Prevention and management of mental health conditions in Bangladesh

A case for investment

World Health Organization Bangladesh

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Preface

Bangladesh is showing rapid progress in all the development indicators including health. However, the country is also facing a considerable and growing challenge of mental health conditions. This report illustrates the current state of mental healthcare in the country, the impact of these conditions on individuals and society, and attempts to examine the return on investment for mental healthcare.

The economic impact of mental health problems is significant, amounting to approximately 0.76% of the Gross Domestic Product (GDP) in 2021. The current funding is primarily focused on in-patient care, while overlooking essential community-level services and engagement.

This report argues for a paradigm shift and recommends to quantify the economic burden of mental health conditions. By making substantial investment in mental healthcare, Bangladesh can leverage increased workforce productivity, reduced healthcare costs, and a longer lifespan for the population which will contribute to a healthier and more prosperous future.

This study provides essential information to policy makers on prioritizing mental health and allocating resources towards effective interventions. This will help Bangladesh achieve significant economic and social benefits.

Acknowledgements

The Bangladesh Mental Health Investment Case was developed in subsequent stages, including a desk review, key informant interviews, and consultative meetings with various stakeholders for economic data collection.

In particular, this report was developed through the stewardship of the National Institute of Mental Health (NIMH), Dhaka, and the Non-Communicable Disease Control (NCDC) Program of the Directorate General of Health Services (DGHS) of Bangladesh, and thanks to the close collaboration with the World Health Organization (WHO), the United Nations Development Programme (UNDP), the United Nations Inter-Agency Task Force (UNIATF) on the Prevention and Control of NCDs and R-Health (RHC).

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Executive summary

Mental, neurological and substance use conditions pose a significant challenge in Bangladesh, and the prevalence of depression, anxiety, psychosis, bipolar disorder, epilepsy and alcohol use disorders as major causes of morbidity and mortality is increasing. This presents a double challenge to Bangladesh: human suffering and a growing public health burden, with significant social and economic losses, including lost workforce productivity due to premature death, missed days of work (absenteeism) and impaired job performance (presenteeism).

This report provides evidence for the long-term economic, health and social benefits of investment in mental health. First, it describes an assessment of the current mental health situation in the country, including challenges and opportunities for developing the mental health system. Secondly, it presents economic evidence of the attributable, avertable burden due to a number of leading mental, neurological and substance use conditions. Intervention costs, health gains and economic benefits were estimated for clinical interventions for six leading mental health conditions (depression, anxiety, psychosis, bipolar disorder, epilepsy, and alcohol use disorder) and two population-based interventions (a pesticide ban and universal school-based social–emotional learning intervention).

Main findings

Mental health conditions are highly prevalent in Bangladesh throughout the life-course, with the highest rates in people aged ≥ 60 years. The burden of mental health conditions is seen in a complex context of social and environmental determinants, including urbanization, natural disasters and poverty. While Bangladesh has a dedicated mental health institute and two large specialized hospitals, these serve populations in or close to the capital, Dhaka; no community follow-up services are available. The aim is to integrate mental health services into primary health care, with decentralization, equity and innovative programming. Mental health is currently grossly underfunded, and most Government funding is for inpatient care.

The cost of mental health conditions to the Bangladesh economy in 2021 was 210.5 billion BDT (US$ 2.5 billion), equivalent to 0.76% of the 2020 GDP. Less than 1% of the annual costs were for mental health care, and the remaining 99% of costs were due to lost workforce productivity from premature death and disability. This large loss in productivity indicates that current investment in mental health care does not meet the needs of the population. Furthermore, the losses suggest that many sectors could benefit from investment in mental health and that multisectoral, whole-of-society engagement is necessary.

[1] "Absenteeism" is defined as unscheduled absences from work due to illness or injury. "Presenteeism" occurs when employees are at work but not functioning at full capacity because of illness or injury.

By acting now, Bangladesh can reduce the burden of mental health conditions. The findings of the investment case demonstrate that investing in evidence-based, cost-effective mental health interventions would, by 2031, have both health and economic benefits.

By investing in mental health now, Bangladesh can save almost 27 000 lives and gain almost 2 million healthy life years in the next 10 years by reducing the incidence, duration or severity of leading mental health conditions. This will drastically reduce the burden on communities and the economy.

By investing in mental health now, Bangladesh can see economic benefits of 190 billion BDT in the next 10 years, which rise to 587 billion BDT when the social value of health is included in the calculation. The productivity gains that Bangladesh can make from investing in mental health interventions greatly exceed the cost of all intervention packages (55 billion BDT). When the social value of health is included with productivity gains, all the interventions modelled provide a positive return on investment, the interventions for depression, anxiety and psychosis providing the highest return on investment. The interventions modelled for bipolar disorder returned the lowest return on investment but are essential in order to support human rights objectives.

Recommendations

The results of the investment case demonstrate that Bangladesh can reduce the socioeconomic consequences of mental health conditions by investing in a set of evidence-based intervention packages for leading mental health conditions. Investment can significantly improve the quality of life of people with mental health conditions, increase life expectancy and reduce economic losses for the country. Recommendations that the Government of Bangladesh could consider to achieve these tangible benefits are as follows.

- Strengthen mental health systems and improve access to affordable, good-quality mental health care.
- Use reforms in health financing and delivery to extend the coverage of mental health care, medicines and services by publicly funded health insurance or benefit packages as part of a broader move towards universal health coverage.
- Continue to raise awareness and improve mental health literacy to reduce stigmatization and increase service use.
- Strengthen multisectoral coordination, and encourage a whole-of-government approach to mental health.
- Invest in the evidence-based, cost–effective clinical and population-based mental health interventions modelled in the investment case.

Bangladesh

The case for investment in mental health

CURRENT BURDEN OF MENTAL HEALTH CONDITIONS

210.5 billion BDT in 2021 (US$ 2.5 billion)

0.76% of GDP

395.25 million BDT direct costs (US$ 4.7 million)

due to healthcare expenditures

210 135 million BDT indirect costs (US$ 2472.8 million)

due to loss of workforce and reduced productivity

INVESTMENT REQUIRED OVER 10 YEARS

55 417 million BDT (US$ 504 million)

(336 BDT per capita or US$ 3)

Investment required for selected clinical packages and population-based preventive interventions over a 10-year period

ANXIETY DISORDERS	DEPRESSION	PSYCHOSIS	BIPOLAR DISORDER	EPILEPSY
7 131 million BDT (US$ 64.8 million)	7 990 million BDT (US$ 72.6 million)	3 862 million BDT (US$ 35.1 million)	27 540 million BDT (US$ 250.3 million)	3 248 million BDT (US$ 29.5 million)

ALCOHOL USE DISORDER	PESTICIDE BAN	UNIVERSAL SCHOOL-BASED INTERVENTIONS
256 million BDT (US$ 23.2 million)	1 618 million BDT (US$ 147 million)	2 934 million BDT (US$ 266.7 million)

RETURN ON INVESTMENT OVER 10 YEARS

587 billion BDT (US$ 5 337 million)

includes productivity gains and social value of health

	ROI	Healthy life-years gained	Total productivity gained
Anxiety disorders	6.3	432 603	18.3 million BDT (US$ 166 384)
Depression	8.8	831 581	29.6 million BDT (US$ 269 124)
Psychosis	5	179 972	14.1 million BDT (US$ 128 197)
Bipolar disorder	0.03*	92 290	0.7 million BDT (US$ 6 364)
Epilepsy	4.5	143 204	12.8 million BDT (US$ 116 378)
Alcohol use disorder	9.5*	17 516	22.7 million BDT (US$ 93 149)
Pesticide ban	1.2	112 289	15.4 million BDT (US$ 140 017)
Universal school-based interventions	-0.9	190 231	12.6 million BDT (US$ 114 559)

*Benefit-cost ratio

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1. Introduction

Study rationale

Mental health and well-being are essential for individuals to lead fulfilling lives, to realize their full potential and to participate productively in their communities. Although there has been increasing acknowledgement of the important role of mental health in achieving national and global development goals, there has been little investment in mental health in almost all parts of the world, especially in low- and middle-income countries. As a result, more than 80% of people with mental health conditions, including neurological and substance use disorders, have no good-quality, affordable mental health care (1).

As part of broader work to accelerate progress in achieving Sustainable Development Goal target 3.4, to promote mental health and well-being, and target 3.8, to achieve universal health coverage, the United Nations Inter-Agency Task Force on the Prevention and Control of Non-communicable Diseases, WHO and the United Nations Development Programme, in partnership with ministries of health, are conducting national investment cases for mental health to assess the costs of mental health conditions, not only to human health but also to health and social systems and national economies, and thus generate economic evidence of the benefits of action. Bangladesh is one of the countries selected to receive support in developing a mental health investment case.

The aim of the WHO Special initiative for Mental Health (2019–2023) is to ensure that all people achieve the highest standard of mental health and well-being. With this clear goal, the initiative includes ensuring universal health coverage with access to good-quality, affordable care for mental health conditions, advancing mental health policies and advocacy, respecting human rights and scaling up high-quality interventions and services for individuals with mental health conditions, including substance use and neurological disorders. The Initiative is implemented in 9 countries, including Bangladesh.

Study development and process

This investment case for mental health was requested by the Government of Bangladesh in 2021 to complement the WHO Special initiative for Mental Health. The study was coordinated by the United Nations Inter-Agency Task Force and the WHO Regional Office for South-East Asia. The ARK Foundation, a nongovernmental, not-for-profit organization for the socioeconomic development of Bangladesh, was engaged for its expertise in both economic analysis and mental health. A multiagency, multidisciplinary team comprising staff of Bangladesh's Ministry of Health, WHO, the Inter-Agency Task Force and the United Nations Development Programme collected data remotely and conducted an institutional context analysis. The team included health economists, social development specialists and experts in mental and public health. The collection and analysis of data involved further work.

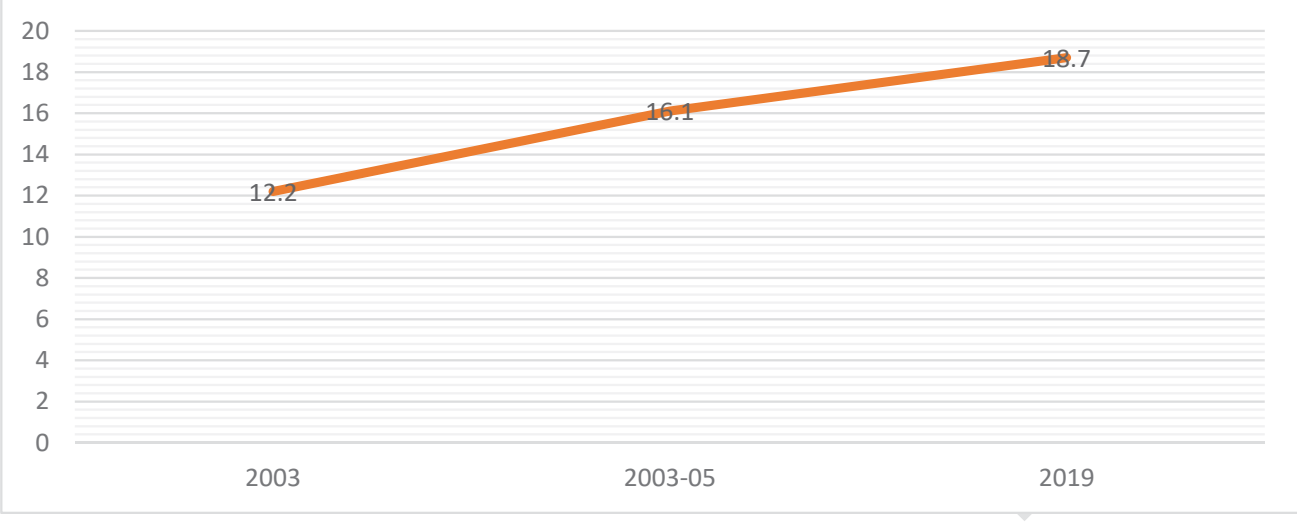
This report presents the case for investing in mental health in Bangladesh. It has four sections. After this introduction, section 2 outlines the mental health situation in Bangladesh and the current and planned responses of the Government in the form of an institutional and context analysis. Section 3 describes the methods and results of the analysis of return on investment, comprising total costs and expected health and economic benefits (such as healthy life years gained, mortality averted and productivity gained) of implementing clinical and population-based mental health interventions. Section 4 presents conclusions from the analyses and recommendations to the Government of Bangladesh for strengthening its mental health system and services.

