strategic alliances across sectors, sustained investment and ring-fencing of new and essential financial resources, program institutionalization, and sustained development of human resources that can implement the program.

Building Back Better: Burundi (WHO, 2013a)

Civil war in the last decade of the 20th century and the first decade of the 21st century resulted in widespread massacres and forceful migrations and internal displacement of approximately 1 million individuals in Burundi. To address this humanitarian crisis, Healthnet TPO (Transcultural Psychosocial Organization) started providing mental health services in Burundi during 2000, when the then Ministry of Public Health had no mental health policy, plan, or mental health unit, and when virtually all the psychiatric services in Burundi were provided by one psychiatric hospital. Healthnet TPO conducted a needs assessment first and then built a network of psychosocial and mental health services in communities in the national capital, Bujumbura, and in 7 of the country's 17 provinces. A new health worker cadre, consisting of psychosocial workers, played a pivotal role in delivery of these services.

Considerable progress has been made in the last decade, with the government now supplying essential psychiatric medications through its national drug distribution center, and outpatient mental health clinics being established in several provincial hospitals. From 2000 to 2008, more than 27,000 people were helped by the newly established mental health and psychosocial services. In the three years from 2006 to 2008, the mental health clinics in the provincial hospitals registered almost 10,000 people, who received more than 60,000 consultations. The majority (65%) were people with epilepsy.

In 2011, funding from the Dutch government enabled HealthNet TPO and the Burundian government to initiate a five-year project aimed at strengthening the country's health systems. One of the project's components is the integration of mental health care into primary care using WHO's mhGAP guidelines. The government has now established a National Commission for Mental Health, and appropriate steps are being taken to support provision of mental health care in general hospitals and follow-up within the community.

and has only recently achieved recognition in LMICs are consumer- and family-led movements. The World Fellowship for Schizophrenia and Allied Disorders and Alzheimer's Disease International are examples of NGOs that have their origins in high-income countries, where strong consumer movements led by families of persons with schizophrenia and Alzheimer's disease led to their establishment. In the past decade, both NGOs have established a growing presence in LMICs. Similarly, Befriender International, a voluntary group that provides support to persons who are suicidal, has spread to a number of LMICs. Local NGOs led by families of persons affected by mental disorders are also multiplying rapidly in LMICs. There are fewer examples of community movements that are led by persons who are themselves suffering from mental disorders. Perhaps the best example is Alcoholics Anonymous, which is widely represented internationally, and which is one of the most well-described examples of an effective community-based intervention for a mental disorder.

Advocacy to policy makers, the media, and other sectors in the health system is a core activity of these civil society organizations. Prominent examples of the success of these advocacy efforts include the inclusion of mental disabilities in the disability legislation passed by some countries. Many groups also provide services, usually in the form of support groups or networking for affected families, but the larger groups also support research activities and medical care. The Movement for Global Mental Health (mentioned earlier), which was launched in October 2008, took its inspiration from the global HIV/AIDS movements that have transformed HIV/AIDS care through a massive scaling-up of resources and services to provide a comprehensive continuum of care for people living with HIV (PLHIV) across the globe; the Movement is perhaps the largest global coalition of such civil society groups centered on mental health issues in existence.

One of the challenges going forward as part of scale-up of mental health services is empowering front-line health practitioners, along with considering how managers and administrators in governmental and nongovernmental health systems can make the leap into being active players in addressing gaps in mental health services. Clinical guidance, ranging from *Where There Is No Psychiatrist* (Patel & Hanlon, 2018) to the mhGAP second edition (WHO, 2016), seeks to empower health workers at any level of expertise to engage in mental health services provision. However, approaches are needed to synthesize lessons

learned at the health organization and administration level. The DCP-3 focuses on MNS disorders and can help health system administrators determine the type and content of interventions across levels of care. For example, DCP-3 can guide administrators in determining which MNS conditions should be screened and at which level, as well as which types of pharmacologic and psychological interventions should be available at different health systems levels. The QualityRights Toolkit developed by WHO (2012) is another essential tool that can be used to assess health facilities and other social services institutions to assure human rights are protected and promoted in the delivery of mental health care. Case studies have been successfully used to identify common features for success and common challenges in implementing community mental health services in low-resource settings (Cohen et al., 2011).

