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Prevention and management of mental health conditions in

Uzbekistan

The case for investment

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Designed by: Zsuzsanna Schreck

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ABBREVIATIONS AND ACRONYMS

GDP	gross domestic product
mhGAP	mental health Gap Action Programme
mhGAP-IG	mental health Gap Action Programme Intervention Guide
NCD	noncommunicable disease
PHC	primary health care
ROI	return on investment
SDG	Sustainable Development Goal
SEL	social–emotional learning
UNDP	United Nations Development Programme
UNIATF	United Nations Inter-Agency Task Force on the Prevention and Control of NCDs
UZS	Uzbek sum
WHO	World Health Organization

Uzbekistan

The case for investment in mental health

CURRENT BURDEN OF MENTAL HEALTH CONDITIONS

4.8 trillion UZS per year

0.98% of GDP

0.8 trillion UZS direct costs

due to healthcare expenditures

3.9 trillion UZS indirect costs

due to loss of workforce and reduced productivity

INVESTMENT REQUIRED

3.9 trillion UZS

113 000 UZS per capita

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

ANXIETY DISORDERS	DEPRESSION	PSYCHOSIS	BIPOLAR DISORDER
189 billion UZS	242 billion UZS	687.7 billion UZS	2 027 billion UZS

EPILEPSY	ALCOHOL DEPENDENCE	UNIVERSAL SCHOOL-BASED INTERVENTIONS	INDICATED SCHOOL-BASED INTERVENTIONS
109.4 billion UZS	330.6 billion UZS	130.3 billion UZS	147.8 billion UZS

RETURN ON INVESTMENT OVER 10 YEARS

4.4 trillion UZS

includes productivity gains and social value of health

	ROI	Healthy life-years gained	Total productivity gained
Anxiety disorders	5.4	40 487	480 billion UZS
Depression	10	88 852	1 trillion UZS
Psychosis	1.9	64 557	792 billion UZS
Bipolar disorder	-0.7	19 251	230 billion UZS
Epilepsy	23.3	98 879	1 trillion UZS
Alcohol dependence	0.8	20 646	244 billion UZS
Universal school-based interventions	8.9	43 144	518 billion UZS
Indicated school-based interventions	-0.6	2 047	24 billion UZS

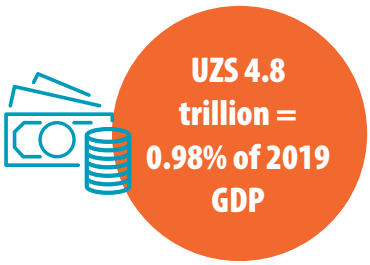
EXECUTIVE SUMMARY

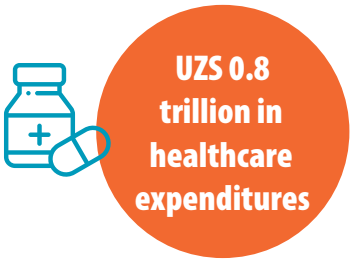
Mental, neurological and substance use conditions pose a significant challenge in Uzbekistan, not only because of the human suffering and public health burden they cause or contribute to but also because they have substantial social and economic consequences, such as their impact on workforce productivity. This report provides an assessment of the current mental health situation in the country, including challenges and opportunities for development of the mental health system, and also economic evidence of the attributable, avertable burden associated with a number of leading mental, neurological and substance use conditions – psychosis, bipolar disorder, depression, anxiety disorders, epilepsy and alcohol use disorders. Intervention costs, health gains and economic benefits were estimated for these six conditions as well as for two school-based interventions for preventing depression and suicide.

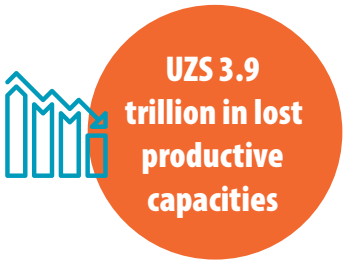
Photo: © WHO

Main findings

The cost of mental health conditions







In 2019, mental health conditions cost the Uzbek economy an estimated UZS 4.8 trillion, equivalent to 0.98% of its gross domestic product (GDP). These annual costs comprised UZS 820 billion in health-care expenditure and UZS 3.9 trillion in lost productivity due to premature mortality, disability and reduced productivity at the workplace. The productivity losses indicate that many sectors could benefit from investment in mental health and that multisectoral and whole-of-society engagement are necessary.

Why invest in interventions

By acting now, Uzbekistan 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, over the period until 2030:

Save more than 2 600 lives and result in nearly 380 000 healthy life years gained by reducing the incidence, duration or severity of the assessed mental health conditions. Roll-out of these intervention packages will contribute to achievement of Sustainable Development Goals (SDG) target 3.4, to reduce by one third premature mortality (under age 70) from noncommunicable diseases (NCDs) and promote mental well-being by 2030.

Provide economic benefits (UZS 4.4 trillion), which significantly outweigh the costs (UZS 3.86 trillion) of implementation. The intervention packages for scaled-up treatment of epilepsy and depression, with universal, school-based socio-emotional learning (SEL) interventions to prevent depression and suicide, offer the highest return on investment (ROI) during the period of scaling up during 2021–2030, resulting in UZS 8.7, 3.4, 3.0 respectively, for every UZS 1 invested.

The results of the study demonstrate the potential for Uzbekistan to reduce the socioeconomic consequences of mental health conditions through a set of evidence-based interventions. In the context of current policy reforms towards universal health coverage, Uzbekistan should ensure that mental health services and treatment are accessible and covered by national health insurance. Local governments, workplaces, schools and other community organizations should prioritize mental health prevention, promotion and treatment.

Recommendations are divided into four:

1. Increase the capacity of the health-care workforce and system to provide mental health interventions, including integrating mental health into primary health care (PHC) and strengthening community service provision.
2. Leverage health financing and delivery reforms to extend the coverage of mental health conditions, medicines and services by publicly funded health insurance or benefit packages as part of the broader move towards universal health coverage.
3. Invest in the evidence-based, cost-effective clinical and population-based mental health interventions modelled in the economic analysis, such as treatment of the most common mental health conditions in nonspecialized health-care settings and school-based SEL to prevent depression and suicide.
4. Establish and strengthen monitoring and surveillance systems to estimate the prevalence of mental health conditions and track patient outcomes.