2. Institutional and context analysis

Epidemiology of mental health conditions

Mental illness is a major public health problem in Bangladesh, partly due to rapid urbanization and socio-economic changes. Economic inequality severely affects the standard of living and mental health of poor people, such as those who live in slums, and also affects their lifestyle and mental health (2). According to the national mental health survey in 2019 (3), 18.7% of the adult population suffers from mental illness, reflecting a marginal increase over the 16.1% prevalence reported in the first National Mental Health Survey 2003–2005 (4) and in a study in 2001 that found that 12.2% of the adult population had mental health disorders (5), indicating an increasing trend in the prevalence of these conditions (Fig. 1).

Fig. 1. Trend in the prevalence of mental health disorders in the adult population of Bangladesh (%)



Sources: references 2 and 4

The 2019 survey also found that the prevalence of mental disorders in adults is higher among women (21.5%) than men (15.7%), which may be associated with the patriarchal system of the country. Although the prevalence of mental disorders is slightly lower in the rural population (18.7%) than in the urban population (18.9%), the difference is not significant (Table 1). Approximately two thirds of confirmed cases (11.4% of 18.7%) were depressive and anxiety disorders (6.7% and 4.7%, respectively); 2.3% of the adult population had somatic symptoms and related disorders, 1.0% had schizophrenia spectrum disorders, 1% sleep–wake disorders and 0.7% obsessive–compulsive and other disorders. Disaggregated data for the different types of mental illness show that women are more frequently affected than men by most of the conditions. Although little difference in the overall prevalence was found between rural and urban areas, the urban population were more affected.

Table 1. Gross diagnosis of mental disorders (major indicators) by gender and residence

Mental disorder	Total (%)	Gender (%)		Residence (%)	
		Men	Women	Urban	Rural
Any	18.70	15.70	21.50	18.90	18.70
Depressive disorders	6.70	5.40	7.90	7.30	6.50
Anxiety disorders	4.70	4.00	5.40	4.30	4.90
Somatic symptoms and related disorders	2.30	0.90	3.70	1.50	2.60
Schizophrenia spectrum disorders (major mental disorders)	1.00	0.90	1.10	1.20	0.90
Sleep–wake disorders	1.00	1.00	1.10	0.90	1.10
Obsessive compulsive and related disorders	0.70	0.50	0.90	0.80	0.70
Bipolar and related disorders (major mental disorders)	0.50	0.70	0.30	0.20	0.60
Substance-related and addictive disorders	0.50	0.90	0.10	0.70	0.40
Neurocognitive disorders	0.40	0.30	0.50	0.60	0.30
Neurodevelopmental disorders	0.30	0.30	0.30	0.50	0.30
Sexual dysfunction	0.30	0.60	0.00	–	0.20
Personality disorders	0.10	0.10	0.10	–	0.10

Source: reference *3*

Table 2 shows the prevalence of mental health disorders disaggregated by age. The oldest age bracket (≥ 60 years) had the largest proportion of mental illness (28.1%), and, by gender, older men had a 25.1% higher prevalence than younger men, and older women had 31.4% higher prevalence than younger women. The population aged 18–29 years was less vulnerable to mental disorders (Table 2).

Table 2. Prevalence of mental health disorders among adults by age group

Age (years)	Prevalence (%)		
	Both sexes	Men	Women
18–99	18.7	15.7	21.5
18–29	14.6	12.8	16.0
30–39	20.0	15.1	23.9
40–49	17.2	12.6	22.0
50–59	22.1	19.4	25.0
≥ 60	28.1	25.1	31.4

Source: reference *3*

Severe depression and other mental disorders can induce suicidal thoughts. A report on the epidemiology of suicide and suicidal behaviour among young people and adults in Bangladesh in 2021 (6) indicated that 4.7% had seriously considered suicide and that females (6.6%) were more prone than males (2.6%). The findings are consistent with those reported in Table 1, which shows that women are more vulnerable to mental illness, indicating that people with mental disorders are more likely to consider suicide. Young people in the urban population were more likely to consider suicide (8.2%) than those in rural areas (3.7%), perhaps because urban residents are more prone to mental diseases than those in rural areas, which may be associated with rapid urbanization, continuous

inflation and social changes. It was also reported that 52.7% of the sample had considered suicide within the past 12 months, with men are more prone (64.4%) to suicidal thoughts than women (48.6%). Similar proportions of rural and urban young people had had suicidal thoughts (52.4% and 52.8%) within the previous 12 months.

Mental health and comorbid conditions

Leading mental, neurological and substance use conditions often occur with other health concerns, particularly HIV, tuberculosis (TB) and smoking. Mental health conditions are linked to higher risks of exposure to HIV and TB (7), and people living with HIV and TB have two and three times higher rates of depression, respectively, which affects treatment adherence and overall outcomes (8–10). There are also strong links between drug use and alcohol use disorders, acquiring HIV and TB and death from HIV deaths (8, 9). These syndemics provide an opportunity for integrating care to improve mental health and accelerate work to end the HIV and TB epidemics (11). The new Global Fund Strategy (2023–2028) shows increasing recognition of such integration and the importance of cooperating with people living with disabilities and mental health conditions to improve outcomes for comorbidity with HIV, TB and mental health illness (12). Integration of mental health and psychosocial support into HIV and TB services has been forecast to reduce infection by 924 000 and 14 million cases, respectively, equivalent to or greater than the total incidence expected within 1 year (12). There is also a clear economic argument for addressing these comorbid conditions together (9), with every US$ 1 invested in mental health returning up to US$ 5.70 saved in economic costs and health returns, while US$ 1 invested in HIV or TB services returns US$ 6.40 and US$ 43, respectively (9,13, 14).

There are also strong links between cigarette smoking and common mental health conditions, as people with mental health conditions are more likely to smoke (and more), and smokers are twice as likely to experience anxiety than non-smokers (15). Smoking cessation interventions are cost-effective and provide another opportunity to integrate care and concurrently address two pressing health issues (16).

The COVID-19 pandemic has had a significant effect on mental health, with an estimated global increase in major depressive disorder of 27.6% and in anxiety disorders of 25.6% (17) and a higher risk of severe illness and death from COVID-19 in people with mental health conditions (17). During pandemic response and recovery, mental health services must be scaled up to address the greater burden and to narrow the mental health treatment gap.

Social and environmental determinants of health

Before the COVID-19 pandemic, 26% of the Bangladeshi population was affected by “multidimensional poverty”. It has been estimated that the proportion increased to 35–42% during the current pandemic (18). Poverty and other social determinants, such as level of educational attainment, racial discrimination, social exclusion, adverse early life events and income inequality, are known to affect mental health outcomes (19).

Bangladesh holds seventh place among countries affected by extreme weather events between 2000 and 2019 and is particularly vulnerable to tropical cyclones (20). In 2021, one fourth of the country was flooded, with a pattern of more frequent, more severe flooding (21). Exposure to natural disasters is strongly associated with distress reaction, exacerbation or manifestation of mental health conditions and more risky behaviour, such as increased alcohol consumption (22). These effects have

been shown to last for a significant time after a disaster, particularly in young children. Experiencing a natural disaster before the age of 5 years has been shown to increase the risk of mental health conditions and substance use disorders in adulthood (22).

Bangladesh is currently hosting over 900 000 Rohingya refugees from Myanmar and over 500 000 internal refugees. Over 1.46 million people are in need in the Cox's Bazaar District and the island of Bhasan Char (23). Forced migration results in stress, which affects mental health and well-being. Thus, the prevalence of common mental health conditions is higher in refugee populations than in host populations (24). More than half of the refugee population are children, who are particularly vulnerable to psychological and physical health outcomes. In addition, the upazilas (sub-districts) that are hosting the Rohingya refugees are severely affected by natural disasters, including cyclones, monsoons and flooding (23). Mental health and psychosocial support are integral to the United Nations' joint response plan for the health and protection of refugees and host communities, one study showing that > 17% of Rohingya mothers have moderate to severe depression (23, 25).

Gender-based violence is also prevalent in Bangladesh, more than seven of ten married women or girls reporting some form of intimate partner violence. As in many other countries, violence against women and girls increased further during the COVID-19 pandemic. The Bangladesh Rural Advancement Committee (BRAC) reported almost a 70% increase in incidents of violence in March and April 2020 over that in the previous year (26). Women who experience intimate partner violence are more likely to have depressive and anxiety symptoms, post-traumatic stress disorder and suicidal thoughts (27).

Mental health policy and legislation

The Government of Bangladesh recognizes mental health as one of the country's top 10 health concerns (28). The National Mental Health Act was enacted by the national Parliament in 2018 to replace the antiquated Indian Lunacy Act of 1912. The legislation includes the availability to all people of Government-sponsored health-care benefits, including mental health treatment (28). Recently, a national mental health policy and a national mental health strategic plan 2020–2030 were issued, demonstrating increased support for ensuring access to mental health services.

The Mental Health Act of 2018 was adopted with the goals of providing health-care services (including rehabilitation), safeguarding rights and ensuring the general well-being of people with mental health conditions (29). It ensures the rights of people with mental health conditions to "matters of health, property, dignity, education and other rights" (30). The Act calls for establishment of hospitals dedicated to mental health and formation of a mental health review and monitoring committee in each district. There has, however, been some concern over implementation of the Act due to lack of provision for resource allocation, which, combined with public perceptions of mental health, has discouraged policy-makers from allocating resources (31). Additionally, provisions of the Act allow providers to be fined or imprisoned if they do not respect the guidelines (32), which may dissuade service providers from working in mental health care or caring for complex conditions.

The 2019 Mental Health Policy was drafted by a multi-disciplinary working group, which included representatives of Government ministries, mental health professional organizations and advocacy organizations. Both the mental health policy and the strategic plan address four areas of mental health service provision: integration into primary health care, decentralization, equity and innovative programming (28). Integration into primary health care will strengthen mental health services by

leveraging the primary health care delivery system. Decentralization will involve extending mental health services to areas outside the capital, to reach upazilas in both rural and urban areas. Both of these activities will increase access to care for a larger proportion of the population. Considerations of equity in the plans include mental health services for at-risk and vulnerable populations and ensuring gender equity. The aim of innovative programming is to increase access to trained mental health providers through videoconferencing and distance-learning modules by psychiatrists at the National Institute of Mental Health (28).

The Government of Bangladesh signed and ratified the United Nations Convention on the Rights of Persons with Disabilities in 2007, and passed the Disability Rights and Protection Act on 9 October 2013 (33).

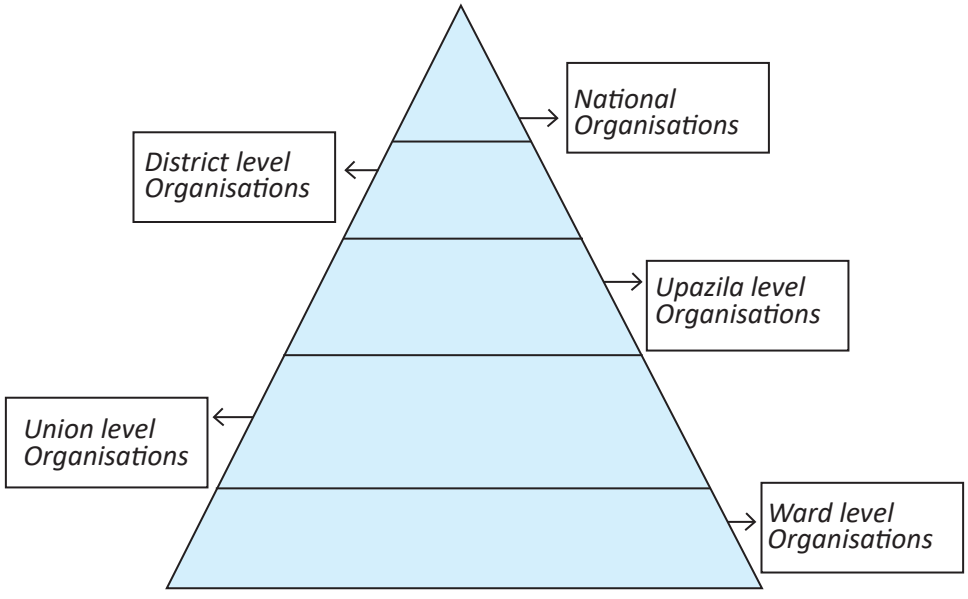
The Ministry of Relief and Disaster has developed its own disaster management policy programme, which includes a mental health policy and a strategic plan for anticipation of, during and after disasters (34).

Mental health services: Availability and access

The health-care system in Bangladesh is supported mainly by a combination of public and private organizations, with a limited number of facilities sponsored by nongovernmental organizations (NGOs) and foreign development agencies. By law, health is a basic human right in Bangladesh, and the Government is responsible for ensuring people's access to health care and services (35). Patients are often treated for free or at discounted prices at public hospitals, whereas private hospitals are mostly profit-driven.

The three levels of general health-care service provided in Bangladesh are primary, which includes upazila health complexes, union health and family welfare centres and community clinics; secondary, which includes district hospitals and some specialized hospitals; and tertiary, which includes medical college hospitals and specialty hospitals (Fig. 2).