Quality improvement tools that assess the fidelity of replicated interventions, competency of health workers, and outcomes and satisfaction among patients can also be used by health system administrators to guide implementation of mental health care services (Glisson & Williams, 2015). In Ethiopia, the Mental Health Services Satisfaction Scale (MHSSS) was developed as a self-report instrument for services users to evaluate interpersonal factors such as interactions with health workers, efficacy of treatment, communication within the health system, technical competency of providers, and adequacy of facilities (Mayston et al., 2017). This tool can be combined with community forums, which are government-established meetings for community members to provide feedback to local health facility workers. In Nepal, the Enhancing Assessment of Common Therapeutic Factors (ENACT) tool was developed as a way to rate nonspecialist health workers on basic mental health skills (Kohrt, Jordans, et al., 2015); it can be used by health administrators to determine when health workers have achieved sufficient competency to provide care and to guide supervision geared toward ongoing quality improvement. In Liberia, a combination of qualitative interviews and health facility infrastructure surveys have been used to determine health system preparedness for integration of mental health services into primary care (Gwaikolo, Kohrt, & Cooper, 2017). Based on PRIME's reception in sub-Saharan Africa and South Asia, a set of eight principles (**EXHIBIT 10-6**) have been identified for successful implementation of mental health services in community and primary-care settings (Davies & Lund, 2017).

EXHIBIT 10-6 Lessons for Integrating Mental Health into Primary Care in Low-Resource Settings

1. *Engage actively and collaboratively with local stakeholders.* Participatory methods involving health workers, health system administrators, ministry officials, community representatives, and mental health service users and family members are crucial to identify facilitators and barriers to successful implementation. Theory of Change (ToC) workshops are a methodology that have been developed and successfully implemented in global mental health to determine assumptions, interventions, and indicators for programs (Breuer et al., 2014).

2. *Use primary care systems to access vulnerable populations.* Health programs that have been successful in engaging vulnerable populations, such as pregnant women, orphan children, and persons with HIV, malaria, or tuberculosis, can be ideal platforms for the introduction of mental health services. Given the syndemic nature of comorbid physical and mental health problems and high-risk social environments, primary care be the entry point for comprehensive care models (Mendenhall, Kohrt, Norris, Ndetei, & Prabhakaran, 2017).

3. *Use cultural concepts of distress and narrative-based vignettes to identify persons with potential mental health problems.* Because of both the stigma and the lack of familiarity associated with biomedical psychiatric terminology, availability of treatment may not translate into engagement with treatment. The framing of psychoeducation and psychological and pharmacologic treatments around culturally salient ways of describing mental health problems can overcome the barriers associated with psychiatric terminology. An even more effective way to facilitate treatment engagement may be the use of culturally salient vignettes describing individuals with mental health problems. In Nepal, the Community Informant Detection Tool (CIDT) was developed to facilitate referrals by community stakeholders. Studies showed that more than two-thirds of individuals referred using the CIDT sought treatment, and the accuracy of the CIDT was better than screening tools such as the PHQ-9 (Jordans, Kohrt, Luitel, Komproe, & Lund, 2015; Jordans, Kohrt, Luitel, Lund, & Komproe, 2017).

4. *Use manual-based approaches to deliver care through nonspecialist health workers.* Extensive work in the field of global mental health has focused on adapting psychological and psychiatric treatment manuals for nonspecialist, cross-cultural audiences (Balaji et al., 2012). Some manuals even cater to providers with only basic literacy (Verdeli et al., 2003). Thoroughly adapted and piloted manuals can be used to optimize fidelity to evidence-based treatments. Increasingly, e-versions of manuals and intervention materials are being produced to facilitate delivery by nonspecialists (Zafar et al., 2016).