Photo: © WHO / Jerome Flayosc

RECOMMENDATIONS

The institutional context analyses identified current developments in the Uzbek mental health system and challenges and opportunities, while the economic analysis drew attention to a range of evidence-based care or prevention strategies that could be scaled up to move towards universal health coverage of people with mental health conditions in Uzbekistan. Uzbekistan can take the following actions to translate the projected benefits of scaled-up mental health investment into policy and practice:

1 Increase the capacity of the health-care workforce and system to provide mental health interventions, including integrating mental health into primary health care (PHC) and strengthening community service provision.

Uzbekistan could increase access to and optimize service delivery of mental health care in several ways:

- **Allocate more funds for strengthening mental health services in PHC, including training and supervision of PHC physicians for screening, diagnosis and management of patients with mental illness.** The Government of Uzbekistan has identified WHO's mhGAP-IG as an appropriate tool for such capacity-building, and an initial training-of-trainers workshop was conducted in 2019. Further implementation of mhGAP-IG in the country is recommended, especially in the context of the Syrdarya project, as this will provide a circumscribed population within which to fully test and evaluate the actual delivery of several interventions considered in the investment case analysis (e.g. treatment of anxiety, depression and epilepsy in non-specialized health-care settings).
- **Strongly consider population-based packages for universal school-based interventions, through the "health-promoting schools" pilot initiative[1] with WHO in three regions.** The initiative could involve psychologists already stationed in schools and technology to adapt and deliver interventions in line with COVID-19 lockdown measures.

1 Available at https://www.uzedu.uz/en/mamlakatimizda-salomatlikni-mustakamlasga-kumaklasuvci-maktab-lojiasi-amalga-osiriladi

- **Invest in post-graduate and continuing education programmes for mental health service providers, and increase the number of providers trained each year.** The Government may review incentive structures, including for rural placements.
- **Work with community actors and civil society organizations to run online and offline media campaigns to raise awareness of the importance of mental health and how to access proper treatment, in view of the high prevalence rates of suicide and alcohol dependence.** Provide information about mental health to reduce stigmatization and facilitate more community care.
- **Implement and extend successful telemedicine and tele-monitoring health services to improve psychosocial support and mental health care delivery in remote areas.**
- **Encourage participation of the community, including local leaders and nongovernmental organizations, in integrated mental health care delivery.** Mahalla Foundation, the Medical Students' Association and the Youth Union are examples of nongovernmental organizations that could help to identify district- or region-specific needs in mental health care and in implementation of programmes.
- **Establish a formal national coordination mechanism on mental health and NCDs operating under clear terms of reference and an annual workplan**, so that the Ministry of Health can coordinate with key sectors of Government and civil society.
- **Work with the United Nations country team, including WHO, UNDP, the World Bank and other development partners, to ensure that existing initiatives and investments are fully leveraged.** The Ministry of Health may lead integration of mental health into development investment and programmes.
- **Build upon existing mental health policy and legislation to promote human rights through strengthening legislative protection for patients** and expanding provisions to all populations with mental health or neurological conditions.

2 Leverage health financing and delivery reforms to extend the coverage of mental health conditions, medicines and services by publicly funded health insurance or benefit packages as part of the broader move towards universal health coverage.

Current health financing reforms in Uzbekistan provide an opportunity to secure wider, fairer financial protection for individuals and households affected by mental health conditions, in terms of both extending financial and geographical access to currently under-served populations and reducing reliance on private, out-of-pocket expenditure for essential psychotropic medications and other health-related goods and services. With support requested from WHO and other partners, the Ministry of Health can further define the psychotropic medicines, psychosocial interventions and mental health services to be included in the basic benefits package to be financed from the new health insurance fund.

Particular attention should be paid to experience from the large-scale health reform project being pilot-tested in the Syrdarya oblast, including case-based financing and a unified electronic register of people receiving services. This pilot project, which is to include mental health conditions as part of the NCD package to be integrated into the PHC system, is anticipated to enhance the follow-up, care and outcomes of service users while increasing the transparency of the health-care budget and Government planning of multi-year health-sector budgets.

Uzbekistan could consider increasing excise taxes on tobacco, alcohol and other health-harming products for additional financing of the Insurance Fund as well as earmarking additional revenue for health.

3 Invest in the evidence-based, cost-effective clinical and population-based mental health interventions modelled in the economic analysis, such as treatment of the most common mental health conditions in non-specialized health-care settings and school-based SEL to prevent depression and suicide.

Most of the packages modelled in the investment case provide both large health benefits and significant ROIs. Scaled-up interventions for anxiety, epilepsy and depression result in the highest estimated benefit–cost ratios, because these conditions are relatively common and are inexpensive to treat but their treatment is expected to result in considerable gains in population health and work productivity. Further, given that Uzbekistan has high rates of alcohol-use disorders (5.9%, both alcohol-dependence and harmful use of alcohol) and binge drinking (53% of men during the previous month) (2), and the alcohol-dependence package has the greatest estimated potential to save lives of all the modelled packages, investment in treatment of alcohol dependence should be prioritized, with renewed effort to prevent or reduce harmful use of alcohol through cost–effective population-based alcohol control strategies, such as increased excise taxes or marketing restrictions on alcoholic beverages (as shown in the investment case on NCDs and associated risk factors (3)).

The population-based interventions deserve particular attention. Of these, the universal school-based SEL interventions have the greatest potential for preventing depression and anxiety, with an ROI of 8.9 over 10 years if the social value of health is included in the calculation. The model could be extended in the future to account for productivity gains by students later in life because of better educational outcomes, a lower prevalence of mental health conditions and higher productivity when they become adults. In view of their potential to generate important health and productivity gains at relatively low implementation costs, the school-based interventions represent an opportunity that should not be missed.

4 Establish and strengthen monitoring and surveillance systems to estimate the prevalence of mental health conditions and track patient outcomes.

The Ministry of Health should work with WHO to identify where health information systems, especially monitoring and surveillance frameworks and infrastructure, should be strengthened. Introduction of electronic health records on a single e-health portal would greatly facilitate the collection and tracking of health indicators, including those for mental health. The Ministry of Health could work with WHO to decide which indicators should be tracked with which data collection strategy, including digital platforms. The WHO mhGAP monitoring and evaluation toolkit can be used to identify a minimum set of indicators, some of which may be collected routinely with local, facility-based information systems and others collected separately and periodically. Uzbekistan should ensure that the collected data are disseminated rapidly to decision-makers and become part of ongoing dialogue between policy-makers and service planners.

