

By Vikram Patel and Somnath Chatterji

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Integrating Mental Health In Care For Noncommunicable Diseases: An Imperative For Person-Centered Care

Vikram Patel (vikram.patel@lshtm.ac.uk) is a professor of international mental health at the London School of Hygiene and Tropical Medicine, in the United Kingdom. He is based in New Delhi, India, where he serves as joint director of the Centre for Chronic Conditions and Injuries at the Public Health Foundation of India.

Somnath Chatterji is a team leader in the Department of Health Statistics and Information Systems at the World Health Organization, in Geneva, Switzerland.

ABSTRACT Mental disorders such as depression and alcohol use disorders often co-occur with other common noncommunicable diseases such as diabetes and heart disease. Furthermore, noncommunicable diseases are frequently encountered in patients with severe mental disorders such as schizophrenia. The pathways underlying the comorbidity of mental disorders and noncommunicable diseases are complex. For example, mental and physical noncommunicable diseases may have common environmental risk factors such as unhealthy lifestyles, and treatments for one condition may have side effects that increase the risk of another condition. Building on the robust evidence base for effective treatments for a range of mental disorders, there is now a growing evidence base for how such treatments can be integrated into the care of people with noncommunicable diseases. The best-established delivery model is a team approach that features a nonspecialist case manager who coordinates care with primary care physicians and specialists. This approach maximizes efficiencies in person-centered care, which are essential for achieving universal health coverage for both noncommunicable diseases and mental disorders. A number of research gaps remain, but there is sufficient evidence for policy makers to immediately implement measures to integrate mental health and noncommunicable disease care in primary care platforms.

The aging of populations around the world has been accompanied by marked increases in the burden of chronic noncommunicable diseases such as cardiovascular disease, chronic respiratory conditions, cancer, diabetes, and musculoskeletal disease.¹ With effective interventions, mortality associated with many of these conditions has continued to fall. However, the interventions do not reach everyone and may not be universally affordable. Several studies from around the world reveal that up to half of the global population has at least one chronic condition and that nearly a quarter has more than one coexisting chronic condition.²

Alongside these daunting global health challenges are those posed by the mounting burden of mental disorders, a heterogeneous group that includes some conditions—notably, depression and alcohol use disorders—that have exhibited some of the largest proportionate increases in global burden in the past two decades.¹ Not surprisingly, given the high prevalence of both noncommunicable diseases and mental disorders, comorbidity of these two groups of health conditions also occurs frequently.³ Estimates from the United States indicate that almost 30 percent of those living with a noncommunicable disease report a concurrent mental disorder.⁴

The prevalence of a mental disorder is elevated

in people who live with noncommunicable diseases—especially those with multiple chronic conditions—compared to those without noncommunicable disease. Conversely, more than two-thirds of people with a mental disorder have been shown to have at least one other chronic noncommunicable disease. The comorbidity between noncommunicable diseases and mental disorders is particularly associated with a strong social gradient and is more common in those living in deprived areas than in residents of areas with more resources.⁵

The relationships between mental disorders and other noncommunicable diseases are complex and bidirectional³ (Exhibit 1). Poor mental health exacerbates a number of noncommunicable disease risk factors, including poor lifestyle choices leading to obesity, inactivity, and tobacco use; poor health literacy; poor access to health promotion activities; and symptoms such as lack of motivation and energy. Heavy alcohol use, besides being frequently associated with a range of mental disorders, is also a major risk factor for cancer, cardiovascular disease, stroke, and liver disease and can compromise immune and cognitive functions—which in turn could further complicate the delivery of and adherence to complex treatment regimens for comorbid conditions. The adverse cardiometabolic reactions to drug treatments given for some mental disorders, notably schizophrenia, that lead to weight gain, hyperglycemia, and dyslipidemia could help explain the higher burden of noncommunicable diseases in these patients.⁶

Living with a chronic, painful, or disabling noncommunicable disease can, unsurprisingly, lead to increased stress and mental disorders.

Noncommunicable diseases and mental disorders may have similar risk factors such as genetic determinants that increase susceptibility to cytokine-mediated inflammatory responses, along with adverse social and environmental determinants of both groups of conditions, such as childhood adversity and poverty.