Fig. 2. Health service provision in Bangladesh



National Level	District Level	Upazila Level	Union Level	Ward Level
• Medical College Hospital (300-500 beds) • Specialised Hospitals • Post graduate Medical Instiutes	• District Hospitals (50-200 beds) • Medical College and Hospital • Specialised Hospital	• Upazila Health Complex (31-50 beds)	• Rural Health Centre • Union Subecntre • Union Health and Family Welfare	• Community Clinic

Source: Directorate of Health Services (2011, p.13)

The health-care governance structure is hierarchical. The Ministry of Health and Family Welfare is in charge of national health policy, planning and decision-making. It is divided into two divisions: the Division of Health Services, which makes policy on health-related issues such as health-care management, nursing care maintenance and health financing, while the Division of Medical Education and Family Welfare develops policy on medical education and family planning for medical schools and universities and birth and death registration (36). The Directorate General of Health Services ensures delivery of health-care services and provides technical assistance to the Ministry in implementing new health programmes and interventions (28).

Mental health-care services are focused at the tertiary level, with two tertiary-level inpatient psychiatric units, the National Institute of Mental Health and Pabna Mental Hospital, located in or near Dhaka. There are few formal mental health services at primary level (28). The National Institute of Mental Health is the national psychiatric referral hospital, which provides outpatient care and is an administrative and research centre for mental health (28).

Bangladesh has 260 psychiatrists (0.16 per 100 000 population), 700 nurses who provide mental health care (0.4 per 100 000) and 565 psychologists (0.34 per 100 000). General nurses trained in mental health are present in only two mental health hospitals; there are no nurses specialized in mental health (28). Almost all specialists are concentrated in major cities: the numbers of psychiatrists and psychiatric nurses in or around Dhaka is five times higher than in the rest of the country. Mental health is covered in general medical and nursing curricula, although training in mental health for medical students was recently approved by the Government (28). There is concern, however, that the lack of mental health training in general medical and nursing training in the past has contributed to a shortage of mental health professionals (38).

The National Institute of Mental Health, Bangladesh's large specialty psychiatric institution, is a 200-bed hospital, with an additional 500 inpatient beds in a psychiatric hospital located near the institute. The average inpatient stay is 137 days (39). In the 31 community psychiatric inpatient units (0.58 beds per 100 000 population), patients spend 29 days on average. There are also 15 beds in forensic inpatients units, 3900 beds in residential facilities (such as homes for the destitute and for people with mental disability and inpatient detoxification centres) and 50 outpatient mental health facilities. The Combined Military Hospitals and Armed Forces Medical Colleges of Bangladesh have well-organized mental health services, with 0.43 inpatient beds for mental health conditions per 100 000 population (40).

There are 69 outpatient and 72 residential mental health care facilities in Bangladesh but no follow-up care in the community and no day-treatment mental health facilities. There are 20 outpatient facilities

(including services for NCDs) but only two inpatient facilities specifically for children and adolescents. Most mental health facilities are clustered in urban areas, particularly in metropolitan cities (40). Dhaka has five times more psychiatric beds than the rest of Bangladesh, although 70% of the Bangladeshi population lives in rural areas (40). The Government implemented the Mental Health Gap Action Programme (mhGAP) in 2017 to address humanitarian issues at Cox's Bazaar, with moderate effectiveness. This programme has yet to be extended to the rest of the country (39).

Few essential psychotropic medications are available in mental health institutions. Less than 0.11% of the population has access to free essential psychotropic medications, and there are no injectable antipsychotic medications or general psychotropic medications in inpatient facilities (28, 39).

In Bangladesh, mental health conditions are often attributed to possession by evil spirits, leading to widespread stigmatization of people with mental health conditions and how and where people seek mental health treatment (28, 39). Many people seek care from local traditional and spiritual healers, particularly in rural areas. Stigmatization associated with mental health conditions results in less demand for mental health services by both patients and their families. it also affects mental health practitioners and how they are viewed by the community. Awareness must be increased in order to increase demand for services, encourage training of mental health professionals and prioritize resources for mental health at policy level. Current mechanisms to increase awareness include working with the media to educate the public on mental health and on the importance of seeking treatment and training village health workers in mental health to assist in removing stigmatization during direct interactions with patients in the community (28).

Financing of mental health care

Health care in Bangladesh is financed primarily from three sources: the public treasury, out-of-pocket payments and aid from foreign development partners. In 2019, Bangladesh's total health expenditure represented 2.5% of its gross domestic product (GDP), which was less than total health expenditure in 2010 (2.7% of GDP) (41). In 2021, US$ 3.4 billion were allocated to the health sector, representing only 5.4% of the total budget for fiscal year 2021 (42). In the same year, mental health expenditure was a mere 0.44% of the total health budget. Mental health hospitals accounted for 67% of all mental health expenditure, and < 0.1% of the population has access to free essential psychotropic medications (43). Out-of-pocket spending on health care increased from 60% in 2008 to 74% in 2018 (44), obviating use of mental health-care services by the poor and reducing access to antipsychotic medications, which have to be paid for out-of-pocket (45). A major proportion of out-of-pocket payments was spent on drugs and diagnostic tests. The preliminary findings of the 6th National Health Accounts indicated that 65% of out-of-pocket payment is spent in retail drug outlets. Heavy reliance on such payments to fund the health sector means that unexpected illness can lead to severe financial stress, perpetuating intergenerational poverty cycles.

Social and private insurance accounts for a very small proportion of total funding (46). A health insurance scheme for institutions was introduced after revisions to the National Health Policy in 2011, with provision of "health cards" for the "ultra-poor"; however, private health insurance is almost non-existent, and few informal workers are covered by health insurance and social protection. There is no social insurance coverage for mental health conditions (47). With 25% of the population experiencing catastrophic health expenditure in 2016, Bangladesh has the highest such expenditure rate in South Asia. About 14% of the population had to forgo health care entirely, of which 17% was due to treatment costs (48). More than five million Bangladeshis are impoverished by health-care

spending each year, and "business as usual" would mean a continued increase in catastrophic health spending and impoverishment between now and 2030, pushing millions more over the poverty line (44).

Health system issues such as the burden of out-of-pocket payment, low per capita share in health and inadequate service facilities are due to inefficient and inappropriate use of allocated funds. District and sub-district level allocations from the revenue budget are determined by indicators such as the number of beds and staff in facilities rather than population size and other demographic and epidemiological factors, resulting in serious inequity in the distribution of health care resources (46). According to the Ministry of Finance, funding is allocated according to organization and not to diseases. The Ministry of Health must therefore increase its capacity and human resources for efficient allocation of fundings.

Multisectoral strategy and coordination

The Multisectoral Action Plan for Prevention and Control of Noncommunicable Diseases 2018–2025 (49) outlines four areas for strategic action: 1) advocacy, leadership and partnerships; 2) health promotion and risk reduction; 3) health systems strengthening for early detection and management of NCDs and their risk factors; and 4) surveillance, monitoring, evaluation and research. For the second action area, the action points include reduction of harmful alcohol use and promoting healthy behaviour in healthy, safe settings. Although the action plan recognizes the importance of using a multisectoral approach to address NCDs in Bangladesh, mental health issues other than harmful alcohol use are not specified (50). Chaired by the Minister of Health and under the auspices of the Ministry of Health and Family Welfare, the National Multisectoral NCD Coordination Committee includes about 30 ministries, civil society, religious leaders, academia, development partners, NGOs and other relevant organizations. The key functions of the Committee are to review progress in implementing the NCD action plan every 6 months, provide political leadership and guidance to sectors relevant to NCD prevention and control and coordinate technical assistance for the main NCDs at national, regional, district, uppazila and community levels (49).

Other sectors have shown little involvement in the NCD agenda; however, participation is increasing. The "whole-of-government strategy" has yet to be realized, and non-health sectors should be better informed about their roles in achieving beneficial health outcomes.

Of the non-health sectors, there are 15 child development centres staffed by paediatricians, child psychologists and development therapists, who conduct comprehensive assessments and interventions for children with autism spectrum disorder and other neurodevelopmental disorders. No counsellors, school psychologists or social workers have been trained to work in public schools in Bangladesh, and mental health and substance abuse have not yet been included in the national teacher training curriculum or the life-skills curriculum (28). The Ministry of Education is preparing a full curriculum on psychosocial well-being with plans to integrate it into the education curriculum. [2]

There are no formal psychiatric services in the prison system in Bangladesh, and prison medical workers have limited training in mental health. As a result of the "war on drugs" launched by the Government in 2018, additional punitive measures have been taken against users (28). There is also

[2] Institutional context analysis: Stakeholder Interviews. Prevention and management of mental health conditions in Bangladesh. The case for investment. New York City (NY): United Nations Development Programme (unpublished).

no systematic screening for mental health issues in prisons, and usually only severe and acute cases are referred to nearby psychiatric hospitals for assessment. Third-sector organizations such as the Dhaka Ahsania Mission provide support. In collaboration with the German Development Agency, the Mission provides group counselling for prisoners, focusing on drug addiction and life-skills development. It also collaborates with ministries and the prison directorate in training prison staff in substance misuse and mental health issues (51). Box 1 provides information on substance abuse in Bangladesh.

Box 1. Substance abuse in Bangladesh

The prevalence of substance use is increasing in Bangladesh. The first nationwide survey, conducted by the National Institute of Mental Health in 2017–2018, found a prevalence of substance use of 3.3% among adults (aged ≥ 18), 4.8% among men and 0.6% among women. The most frequently used substances reported were cannabis (42.7%), alcohol (27.5%), amphetamine (yaba) (15.2%), opioids (5.3%) and sleeping pills (3.4%), although the distributions varied by region (52). A study of patients admitted to a private addiction clinic in Dhaka for substance abuse found that the majority of respondents used more than one substance, with 27.6% using three types and 22.9% four. Methamphetamine was used by 40% of respondents, highlighting the growing challenge of the drug. At a cost of 250–300 BDT, yaba is cheaper than a tin of lager, increasing its appeal and accessibility (53). The growing use of methamphetamine is consistent with increased seizures of the substance: more than 1.9 million pills were seized in 2012 and 53 million yaba pills in 2018 (52, 54). Substance abuse among young people in Bangladesh is a further concern. An estimated 2.5 million children in Bangladesh are addicted to drugs, with a particularly high prevalence among street children (55). A study of high-school students in Bangladesh found that 14.4% had used drugs at least once during their life, and 2.8% were current users (56).

According to the Department of Narcotics Control, most of the 329 private rehabilitation centres are located in Dhaka, while 23 districts in Bangladesh have no rehabilitation facilities, including Meherpur, Panchagarh and Kurigram (57). In 2021, the Bangladesh Police Welfare Trust opened a 60-person capacity 24-h drug rehabilitation centre to address the growing numbers of people addicted to drugs, which has been further exacerbated by the COVID-19 pandemic (58).

The criminal justice system provides programmes for preventing and treating substance abuse, and the Ministry of Social Welfare works in coordination with the criminal justice system and juvenile corrections to support reintegration with families and society (59).

Government health facilities and NGOs provide resources and psychosocial support to “forcibly displaced Myanmar nationals” and the local population living in Cox’s Bazar. The Ministry of Health and Family Welfare has collaborated with members of the Bangladesh WHO Mission and the National Institute of Mental Health since 2017 to offer 12 mhGAP training courses for medical and psychosocial support providers who work with the forcibly displaced Myanmar nationals, and 302 trained health-care professionals (government and nongovernment) are working in the Cox’s Bazar area (28). The International Organization for Migration is scaling-up the provision of mental health and psychosocial support in Cox’s Bazar for both refugees and the host population (60). BRAC is also providing psychosocial support through the para-counsellor model to Rohingya refugees.

Para-counsellors, known as shantir apa, are trained in psychosocial support and in identifying complex and critical cases, for which there is a referral system. As of August 2021, the programme had benefited nearly 100 000 people in the nine centres (25).

In 2020, Bangladesh finalized its National Mental Health Strategic Plan, and its implementation by the Ministry of Health is assisted by the WHO Special Initiative for Mental Health. In 2021, a technical committee was established under the Ministry of Health and Family Welfare to oversee the Special Initiative, and a working group has been designated to set priorities and plan implementation of the WHO Special Initiative to ensure alignment with Bangladesh's National Mental Health Strategic Action Plan. Activities planned within the Special Initiative in 2022 include facilitating mhGAP training for nonspecialist health-care workers, supporting integration of community mental health services, developing information management systems in certain districts to collect indicators of mental health and strengthening management of the supply chain for psychotropic medication (61).