Photo: © WHO

INTRODUCTION

Mental health is an integral part of health and well-being and affects people's capacity to lead fulfilling, productive lives. Mental health and psychosocial well-being are affected by numerous interactions of genetic and other biological characteristics with societal, cultural and environmental factors. Increased exposure to adverse determinants of mental health and the ageing of populations in many parts of the world have been associated with a 30% rise in the global prevalence of mental health conditions in the past three decades (*1*).

Mental, neurological and substance use conditions, including depression, anxiety disorders, psychosis, bipolar disorder, epilepsy, dementia and alcohol use disorders, do not only cause individual human suffering but also have economic implications at household, country and global levels. The implications include not only a financial burden on the health system but also loss of productivity by the workforce, as individuals with mental health conditions are more likely to leave the labour force (because of premature death or disability), miss days of work ("absenteeism") or work at reduced capacity ("presenteeism"). WHO (*2*) estimated that mental health conditions and neurological conditions (such as epilepsy or Alzheimer disease) account for 28% of the non-fatal disease burden worldwide and 10% of the overall disease burden, which includes both death and disability.

Mental, neurological and substance use conditions have important social implications, including suicide, violence and accidents related to alcohol use disorders, negative impacts on education (dropouts, poor performances) and carers (such as lost opportunities for girls and women) and stigmatization and discrimination against people with mental health conditions.

Most of these conditions are treatable; however, the challenge in many parts of the world is lack of access to affordable, high-quality health and social care services. Promotion and prevention are also important, as they

can encourage or increase protective factors and healthy behaviour that can help prevent the onset of mental health conditions.

Mental health evolves throughout the life-cycle and is strongly influenced by social and economic determinants (e.g. income, employment status, educational level, material standard of living) and also physical health and exposure to adverse life events, ranging from natural disasters and civil conflict to sexual violence, child abuse and neglect. Many cases of the most common mental health conditions could be prevented by preventing exposure to adversity.

Strengthening policy and raising interest and investment in mental health are major goals for public health and sustainable development. This is reflected in the 2030 Agenda for Sustainable Development, in which target 3.4 is to reduce by one third premature mortality from NCDs and promote mental health and well-being by 2030. Beyond health and well-being, investment in evidence-informed mental health interventions will have co-benefits for other SDGs, notably 4 (education), 5 (gender), 8 (employment/ economic growth), 10 (equality), 11 (safe cities), 16 (violence) and 17 (partnership, capacity-building, domestic resource mobilization). Improving mental health is critical to the SDG vision of realizing a just, inclusive, equitable society.

Strengthening policy and raising interest and investment in mental health are major goals for public health and sustainable development.

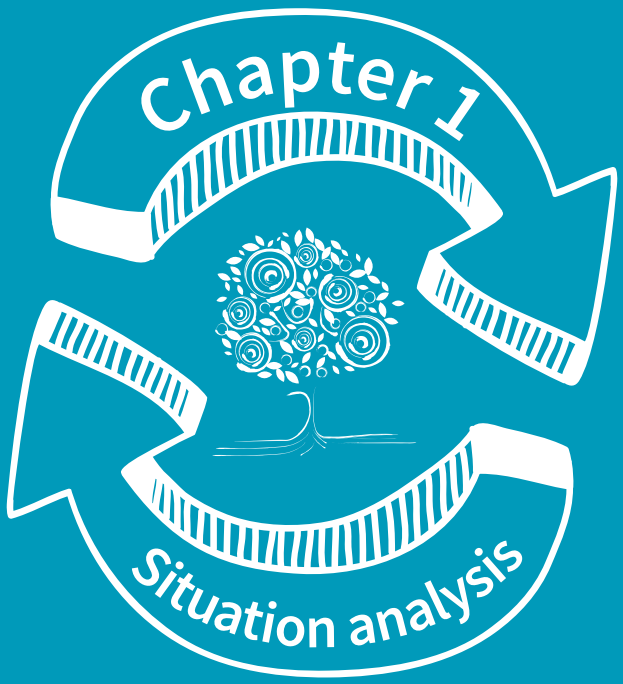
Addressing the social and economic challenges posed by mental health conditions was highlighted during the High-level Meeting of the United Nations General Assembly on the Prevention and Control of NCDs in 2018. In addition, WHO's Thirteenth General Programme of Work (2019–2023) and the Programme of Work 2020–2025 of the WHO Regional Office for Europe both place strong emphasis on responding to the epidemic of NCDs and on promoting mental health.

Building on work on the NCD investment cases and in view of the strong demand from Member States to understand the attributable and avertable economic impacts of mental health conditions, WHO and UNDP developed a method and guidance for national mental health investment cases (1). A mental health investment case provides quantification of the costs of mental health conditions to the health sector and to the economy at large and of the benefits of scaled-up action. The method includes an analysis of ROI, in which the costs of mental health conditions in a country are compared with the estimated health and economic returns of implementing a package of cost–effective interventions (both scaled up treatment of mental health conditions and population-based preventive programmes) over a defined period of investment (such as 5 or 10 years). The mental health investment case method also includes an analysis of the institutional context for scaling up mental health promotion, prevention and care in the country.

After the launch of the NCD investment case for Uzbekistan (*3*) in 2017, the Government of Uzbekistan expressed its interest in broadening the analysis to mental health. This exercise comes at an opportune time, as the country is reforming its health system towards universal health coverage. This report results from the work of a multidisciplinary team that analysed and modelled data and information collected during several engagements in 2020 with the Ministry of Health and other sectors in Uzbekistan.

The report is divided into four sections. **Section 1** presents the mental health situation in Uzbekistan and the current and planned responses by the Government. **Section 2** describes the methods and tools used in the economic analyses. **Section 3** presents the results, including total costs and the expected health and economic benefits (such as healthy life-years gained, mortality averted and productivity gained) of implementing clinical and population-based preventive mental health interventions. **Section 4** outlines the conclusions to be drawn from these findings and provides recommendations for the Government of Uzbekistan for strengthening and scaling up cost-effective preventive and clinical interventions for mental health conditions.

SITUATION ANALYSIS	METHODS	RESULTS	CONCLUSION
Presents the mental health situation in Uzbekistan and the current and planned responses by the Government.	Describes the methods and tools used in the economic analysis.	Presents the results, including total costs, and the expected health and economic benefits.	Outlines the conclusions to be drawn from these findings and provides recommendations for the Government of Uzbekistan.