The Impact Of Comorbidity

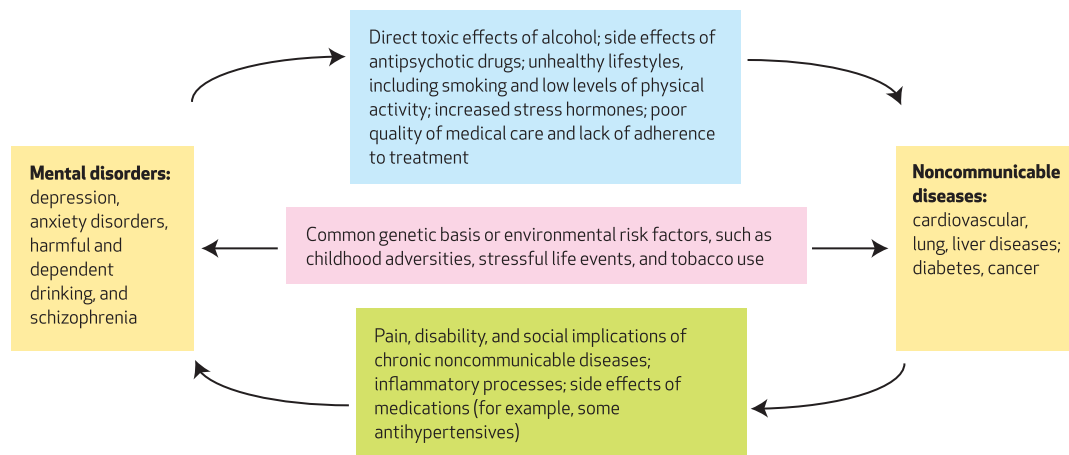
Among people living with noncommunicable diseases, comorbidity with a mental disorder often has profound and detrimental impacts on health, including poorer glycemic control among people with diabetes and inadequate blood pressure control among people with hypertension, compared to people without comorbidity. Such impacts are often due to a lack of compliance with treatment regimens that may be complex and necessitate lifestyle changes.⁶

Conditions such as panic attacks increase the risk of future cardiovascular events. Comorbid mental disorders lead to significant worsening of disability among those with noncommunicable diseases. Such comorbidity may have a synergistic deleterious effect, as the odds of severe disability and resulting work absences among those with a mental disorder and a noncommunicable disease are greater than the sum of the odds for each of the single conditions.⁷ The burden of a mental disorder may also reduce a person's ability to adapt to symptoms of noncommunicable diseases.

In addition to disability, poor mental health is also associated with higher mortality in people with noncommunicable diseases such as cardiovascular disorders, stroke, and rheumatoid ar-

EXHIBIT 1

The Mechanisms Of Comorbidity Of Mental Disorders With Other Noncommunicable Diseases



SOURCE Authors' analysis.

thritis, compared to that of people without comorbid mental disorders. Recent analyses have shown that mortality is significantly higher among people with mental disorders than among the general population, and that about two-thirds of mortality is due to natural causes that can primarily be attributed to noncommunicable diseases, notably cardiovascular disease.⁸

These impacts are well illustrated in the multinational Study on Global Ageing and Adult Health (SAGE) of the World Health Organization (WHO),⁹ which is one of the few primary data sources pertaining to health in low- and middle-income countries. The study shows that compared with a number of noncommunicable diseases, depression has a worse impact on overall health status (measured as a composite of the capacity to function in multiple domains of daily activities) (Exhibit 2). It also shows that when depression is comorbid with other noncommunicable diseases, it further worsens health significantly—especially for people with diabetes, chronic obstructive pulmonary disease, and stroke—even after age, sex, education, household wealth, and place of residence are controlled for in a multivariable regression analysis.

Patients with comorbid mental disorders and noncommunicable diseases experience more complicated treatments and poorer treatment outcomes than do patients with isolated conditions. This is partly because those with comorbidities have depressed motivation and im-

paired memory, which interfere with their adherence to treatment. Another reason is the stigma associated with the mental disorder, which limits access to timely, appropriate, and patient-centered care. Consequently, patients with such comorbidities have higher rates of health care utilization but poorer overall quality of care, and they are more likely to use emergency care, compared to those who have noncommunicable diseases without a comorbid mental disorder.