5. *Set up systems of ongoing supervision and support.* Training is inadequate in the absence of ongoing supervision when initiating mental health services in a new context. Supervision can be provided in person, via phone, or online by specialists and peers. Competency assessment tools and fidelity checklists can be used to identify key areas for remediation in supervision (Kohrt et al., 2015).

6. *Adequately compensate nonspecialist workers for their services.* For sustainability of mental health services, compensation of providers needs to be addressed. The PRIME program has evaluated the cost of scaling up services (Chisholm et al., 2016). When creating projections of costs, it is important to consider whether governments will fund providers rather than relying upon volunteer mental health workers.

7. *Respond to crises by "building back better."* Crises ranging from Ebola outbreaks in West Africa to earthquakes in Nepal have drawn attention to the inadequacy of LMICs' existing health systems to meet their populations' mental health needs. When international attention is drawn to the humanitarian emergencies, it can be an opportunity to make sustainable changes. For example, the earthquake in Nepal contributed to a reexamination of that government's essential drugs list, which was still relying on half-century-old classes of psychiatry medications with high side-effect burdens. Through a combination of international NGO funding, local NGO advocacy, and expertise from local psychiatrists, the government revised the psychiatric medications list.

8. *Make use of policy windows.* In South Africa, pilot implementation of mental health services as part of primary care was conducted in a district that was also a national pilot site for the planned national health insurance reforms. In another district in South Africa, the department of health was launching an initiative titled the "First 1000 Days" to promote maternal and child health and education. Mental health researchers then selected this district to promote and initiate maternal mental health interventions in routine maternal health services.

Modified from Davies, T., & Lund, C. (2017). Integrating mental health care into primary care systems in low- and middle-income countries: Lessons from PRIME and AFFIRM. *Global Mental Health,* 4, e7.

▶ Global Mental Health: Looking Ahead

Ten years on from the first *The Lancet* series that propelled mental health into the global health spotlight, it is time to consider where the field should head in the next decade. It is evident that, while the existing agenda to improve access to care is still very far from being attained (e.g., treatment gaps remain very large in all countries), this alone is unlikely to lead to a measurable impact not only in reducing the treatment gap but ultimately in reducing the global burden of mental disorders. In this section, we outline research priorities for global mental health to tackle these needs, and then we conclude with an agenda to address key challenges in the field.

Research Priorities in Global Mental Health

Research priorities in global mental health are continuously evolving and reflect national and global policies, funders and their priorities, public attention to health issues, advocacy from human rights and service users' groups, and other trends in national and global health. There have been recent inflection points in the development of global mental health research priorities. Notably, the group of scholars who produced the 2007 *The Lancet* Global Mental Health series conducted a priority-setting exercise to identify the top 10 mental health research questions (Tomlinson et al., 2009). The resulting priority questions were related to health policy and systems research, where and how to deliver existing cost-effective interventions in a low-resource context, and epidemiologic research on the broad categories of child and adolescent mental disorders or those pertaining to alcohol and drug abuse.

A priority-setting activity for the Global Forum identified priorities among researchers and stakeholders in LMICs (Sharan et al., 2009). Priorities included determining the burden of MNS disorders, identification of risk factors, and studying health systems. Prioritized disorders were depression and anxiety, substance use disorders, and psychoses. Prioritized populations were children and adolescents, women, and persons exposed to violence and trauma. Social sciences methods have also been recommended to complement epidemiologic and intervention studies (Kohrt, Mendenhall, & Brown, 2016).