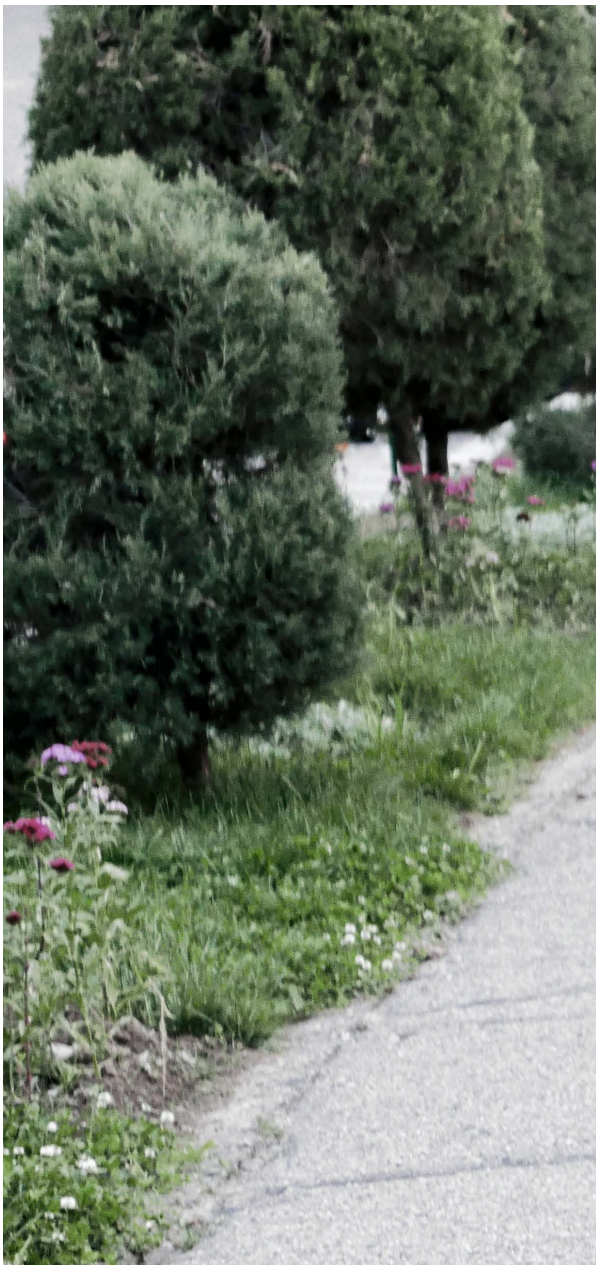

Chapter 1
Situation analysis

SITUATION ANALYSIS

Mental health situation in Uzbekistan

One of the most important objectives of national policy in the field of health in Uzbekistan is protection and enhancement of the mental health of the population. Notwithstanding, there are still critical challenges in the provision of mental health care, which is regulated by the Ministry of Health. Responsible specialists in the Ministry coordinate national and regional mental health services accordingly; they include a chief psychiatrist, a chief child psychiatrist and a chief suicide prevention specialist. Prevention, diagnosis, treatment, care and medico-social rehabilitation of people with mental disorders are provided free of charge by the Government, including medication.

Mental health services are highly institutionalized and provided primarily in psychiatric hospitals.



As no studies have been conducted on the prevalence of mental health conditions in Uzbekistan, the only figures available (and used in this report) are the numbers of people treated for or registered with mental disorders. There was an overall increase of 15% in the registration of people with mental disorders in Uzbekistan between 1991 and 2017. In the period 1992–2002, there was an increase in the incidence of people registered with drug-related disorders; however, the rate decreased by 23% between 2002 and 2017. The rate of 30.6 per 100 000 population in 1991 had fallen to 23.6 per 100 000 population by 2017.

Psychiatric care in Uzbekistan is provided by the public sector. Since 2018, private clinics have been allowed to offer care to patients with mental disorders and access to essential psychotropic medicines free of charge. Additional benefits include treatment in psychiatric hospitals and free provision of special drugs for outpatients. Care is limited to medical treatment, however, and does not include social care or psychological care interventions.

Mental health services are highly institutionalized and provided primarily in psychiatric hospitals. According to statistics of the Ministry of Health in 2019, nearly half

of all patients admitted to mental hospitals fall into the diagnostic group of schizophrenia and related disorders (48.5%), and most of the remaining admissions are for intellectual disability (20%) or organic disorders, including dementia (24%). Common mental disorders such as anxiety and depression comprised less than 10%. These low reported rates of common mental and neurological disorders such as anxiety, depression and epilepsy are due to the fact that affected individuals either do not seek or receive treatment or – for those who can afford and access it – prefer to see private providers to avoid stigmatization. Furthermore, depression and bipolar disorders are not specified separately on the reporting forms of the Ministry of Health but are included under broader diagnostic categories for psychotic and mood disorders.

Uzbekistan has a high rate of alcohol-use disorders (5.9%). On average, men drink six times as much as women, and, in a study in 2018 (4), one in nine male drinkers had binged (consumed six or more drinks at one sitting) in the previous month.

Photo: © WHO / Nathalie Germain Julskov

Mental health policy and legislation

Mental health was declared a priority for public health in Uzbekistan by Presidential decree in November 1998. The decree stipulated health-care reforms, including improving psychiatric facilities, enhancing the supply of medication and providing social protection for patients with mental illnesses (*5*). The Parliament then adopted comprehensive legislation for mental health ("On Psychiatric Care for the Population"), which included definition of the minimum Government-guaranteed package of psychiatric and social services, and a supplementary chapter was added to the code of civil procedure to protect the legal rights and interests of psychiatric patients (*6*). In December 2009, the Government adopted a national suicide prevention strategy, "Strategy on suicide prevention in Uzbekistan 2010–20" (*7*). The Scientific Council of the Ministry of Health has also approved a number of acts to regulate the activities of psychiatric services and a manual on mental and behavioural disorders to improve information provision to psychiatry specialists (*5*).

Important Government decisions on mental health services include: Resolution of the Cabinet of Ministers No. 207 "On measures to further improve the activities of the psychiatric service of the Republic of Uzbekistan", 25 July 2013; Presidential decree No. 3606 "On measures to radically improve the system of providing mental health care", issued in March 2018 (*8*), which allowed private providers to diagnose and treat mental and behavioural disorders, and establishment of unified electronic registries of patients under dispensary supervision, collaboration of ministries of health with internal affairs in identifying suicides, organization of training for people with mental disorders, including those with disabilities, new professions and employment.