Increased health care utilization and poorer quality of care have consequences for health care spending, potentially increasing both a patient's costs and the likelihood of subsequent impoverishment. As one example, data from the US Medical Expenditure Panel Survey observed that among obese adults, comorbidity with mental disorders was associated with higher total, outpatient, and pharmaceutical expenditures, compared to expenditures for those without such comorbidity.¹⁰

In the SAGE study, 23.6 percent of people diagnosed with depression and hypertension had poorly controlled hypertension despite receiving treatment, compared to 16.8 percent of people with hypertension but no depression. This study also showed that depression, when comorbid with noncommunicable diseases, significantly increased the odds of contact with outpatient and inpatient services for people with diabetes, arthritis, angina, stroke, or chronic obstructive pulmonary disease and for those with multiple chronic conditions.

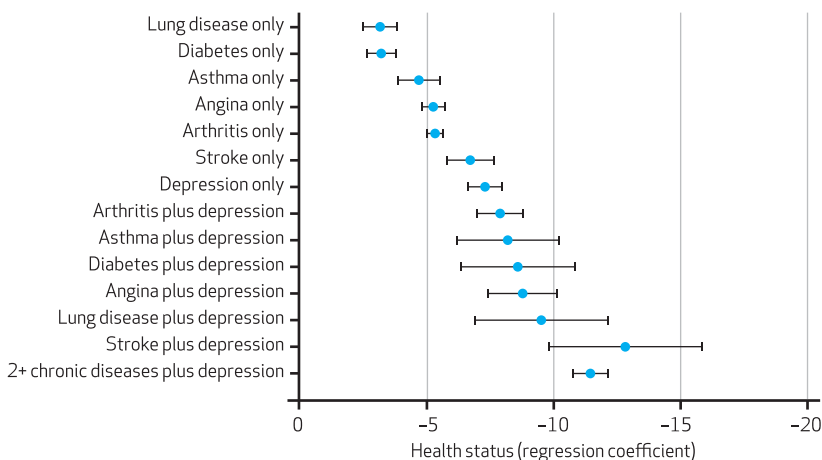
Patients with severe mental disorders often have cardiovascular disease and diabetes that go unrecognized because of their difficulties in accessing appropriate health care and effectively communicating with their health care providers. Even when these conditions are recognized, patients often receive treatment that is not concordant with guidelines, in part because of a fragmented and specialist-dominated health care system.

In short, comorbidities lead to poorer quality of care, higher health care costs, and poorer outcomes for both the mental disorder and the noncommunicable disease. In low- and middle-income countries, these relationships are likely to be further complicated by the existence of chronic infectious diseases, notably HIV and AIDS, and by health systems that may not be equipped to deal with noncommunicable diseases or mental disorders because of low investments in the health care delivery sector, limited human resource capacity, and low political will.¹¹

It is also important to note that the impact of mental disorders and noncommunicable diseases extends beyond the people who are directly

EXHIBIT 2

The Impact Of Noncommunicable Diseases, Depression, And Comorbidity On Health Status



SOURCE Authors' analysis of data from World Health Organization, Health statistics and information systems: WHO Study on global AGEing and adult health (SAGE) (Note 9 in text). **NOTES** Health status is measured as a composite of the capacity to function in multiple domains of daily activities. Higher negative values of the coefficient reflect worsening health. The whiskers indicate 95% confidence intervals.

Comorbidities lead to poorer quality of care, higher health care costs, and poorer outcomes for both the mental disorder and the noncommunicable disease.

affected: There are also adverse impacts on the health of their caregivers. Caring for a person with a chronic, disabling noncommunicable disease or mental disorder, such as cancer or dementia, is stressful and associated with an increased risk of chronic health problems, including depression, hypertension, sleeping problems, and fatigue; increased use of psychotropic drugs; and premature mortality.¹² The indirect costs of such uncompensated caregiving are also considerable. These impacts on caregivers, who are often members of the patient's household, can lead to the clustering of noncommunicable diseases and mental disorders within households, creating sick households.