Development partners, NGOs and other stakeholders have provided support for a number of mental health projects in Bangladesh. UNICEF has provided support to the Government in finding ways to increase coverage of mental health services by district planning and integrating services into the primary health-care system.[3] UNICEF, in collaboration with the Directorate General of Family Planning and with the support of the Bangladesh Association for Prevention of Septic Abortion founded a programme for "adolescent-friendly health services" for adolescents aged 10–19, which provides information on reproductive health and puberty and offers psychosocial support and counselling. The programmes reach 2000–3000 adolescents each month; they continued during the COVID-19 pandemic, with sessions held outdoors or virtually to adhere to social distance guidelines (62). The United Nations Population Fund, UNICEF and WHO also provided support for the National Adolescent Health Strategy 2017–2030 and for implementation of the strategy and action plan, including technical assistance (63). UNICEF, the National Institute of Mental Health, the Bangladesh Association of Psychiatrists, WHO and other development partners and NGOs have also provided psychosocial support and psychological first aid after natural disasters (34).

BRAC provides support through several projects for integrating mental health into primary health care. To date, BRAC has trained more than 1600 front-line staff in basic psychosocial support and trained 444 para-counsellors to address mental health challenges in the community, reaching more than 250 000 people (64). BRAC has also launched a mobile-based app to connect survivors of gender-based violence with support services, including psychosocial counselling (65). Other NGOs and civil society organizations also continue to make significant contributions to mental health in Bangladesh.

Summary

The Bangladesh Government has strong political will and commitment to mental health, as demonstrated in the new Mental Health Act. Bangladesh also benefits from strong networks of community health clinics and civil society. Recent progress, including development of the National Mental Health Policy and the National Mental Health Strategic Plan 2020–2030, are important steps towards strengthening mental health care in Bangladesh.

[3] Institutional context analysis: Stakeholder Interviews. Prevention and management of mental health conditions in Bangladesh. The case for investment. New York City (NY): United Nations Development Programme (unpublished).

The situation analysis and the institutional context analysis identified several challenges. Until now, mental health has not been a priority in Bangladesh and was identified as important only in the Fourth National Health Plan in 2017. "Health" has often been considered only as physical health, and, before the first national mental health survey, conducted in 2003–2005, there was little understanding of the demand for mental health services in the country. The situation was compounded by little awareness of mental health and stigmatization, which dissuaded people from seeking help and services. For those who do seek help, access to and the availability of mental health services and medicines are limited, with an estimated treatment gap of more than 90%. Mental health does not receive sufficient funding, representing only 0.44% of the health budget. There are limited human resources and insufficient specialized staff, due partly to the lack of incentives to work in rural communities and a limited number of institutions that provide specialized training.

Bangladesh has a number of resources and opportunities to address these challenges and improve the mental health of its population. In the situational analysis, interviewees mentioned growing interest and engagement in mental health by the population, non-health sectors and community organizations. A number of ministries have begun integrating mental health, including into school curricula. In addition, there is a strong network of community health clinics across the country, which can be leveraged to train community health-care workers and thus increase access to mental health services at all levels. There is also a strong network of civil society organizations, which can be leveraged to increase mental health awareness across the country and opportunities for partnerships with the Government for professional training and capacity-building. Digital technology can be used to sensitize the population and extend services, particularly to rural areas. Tele-counselling is provided by some tertiary hospitals through district and upazila hospitals. Task-shifting presents another means to extend access to and the reach of services. This approach has been used by BRAC in its counsellor model, which uses telemedicine to provide mental health interventions among the Rohingya.

3. Methods

This section briefly outlines the methods used for the situational and institutional context analyses, including the methods for estimating the economic consequences of mental health conditions and intervention costs, impacts and returns on investment. Annex 1 provides further detail and information on the methods, data sources and assumptions used in the analysis on return on investment.

Institutional context analysis

The economic analysis was complemented by an institutional context analysis. The analysis was based on discussions with representatives from: the Ministry of Health and Family Welfare, Health Services Division and Upazila Health and Family Planning, Chirirbandar Upazila Health Complex; the Ministry of Social Welfare; the Ministry of Finance; the National Institute of Mental Health; the National Institute of Neuro Sciences Hospital; Shuchana Foundation; Sajida Foundation; BRAC; and UNICEF. The discussions addressed how mental health affects the national development agenda, the priorities of various sectors and stakeholders and how they could participate in a strengthened whole-of-government response, including implementation of the interventions recommended in the investment case. The insights gained from these discussions are included in the report and informed its findings and conclusions.

Return on investment analysis

Estimation of the economic consequences of mental health conditions

A model was developed to estimate the economic burden attributable to mental health conditions, comprising current direct and indirect costs. A United Nations tool for strategic planning and costing (OneHealth) was used to estimate populations by age and sex for the period 2021–2031 and for modelling prevalence and mortality rates by age and sex for suicide and six mental health conditions: depression, anxiety, psychosis, bipolar disorder, epilepsy and alcohol use disorder. The model allowed estimates of the projected prevalence and mortality rates for each condition between 2021 and 2031, while holding current rates constant. These projections were summarized as total prevalence and mortality for the entire population and for the working-age population (aged 15–64 years).

Direct costs were estimated on the basis of total health expenditure on mental health; data were obtained from the WHO Mental Health Atlas 2017 for Bangladesh (66), which reports US$ 2.40 per capita or 0.5% of total health expenditure. Total health expenditure on mental health was estimated as the sum of all mental health-related expenditures by the Government, corporations, households and international funders. It excludes non-health care costs such as transport, waiting times and informal care.

To estimate the indirect economic burden, the annual value (in terms of economic output) of each full-time worker in Bangladesh was calculated from the GDP per employed person, defined as the country's GDP divided by its total employed labour force. Local data on the total labour force aged ≥

15 years, the unemployment rate and the labour force participation rate were used to determine the total employed labour force. Data from the World Mental Health Surveys were used to describe: (i) the reduction in labour force participation due to each of the six mental health conditions; (ii) the reduction in full-time hours worked due to mental health-related absenteeism; and (iii) the reduction in productivity due to mental health-related presenteeism. The number of Bangladeshi workers with a mental health condition during 2020 was determined from data on labour force participation, unemployment and mortality, specifically by defining the number of people aged 15–64 years with a mental health condition and then subtracting those who were not participating in the labour force, were unemployed, could not participate in the labour force because of their mental health condition or had died. Calculation of the economic losses attributable to absenteeism, presenteeism and premature death among workers with mental health conditions were then derived for each condition by applying productivity loss estimates to the relevant population and multiplying by the GDP per employed person.

Estimation of intervention costs, impacts and returns to investment

The OneHealth tool (see Annex 1) was used to estimate costs and health impacts arising from several clinical interventions for each of the six mental health conditions (depression, anxiety, psychosis, bipolar disorder, epilepsy and alcohol use disorder). Custom-built Excel® models were then used to estimate the costs and health effects associated with a nationwide regulatory ban on highly hazardous pesticides to prevent suicide and universal delivery of social–emotional learning (SEL) programmes to adolescents in schools to prevent depression, anxiety and suicide.

In line with the methodological guidance for mental health investment cases (67), the main categories of resource cost were: inpatient care; outpatient and primary care; medication; programme costs and shared health system resources, including programme management and administration, training and supervision. Unit costs for each resource item were obtained from the WHO-CHOICE database (68). Details of the cost breakdown and treatment protocols for the clinical interventions can be found in Annex 1.

To estimate the health impact of the interventions, a population-based model was used in the OneHealth tool to calculate the number of healthy years of life lived in the population at current and target levels of coverage. Healthy life years include both expected changes in life expectancy (e.g., as a result of a decrease in the case fatality rate after introduction of a pesticide ban) and non-fatal health outcomes (e.g., reduced incidence or duration of depressive episodes after treatment). Intervention coverage and effect sizes for the modelled interventions are taken from WHO's cost-effectiveness work programme and are described in Annex 1, Table A1.1.

Productivity gains resulting from interventions for treating depression, anxiety and alcohol use disorders were calculated as the sum of the productivity gains attributable to increased labour force participation (by avoided mortality and illness) and reduced absenteeism and presenteeism. Because of the lack of data on labour force outcomes for people with psychosis, bipolar disorder and epilepsy, a more indirect method was used that relied on multiplying the total healthy life years gained by an intervention by the GDP per capita for Bangladesh. In the case of the universal school-based interventions for adolescents, only productivity gains due to increased labour force participation could be estimated; productivity gains due to reduced absenteeism and presenteeism were not estimated, as they are not relevant to people of non-working age, and there is currently no established method for determining how impacts on educational attainment during adolescence (which can be improved by preventing mental ill health) translate into better earning potential later in life. Further details of the

methods and assumptions used for these estimates are provided in Annex 1.

The return on investment for each intervention was calculated by comparing the productivity gains due to the intervention (measured as an increase in GDP) with the total costs of setting up and implementing the intervention. Projected costs and projected productivity gains were estimated with the net present value approach and a 3% annual discount rate. In addition to calculating the productivity gains attributable to each mental health intervention, separate estimates were made of the intrinsic value of improving health as an end in itself. The social value of one healthy life year gained has previously been estimated to be 1.5 times GDP per capita (69, 70); accordingly, each value for healthy life years gained through an intervention was multiplied by this monetary value.

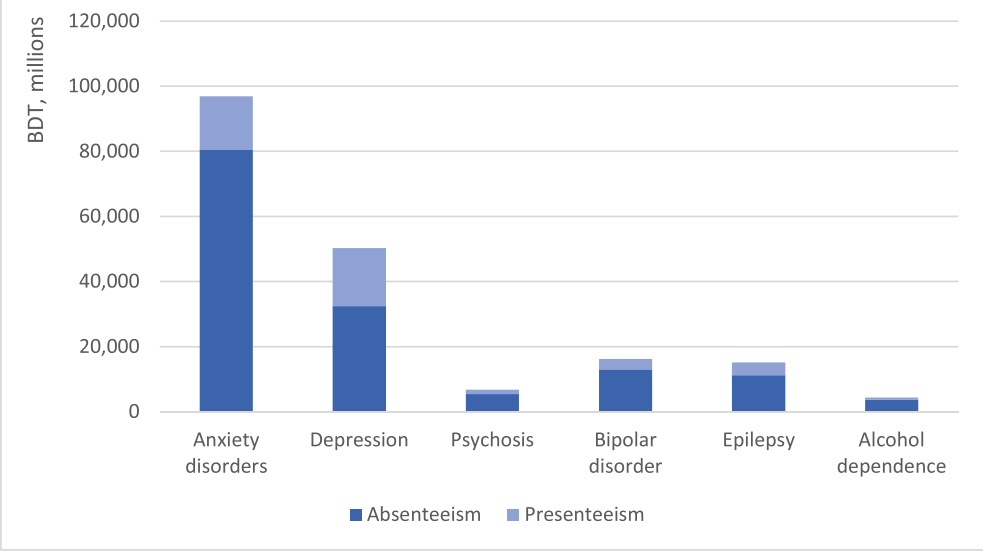
The summary metrics used in the analysis were the benefit-to-cost ratio, defined as the present value of total health and/or productivity gains divided by the present value of total intervention costs, and the return-on-investment ratio, defined as the present value of total health and/or productivity gains minus the present value of total intervention costs, divided by the present value of total intervention costs (67). Future impacts on health and productivity and future intervention costs were discounted to their present value to account for the time value of money, whereby a unit of currency obtained in the future is worth less than the same unit of currency obtained in the present.

Results

Economic burden

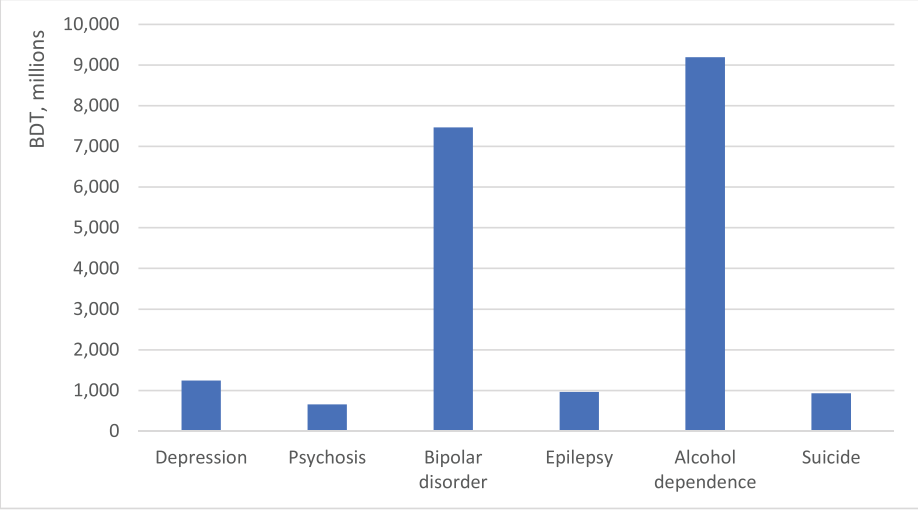
The total health expenditure for mental health in Bangladesh was 395 million BDT (US$ 4.7 million) in 2021 and comprised only Government sources. Total health expenditure could not be disaggregated by mental health condition. The total combined cost of absenteeism and presenteeism in Bangladesh is presented in Fig. 3. The total number of working days absent was estimated to be 89.3 million for absenteeism and 26.6 million for presenteeism, which resulted in a total cost of 189.7 billion BDT (US$ 2.2 billion) in 2021. Absenteeism and presenteeism costs were highest for anxiety disorders and depression. Anxiety is associated with large numbers of days off work for the average individual, and the estimated prevalence of anxiety in Bangladesh is high.