In accordance with Presidential decree No. PP-4190, the "Concept for the development of mental health services for the population of the Republic of Uzbekistan for 2019–2025" was adopted in February 2019 (*9*). The main priorities of the Concept are revision of diagnosis and treatment standards for mental and behavioural disorders, including in non-specialized medical institutions; introduction of the intervention guidelines of the WHO Mental Health Gap Action Programme (mhGAP-IG) for the provision of care for mental and neurological disorders and substance use disorders in non-specialized health-care facilities (version 2.0); the introduction of clinical protocols to care for mental and neurological conditions in primary health care institutions; and training of carers of people with dementia and their families. The aims for 2025 are to:

- reduce the number of persons with disabilities registered with a psychiatric dispensary from 35% to 20%;
- decrease the mortality rate from mental disorders from 11.6 to 8 per 100 000;
- increase the number of inpatient beds in health facilities that provide psychiatric care from 24 to 27 per 100 000;
- increase places in day hospitals from 1.7 to 2.5 per 100 000;

- decrease re-admission to inpatient facilities that provide psychiatric care from 38% to 25%;
- increase the number of psychiatrists in psychiatric institutions and their structural units from 2.5 to 4 per 100 000; and
- increase the provision of specialists in mental health care from 3.1 to 4 per 100 000.

The Concept also notes some provisions for ensuring the rights of those receiving treatment for mental and neurological conditions, including the protection of children's rights for those in state institutions or long-term care, and the aim to establish the right to receive free legal aid within the state system for patients receiving treatment for mental and neurological conditions. The Concept provides a basis for further integration of mental health care into primary health care and to strengthen the human rights of those with mental and neurological conditions.

Photo: © WHO / Anna Usova

Mental health governance and access

The 1996 Law on Health Protection defined a basic benefits package, which includes primary care, care for NCDs, including mental health conditions, and specialized care for vulnerable groups. People with mental health conditions are entitled to treatment in psychiatric hospitals and free specified psychiatric medicines for outpatients. Medication for mental health patients is generally well funded, with 80% of essential psychotropic medications provided free of charge by the Government; however, the essential medicines do not include all the WHO-recommended psychotropic medicines, and the cost of antipsychotic medicine remains comparatively high, at 28% of the minimum daily wage, while that of antidepressant medication is 10% of the minimum daily wage (5). Anecdotal evidence suggests that high-income groups do not fully use the basic benefits package but opt instead for private services (*10*).

The State health system consists of national (republican), viloyat (regional) and local levels, the latter made up of rural tumans (districts). Every region of Uzbekistan has a chief psychiatrist, who oversees mental health services. Mental health providers are generally scarce, especially at district level. Nationwide, there are 2.5 psychiatrists and 3.1 specialists providing mental health care per 100, 000 population. According to the Ministry of Finance, the number of psychiatrists is determined by the number of beds; however, the Government will pilot-test a new mixed financing system, including case-based payment, starting in July 2021 in the Syrdarya region.

During the past decade, the Government attempted to regionalize hospital mental services, reduce the number of mental health hospitals and replace them with PHC inpatient and outpatient care. These shifts have not yet occurred. All psychiatric institutions are located in regional centres, mostly in large cities. They include psychiatric hospitals (inpatient care only), neuropsychiatric dispensaries (outpatient care only and day hospital in some), a neuropsychiatric dispensary with a stationary department (all types of care in one place) and a psychiatric hospital with an outpatient department (all types of care in one place). The last two have the same function. Currently, there are 13 psychiatric hospitals with an estimated total of 24 psychiatric beds per 100 000 population (*9*). Outpatient psychiatric care is provided by 14 neuropsychiatric outpatient clinics (dispensaries, some of which are attached to a psychiatric hospital). All psychiatric hospitals offer assistance around the clock. There are 287 polyclinics that offer psychiatric care and, in addition, 15 inpatient drug and alcohol services (narcology facilities), with a total of 1911 beds.

There are two community residential health facilities; 13 beds per 100 000 population in residential facilities for people with mental health conditions under the Ministry of Labour and Social Protection; and seven sanatoriums and boarding homes for older people. There are departments for child psychosomatic conditions, with 60 beds, in Andijan, Jizzakh and Syrdarya regional child hospitals (*11*). Ten of the 14 regions of Uzbekistan have day treatment facilities that offer services between outpatient and inpatient care, including for mental health conditions, and occupational therapy and rehabilitation (*6*).

While general practitioners can provide some emergency care to people with mental disorders and refer patients to psychiatrists for treatment, this is not current practice. To increase the availability of and access to mental health services, the Government supported workshops and training-of-trainers programmes in 2019 under mhGAP-IG for mental, neurological and substance use disorders in non-specialized settings. The Government plans to use mhGAP-IG to train non-specialists in PHC to provide first-line treatment to patients with mental health conditions and strengthen community service provision.

Financing

Mental health provision in Uzbekistan is limited by financial constraints, with an estimated 3% of State health funding allocated for mental health services, 89% of which is spent on hospital services (*10*). In the Development Strategy Framework of the Republic of Uzbekistan by 2035, however, public health expenditure as a percentage of gross national income is to be increased from 5.8% in 2017 to 10% in 2035. Despite increases in the share of public sector expenditure over the past few years, out-of-pocket payments remain substantial, accounting for 43% of total health expenditure in 2017 (*12*).

In the 1990s, Uzbekistan changed from an over-emphasis on specialist and hospital care to improving primary care facilities and cutting the cost of inpatient facilities. While savings from deinstitutionalization were not redirected to outpatient and primary care mental health services, there has been a gradual increase in funding for psychiatric services. Between 2012 and 2015, the Government planned significant investment in secondary and tertiary care facilities, including mental health facilities.

Currently, the Ministry of Finance uses a system of estimate-based financing (e.g. based on the number of hospital beds and per-capita payment, linked to line-item reporting to the treasury system), which includes financing for staffing units. New models of health-care provision and introduction of new mixed financing methods for PHC and hospitals are planned from July 2021 in the Syrdarya region. The reforms include phased introduction of a State health insurance scheme financed by a single purchaser through a State health insurance fund established in December 2020. The insurance system is expected to optimize budget expenditure and improve the quality of medical services. It will also serve as a driver for phased implementation of a health service delivery model with a multi-profile PHC team at the centre and rationalization of the hospital sector. Introduction of the contract system between the State health insurance fund and health providers should facilitate contracting of public and private health providers in the future.