Addressing Comorbidities: The Evidence

There is a robust evidence base testifying to the effectiveness and cost-effectiveness of a range of mental disorder interventions, including medicines, psychological treatments, and social interventions.¹³ This evidence also demonstrates the effectiveness of the delivery of psychosocial interventions by nonspecialist health workers in routine primary care platforms in low- and middle-income countries, and the effectiveness of collaborative care models in these countries. In this delivery model, front-line care, consisting of tasks such as screening, case management, and the provision of psychosocial interventions, is delivered by nonspecialist health workers in partnership with primary care physicians, mental health professionals, or both.^{14,15} There is a small but consistent evidence base that testifies to the cost-effectiveness of such task sharing, despite the fact that such models entail additional expenditures because they require additional

human resources.¹⁶

DEPRESSION A separate body of evidence, almost all of which is from high-income countries, specifically evaluates the integration of effective interventions for mental disorders with the care of people with noncommunicable diseases—in particular, the management of depression that is comorbid with diabetes or coronary artery disease. Among patients with coronary artery disease, both psychological and pharmacological (selective serotonin reuptake inhibitor [SSRI] antidepressants) interventions have a modest beneficial effect on depression.¹⁷

Some trials of pharmacological interventions in patients with coronary artery disease have shown a reduction in rates of hospitalization and emergency department visits,¹⁷ while some trials of psychological interventions have also shown a reduction of cardiac mortality.¹⁸ In general, for the effective treatment of depression that is comorbid with coronary artery disease, there seems to be no difference across various types of psychological treatments or across various SSRI antidepressants.¹⁷

Similarly, there is a promising evidence base for the benefits of integrated care on both mental health and physical health outcomes in people with diabetes and depression. A systematic review of collaborative care for patients with these conditions provides clear evidence to support its effectiveness in improving depression outcomes and improved adherence to treatment for both depression and diabetes.¹⁹

Two recent trials evaluated collaborative care for multiple noncommunicable diseases (coronary artery disease, diabetes, or both) and depression and provided evidence that such care is of particular relevance to primary care practice, where multiple morbidities are common. These two trials, one from the United Kingdom²⁰ and one from the United States,²¹ reported significantly superior health outcomes for patients in a collaborative care intervention group, compared to those in the control group.

In the US trial, carried out in fourteen primary care clinics in Washington State,²² 214 patients who suffered from depression and from coronary artery disease, diabetes, or both worked collaboratively with nurses and primary care physicians to set individualized clinical and self-care goals. In two or three weekly structured visits by patients to primary care settings, nurses monitored the level of depression, control of the noncommunicable disease or diseases, and adherence to interventions. First-line medications included diuretics and angiotensin-converting-enzyme inhibitors for hypertension, statins for hyperlipidemia, metformin for hyperglycemia, and citalopram or bupropion for depression.

Using motivational techniques, nurses helped patients solve problems and set goals for improved adherence and self-care. Once a patient achieved targeted levels for relevant outcomes, a nurse and the patient developed a maintenance plan that included stress reduction, behavioral goals, continued use of medications, and identification of prodromal symptoms of deteriorating depression and glycemic control. The nurses then followed up with patients by telephone every four weeks to assess depression and review adherence and laboratory test results. Patients with worsening disease control were offered enhanced follow-up. Compared to patients who received only the usual care from their physician, those who received the collaborative care intervention had greater overall improvement across hemoglobin A1c levels, low-density lipoprotein cholesterol levels, systolic blood pressure, and depression scores. This model of care, called TEAMCare,²² is now being rolled out in clinics and hospital systems in regions across the United States and Canada.

CONDITIONS OTHER THAN DEPRESSION There is less evidence on the impacts of integrating the care of mental disorders besides depression with noncommunicable disease care. However, there is a small evidence base to support integrating the prevention of noncommunicable disease risk factors, such as weight gain, in the management of people with serious mental disorders such as schizophrenia. Recent reviews^{23,24} have reported modest evidence of the effectiveness of lifestyle interventions such as changes in diet and physical activity and of switching from certain antipsychotic medications to drugs such as aripiprazole that pose less risk of weight gain and other adverse effects.