Fig. 3. Costs of absenteeism and presenteeism for mental health conditions (2021 BDT, millions)



The total cost of premature death due to mental health conditions was estimated to be 20.5 billion BDT (US$ 241 million) in 2021 (Fig. 4). Although alcohol dependence and bipolar disorder are associated with relatively few days off work, those conditions generate substantial costs due to premature deaths.

Fig. 4. Costs of premature death for mental health conditions (2021 BDT, millions)



Bipolar disorder and alcohol dependence are the costliest mental health conditions in terms of premature death, due to the high excess mortality estimated for these two conditions in the Global Burden of Disease study, which is the source of the epidemiological data in the OneHealth tool (e.g., six times more estimated deaths than due to depression or psychosis). The high mortality rate among cases of alcohol dependence was due to various causes of death, from cancers to injuries (e.g., traffic accidents and falls). Anxiety disorders may not lead to death but, as described above, are associated with a high economic burden due to absenteeism and presenteeism.

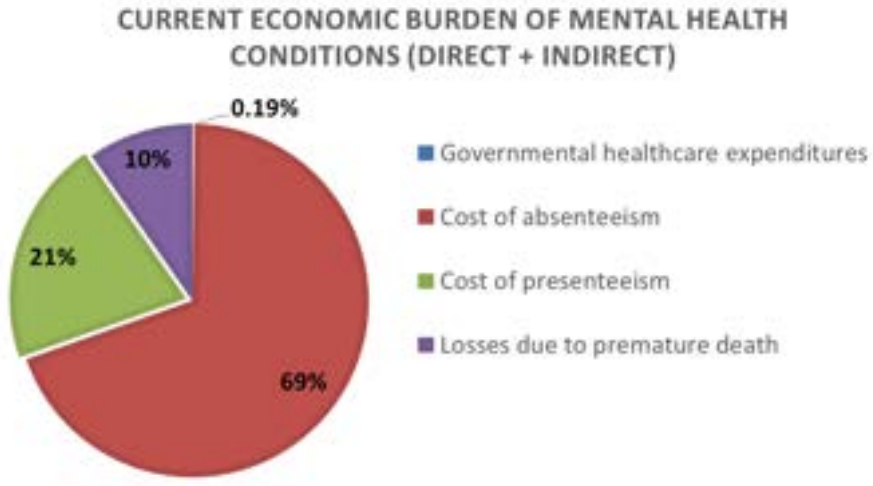
Table 3 shows the total direct and indirect costs of mental health conditions in Bangladesh. The indirect economic losses are much higher than the direct losses. Total expenditure on health care for mental health conditions was 395 billion BDT (US$ 4.7 million), and the loss to the economy due to absenteeism, presenteeism and premature death amounted to 210.1 billion BDT (US$ 2.47 billion).

Table 3. Economic burden of mental health conditions in Bangladesh (2021 BDT/USD, millions)

Cost	**Total costs (2021 BDT, millions)**	**Total costs (2021 US$, millions)**
Direct costs		
Health care expenditure	395.25	4.7
Total direct costs	395.25	4.7
Indirect costs		
Absenteeism	146 155	1719.9
Presenteeism	43 522	512.1
Premature deaths	20 459	240.7
Total indirect costs	210 135	2472.8
Total costs	210 531	2477.4

The total economic burden of the selected mental health conditions on the Bangladesh economy in 2021 was 210.5 billion BDT (US$ 2.48 billion), equivalent to 0.76% of the GDP in 2021. Fig. 5 shows the structure of the economic burden of mental health conditions in Bangladesh in 2021. Total health care expenditure represented less than 1% of all mental health-related costs, a minor proportion of the overall economic burden.

Fig. 5. Structure of the economic burden of mental health conditions in Bangladesh



Costs of intervention

The costs of the interventions were estimated for the period 2021–2031. Table 4 shows the absolute costs during each of the first 5 years of this period and 10-year total costs. Table 5 shows the corresponding per capita costs.

Table 4. Estimated absolute costs of interventions (BDT, millions), 2021–2031

Mental health intervention package	2021	2022	2023	2024	2025	2026	Total for 5 years[a]	Total for 10 years[a]
Anxiety disorders	111	243	379	517	656	797	2 376	7 131
Depression	155	296	440	587	736	888	2 733	7 990
Psychosis	206	249	294	340	387	436	1 704	3 862
Bipolar disorder	1686	1956	2233	2518	2811	3111	12 834	27 540
Epilepsy	280	299	318	337	356	375	1 766	3 248
Alcohol use disorder	11	14	18	21	25	29	105	256
Sub-total	2448	3058	3682	4320	4971	5635	21 475	49 943
Pesticide ban	784	123	123	123	111	116	1 294	1 618
School-based social and emotional learning	130	116	206	206	206	475	1 182	2 934
Total	**3363**	**3297**	**4011**	**4649**	**5289**	**6227**	**23 951**	**55 417**

[a] Present value

Table 5. Estimated per capita costs of interventions (BDT), 2021–2031

Condition or intervention	2021	2022	2023	2024	2025	2026	Total for 5 years[a]	Total for 10 years[a]
Anxiety disorders	0.7	1.5	2.3	3.1	4.0	4.8	14	43
Depression	0.9	1.8	2.7	3.6	4.5	5.4	17	49
Psychosis	1.2	1.5	1.8	2.1	2.3	2.6	10	23
Bipolar disorder	10.2	11.9	13.6	15.3	17.1	18.9	78	167
Epilepsy	1.7	1.8	1.9	2.0	2.2	2.3	11	20
Alcohol use disorder	0.1	0.1	0.1	0.1	0.2	0.2	1	2
Sub-total	15	19	22	26	30	34	130	303
Pesticide ban	4.8	0.7	0.7	0.7	0.7	0.7	8	10
School-based social and emotional learning	0.8	0.7	1.2	1.2	1.2	2.9	7	18
Total	20.4	20.0	24.4	28.2	32.1	37.8	145	336

a Present value

Scaled-up clinical interventions for bipolar disorder incurred the largest estimated costs over 10 years (because of the higher estimated prevalence than other severe mental health conditions, such as psychosis, and also the higher costs of medication for this condition), followed by depression. Implementation of the entire clinical intervention package would cost 21.5 billion BDT (or 130 BDT per capita) over the first 5 years of scaling up and 50.0 billion BDT (or 303 BDT per capita) over the full 10-year scaling-up. The total costs for the two population-based mental health interventions were among the lowest of all intervention packages. The lowest costs were attributed to alcohol use disorder, because of the very low prevalence of alcohol use in Bangladesh.

Interventions involving intensive psychosocial treatment and anti-depressant medication have larger planned costs. Nevertheless, numerous low-cost interventions exist, including basic psychosocial treatment (for anxiety disorders and depression particularly) and the nationwide regulatory ban on highly hazardous pesticides.

Health impacts

All the interventions significantly increase the total number of healthy life years gained (absolute results presented in Table 6). The greatest impacts were observed for interventions for depression (831 581 healthy life years gained over 10 years) and anxiety (432 603), followed by the universal school-based SEL intervention (190 231) and clinical interventions for psychosis (179 972).

Table 6. Estimated absolute health impacts

Intervention package	Total healthy life years gained		Prevalent cases averted		Total deaths avoided	
	5 years	10 years	5 years	10 years	5 years	10 years
Anxiety disorders	94 225	432 603	350 147	1 914 636	NA	NA
Depression	211 047	831 581	662 997	2 622 574	1 235	5 154
Psychosis	47 230	179 972	NA	NA	NA	NA
Bipolar disorder	19 846	92 290	NA	NA	4 626	16 644
Epilepsy	34 730	143 204	20 320	120 008	92	616
Alcohol use disorder	3 442	17 516	11 170	52 940	168	916
Pesticide ban	48 100	112 289	NA	NA	1 031	2 447
School-based social and emotional learning	95 757	190 231	297 862[a]	632 462[a]	547[b]	962[b]
Total	554 378	1 999 686	1 342 497	5 342 620	7 699	26 739

NA, not applicable
[a] Prevalent cases of depression or anxiety
[b] Deaths due to suicides attributable to depression

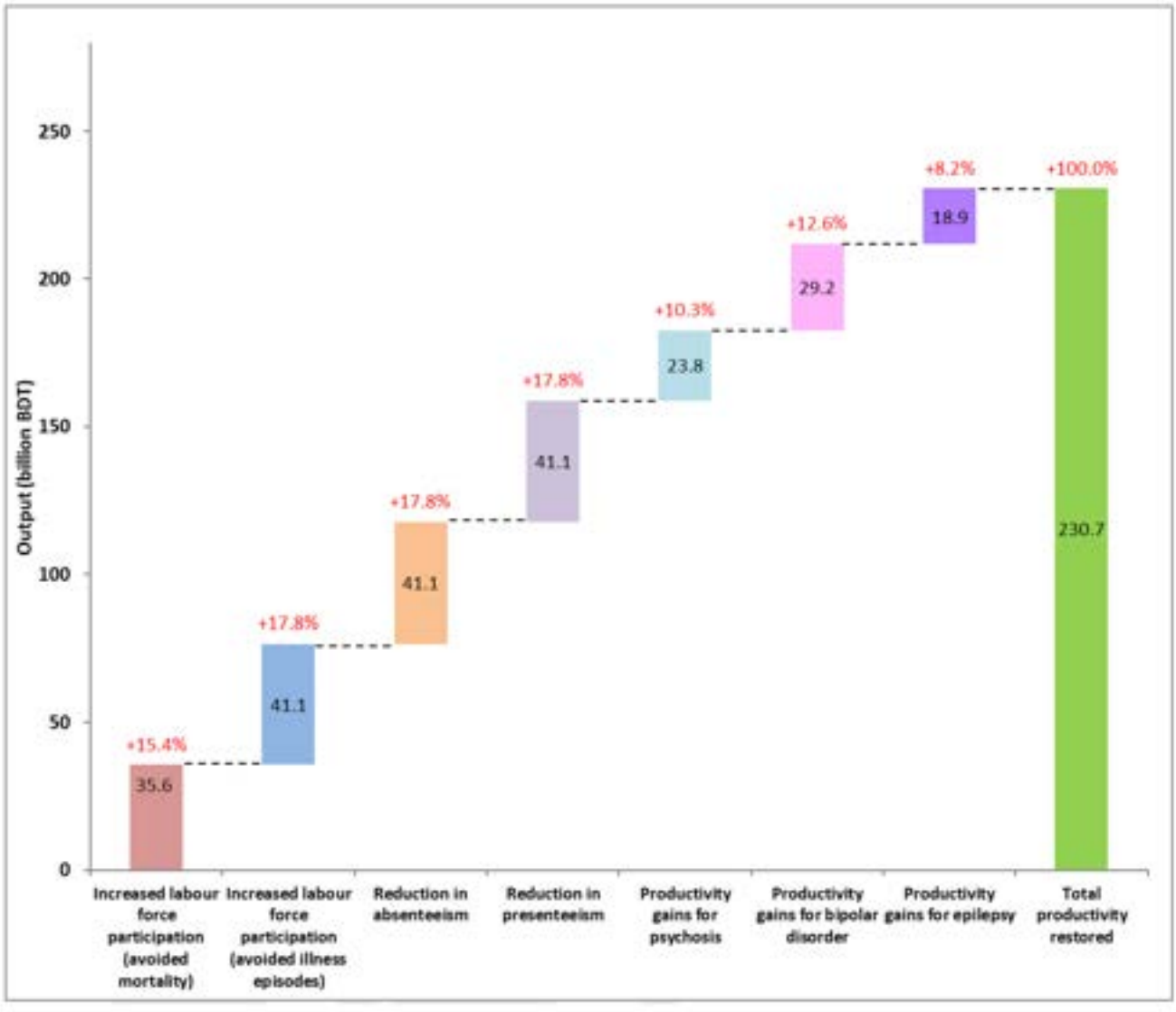
Certain interventions also reduce mortality, either as a direct result of the intervention (pesticide ban) or because of a reduced prevalence of conditions that are associated with an excess rate of mortality (depression, bipolar disorder, epilepsy).