As mentioned at the beginning of the chapter, the Grand Challenges in Global Mental Health (Collins et al., 2011) include a range of research priorities, with an emphasis on implementation science (**TABLE 10-8**). A priority-setting activity was conducted for mental health and psychosocial support research in humanitarian settings (Tol et al., 2011). This exercise yielded key questions to be addressed in global mental health, including identifying stressors faced by populations in humanitarian settings, determining methods to assess mental health in humanitarian settings, documenting how affected populations describe mental health, selecting indicators for monitoring and evaluation, adapting interventions to different sociocultural settings, and determining the effectiveness of family- and school-based preventive interventions.

Emerging research priorities in global mental health include enhancing our understanding of mental health problems through global representation of populations in basic science and neuroscience research (Stein et al., 2015). Because neuroscience models of mental health are dominated by research in WEIRD populations (Henrich, Heine, & Norenzayan, 2010a, 2010b), generalizability of these models to LMIC populations is limited and the progress in understanding the nature of mental health problems has been slow. This is especially problematic when these neuroscience mechanisms are selected as the prioritized targets for intervention before confirmation of similar processes in populations with different child developmental histories, different socioeconomic conditions, and different genetic admixtures (Kirmayer & Gold, 2012a). Nevertheless, potential synergies exist between global mental health and clinical neuroscience research priorities, such as development of reliable criteria for diagnosis of schizophrenia across populations and contexts, understanding responses to trauma and adversity including early-life adversity, understanding resilience across contexts, and development of interventions for nonspecialist providers and preventive measures for resilience promotion (Stein et al., 2015).

As in other areas of global health, there is increasing interest in the application of digital technology and mHealth to increase the delivery, accessibility, and effectiveness of mental health services. In global mental health, digital technologies have been predominantly used in the domains of supporting clinical care and educating health workers, facilitating diagnosis and detection of mental disorders, promoting treatment adherence, and supporting recovery, online self-help, and programs for substance misuse prevention and treatment (Naslund et al., 2017). To date, however, there has been limited research into the effectiveness of these approaches, and data are lacking for both clinical outcomes and cost–benefit analyses of digital technologies compared to traditional approaches. The

TABLE 10-8 Grand Challenges for MNS Disorders

	Top 25 Challenges	Illustrative Research Questions
Goal A: Identify root causes, risk, and protective factors	▪ Identify modifiable social and biological risk factors across the life course ▪ Understand the impact of poverty, violence, war, migration, and disaster ▪ Identify biomarkers	▪ What is the relationship between early fetal and child development and the onset of MNS disorders? ▪ What are the phenotypes and endophenotypes of MNS disorders across cultural settings? ▪ Which gene environment interactions are associated with increased risk for mental disorders? ▪ Which factors promote resilience and prevent mental disorders in persons at extreme social disadvantage? ▪ What role does social context play in the persistence of MNS disorders throughout life?
Goal B: Advance prevention and implementation of early interventions	▪ Support community environments that promote physical and mental well-being throughout life ▪ Reduce the duration of untreated illness by developing culturally sensitive early interventions across settings ▪ Develop interventions to reduce the long-term negative impact of low childhood socioeconomic status on cognitive ability and mental health ▪ Develop an evidence-based set of primary prevention interventions for a range of MNS disorders ▪ Develop locally appropriate strategies to eliminate childhood abuse and enhance child protection	▪ Which behavioral skills can enhance executive function, resilience, and cognitive flexibility throughout life? ▪ Which neuroprotective agents and/or cognitive retraining paradigms can be used during the period of rapid brain development to reduce vulnerability to disorders in adolescence? ▪ How effective are home- and school-based interventions for child abuse and neglect?
Goal C: Improve treatments and expand access to care	▪ **Integrate screening and core packages of services into routine primary health care** ▪ **Reduce the cost and improve the supply of effective medications** ▪ Develop effective treatments for use by nonspecialists, including lay health workers with minimal training ▪ Incorporate functional impairment and disability into assessment ▪ **Provide effective and affordable community-based care and rehabilitation** ▪ **Improve children's access to evidence-based care by trained health providers in LMICs** ▪ Develop mobile and information technologies (such as telemedicine) to increase access to evidence-based care	▪ How effective are brief screening tools for the detection of MNS disorders in routine care settings? ▪ How effective are interventions for serious mental disorders delivered by lay health workers? ▪ How will increased understanding of neural circuits lead to alternatives to current pharmacologic interventions? ▪ How can mobile-phone technology be used to monitor seizure frequency? ▪ How can video games and other electronic media be used for cognitive remediation across cultural settings? ▪ Which psychosocial interventions produce the best outcomes for community-based care for MNS disorders across cultural settings?