Few studies have evaluated interventions to address other cardiovascular disease risk factors in patients with serious mental disorders or interventions for people with noncommunicable diseases and comorbid alcohol use disorders. There have also been few studies that evaluated interventions with agents known to be effective in populations other than people with serious mental disorders, such as behavioral or pharmacological interventions for tobacco cessation. Thus, integrating mental health care with noncommunicable disease care should be viewed not only from the perspective of general medical care, but also in the context of psychiatric care, where many people with serious mental and substance use disorders would expect to have their conditions managed.

ONGOING TRIALS TO ADDRESS KNOWLEDGE GAPS Two key research questions remain to be addressed. First, the existing evidence clearly points to the need to improve the effectiveness

of interventions, both by improving the quality of available interventions and by identifying new interventions to enhance the modest effects observed in trials to date. Second, there is a need to evaluate approaches to the integration of mental health care and noncommunicable disease care in more diverse contexts, particularly in low- and middle-income countries, and to integrate with noncommunicable disease care the care of other mental disorders that have strong associations with noncommunicable diseases— notably, alcohol use disorders. Several ongoing trials in low- and middle-income countries promise to generate evidence to address some of these knowledge gaps in the coming years.

The m-WELLCARE program in India, supported by the Wellcome Trust, is using a mobile health app for decision support and continuing care for people with diabetes or hypertension. It integrates the management of a range of comorbidities, including depression and alcohol use disorders, into routine primary health care. The intervention is being evaluated in a cluster randomized controlled trial in two Indian states.

South Africa's Department of Health is piloting the integration of noncommunicable disease care into routine primary health care in ten national health insurance districts, one in each of the country's provinces, with the goal of eventually scaling the integration up to all districts. The screening and management tool used by nurses in the program is Primary Care 101, which is a symptom-based clinical management guideline that uses algorithms for management of multiple common noncommunicable diseases. The Programme for Improving Mental Health Care (PRIME) program,²⁵ supported by UK Aid, is specifically piloting the strengthening of the mental health component of this training for the management of multiple morbidities and has begun a pragmatic cluster randomized controlled trial in twenty public-sector primary care clinics in one district to assess mental and physical health outcomes for depressed adults receiving treatment for hypertension.

The Integrating Depression and Diabetes Treatment (INDEPENDENT) project in India, supported by the US National Institute of Mental Health, is evaluating a version of the TEAMCare collaborative care intervention to address comorbid depression and diabetes or cardiovascular disease in India.²¹ In this study of patients with diabetes, comorbid depressive symptoms, and poor control of their cardiovascular risk, researchers are comparing standard noncommunicable disease care with a multifaceted intervention that uses nonphysician care coordinators who activate patients and encourage better self-care. The coordinators use a “smart”

The integration of the care of mental and physical comorbidities is relevant to many important global policy instruments.

electronic health record (EHR) that uses built-in decision algorithms to prompt physicians to provide guideline-based care. Two monthly offline specialist supervision meetings each month are used to guide population health management and oversee care.

The potential impacts of trials such as these include the opportunity to leverage patients' existing point of contact with the health system to simultaneously treat depressive symptoms and improve noncommunicable disease care. The trials also present an opportunity to identify ways to cost-effectively integrate the combined care delivery approach into health settings in the challenging health care milieu of low- and middle-income countries.

Implications For Policy Makers

There is consistent, if modest, evidence^{17,18} of the effectiveness of SSRI antidepressant and structured psychological interventions in reducing depressive and anxiety symptoms in people with coronary artery disease, diabetes, or both and comorbid depression, but less consistent evidence on the interventions' impact in improving the noncommunicable disease outcomes. There is modest evidence²³ of the health benefits of integrating noncommunicable disease care with care for serious mental disorders. Also, there is growing evidence²¹ that demonstrates how the care for these diverse conditions could be integrated into the same health care delivery setting.

Such efficiencies point to the probability that integrated care is likely to be more cost-effective than vertical care models for specific disorders. However, beyond the beneficial effects of integrated care on economic or biomedical outcomes is the impact on improving patient satisfaction and quality of life, and thereby achieving the goals of patient-centered health care.²⁶

In most countries—both those in the low- and middle-income group and those in the high-

income group—the management of mental disorders and noncommunicable diseases largely ignores the existence of multiple morbidities, in a single patient and in household members. This leads to poorer quality of care and higher levels of patient dissatisfaction and costs of care, resulting from fragmented disease-specific specialist care.²⁷ Patients are required to consult multiple specialists for each condition or, more commonly, are denied care for one or more of the coexisting conditions because physicians ignore those conditions that are outside their specialties.

