Depression and physical noncommunicable diseases: the need for an integrated approach

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Abstract
Depression is globally the third-leading cause of disability in terms of disability-adjusted life-years. Depression in patients with diseases such as cancer, diabetes mellitus, stroke or cardiovascular disease is 2–4-fold more prevalent than in people who do not have physical noncommunicable diseases, and may have a more prolonged course. The significant burden due to depression that is comorbid with chronic physical disease, coupled with limited resources, makes it a major public health challenge for low- and middle-income countries. Given the bidirectional relation between depression and chronic physical disease, the clear way forward in managing this population of patients is via a system in which mental health care is integrated with primary care. Central to this integrated approach is the Collaborative Care Model, adapted to the local sociocultural context. In this model, care is jointly led by the primary care physician, supported by a case manager and a mental health professional. Various successful initiatives in low- and middle-income countries may be used as templates for collaborative care in other low-resource settings. The model involves a range of interwoven components, such as capacity-building, task-sharing, task-shifting, developing good referral and linkage systems, anti-stigma initiatives and lifestyle modifications. Policies based on adoption of this approach would not only directly address depression that is comorbid with physical noncommunicable disease but also facilitate achievement of Sustainable Development Goal 3, to “ensure healthy lives and promote well-being for all at all ages”.

Keywords: chronic physical diseases, Collaborative Care Model, depression, low- and middle-income countries, noncommunicable diseases

The challenge of depression and physical noncommunicable diseases
Depression is globally the third-leading cause of disability as measured in terms of disability-adjusted life-years.1 The prevalence of depression in patients with physical noncommunicable diseases such as cancer, diabetes mellitus, stroke or cardiovascular disease has been found to be 2–4-fold higher than in the general population;2 further, although evidence is lacking, results also indicate that depression that is comorbid with other noncommunicable disease may follow a more prolonged course.2 The World Health Survey, conducted by the World Health Organization (WHO) across 60 countries, found that between 9.3% and 23% of patients with chronic physical diseases had comorbid depression.3 Moreover, modelling of the WHO survey data for depression and angina, arthritis, asthma and diabetes indicated that comorbid depression incrementally worsened health compared with depression alone, with any of the chronic diseases alone, or with any combination of chronic diseases without depression; these results were consistent across countries and different demographic characteristics.3

A bidirectional relationship exists between depression and physical disease, in terms of causation, clinical features, detection and treatment. Chronic physical diseases like diabetes mellitus, hypertension, asthma and heart disease have been considered as risk factors for depression. Evidence also exists for depression as a risk factor for heart disease and stroke, and there is inconsistent evidence for diabetes mellitus as a risk factor.4,5 There are many ramifications of depression that is comorbid with physical disease, as reflected in poor treatment adherence, poor lifestyle, poor quality of life, slower improvement in both the depression and the chronic physical disease, and higher mortality.7,8

The significant burden due to depression that is comorbid with chronic physical disease, coupled with limited resources, makes it a major public health challenge for low- and middle-income countries. This article addresses certain salient issues with regard to depression that is comorbid with noncommunicable disease, in the context of low- and middle-income countries. It aims to present the challenges in this area and to offer policy guidance on this issue for achieving Sustainable Development Goal 3, to “ensure healthy lives and promote well-being for all at all ages”.9

Challenges exist in the accurate detection and diagnosis of depression occurring in the context of noncommunicable disease. Depressive symptoms can mimic physical signs and
symptoms or side-effects of medication. There are also issues relating to limitations of diagnostic criteria for depression in physical illness, and psychometric properties of the assessment tools, as well as issues of therapeutic nihilism and cultural explanations. Undiagnosed depression that is comorbid with chronic physical disease translates into increased morbidity and mortality and results in increased burden on caregivers and health-care systems.

Several challenges exist in the management of depression that is comorbid with noncommunicable disease. These include worsening of the noncommunicable disease, owing to side-effects of the psychotropic medication (for example, weight gain caused by antidepressants); the emergence or exacerbation of psychiatric symptoms, owing to medicines used for noncommunicable diseases; and drug–drug interactions. Hence, a pragmatic approach to management of depression that is comorbid with chronic physical disease should be one of comprehensive and holistic management of the person as a whole, rather than one that addresses physical and mental health concerns separately.

The way forward: integrating mental health care into primary care

The “seven good reasons for integrating mental health care into primary care” proposed by WHO and the World Organization of Family Doctors (Wonca) in 2008 highlight the rationale for integrated mental health care at the level of primary care.10 These are listed in Box 1.