Bipolar disorder and psychosis are both rarer than conditions such as depression and anxiety, but they are severe mental health conditions that usually persist throughout the life of an affected individual. The main benefit of treatment is a reduction in the severity of symptoms and improvement in a person's daily functioning. This is reflected as a reduction in the disability weight of these two mental health conditions. Hence, the primary impact on healthy life years gained is a reduction in the disability weight for these conditions and not in the number of prevalent cases or deaths. There is, however, a modest reduction in the mortality rate among people with bipolar disorder treated with lithium carbonate.

Economic gains

The mental health conditions included in this analysis reduce labour force participation (due to premature mortality and cases of illness), lead to time off work due to illness (absenteeism) and impair job productivity while in the workplace (presenteeism). Fig. 6 demonstrates the labour productivity gains that would result from preventing deaths and reducing the prevalence and/or disability associated with each mental health condition over 10 years, as described in Table 5.

Fig. 6. Recovered economic output expected from mental health interventions over 10 years (BDT)



Increased labour force participation and reductions in absenteeism and presenteeism are related to the following mental health conditions: anxiety disorders, depression, alcohol use disorder and suicide. For the mental health conditions other than psychosis, bipolar disorder and epilepsy, reduced mortality had an important impact (15.4%) on productivity due to increased labour force participation, followed by avoided cases of illness, reduced presenteeism and reduced absenteeism (each representing 17.8% of total productivity gains). In addition, productivity gains were seen with treatment of psychosis (10.3%), bipolar disorder (12.6%) and epilepsy (8.2%). The mental health packages resulted in a net present value of 230.7 billion BDT in productivity gains over 10 years.

Return on investment

Comparison of the total costs and productivity gains of each package of interventions shows that four of the packages (anxiety disorder, depression, psychosis and epilepsy) have benefit–cost ratios > 1 BDT for each 1 BDT invested over 10 years (Table 7).

Table 7. Costs, benefits (productivity gains only), benefit–cost ratios and returns on investment at 5 and 10 years, by intervention package (2021 BDT, million)

Intervention package	Total costs		Total productivity gains		Benefit–cost ratio (productivity gains only)		Return on investment (productivity gains only)	
	5 years	10 years	5 years	10 years	5 years	10 years	5 years	10 years
Anxiety disorders	2 376	7 031	10 369	51 013	4.4	7.3	3.4	6.3
Depression	2 733	7 907	21 568	77 438	7.9	9.8	6.9	8.8
Psychosis	1 704	3 950	6 884	23 785	4.0	6.0	3.0	5.0
Bipolar disorder	12 792	28 293	8 685	29 170	0.7	1.0	-0.3	0.03
Epilepsy	1 766	3 425	5 056	18 851	2.9	5.5	1.9	4.5
Alcohol use disorder	105	259	601	2 718	5.7	10.5	4.7	9.5
Sub-total	21 475	50 865	53 164	202 974	2.5	4.0	1.5	3.0
Pesticide ban	1 294	1 618	1 615	3 573	1.2	2.2	0.2	1.2
School-based SEL	1 182	2 934	113	186	0.10	0.06	-0.9	-0.9
Total	23 951	106 282	108 056	409 707	4.5	3.9	3.5	2.9

Interventions for depression have the highest benefit–cost ratio: for 1 BDT invested, the expected return is 7.9 BDT at 5 years and 9.8 BDT at 10 years. The package of interventions for alcohol disorder provides a benefit–cost ratio of 5.7 over 5 years and 10.5 over 10 years, while the anxiety disorders package has a benefit–cost ratio of 4.4 over 5 years and 7.3 over 10 years and the psychosis package a benefit–cost ratio of 4.0 over 5 years and 6.0 over 10 years. Overall, the productivity gains made by implementing the clinical care package outweigh the costs of intervention by 4 to 1 over 10 years.

In contrast, the population-level interventions, while they are not costly to implement and they generate substantial health gains, have low benefit–cost ratios when only productivity gains are considered. This is because the only productivity gains that were valued were those due to reductions in premature mortality. The net present value of future gains in productivity or employment due to better educational outcomes among adolescents when they reach adulthood could not be computed because of lack of data and of a robust estimation method.

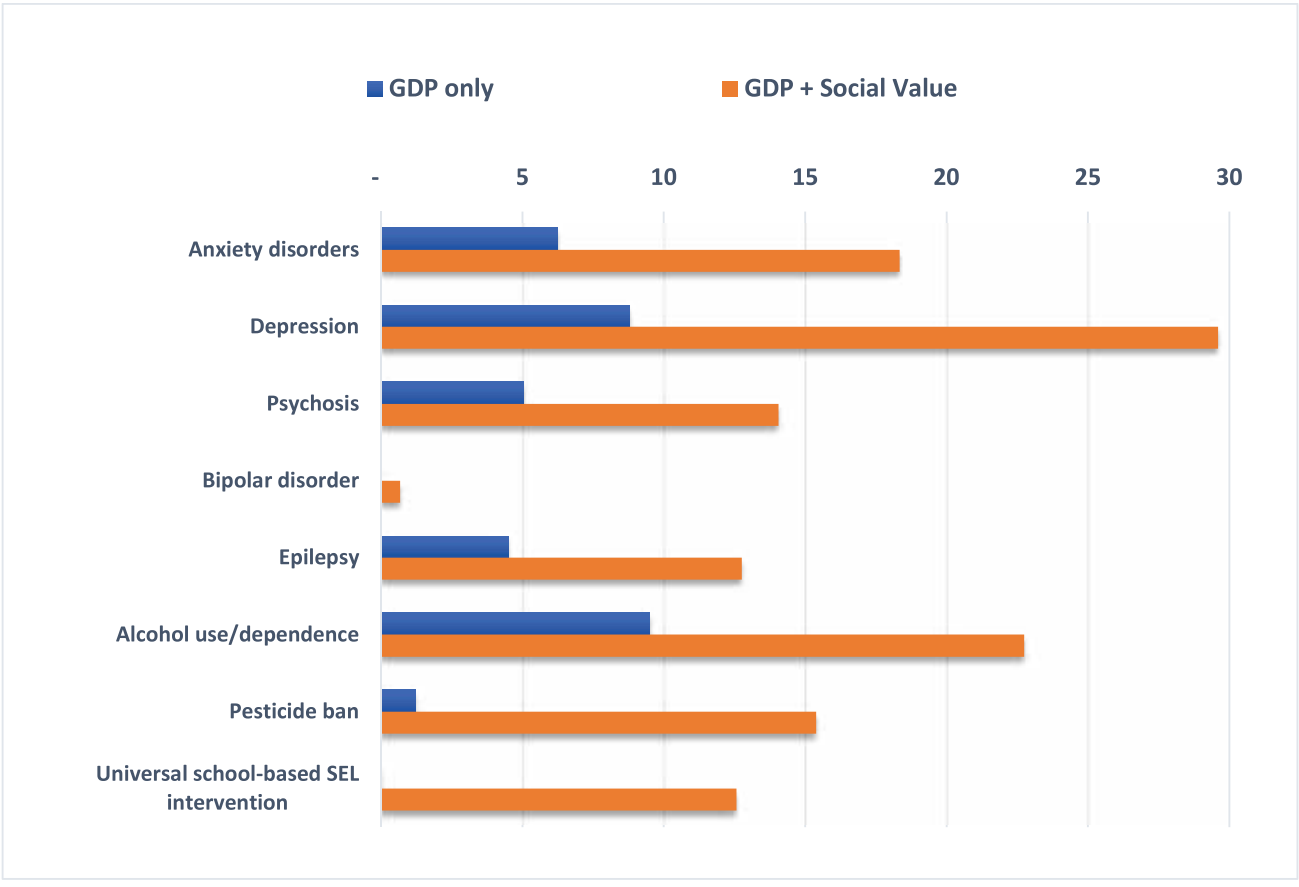
Table 8 shows the impact of including the social value of health in addition to productivity gains in calculating the benefit–cost ratio. The social value of health is the intrinsic value of improving health as an end in itself (valued at 1.5 times GDP per capita for each healthy life year gained by intervention). The benefit–cost ratios for the intervention packages for depression (24.8 and 30.6 for 5 and 10 years), alcohol use disorder (12.9 and 23.7 for 5 and 10 years), anxiety disorders (13.0 and 19.3 for 5 and 10 years), epilepsy (7.2 and 13.8 for 5 and 10 years) and psychosis (10.1 and 15.1 for 5 and 10 years) all increase substantially. Despite the low return on investment of the intervention package for bipolar disorder, the overall clinical intervention package confers a benefit–cost ratio of > 10 BDT for every 1 BDT invested.

Table 8. Costs, benefits (productivity gains plus social value of health), benefit–cost ratios and return-on-investment at 5 and 10 years, by intervention package (2021 BDT, million)

Intervention package	Total costs		Total productivity gains plus social value of health		Benefit–cost ratio (productivity gains plus social value of health)		Return on investment (productivity gains plus social value of health)	
	5 years	10 years	5 years	10 years	5 years	10 years	5 years	10 years
Anxiety disorders	2 376	7 031	30 891	136 025	13.0	19.3	12.0	18.3
Depression	2 733	7 907	67 660	242 000	24.8	30.6	23.8	29.6
Psychosis	1 704	3 950	17 211	59 462	10.1	15.1	9.1	14.1
Bipolar disorder	12 792	28 293	13 011	47 292	1.0	1.7	0.0	0.7
Epilepsy	1 766	3 425	12 640	47 127	7.2	13.8	6.2	12.8
Alcohol use disorder	105	259	1 349	6 146	12.9	23.7	11.9	22.7
Sub-total	**21 475**	**50 865**	**142 760**	**538 051**	**6.6**	**10.6**	**5.6**	**9.6**
Pesticide ban	1 294	1 618	12 153	26 514	9.4	16.4	8.4	15.4
School-based SEL	1 182	2 934	21 549	39 811	18.2	13.6	17.2	12.6
Total	**23 951**	**106 282**	**319 223**	**1 142 427**	**13.3**	**10.7**	**12.3**	**9.7**

The same overall balance of benefits to costs is derived for the whole package of interventions (Fig. 7), including the population-based measures to prevent self-harm and suicide (pesticide ban and school-based SEL programmes) as well as anxiety and depression among adolescents (SEL only). Although these measures did not provide attractive returns on investment when only productivity gains were considered, they provided high returns on investment when the intrinsic value of health was factored in, due to the substantial number of healthy life years gained by their scaled-up implementation.

Fig. 7. Net returns on investment, by intervention package (2021–2031)



4. Conclusions and recommendations for policy and practice

This report describes an assessment of the current mental health situation in Bangladesh, highlights gaps and identifies opportunities for closing them. It provides the first estimate of the overall economic burden attributable to mental health conditions in Bangladesh and economic evidence of the attributable and avertable burdens associated with six leading mental, neurological and substance use conditions (anxiety disorders, depression, psychosis, bipolar disorder, epilepsy and alcohol use disorder). Intervention costs, health impacts, economic gains and returns on investment were estimated for scaled-up treatment of these conditions and for two population-based interventions for preventing depression, anxiety and suicide.

Main findings

Mental health conditions take a significant toll on health, the economy and social and sustainable development in Bangladesh each year. In addition to their health and social impact, it was estimated in the investment case model that these conditions resulted in 210.5 billion BDT (US$ 2.5 billion) in total economic losses for the country in 2021. The losses include 395 million BDT (US$ 4.7 million) in total Government expenditure on health care for mental health and 210.1 billion BDT (US$ 2.47 billion) in indirect productivity losses, a total equivalent to 0.76% of the GDP in 2020. Not only do mental health conditions impede Bangladesh's efforts to increase efficiency in the health sector, but they also impede the country's broader development priorities of strengthening economic growth, reducing inequality and equitable social development.

The results of the investment case analysis show a viable path forward. Investment in a selected number of evidence-based interventions can significantly reduce the adverse consequences of mental health conditions and increase people's mental health and well-being, their life expectancy and quality of life, while simultaneously decreasing national productivity losses. The most cost–beneficial elements of the assessed intervention package include treatment of the most common mental health and neurological conditions, including anxiety, depression, psychosis and epilepsy. When both productivity and health gains are taken into account, the balance of estimated benefits and costs for the clinical and population-based interventions considered in this analysis is more than 10 to 1. Investment in scaled-up delivery of these interventions will contribute to the overall socioeconomic development of the country, with positive effects throughout society, and accelerate economic growth and social development.

Recommendations

The results of the investment case confirm the large impact of mental health conditions on Bangladesh's society and economy, and they indicate the health and economic benefits to be gained from investing in a selected number of evidence-based interventions for six priority conditions. These findings are presented within the Bangladesh context of mental health.