Goal D: Raise awareness of the global burden of mental health disorders

- Develop culturally informed methods to eliminate the stigma, discrimination, and social exclusion of patients and families across cultural settings
- Establish cross-national evidence on the cultural, socioeconomic, and services factors underlying disparities in incidence, diagnosis, treatment, and outcomes
- Develop valid and reliable definitions, models, and measurement tools for quantitative assessment at the individual and population levels for use across cultures and settings
- Establish shared, standardized global data systems for collecting surveillance data on the prevalence, treatment patterns, and availability of human resources and services

- What are the components of effective interventions to reduce stigma associated with MNS disorders?
- Which interventions to reduce stigma and discrimination can be targeted to and implemented in health and social services settings in different health-system environments?
- What is the impact of macroeconomic factors (such as unemployment rates, international trade, national income) on the prevalence of MNS disorders over time?
- What is the impact of policy initiatives on the coverage of treatment for MNS disorders?
- Which measurement factors contribute to differences in the prevalence of mental disorders across ethnic groups within and between countries?

Goal E: Build human resources capacity

- Increase capacity in LMICs by creating regional centers for mental health research, education, training, and practice that incorporate the views and needs of local people
- Develop sustainable models to train and increase the number of culturally and ethnically diverse lay and specialist providers to deliver evidence-based services
- **Strengthen the mental health component in the training of all healthcare personnel**

- What is the most effective way to train primary healthcare workers to deliver evidence-based care with adequate fidelity to guidelines?
- What is the comparative effectiveness of care for MNS disorders by different cadres of healthcare providers?
- What are the views of low-income communities in high- and low-income countries on the priority research questions for MNS disorders?

Goal F: Transform health-system and policy responses

- Establish and implement minimum healthcare standards for MNS disorders around the world
- Redesign health systems to integrate MNS disorders with other chronic-disease care, and create parity between mental and physical illnesses in regard to investments into research, training, treatment, and prevention
- Incorporate a mental health component into international aid and development programs

- What can we learn from different approaches (and associated costs) to integrated delivery of care across health systems?
- What are the most effective health-system-wide strategies to reduce consumption of alcohol and illicit drugs?
- What is the impact of legislation that ensures parity between mental and other illnesses on access to mental health services?

Summary principles

- Use a life-course approach to study
- Use system-wide approaches to address suffering
- Use evidence-based interventions
- Understand environmental influences

Note: **Bold type** denotes the top five challenges ranked by disease-burden reduction, impact on equity, immediacy of impact, and feasibility.
Modified from Collins, P. Y., Patel, V., Joestl, S., March, D., Insel, T. R., Daar, A. S. (2011). Grand challenges in global mental health. *Nature, 475*, 27–30.

abundance of studies focusing on digital technology that are currently in the research pipeline will likely transform the landscape of how mental health is studied, prevented, and treated in the coming decade.

With a focus on technological advances in methods and interventions through neuroscience and mobile innovations, it is important not to overlook important research priorities that have a major impact on the human rights and quality of life of persons with mental illness. Though the drive toward community mental health is certainly appropriate, there is a risk that the role and quality of inpatient and residential facilities might be overlooked in the haste to move services into outpatient settings. The focus on community services may falsely imply that such services can handle all possible cases and institutional services are not needed, or that there are appropriate facilities to which emergencies can be referred. Unfortunately, neither presumption is true. Physical restraint, such as chaining people in homes or to trees, is all too often the only option left to families and religious leaders when higher-level care services are not available in LMICs (Asher et al., 2017; Minas & Diatri, 2008). Research on the appropriate role of institutions in the protection and care of persons with mental illness is a major gap in global mental health initiatives.