The principles underlying effective integration of care are consistent with the recommendations for the management of any chronic condition, which we call the 4C model. In this model, care is *collaborative*—that is, it involves a partnership among the patient, a nonspecialist case manager who delivers psychosocial interventions, a primary care physician, and providers of specialist services, and it emphasizes shared decision making and seamless communication; *coordinated* across health care delivery platforms, with integrated EHRs and liaison between health care providers, multidisciplinary guidelines, and clearly defined care pathways; *continuing*, with an emphasis on proactive monitoring of health outcomes and regular reviews with specialists regarding patients who do not show clinical improvement; and *centered* on the patient, with an emphasis on promoting self-management and prioritizing patient-defined outcomes and delivery expectations.¹⁴

However, for successful integration to take place, policy makers and health programs will need to address a number of potential barriers and lessons learned from recent efforts.²⁸ Truly integrated care involves more than locating health workers with diverse specialties in the same building. It also requires a systems approach to implementation. Primary health workers—in particular, case managers, who are the critical human resources in integrated care—need competency-based training and supervision.

Additionally, the major risks posed by integration need to be explicitly addressed. These risks include primary health worker burnout and the possibility that with integrated care, the quality of care for mental disorders would be lower than that of care for other conditions.²⁹

Above all, health workers at all levels need access to timely, useful data about patients in the form of integrated clinical information systems that can track individual patients across sectors of the health care system. New technologies—such as decision support algorithms enabled by mobile health, cloud-based

EHRs that can be accessed and updated by any provider, automated medication and appointment reminders, and telemedicine-based supervision by specialists—offer unique opportunities to address these barriers.³⁰

Successful integration also requires attention to possible resistance from vested interests—in particular, medical specialists and the health care industry—seeking to promote a predominantly biomedical and hospital-centric approach to care.

Integration needs to happen across the entire spectrum of interventions, from prevention to management of disorders, and across all levels of care, from primary to tertiary. Such seamless integration would take into account the need for continuity of care, the fact that some people need long-term care, and communities' legitimate expectations for person-centered care. Finally, integration takes time and typically involves a series of developments spanning several years, with continuous loops of monitoring, evaluation, feedback, and service improvements.

In September 2015 the United Nations is to convene an international meeting to finalize the Sustainable Development Goals, which collectively will represent a global consensus on the major challenges facing the planet.³¹ The draft proposals for the health goal call for the promotion of mental health and well-being and the prevention and treatment of substance abuse. Additionally, there is growing advocacy for including mental disorders in the noncommunicable disease targets.³² The UN General Assembly unanimously adopted a resolution endorsing universal health coverage as a global priority for sustainable development in 2012. Thus, it is likely that universal health coverage will be included as a specific target within the broader

health related Sustainable Development Goals.³¹ In 2013 the World Health Assembly unanimously approved the WHO's Comprehensive Mental Health Action Plan.³³ The integration of the care of mental and physical comorbidities is relevant to all of these important global policy instruments.

Not only does integrated care provide a way to effectively address both noncommunicable diseases and mental disorders, but it also has the potential to produce efficiencies in health care delivery—for example, by providing care for multiple conditions using the same human resources and a common primary care platform. Such efficiencies would increase the probability that interventions for both mental disorders and noncommunicable diseases will be scaled up within universal health coverage.

Conclusion

Efficiencies arising from integrated primary care are essential both in high-income countries, where the costs of care for noncommunicable diseases and mental disorders are already very high and spiraling upward, and in low- and middle-income countries, where large proportions of people with these conditions do not receive adequate care. Integration is key to improving the access to appropriate interventions for people with comorbid conditions, reducing the fragmented manner in which care is delivered, and delivering care that is responsive to patients' needs and expectations. Such an approach is consistent with the need for a person-centered approach to health care, which is particularly relevant in the area of chronic diseases in all countries.³⁴ ■

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