According to the recent national mental health survey 2019, about 18.7% of the adult population suffers from a mental health condition. Like many other countries, socioeconomic factors in Bangladesh increase the prevalence of mental health conditions, including natural disasters, gender-based violence and multidimensional poverty. In 2021, expenditure on mental health services in Bangladesh accounted for 0.44% of the total health budget, with 67% of the expenditure on mental health hospitals. The Government has recently recognized mental health as one of the 10 priorities in health and made commendable progress in policy and legislation, including the recent National Health Policy and National Mental Health Strategic Plan 2020–2030. Both the policy and strategic plan include integration of mental health services into primary health care, decentralization, equity and innovative programming.

Both challenges and opportunities were identified during the situation and context analyses. The challenges include lack of priority for mental health, lack of sufficient funding and lack of human resources and specialized staff. Social factors such as stigmatization of mental health conditions also affect access to services. There is limited access to and availability of mental health services, with an estimated treatment gap of more than 90%. Means for strengthening mental health services in Bangladesh include a strong network of community health clinics and civil society organizations, which can be leveraged to increase access to mental health services and increase public awareness. The reach of mental health services could also be increased by scaling up current programmes, such as tele-counselling, which is currently provided by some tertiary care hospitals, and task-shifting.

The analysis draws attention to areas that should be strengthened and scaled up in order to implement cost-effective preventive and clinical interventions for mental health conditions. Bangladesh can take the following actions to translate the projected benefits of scaled-up mental health investment into policy and practice in order to reduce the adverse consequences of mental health conditions and increase mental health, well-being, life expectancy and quality of life, while simultaneously reducing national productivity losses.

Bangladesh could consider the following recommendations to strengthen its mental health system and improve the availability and quality of services.

POLICY AND STRATEGY

Bangladesh can advance towards universal health coverage by making health care and mental health services more affordable, increasing Government spending on health and making hospital services heavily subsidized or free in benefit packages for poor and chronically ill people (48). Alternative sources of funding for the health system should be explored and publicly funded and other forms of insurance prioritized. To mobilize resources for public funding, the Government might consider increasing existing or introducing new taxes on health-harming products such as tobacco. Currently, the tobacco tax rate in Bangladesh is below the WHO-recommended level, and ad-valorem tax accounts for the major part of the total tobacco tax (71, 72). It has been shown that, by raising tobacco taxes and changing the tax structure (i.e., shifting from ad valorem to a specific excise tax system), the Government of Bangladesh can save the lives of more than 890 000 people and generate more than BDT 92 billion in additional tax revenues between 2022/23 and 2027/28 (73).

Bangladesh should encourage a whole-of-government, whole-of-society approach to mental health. As the findings of this investment case demonstrate, the benefits of improved mental health extend beyond the health sector and can catalyse economic and social progress in many areas. In particular,

clinical intervention packages for anxiety disorders, depression, psychosis and epilepsy and population-based interventions to ban pesticides and introduce universal school-based SEL result in gains in productivity and social value that far exceed the costs of implementation and collectively account for more than 2% of the GDP. The bipolar disorder package does not yield a positive return on investment but has the greatest potential to save lives (30 686 deaths averted over 10 years). Its implementation (with the other interventions) will result in respect for the human rights of people with mental health conditions and help fulfil the Government's commitment to leave no one behind.

The strategic plan and the findings and recommendations of this investment case can be used to bring together key sectors and serve as a basis for prioritized action. Collaboration with the ministries of Education and of Women and Children's Affairs is key for integrating mental health into the education system and school curricula to improve education on and awareness of mental health and protect the next generation. Targeted interventions may be considered for socially disadvantaged children, as they are more likely to have mental health conditions (73). Effort should also be made to reach children who are not at school.

Strengthened coordination with the ministries of Health, of Home Affairs and of Law, Justice and Parliamentary Affairs, the Department of Prisons and NGOs will be necessary to extend the provision of mental health services to prisons and protect the human rights of prisoners with mental health conditions. While research in comparable countries indicates that the prevalence of mental health conditions among prisoners is much higher than that in the general population, an epidemiological study should be conducted in Bangladesh to establish the prevalence in its prisons (51).

More specifically, Bangladesh can undertake the following initiatives:

Recommendation 1: Increase government financial allocation for mental health to ensure Universal Health Coverage.

- Advocate to relevant policy makers for allocating adequate resources to provide mental health care at all levels of the health system through a separate Operational Plan (OP)
- Establish system to allocate required resources to address needs of people living with mental health conditions, as such interventions have high returns on investment.
- Allocate adequate resources to design evidence-based population-level prevention and promotion interventions as these are low cost to implement and generate substantial health gains.

Recommendation 2: Improve multi-stakeholder collaboration and achieve better integration of mental health goals and targets into sectoral and national development policies and plans

- Ensure National Mental Health goals and targets receive priority and being addressed with adequate budget in the 5th Health, Nutrition and Population Sector Program (2024-29) of the country.
- Create platform for regular coordination and collaboration among stakeholders within MOHFW and other relevant ministries to ensure collective and coordinated efforts in addressing mental health issues.
- Include mental health as a priority within the national anti-poverty strategy.

SERVICES

There is a clear economic argument for scaling up the availability and reach of mental health services in Bangladesh. While the country has recently made progress and is strongly political committed to improving mental health care, the situation analysis and interviews with stakeholders showed considerable gaps in the availability of essential mental health services, including shortages of qualified mental health professionals, lack of dedicated facilities and deficiencies in existing prevention, support and follow-up programmes. The estimated treatment gap is 92% for adults, with a persistent urban–rural divide, as most health-care facilities and mental health specialists are concentrated in major urban areas.

The economic modelling shows, however, that major health and economic benefits will result from investment in WHO-recommended intervention packages. Furthermore, the cost of continuous implemention of these packages over the next 10 years (BDT 54.7 billion) represents just a fraction of the amount that the Bangladeshi economy loses every year due to mental health conditions in the population (BDT 210.5 billion).

Both the mental health policy and the plan include integration of mental health services into the public health-care system and decentralization, by extending mental health services to divisions, districts, upazilas and thanas (28). Investment in and prioritization of community care are key to improving access to affordable, high-quality mental health care. Consideration should also be given to scaling up basic and intensive psychosocial, psychiatric and neurological treatment for the most common mental health and neurological conditions (such as anxiety, depression and epilepsy). According to the economic analysis, intervention packages for addressing these common conditions yield important health benefits and significant returns on Investment.

Bangladesh could consider the following steps to strengthen its mental health system and improve the availability and quality of services.

Recommendation 3: Increase the service coverage for mental health through strengthening and integrating mental health services at all levels of health care.

- Integrate screening, diagnosis and management of mental health at PHC facilities including maternal and child health program, NCD program.
- Strengthen the NCD corners at Upazila Health Complexes for screening, diagnosis and management of mental health conditions.
- Create a structured referral pathway with secondary and tertiary level hospitals.
- Explore possibilities of public-private partnership and GO-NGO collaboration to increase coverage in hard to reach areas, urban areas
- Review and update Essential Service Package (ESP) to ensure facility-based routine screening, diagnostics, essential medicines and referral services for mental health care at all tiers
- Include psychotropic medications in the essential drug list and ensure regular supply to public facilities for free distribution

Recommendation 4: Develop competent mental health workforce

- Revise the job descriptions of PHC workers for addressing mental health along with task shifting, and ensure in-service training to enhance capacity of the PHC workforce
- Provide training and orientation for HR on early detection and management of mental health at primary care settings
- Extend the mhGAP programme throughout the country to build the capacity of all health-care workers at all levels to identify, treat and follow up people with mental health and neurological conditions.
- Make investments in training of non-mental health specialists including doctors, nurses and allied health workforce (e.g. Midwife, Sub-Assistant Community Medical Officer, Family Welfare Assistant, Family Welfare Visitor, Tuberculosis and Leprosy Care Control Assistant)
- Implement PEN including mental health in both urban and rural areas
- Establish a local support system in rural communities and equip field-level health workers with the knowledge and skills about mental health.
- Ensure post-training supportive supervision for primary care staff trained on mental health
- Make investments in training of mental health specialists (psychiatry and psychology, psychiatric nursing) to improve the standard and accessibility of the provision of mental health services.
- Introduce and strengthen telemedicine/mobile phone-based mental health services and educate potential users.

PREVENTION AND PROMOTION

Bangladesh needs to focus on prevention as well as the promotion of mental health and well-being of communities with guidance for self-care, which will reduce the burden on healthcare systems and improve overall health outcomes. Promotional activities to improve mental well-being at schools and workplaces can be prioritised. The specific recommendations are outlined below.

Recommendation 5: Promotion, Protection, and Prevention of mental health of vulnerable groups

- Integrate mental health intervention in school health programs through coordination with Ministry of Primary and Mass education and other relevant authorities
- Integrate mental health intervention in work-places through coordination with BGMEA, BKMEA and other relevant institutions
- Design and implement community self-help and social support groups to ensure inclusiveness of care for vulnerable and marginalized groups
- Protect and promote the rights of people with severe mental health conditions in critical humanitarian emergencies.
- Provide priority to addressing suicide at population-level.

INFORMATION AND RESEARCH

Mental health research is essential for improving the evidence-informed decision making to influence policy and practice. Moreover, regular record keeping and reporting of patients with mental disorders are important for patient follow up and proper planning. Bangladesh could consider the following recommendation to improve mental health information and research.

Recommendation 6: Improve record keeping, reporting and surveillance systems to improve patient follow up and for evidence-informed planning making

- Strengthen regular recording and reporting system to capture routine mental health patient data.
- Integrate mental health data with DHIS2.
- Strengthen evidence synthesis and research for mental health.
- Develop capacity of policy makers on data analysis and evidence-informed decision making on mental health.

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Annex 1. Return on Investment analysis: Methods and data sources

Modelling approach

The principles, framework and methods described in a joint publication by WHO and United Nations Development Programme entitled Mental health investment case: A guidance note (1) were used. The document provides detailed information on the successive steps required for an analysis of return on investment in the mental health sector.

A return on investment analysis provides a convenient, comparable measure of the efficiency of one or more investment choices, expressed as the expected flow of benefits resulting from an investment of resources. Expression of both the costs and the benefits of an innovation or intervention in the same units (money) makes investment decisions straightforward, indicating that, if the benefits of an investment are larger than the costs, it is sound.

The economic and social benefits of better mental health are both its intrinsic value (greater well-being) and its instrumental value in terms of forming and maintaining relationships, studying, working or pursuing leisure activities and making decisions in everyday life. These benefits and their relation to investment costs are assessed to establish the rate of return, by estimating current and future levels of mental ill health and effective intervention coverage of a population and then determining the economic impacts of improved mental health outcomes, particularly on the rates of labour participation and productivity.

Intervention and service costs (the investment)

Intervention costs are the monetized value of the resources used to implement and maintain the interventions or services of interest. They comprise the costs of the interventions themselves (e.g., use or uptake of an adapted or new psychosocial intervention) and the broader costs of scaling up and overseeing implementation of the intervention in the population. The total costs of a mental health intervention or service in a given year can be estimated by multiplying the resources required by their respective unit costs to obtain the cost per beneficiary or treated case, which is then multiplied by the total number of beneficiaries or cases expected to receive the intervention. Resources used in the clinical interventions included in this analysis are presented in Table A2.1.