Finally, a re-envisioning of mental health and economic development research priorities is needed. If we are to align global mental health with current international sustainable development policy (as formulated in the SDGs), then we need to demonstrate not only that providing mental health interventions (SDG3) can reduce the global burden of disease, but also that the SDGs have the potential to improve population mental health by addressing the social and economic determinants of mental health. Achieving this outcome requires a research agenda focused on the social determinants of mental health, such as elucidating the mechanisms by which social and economic conditions determine mental health across the life course, and generating evidence of interventions that might address the upstream risk factors for mental illness. This means linking mental health interventions to broader development agendas, particularly those focusing on poverty, violence, migration, and gender. In this context, mental health studies would need to demonstrate outcomes that go beyond mental health, such as reductions in violence and improvements in economic circumstances. Linking mental health care with other development interventions to demonstrate interaction effects could be very beneficial for showing the added value of including mental health services in broader development initiatives. This requires a focus

on certain developmental phases, such as early childhood development and adolescence, that are critical periods for neurological development and neuroplasticity. Given the plasticity and associated vulnerability of these periods, interventions need to be tailored to adolescents according to their level of deprivation or trauma exposure. Studies that demonstrate awareness of this factor—for example, through flexible, tailored, multicomponent interventions—could capitalize on this developmental stage to optimize those interventions' clinical benefits and cost-effectiveness and to extend the longevity of positive benefits.

A Global Mental Health Agenda for the Next Decade

A number of barriers have prevented the transformation of the large body of science into actions, both at the global and local levels, and particularly in LMICs (Saraceno et al., 2007); these pose systemic and systematic threats that need to be acknowledged and addressed explicitly if we are to see radical change in the future.

First, compared to the experiences of other global health movements (e.g., HIV/AIDS and maternal and child health), advocacy for mental health has been hampered by the reliance on process indicators (e.g., increasing coverage of services) rather than outcome indicators (e.g., improved mental health). This orientation may cause reluctance among health authorities to support and prioritize mental health (WHO, 2003a; Howes, 2005).

Second, fragmentation of the advocacy by diverse constituencies and science from diverse disciplinary traditions poses a challenge. For example, approaches to mental health issues range from the happiness agenda promoted by economists, to the specialist care for mental disorders promoted by clinical professionals, to the quest to fight discrimination promoted by civil society activists, to the ventures related to mapping the human brain promoted by neuroscientists. This leads to contradictory messages being sent to governments by the diverse stakeholders concerned with mental health and may leave critical questions unanswered. For example, should we focus more on addressing social determinants or biomedical treatment? Do we need (and want) more or less hospital beds? Should we promote new-generation, more expensive drugs, or cheaper, older-generation agents?

Third, there has been an alienation of the mental health professional communities from the vision of global mental health. While reforms of mental health services from institutions led by psychiatrists and team-based approaches oriented to primary and community

care have been unanimously supported by many constituencies, they have been opposed, at times, by powerful national groups of psychiatrists and other mental health professionals. This opposition also risks derailing the process of reforming psychiatric institutions and, consequently, may prevent improvements in quality of care and greater respect for and enhancement of the human rights of people with mental disability. This resistance is problematic, because innovations in care delivery at all levels of the health system cannot happen without the full participation and support of psychiatrists and nurses (Berlin, 1969; Fisch, 1965; Johansson, Astrom, Kauffeldt, Helldin, & Carlstrom, 2014).

Fourth, there is the risk of global mental health becoming yet another silo, unlinked to other momentous initiatives in global health, such as Every Woman Every Child or Universal Health Care. This risk is exemplified by the lack of adequate engagement with mental health in the curricula of general health professionals and the continuing emphasis in psychiatric training on biomedical aspects of mental health, while often ignoring the important contributions coming from the social sciences and global health (Hilty et al., 2006; Lobo, de-la-Camara, Campos, & Saz, 2015; Wynaden, Orb, McGowan, & Downie, 2000).