The Ministry of Health, the State health insurance fund, the Ministry of Economics and the Ministry of Finance are working to define the benefits package, including the facilities and medicines to be covered. In the pilot phase, they will extend the number of drugs available for ambulatory care. A wider roll-out of the health reform is planned for 2023–2025 at national level.

Multisectoral coordination

Several formal collaborations have been established among departments and agencies of the Ministry of Health, including those responsible for PHC, HIV/AIDS, child and adolescent health, substance abuse and child protection. Some may include mental health components, but none is dedicated to mental health. While the Ministry of Health oversees public education and awareness campaigns for mental health, several other Government ministries, nongovernmental organizations, foundations and international agencies also promote mental health in Uzbekistan. The campaigns have targeted a wide range of groups, including teachers and health-care providers.

After a joint resolution adopted in 2018, the Ministry of Health started to collaborate with the General Prosecutor's Office, the Ministry of Internal Affairs, the Ministry of Public Education and the Ministry of Higher and Secondary Specialized Education, to strengthen intersectoral measures on suicide prevention. It is not clear whether there is a formal coordination mechanism or whether mental health is integrated into the workplan of a coordination mechanism for NCDs.

Each school and university has a psychologist, who works with parents and students and can refer students to specialized care. Partly to continue outreach, the Ministry of Mahalla and Family Support works with *mahallas* (neighbourhoods) to collect patient information and build relationships between affected households and psychologists. As part of an intervention to identify and assist people with suicidal ideation and in response to the COVID-19 pandemic and the associated countermeasures, the Ministry in 2020 pilot-tested a call centre for at-risk children and adolescents, to be followed by case management. Children call the centre two or three times a week and work with school psychologists. The Ministry is currently providing training in online therapy.

Development priorities and international response

The Development Strategy Framework of the Republic of Uzbekistan by 2035 lists several targets and strategic initiatives relevant for alleviating barriers to improved mental health service access and provision. The United Nations Development Assistance Framework that ended last year (2016–2020) included several health-related targets but focused on building capacity in health statistics and quality management. International partners are also conducting or planning several initiatives as part of the socioeconomic response and recovery plan for the COVID-19 pandemic, which include responses to the growing mental health burden, such as setting up call centres. The Ministry of Health is collaborating with the United Nations Children's Fund (UNICEF) in producing videos for children and adolescents, including those living with HIV, to promote mental health and community support (*13*).

Other collaborators are WHO, the United Nations Population Fund and the World Bank, in addition to bilateral development agencies that have provided funds or technical support for the reform and strengthening of health infrastructure in Uzbekistan. The Ministry of Health, with the support of WHO, adapted the WHO mhGAP-IG for provision of care for mental and neurological disorders and substance use disorders in non-specialized health-care facilities. With UNICEF, WHO has conducted a needs assessment and a landscape analysis as a basis for an adolescent health strategy and action plan, with the participation of two education ministries, the Mahalla Ministry, the Sports and Culture ministries and the Youth Union.

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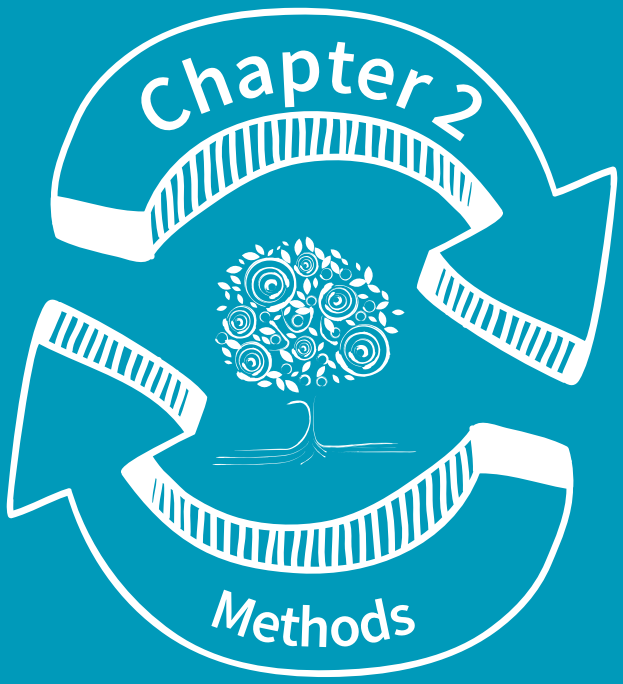
Chapter 2
Methods

METHODS

A multiagency, multidisciplinary team comprising staff from Uzbekistan's Ministry of Health, WHO, the United Nations Inter-Agency Task Force on the Prevention and Control of NCDs, UNDP and the Centre for Health-care Quality Assessment and Control of the Ministry of Health of the Russian Federation undertook initial, remote data collection to conduct a mental health investment case for Uzbekistan, complemented by an institutional context analysis. The team consisted of health economists, social development specialists and mental health and public health experts. Intensive follow-up work (described below) was undertaken as part of the collection and analysis of data.

This section outlines the methods and economic models used at various stages of the economic analysis, for:

- estimating the economic burden attributable to mental health conditions in terms of direct costs (i.e. Government health-care expenditure) and indirect costs (i.e. productivity losses due to absenteeism, presenteeism and premature death);
- costing of interventions;
- assessment of intervention health impacts; and
- ROI analysis.

This section also briefly describes the methods for the institutional context analysis.

Institutional context analysis

The economic analysis was complemented by an institutional context analysis conducted by the investment case team during a week-long virtual United Nations mission in September 2020. The analysis was based on discussions with representatives of the following institutions:

- Ministry of Health
- Ministry of Employment and Labour Relations
- Ministry of Economic Development and Poverty Reduction
- State Statistics Committee
- Ministry of Finance
- National Chamber of Innovative Health
- Ministry of Public Education and Ministry of Higher and Specialized Vocational Training
- Ministry of Mahalla and Family Support
- nongovernmental non-profit organizations of Uzbekistan, United Nations volunteers and the Uzbek medical students' association, Phenomenon.

These meetings addressed how mental health impacts the national development agenda, the priorities of various sectors and stakeholders and how they could support 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.

Estimating the economic consequences attributable to mental health conditions

A model was developed to estimate the economic burden attributable to mental health conditions, which provides estimates of the current direct and indirect costs of mental health conditions in Uzbekistan. Population data were obtained by age and sex for the period 2020–2030 from the annual United Nations Department of Economic and Social Affairs studies of World Population Prospects. The OneHealth tool was used to derive prevalence and mortality rates by age and sex for the following six mental health conditions: depression, anxiety, psychosis, bipolar disorder, epilepsy and alcohol use disorder. The model estimated prevalence and mortality projections for each mental health condition between 2020 and 2030, while holding current rates constant.[2]

2 The model estimated growth in prevalence and mortality due to population growth only, not growth in disease rates.

The OneHealth Tool estimates of the prevalence of mental health conditions are based on the Global Burden of Disease Study for 2017 and include both treated and untreated cases in the population. These projections were summarized as total prevalence and mortality for both the entire population and those of working age (i.e. aged 15–64 years).