Table A2.1. Resources associated with delivery of clinical interventions

Intervention	Eligible population	Medication and diagnostic tests	Inpatient care	Outpatient care	Primary and other health care
Psychotic disorder					
Assessment and management of psychosis with basic psychosocial support and antipsychotic medication	100% of people with psychotic disorders	Haloperidol, 5-mg tablet (20%, every day) Chlorpromazine, 100 mg (20%, every day) Fluphenazine decanoate, 25 mg/mL (10%) Risperidone, 2-mg tablet (50%, every day) Biperiden, 2-mg tablet (50%, 90 days) EEG	15% of patients require 28 inpatient days. 10% of patients require residential or long-term care (average, 90 days)	1 visit for assessment 4 visits for medication 1 visit for follow-up	1 nurse visit, 1 GP visit for psychosocial support 2 nurse visits, 2 GP visits for medication
Assessment and management of psychosis with psychological treatment and antipsychotic medication	100% of people with psychotic disorders	Haloperidol, 5-mg tablet (20%) Chlorpromazine, 100 mg (20%) Fluphenazine decanoate, 25 mg/mL (10%) Risperidone, 2-mg tablet (50%) Biperiden, 2-mg tablet (50%) EEG	15% of patients require 28 inpatient days; 10% of patients require residential or long-term care (average, 90 days)	1 visit for assessment 4 visits for medication 1 visit for follow-up	1 nurse visit, 1 GP visit for medication support, 12 long nurse visits for individual therapy for 50% of patients, 12 peer-group therapy sessions for 50% of patients
Bipolar disorder					
Assessment and management of bipolar disorder with basic psychosocial support and mood-stabilizing medication	100% of people with bipolar disorder	Lithium, 300 mg (20%, every day) Haloperidol, 5 mg tab (20%, every day) Valproate, 500 mg (20%, every day) Carbamazepine 200 mg (40%, every day) Diazepam, 5 mg (40%, 30 days) Serum level test (20%) Thyroid function test (20%)	15% of patients require 28 inpatient days; 10% of patients require residential or long-term care (average, 90 days).	1 visit for assessment 4 visits for medication 1 visit for follow-up	1 nurse visit, 1 GP visit for psychosocial support 2 nurse visits, 2 GP visits for medication
Assessment and management of bipolar disorder with psychological treatment and	100% of people with bipolar	Lithium, 300 mg (20%, every day) Haloperidol, 5-mg tablet (20%, every day) Valproate, 500 mg (20%, every	15% of patients require 28 inpatient days; 10% of	1 visit for assessment 4 visits for medication	1 nurse visit, 1 GP visit for medication support

mood-stabilizing medication	disorders	day) Carbamazepine, 200 mg (40%, every day) Diazepam, 5 mg (40%, 30 days) Serum level test (20%) Thyroid function test (20%)	patients require residential or long-term care (average, 90 days).	1 visit for follow-up	12 long nurse visits for individual therapy for 50% of patients 12 peer-group therapy sessions for 50% of patients
Depressive disorder					
Assessment and management of mild depression with basic psychosocial support	40% of people with depression			1 visit for assessment 1 visit for follow-up	1 nurse visit, 1 GP visit
Assessment and management of moderate–severe depression with basic psychosocial support and oral antidepressants	60% of people with depression	Fluoxetine, 20-mg tablet (50%, every day) Amitriptyline, 50-mg tablet (50%, every day)	2% of patients require 14 inpatient days	1 visit for assessment 1 visit for follow-up	1 nurse visit, 1 GP visit for psychosocial support 2 nurse visits, 2 GP visits for medication
Assessment and management of moderate–severe depression with psychological treatment	60% of people with depression		2% of patients require 14 inpatient days	1 visit for assessment 1 visit for follow-up	1 nurse visit, 1 GP visit for medication support 12 long nurse visits for individual therapy for 50% of patients 12 peer-group therapy sessions for 50% of patients
Assessment and management of moderate–severe depression with psychological treatment and oral antidepressants	60% of people with depression	Fluoxetine, 20-mg tablet (50%, every day) Amitriptyline, 50-mg tablet (50%, every day)	2% of patients require 14 inpatient days	1 visit for assessment 1 visit for follow-up	1 nurse visit, 1 GP visit for medication support 12 long nurse visits for individual therapy for 50% of patients 12 peer-group therapy sessions for 50% of patients
Anxiety disorder					
Assessment and management of	45% of people			1 visit for assessment	1 nurse visit, 1 GP visit

mild anxiety disorder with basic psychosocial support	with anxiety disorder			1 visit for follow-up	
Assessment and management of moderate–severe anxiety disorder with basic psychosocial support and oral medications	55% of people with anxiety disorder	Fluoxetine, 20-mg tablet (50%, every day) Amitriptyline, 50-mg tablet (50%, every day)	2% of patients require 14 inpatient days	1 visit for assessment 1 visit for follow-up	1 nurse visit, 1 GP visit for psychosocial support 2 nurse visits, 2 GP visits for medication
Assessment and management of moderate–severe anxiety disorders with psychological treatment and oral medications	55% of people with anxiety disorder	Fluoxetine, 20-mg tablet (50%, every day); Amitriptyline, 50-mg tablet (50%, every day)	2% of patients require 14 inpatient days	1 visit for assessment 1 visit for follow-up	1 nurse visit, 1 GP visit for medication support 10 long nurse visits for individual therapy for 50% of patients 8 peer-group therapy sessions for 50% of patients
Epilepsy					
Assessment and management of epilepsy with anti-epileptic drugs	100% of people with epilepsy	Phenobarbital, 100-mg tablet (60%, every day) Phenytoin, 100-mg tablet (30%, every day) Carbamazepine, 200 mg (10%, every day)		1 visit for assessment 3 visits for follow-up	2 nurse visits, 2 GP visits
Alcohol use disorder					
Screening and brief intervention for alcohol use disorder	100% of people with alcohol use disorder		2% of patients require 14 inpatient days	1 visit for assessment 1 visit for follow-up	1 nurse visit, 1 GP visit for psychosocial support
Management of alcohol withdrawal	100% of people with alcohol use disorder	Diazepam, 5 mg (40%, 5 days) Thiamine, 100 mg (100%, 5 days)	2% of patients require 14 inpatient days	1 visit for assessment 3 visits for follow-up	2 nurse visits, 2 GP visits for follow-up support

GP, general practitioner

For the two population-based measures, costing worksheets were developed to capture the main categories of expected resource use. In the case of a ban on pesticides, the costs of legislation were based on an analysis of use of Parliamentary time in New Zealand (2) converted to the equivalent expected time necessary in Bangladesh to pass new legislation for banning a highly hazardous pesticide; the costs of enforcement (including spot checks for compliance) and programme costs (human resources, media costs, meetings and transport) were also estimated. For the school-based programme, the resources also included programme costs and training and the time of counsellors to provide the SEL intervention to groups of schoolchildren.

Intervention benefits (the returns)

Intervention benefits are the monetized value of improvements in health and productivity due to uptake or use of an intervention. They include improvements in health and functioning, which can be expressed as monetary amounts, for example by conversion to a summary measure of population health such as healthy life years gained and then assignment of an economic value or "price" to each healthy life year gained. The benefits also include greater participation in the labour market and productivity, which can be assessed with reference to local rates of employment and the income generated per worker.

The average impact of mental health interventions, as measured in clinical trials and other studies or summarized in meta-analyses, can be expressed as the standardized mean difference or effect size for primary measures of outcome, such as incidence, remission or case fatality. These effect sizes can be converted into or expressed as proportionate improvements. The impacts of the interventions included in this analysis were estimated in this way (Table A1.2).

Table A1.2. Interventions considered in the mental health investment case

Intervention	Baseline coverage (%)	Target coverage (%)	Health impacts assessed
Anxiety disorders (Service delivery setting: Primary health care)			
Basic psychosocial treatment for mild cases	10	40	Improved functioning or level of disability (7–12%) and rate of remission (36–42%) among people with anxiety disorders aged ≥ 15 years after adjustment for non-adherence (30–40%)[a]
Basic psychosocial treatment and anti- depressant medication for moderate–severe cases	10	50	
Intensive psychosocial treatment and anti-depressant medication for moderate–severe cases	1	30	
Depression (Service delivery setting: Primary health care)			
Basic psychosocial treatment for mild cases	5	30	Improved functioning or level of disability (4–9%) and rate of remission (15–25%) among people aged > 15 years with depression, after adjustment for non-adherence (30–40%)[b]
Basic psychosocial treatment and anti- depressant medication for first episode in moderate–severe cases	5	40	
Intensive psychosocial treatment and anti-depressant medication for first episode in moderate–severe cases	5	30	
Intensive psychosocial treatment and anti-depressant medication for recurrent moderate–severe cases episodically	5	30	

Intervention	Baseline coverage (%)	Target coverage (%)	Health impacts assessed
Intensive psychosocial treatment and anti-depressant medication for recurrent moderate–severe cases for maintenance	1	30	As above, plus reduced incidence of recurrent episodes (28%), after adjustment for non-adherence (30%)
Psychosis (Service delivery setting: Secondary health care)			
Basic psychosocial support and anti-psychotic medication	20	40	Improved functioning or level of disability among people aged ≥ 15 years with psychosis (21–35% after adjustment for adherence)[c]
Intensive psychosocial support and anti- psychotic medication	5	30	
Bipolar disorder (Service delivery setting: Secondary health care)			
Basic psychosocial treatment plus mood- stabilizing medication	20	40	Improved functioning or level of disability among people aged ≥ 15 years with bipolar disorder (10.4–11.4%, after adjustment for adherence). For cases treated with lithium, a relative reduction of 46.5% in case fatality rate[d]
Intensive psychosocial intervention plus mood-stabilizing medication	5	20	
Epilepsy (Service delivery setting: Primary health care)			
Basic psychosocial treatment plus anti-seizure medication	40	60	Improved functioning or level of disability (47%) and rate of remission (60%) among people aged ≥ 1 year with epilepsy, after adjustment for non-adherence (30%)[e]
Alcohol use disorder (Service delivery setting: Secondary health care)			
Screening and brief interventions for alcohol use disorder	5	30	Improved rate of remission (10–15%) among people aged ≥ 15 years with alcohol use disorder, after adjustment for non-adherence (50%)
Management of alcohol withdrawal	5	30	
Population-based mental health interventions			
Nationwide regulatory ban on highly hazardous pesticides to prevent suicide	30	70	A relative risk reduction in the incidence of pesticide-related suicide (35%), subsequently linked to overall suicide and mortality in the population[f]
Universal school-based SEL interventions to prevent depression, anxiety and suicide in adolescents aged 12–17 years	5	30	A relative risk reduction in the incidence of depression and anxiety (16%) and of suicide (5.8%) among adolescents attending school[g]

[a] Details of treatment impacts are provided in reference *3*
[b] Details of treatment impacts are provided in references *3* and *4,*
[c] Details of the model and its parameters are provided in reference *5*.
[d] Details of the model and its parameters are provided in reference *6.*
[e] Details of the model and its parameters are provided in reference *7.*
[f] Details of the model and its parameters are provided in reference *8*.
[g] Details of the model are provided in a paper submitted for publication in a peer-reviewed academic journal.

To estimate or project the impact of an intervention on the population, the results must be extrapolated in a population model. The inputs for such an analysis are (i) the total target population; (ii) the prevalence of the mental disorder; (iii) the effect of the intervention on prevalence or the average level of disability associated with the mental disorder; and (iv) the current and target levels of coverage. Baseline and target coverage levels for each of the interventions included in the analysis are shown in Table A1.2.

The impacts on population health were calculated with the OneHealth tool, software designed for national strategic health planning in low- and middle-income countries, development of which was overseen by experts from United Nations agencies and development institutions. A mental health module was developed as part of the tool for estimating the costs and health impacts of mental health services and interventions at population level. The module allows estimation of the number of people living with mental health conditions in a country and linkage of the epidemiology of mental health conditions to national life tables for estimation of the numbers of cases averted and healthy life-years gained over time at population level.

As most of the effects of mental health interventions are reductions in morbidity or disability (as opposed to saving lives), a suitable metric for summarizing them at population level is healthy life years gained (equivalent to disability-adjusted life years averted, considered to be lost years of healthy life). Healthy life years gained (equivalent to disability-adjusted life years averted) is commonly used in the global health literature as a summary measure of population health. National life tables are used to compute healthy life years, which reflect the combined time spent by the population in a state of health with a known degree (or absence) of disability. A disability weight ranging from 0 (denoting death) to 1 (denoting perfect health) is used to adjust the time spent in a particular health state. For example, if a person lives with disease X for 10 years and the disability weight for disease X is 0.4, the total healthy life years gained for that person is 4 (10 multiplied by 0.4).

Estimates were subsequently made of how each mental health intervention could improve national productivity, measured in terms of GDP. The first estimate addressed increasing labour force participation due to avoided mortality and avoided illness. The economic value of increases in the healthy labour force due to avoided mortality were calculated by taking the total number of deaths avoided, adjusting this number to account for those who participate in the labour force and are currently employed and then multiplying by the net present value of foregone GDP per capita over the modelled time horizon. The economic value of increases in the healthy labour force due to avoided cases of illness was calculated by taking the total number of prevalent cases averted, applying the same employment-related adjustments as above, multiplying by the annual GDP per employed person and then further multiplying the result by 5%, which is the increase in labour force participation among people with a mental health condition who receive treatment, based on the findings of a previous study of global return on Investment, in which 5% restored productivity was assumed after mental health treatment (3).

The second estimate was of reduced absenteeism and presenteeism. The economic value was estimated in the same way. In this case, however, multiplication by 5% represented the decrease in absenteeism and presenteeism among people with a mental health condition who received treatment. The 5% reductions in absenteeism and presenteeism were based on findings from the previous study of global return on Investment (3).

Finally, to reflect the intrinsic value of better health gained by an intervention (independent of its instrumental value), an economic value was applied to healthy life years gained. A Lancet Commission

on investing in health determined that the value of a healthy life year gained is approximately 1.5 times GDP per capita (9). Two thirds of this value (1.0 times GDP per capita) is attributable to the instrumental value of improved health, i.e., economic gains or gains related to productivity, while one third (0.5 times GDP per capita) is attributable to the intrinsic value of health, i.e., its social value or the value of health as an end in itself. Recent international guidelines for benefit–cost analysis (10) recommend, however, that the intrinsic value of health be valued fully (at 1.5 times GDP per capita) and counted in addition to the productivity-related value of being able to work or increase earnings. For the current analysis, a value of 1.5 times GDP per capita was used to estimate the intrinsic social value of health.

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