The future requires a reimagining of the existing agenda of global mental health in a number of significant ways. First, the scope should be global, addressing concerns that are relevant in all countries. Indeed, as far as mental health is concerned, it would be fair to say that all countries are "developing" to one degree or another. Second, we must acknowledge that the biomedical approach to binary categories of diagnoses of mental disorders, while of utility to health workers, does not accurately reflect the multidimensional nature of mental health, and recommend a staged model in its stead (Patel, 2017). The theoretical framework underpinning this vision is that of the continuum of mental health spans from well-being to disability and health to ill health. Third, to emphasize a convergent model of mental health, we must recognize the complex interplay of environmental, biological, and developmental factors across the life course, from conception to the grave, across generations and genders. Finally, the global community must recognize mental health as a basic human right for all peoples, albeit with a specific focus on those who face the gravest danger of their rights being denied, such as populations living in institutions or facing severe social adversity.

Today, we have a historic opportunity to reimagine the global mental health agenda in light of the broader perception of mental health as an integral part of the SDGs, as envisioned in WHO's Comprehensive Mental Health Action Plan. There was a call for greater investment in mental health in the landmark summit hosted jointly by the World Bank and WHO in Washington, D.C., in April 2016. This call has been accompanied by explicit acknowledgment of mental health as a global development issue, the potential for a grand convergence of science across disciplines, and growing consensus between stakeholders. Improvements in mental health hold the potential to contribute to enhanced sustainable development and the improvement of people's lives. Indeed, the aging of populations across the world, and trauma and displacement consequent to conflict and climate change, are among the great social challenges of our time, and these translate into greater demand in society for higher-quality services as well as for greater social support for disability and elder care—areas where mental health care looms large. Over and above these concerns, the clearly evident effects of climate change, poverty, and inequality on mental health add urgency to the calls for broader social and economic transformation, and for a more equitable and sustainable world order.

In summary, there is an urgent need for a significant expansion of the agenda of global mental health, building on its achievements while also recognizing the limitations of its extant principles and strategies, by seeking to incorporate novel understandings of mental health and the alignment of mental health with the SDGs. At the heart of this reimagining of global mental health is a reframing of the goals of global mental health, from reducing the treatment gap for people affected by mental disorders to the more ambitious aim of enhancing the mental health of populations and reducing the actual global burden of mental disorders. Realizing this vision will require combined actions of promotion of population mental health, prevention of mental disorders, and effective medical and social care for people with mental disorders.

Discussion Questions

1. It is difficult to place mental health high on the public health agendas of LMICs that face an enormous burden from communicable diseases. Which evidence-based arguments might you make to challenge the notion that mental health is a luxury item on the health agendas of such countries?

2. The classification of mental disorders is mainly derived from the description of these disorders in high-income countries. Some argue that this fact limits the application of psychiatric knowledge and evidence to non-Western cultures.

How valid are these concerns? In which ways has the "Western" bias been addressed in classification of mental disorders in international public health?

3. Diseases that disproportionately affect the poor are typically prioritized by governments and donors. Some people believe that disorders such as depression are problems of the middle class and the affluent, or represent a "medicalization of misery," and, therefore, do not deserve a share of scarce resources. What is the evidence linking poverty with mental disorders? How might poverty interact with mental health?

4. While there is now a growing evidence base on effective treatments for most mental disorders, large treatment gaps can be found in all countries, especially in LMICs. What are the reasons for this treatment gap? How can they be addressed at the level of health policy and health service development?

5. Human rights are a major driver in global health. Even though people affected by mental disorders represent one of the most marginalized and discriminated groups in any context, their human rights are often ignored. Why is this the case, and what can be done to address this issue?

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