The following steps were used to estimate the direct and indirect economic burden of mental health conditions in Uzbekistan:

1 ESTIMATION OF TOTAL GOVERNMENT EXPENDITURES ON MENTAL HEALTH

Pending receipt of official estimates, total Government expenditure on mental health was estimated on the basis of mental health expenditure as a proportion of total health expenditure in countries with similar GDP per capita (2.5%) (14), excluding non-health care costs such as transport and informal care.

2 ESTIMATION OF INDIRECT ECONOMIC BURDEN

To estimate the indirect economic burden, the annual value in terms of economic output of each full-time worker in Uzbekistan was estimated. This was based on GDP per employed person, defined as the country's GDP divided by the 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.

3 MENTAL HEALTH CONDITIONS AND WORKER PRODUCTIVITY

Data were also included on the extent to which mental health conditions reduce worker productivity. As in a previous study of global ROI (15), rates from the WHO World mental health surveys were used of: the reduction in participation in the labour force due to each of the six mental health conditions, the reduction in full-time hours worked due to mental health-related absenteeism and the reduction in productivity due to mental health-related presenteeism.

4 WORKERS WITH A MENTAL HEALTH CONDITION

The number of Uzbek workers with a mental health condition was determined from data on labour force participation, unemployment and mortality. The model included all people aged 15–64 years with a mental health condition and excluded 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.

5 CALCULATING ECONOMIC LOSSES

The final step was to calculate economic losses attributable to absenteeism, presenteeism and premature death among workers with each mental health condition by applying the relevant productivity figures found in the second step to the eligible population determined in the third step and multiplied by the GDP per employed person. This calculation resulted in the total indirect economic burden of mental health conditions.

Calculating the costs and health effects of clinical and population-based mental health interventions

The OneHealth Tool was used to estimate the costs of providing several clinical interventions targeting each of six mental health conditions that together account for a large proportion of the public mental health burden (i.e. depression, anxiety, psychosis, bipolar disorder, epilepsy and alcohol use disorder).

Box 1. Mental health module of the OneHealth Tool

The OneHealth Tool is software designed to inform national strategic health planning in low- and middle-income countries. Development of the tool is overseen by an inter-agency group consisting of 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 number of people living with mental health conditions in a country can be estimated, and the epidemiology of mental health conditions can be linked to life tables for the country to estimate the number of cases averted and healthy life-years gained over time at the population level.

Custom-built Excel® models were used to estimate the costs associated with the population-based mental health interventions for delivery of "universal" and "indicated" social–emotional learning (SEL) programmes to adolescents in schools to prevent depression, anxiety and suicide. Each intervention modelled in the Tool and the Excel® models contained assumptions, set by WHO experts, about the quantity of resource items required for implementation at national level. In line with the guidance for mental health investment cases (*1*), the main categories of resource cost were:

- **inpatient care:** for people with mental health conditions who require hospitalization (e.g. 5% of moderate–severe cases of depression, for an average stay of 14 days);
- **outpatient and primary care:** for most cases who require regular outpatient visits (e.g. from four visits per case per year for basic psychosocial treatment or pharmacological management to monthly or bi-monthly visits for moderate–severe cases for intensive psychological treatment);
- **medication:** essential psychotropic medications, including anti-psychotics, antidepressants and anti-epileptics; and
- **programme costs and shared health system resources:** for programme management and administration, training and supervision.

The unit costs for each resource item were obtained from local data sources (e.g. the Uzbekistan Department of Health) and the WHO-CHOICE database (*16, 17*). To estimate the health impact of these interventions, a population-based model in the OneHealth Tool is used to calculate the number of healthy years of life lived in the population at current and target levels of coverage (**Table 1**).

Table 1. Interventions included in the mental health investment case

Interventions	Current coverage	Target coverage (2030)	Health impacts assessed
Anxiety disorders *(Service delivery setting: Primary health care)*			
Basic psychosocial treatment for mild cases	3.1% (14 403)	20% (102 743)	Better functioning/level of disability (7–12%) and rate of remission (36–42%) among people aged ≥ 15 years with anxiety disorder, after adjustment for non-adherence (30-40%)[3]
Basic psychosocial treatment and anti-depressant medication for moderate–severe cases	3.1% (11 784)	20% (84 062)	
Intensive psychosocial treatment and anti-depressant medication for moderate–severe cases	1.0% (3801)	20% (84 062)	
Depression *(Service delivery setting: Primary health care)*			
Basic psychosocial treatment for mild cases	3.0% (6988)	20% (53 835)	Improved functioning/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%)[4]
Basic psychosocial treatment and anti-depressant medication for first-episode moderate–severe cases	1.0% (2446)	20% (24 226)	
Intensive psychosocial treatment and anti-depressant medication for recurrent moderate–severe cases on an episodic basis	1.0% (2446)	20% (56 527)	
Intensive psychosocial treatment and anti-depressant medication for recurrent moderate–severe cases on a maintenance basis	1.0% (2446)	20% (56 527)	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	60.0% (39 140)	70% (49 872)	Improved functioning/level of disability among persons with psychosis aged ≥ 15 years (21–35%), after adjustment for non-adherence[5]
Intensive psychosocial support and anti-psychotic medication	5.0% (3262)	20% (14 249)	

3 Details of treatment impacts are provided in a peer-reviewed journal article (*15*).
4 Details of treatment impacts are provided in two peer-reviewed journal articles (*15, 18*).
5 Details of the model and its parameters are provided in a peer-reviewed journal article (*19*).