Integration of mental health care into primary care must be considered a dynamic process, and not a one-time event. It involves an ongoing process of developing policies, training health workers, and allocating resources. Legislation is necessary for generation of general health policy, including mental health policy, as well as allocation of adequate human and financial resources. A “participants’ needs” approach must be adopted, to assess the issues of the stakeholders, and this needs to be followed by the proper legislative policies. Legislation must ensure that psychotropic medication is available in the primary care setting and must also allow primary care workers to prescribe psychotropic medication under the supervision of specialists. Financial allocation must include consideration of developing the infrastructure, training of primary care providers and employment of mental health professionals.10 Advocacy to shift attitudes and behaviour, by disseminating information, is important for sensitization at various levels, including political leaders, health authorities and health-care providers.

Training in mental health needs to be imparted under the guidance of mental health professionals and can be started early during formal education or during employment. The tasks given to primary care providers must be achievable and limited, under close supervision of specialists. Allotment of tasks must be done after evaluation of the available human and financial resources and discussion with stakeholders. The primary care providers must also receive support from secondary care, including community health-care centres as well as the community, for referral and linkages.10 A strong and streamlined referral system from primary care to secondary and tertiary care is important. Given the low resources allocated to mental health, it is important to train non-specialists at the same time.

Coordination and collaboration are essential for effective service delivery. The role of a mental health coordinator is important for ensuring that the programme is being implemented with effective coordination of services of primary care, as well as mental health professionals. This involves collaboration with other government non-health sectors, civil society organizations and the larger community.10 Successful models of integrating mental health care into primary care across various settings have been documented across many countries, including at city/province level in Argentina, Australia, Brazil, Saudi Arabia and South Africa; district level in Chile, India and Uganda; and national level in Belize, Iran and the United Kingdom of Great Britain and Northern Ireland (UK).10

The recommended principles of integration of mental health care into primary care include formulating policy and plans aimed at integration; advocacy to shift attitudes and behaviour; training of primary care workers; feasible tasks in primary care; supporting primary care by specialist mental health professionals; ensuring accessibility of essential psychotropic medications for patients in the primary care setting; conceptualization of integration as a process, not an event; realization of the crucial role of a mental health service coordinator; establishment of intersectoral collaboration with the governmental non-health sector as well as civil society organizations, village and community health workers, and volunteers; and ensuring financial and human resources.10

Several barriers exist to integration of mental health care into primary care at various levels. Challenges to integrated mental health care include the low priority given to mental illness, stigma associated with mental illness, managerial difficulties in relation to planning and providing integrated care at primary care level, poor mental health training imparted to physicians, poor intersectoral coordination, and deficits in financial allocation.11

Preventing chronic diseases: face to face with chronic disease

The section “Face to face with chronic disease” in the WHO publication Preventing chronic diseases: a vital investment12 includes a stepwise framework that is based on the principle of comprehensive and integrated action and includes three steps.12 These include estimation of population need and advocacy for action; formulation of policy and its adoption; and identification of policy-implementation steps. The policy implementation must occur at both population and individual levels and it further comprises three steps. These include identification of the core, expanded and desirable policy-implementation steps. The core

Box 1. The “seven good reasons for integrating mental health care into primary care” proposed by WHO and Wonca 200810

1. The burden of mental disorders is great
2. Mental and physical health problems are interwoven
3. The treatment gap for mental disorders is enormous
4. Primary care for mental health enhances access
5. Primary care for mental health promotes human rights
6. Primary care for mental health is affordable and cost effective
7. Primary care for mental health generates good outcomes
steps include those that are feasible to implement with existing resources in the short term. The expanded steps include those that are possible for implementation with re-allocation of resources in the medium term. The desirable steps include the evidence-based interventions that are beyond the reach of existing resources. This stepwise approach can offer an important template for integration of mental health care into primary care in low- and middle-income countries.

The Collaborative Care Model: the core component of integrated mental health care

In the Collaborative Care Model (CCM), the overall responsibility lies with the primary care physician, with support from the case manager (who monitors follow-up of patients and assessment of adherence) and a mental health professional. This model involves various interwoven components such as capacity-building, an effective linkage and referral system, anti-stigma initiatives and lifestyle modifications. The results of the National Depression Treatment Program in Chile (CCM for managing depression) can serve as a good framework for developing similar models across other low- and middle-income countries. The components of the CCM for addressing mental disorders are listed in Box 2.

Capacity-building partnerships

Capacity-building has been defined as the “collaborative process involving education and practical applications incorporating best practices and action research dependent on the strength of relationships, level of knowledge exchange, and communication between partners”. The important components of capacity-building include assessment of the needs of participants; interdisciplinary engagement; consultation with the stakeholders; professional collaboration between high-income countries and low- and middle-income countries (known as twinning); training less-specialized health professionals (known as task-shifting); development of measures to assess outcome; and promotion of research initiatives.

An example of a successful capacity-building partnership in mental health is the collaborative process between the National Autonomous University of Nicaragua in León and the Centre for Addiction and Mental Health in Toronto, Canada. The collaborative process of 4 years' duration included a participants' needs assessment. This was followed by two workshops involving interdisciplinary participation by psychiatrists, physicians, psychologists, nurses and social workers; complementary training activities in Canada with a collaborative leader from Nicaragua; and starting academic activities of integrating mental health and addiction into primary health care, by continuing education courses and diploma and master's programmes.

A partnership between Ethiopia and Toronto (Toronto Addis Ababa Psychiatry Project) is another collaborative partnership between professional resources in high-income countries and health-related institutions in low- and middle-income countries.

Other partnerships could replicate this model, whereby centres of academic excellence impart training in integrated mental health care with primary health care. This model would boost the numbers of global mental health professionals in low- and middle-income countries and generate data on the outcomes of the primary and secondary prevention programmes. This research would help generate evidence for policy-makers in support of such initiatives. Twinning and task-shifting were two important components of the Toronto Addis Ababa Psychiatry Project. Twinning involved providing one month of training to psychiatry residents in Addis Ababa by teams of staff psychiatrists and a psychiatry resident from Toronto, followed by the psychiatry graduates in Addis Ababa receiving training as faculty in Toronto and later establishing psychiatry departments outside Addis Ababa in Ethiopia. Task-shifting involved delegating tasks to the less-supervised health workers against a background of deficit of specialized professionals, by training nurses and health workers who provide services in the primary care setting, supervised by psychiatric nurses and psychiatrists. The feasibility of task-shifting in low- and middle-income countries has been explored and has been found to be a viable option. Another task-shifting initiative in Uganda included organizing workshops to train health professionals to improve the management of physical health and mental health care at health-care facilities. Encouraging evidence to support

Box 2. Components of the Collaborative Care Model for addressing mental health disorders, based on learning from the National Depression Treatment Program in Chile

The National Depression Treatment Program in Chile is a successful example of integration of mental health care into primary care, where psychologists and general practitioners, supported by specialists, follow evidence-based clinical guidelines providing pharmacotherapy as well as psychosocial interventions for diabetes, hypertension and depression. The components of the Collaborative Care Model for addressing mental health disorders are as follows:

- restructuring the roles of health-care providers
- a team-based approach
- task-shifting and task-sharing by primary care providers and community health workers supervised by mental health specialists, by:
  - case-finding
  - assessment of risk factors
  - providing health education about the patient’s illnesses, risk factors and treatment
  - providing evidence-based pharmacotherapy
  - providing brief psychosocial interventions
  - teaching self-management skills
  - active monitoring
  - ensuring adherence to treatment
  - ensuring regular follow-up.
the use of task-shifting is also provided by the results of two randomized controlled trials of brief psychological treatment delivered by lay counsellors, with specialist supervision, to patients in primary care settings in Goa, India. In patients with moderately severe to severe depression, the Healthy Activity Program resulted in decreased severity of depression symptoms and was cost effective in the study setting.19 In male harmful drinkers, use of the Counselling for Alcohol Problems intervention was associated with strong effects on abstinence and remission. Some evidence for cost effectiveness was also reported.19

**Effective linkage and referral services**

WHO emphasizes the need for good linkage and referral services. There must be effective linkage systems between primary, secondary and tertiary levels of care, to prevent duplication of services or delay in delivering care to a patient in crisis. An efficient referral system must be in place, with clear documentation of the reason for referral and the management provided. The primary care physician must be in regular consultation with the health professionals at regional and district level, to ensure effective linkage and referral services. WHO has suggested that linkages at various levels include incorporation of a child’s mental health component into mother and child health care; incorporation of an adolescent mental health component into HIV/AIDS and substance-misuse programmes; incorporation of child and adolescent mental health concerns into health education in schools; and incorporation of a geriatric mental health component into programmes for family health and home visits.20

A recent thematic analysis of descriptive/qualitative studies from Australia, Canada, New Zealand, Europe, and the United States of America (USA) was done to identify factors that were enablers or barriers to development of effective collaboration between primary care and specialist mental health services. 

The effective strategies identified were: provision of support for integration at the level of organization; facilitation of joint clinical planning and problem-solving; joint development of local care guidelines (crisis plans, referral protocols and follow-up arrangements) through regular meetings and the use of a common planning process; provision of training, support and supervision of staff committed to work in primary care and mental health; and feeding back evidence about outcomes to service partners.21

**Anti-stigma initiatives**

Stigma is one of the most important barriers to seeking treatment for psychiatric illness. The INDIGO study (I(Nternational study of Di)scrimination and stiGma Outcomes) reported on the nature and severity of stigma and discrimination in patients with schizophrenia and depression.22 “Open the Doors” is an anti-stigma initiative by the World Psychiatry Association in high- as well as middle-income countries, with components including a school campaign assessing knowledge and attitude; media seminars for target groups such as teachers, teenagers, health professionals and police; and formation of local action groups.23,24

“Protest”, “education” and “contact” have been identified as three approaches for reducing public stigma.25 The “protest” involves stopping the reporting of inaccurate representations of psychiatric illness and discouraging a belief in negative views of mental illness. The “education” is aimed at providing information to the public for better understanding of mental illness and decreasing negative stereotyping of mental illness. The “contact” refers to social and occupational integration of persons with mental illness with the general public. The WHO European Mental Health Action Plan 2013 proposed a three-pronged approach to combat stigma, by improving the mental well-being of a population, respecting the rights of people with mental health problems and establishing accessible and effective health services.26

**Lifestyle modifications**

The role of lifestyle modifications in noncommunicable diseases is well established. The STEPwise approach to noncommunicable disease risk factor surveillance (STEPS) of WHO is an important strategy for surveillance of noncommunicable diseases by generating data on risk factors that influence the disease burden.27 The approach thereby helps in building, as well as strengthening, surveillance capacity. The STEPS approach has three components, including a questionnaire aimed at assessment of demographic and behavioural variables such as tobacco use, alcohol use, physical activity, diet, history of hypertension, diabetes mellitus, cardiovascular disease and raised cholesterol; physical measurements, including blood pressure, heart rate, height, weight and waist and hip circumference; and biochemical measurements, including blood glucose, lipids, urinary sodium and creatinine.27

Ensuring adequate sleep, socialization, regular physical exercise, involvement in recreational activities, use of relaxation techniques, and avoiding smoking and alcohol use are some of the lifestyle modifications that have been found to be of help in addressing depression.28–30 Lifestyle modifications have been found to reduce depression in patients with elevated coronary risk factors.31 Focusing on lifestyle modifications can provide effective measures for primary prevention of noncommunicable diseases and depression.

WHO recommends a core set of relatively low-cost “best-buy” intervention strategies for noncommunicable diseases. The estimated return on investment is not only many millions of avoided premature deaths but also many billions of dollars of additional economic output.32 “Best buys”, focus on at-risk individuals at the primary care level, using interventions aimed at decreasing smoking and harmful use of alcohol, and promoting nutrition, weight control and physical activity; such lifestyle changes help to address not only physical noncommunicable diseases but also depression. Also, the activities aimed at primary prevention, such as health education and promotion of health literacy and healthy lifestyles, can also help to promote the adoption of lifestyle changes at population level.13

**Other recommendations**

Other recommendations aimed at addressing depression that is comorbid with physical noncommunicable disease include increasing the number of health professionals in the primary care setting, so that more time can be devoted to mental health assessment; increasing the number of psychotropic drugs in the essential drugs list; improved resource allocation and infrastructure development; need-assessment activities; exploring the knowledge, attitude and practice among primary health-care physicians about depression that is comorbid with noncommunicable disease; developing simple and valid screening tools; developing easy-to-use treatment algorithms for primary care physicians; promoting research to overcome methodological challenges; involving local leaders, patients and caregivers in integrated mental health care in the individual
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sociocultural context; and retaining qualified and trained mental health professionals in low- and middle-income countries.

The WHO Mental Health Gap Action Programme (mGAP) can serve as a useful guide. The programme aims at scaling up services for mental, neurological and substance-use disorders, for low- and middle-income countries in particular. It can be adapted to the needs of persons diagnosed with comorbid noncommunicable diseases and can provide a useful algorithm for diagnosis and management of depression in this population. The WHO South-East Asia Region has taken initiatives to develop recommendations for the management of depression among persons with noncommunicable disease; a module on recommendations for screening and management of depressive disorders and substance-use disorders co-occurring with diabetes mellitus is currently being prepared by two of the authors (YPSB, PPK).

Conclusion

Depression that is comorbid with physical noncommunicable disease is a major public health problem. Globally, there is a wide treatment gap for various mental health disorders, including depression. Low- and middle-income countries continue to grapple with the issue of limited human and financial resources. Integrated management of mental health care in primary care seems to be a strategy that is suited for such settings. The Collaborative Care Model, adapted to the local sociocultural context and including the components of capacity-building, task-sharing, task-shifting; developing good referral and linkage systems; anti-stigma initiatives; and lifestyle modifications, can play a pivotal role in addressing depression that is comorbid with physical noncommunicable disease.

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