Interventions	Current coverage	Target coverage (2030)	Health impacts assessed
Bipolar disorder *(Service delivery setting: Secondary health care)*			
Basic psychosocial treatment plus mood-stabilizing medication	10.0% (22 446)	40% (102 692)	Improved functioning/level of disability among persons with bipolar disorder aged ≥ 15 years (22–29%), after adjustment for non-adherenced[6]
Intensive psychosocial intervention plus mood-stabilizing medication	1.0% (2245)	20% (51 346)	
Epilepsy *(Service delivery setting: Primary health care)*			
Basic psychosocial treatment plus antiseizure medication	7.0% (9885)	70% (144 846)	Improved functioning/level of disability (47%) and rate of remission (60%) among persons with epilepsy aged ≥ 1 year, after adjustment for non-adherence (30%)[7]
Alcohol use disorder *(Service delivery setting: Secondary health care)*			
Identification and assessment of new cases of alcohol use/dependence	6.0% (49 588)	20% (179 066)	Improved rate of remission (10–15%) among persons with alcohol use disorder aged ≥ 15 year, after adjustment for non-adherence (50%)
Brief interventions and follow-up for alcohol use/dependence	6.0% (49 588)	20% (179 066)	
Management of alcohol withdrawal	6.0% (49 588)	20% (179 066)	
Relapse prevention medication for alcohol use/dependence	1.0% (8265)	20% (179 066)	
Population-based mental health interventions			
Universal, school-based SEL interventions to prevent depression/anxiety and suicide in adolescents aged 12–17 years	0.5%	10%	Reductions in relative risk for depression and anxiety (16%) and for suicide (5.8%) among school attenders aged 12–17 years[8]
Indicated school-based SEL interventions to prevent depression/anxiety and suicide in adolescents aged 12–17 years	0.02%	0.5%	Reductions in relative risk for depression and anxiety (27%) and for suicide (5.8%) among indicated school attenders aged 12–17 years[8]

6 Details of the model and its parameters are provided in a peer-reviewed journal article (*20*).
7 Details of the model and its parameters are provided in a peer-reviewed journal article (*21*).
8 Details of the models that were developed and populated are contained in two background papers prepared and presented by Dr Yong Yi Lee and others at an expert consultation held at WHO headquarters on 20–21 August 2019, which are being submitted for consideration for publication in a peer-reviewed academic journal.

Healthy life years account for both expected changes in life expectancy (e.g. as a result of a decrease in case fatalities after introduction of a pesticide ban) and non-fatal health outcomes (e.g. reduced incidence or duration of depressive episodes after treatment) (**Box 2**). Default effect sizes for the modelled interventions are taken from WHO's cost-effectiveness CHOICE work programme.

Box 2. Healthy life years gained

The healthy life years gained metric (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 receiving a life-extending intervention lives with disease X for an additional 10 years and the disability weight for disease X is 0.4, then the total healthy life years gained for that person is 4, i.e. 10 multiplied by 0.4.

School-based SEL interventions are summarized in **Box 3**.

Box 3. School-based social–emotional learning (SEL) interventions

The onset of depression and suicide increases rapidly during the period of adolescence between the ages of 10 and 19 years. Prevention of depression and suicide during these crucial developmental stages can result in substantial health gains over the life-course. School-based SEL interventions to prevent depression and/or suicide typically involve provision by a trained facilitator (e.g. a teacher, health professional or lay worker) of a series of modules that teach young people psychotherapeutic strategies to improve their overall well-being and/or reduce their risk of poorer mental health outcomes. There is evidence that school-based SEL interventions for adolescents are effective in reducing the incidence of depression and/or suicide (*22–24*). Schools are increasingly recognized as an important platform for population delivery of preventive mental health interventions to young people (*25, 26*). School-based psychological interventions can be classified into two types: universal interventions, which target all students regardless of their risk profile; and indicated interventions, which target students identified as at increased risk of depression and/or suicide completion, usually by scoring a checklist of mental health symptoms or indicators of suicide risk. People who are targeted by indicated interventions are often described as having subthreshold depression, i.e. symptoms that lie just below the threshold for a diagnosis of mental illness.

For the analysis of costs and health impacts, two scenarios were considered and analysed:

1. **Current treatment prevalence scenario (2020):** Local Uzbek data on the numbers of registered service users were used to estimate the current cost of treating people with different mental health conditions and the expected health impacts or gains associated with current levels of service coverage.

2. **Scaled-up total prevalence scenario (2021–2030):** In the absence of local epidemiological estimates, the number of registered service users was used to estimate current coverage, and international data on the total estimated prevalence of different mental health conditions in the population were used to quantify the expected costs and health impacts of scaled-up coverage over time.

Return on investment analysis

The benefit–cost ratio is a measure of the efficiency of health investments in terms of their ROI. It is a direct comparison of the present value of the impacts on health and productivity with the present value of the cost of an intervention. Future impacts on health and productivity and future costs of interventions 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. An Excel®-based calculator was developed by WHO for the ROI analysis, which produced estimates of the economic gains that would accrue from investing in a range of cost-effective mental health interventions previously identified by WHO. Table 1 lists the clinical and population-based interventions included in the mental health ROI calculator.

Costs, health and productivity impacts as well as ROI metrics were computed for both the current scenario (2020) and for the scaled-up total prevalence scenario (2021–2030). Two methods were used to estimate the economic value of improved levels of productivity:

- a **direct approach**, with empirically observed levels of reduced absenteeism and presenteeism in the workforce as a result of treatment (based on a global ROI analysis for common mental disorders (*15*)); and
- an **indirect approach**, in which the instrumental value of restored years of healthy life is used (based on a global investment case for health (*27*)).

In the **direct** approach, the aims were (i) to increase labour force participation by avoiding mortality and illness and (ii) to reduce absenteeism and presenteeism. The economic value of increasing the healthy labour force by avoiding mortality were calculated by adjusting the total number of deaths to account for those who participated in the labour force and are currently employed and then multiplying by the net present value of foregone GDP per capita over the model time horizon of 10 years. The economic value of increasing the healthy labour force by avoiding 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 by those with a mental health condition who receive treatment, as calculated in a global study of ROI (*15*).

The economic value of reducing absenteeism and presenteeism was estimated by the same process, except that multiplication by 5% represented the decrease in absenteeism and presenteeism among people with a mental health condition who receive treatment (*15*).

For universal and indicated SEL 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 these are not relevant to students who are not of working age, and there is currently no established method for translating impacts on educational attainment during adolescence (which can be improved by mental health prevention interventions) into improved job earning potential later in life.

In the **indirect** approach, we used the finding of a Lancet commission on investment in health (*27, 28*) that the value of a healthy life year gained is approximately 1.5 times GDP per capita. Two thirds of this (1.0 times GDP per capita) is attributable to the instrumental value of improved health, i.e. the economic or productivity-related gains. Beyond the instrumental value of restored health, which is reflected in productivity gains for affected individuals, health also has an intrinsic value. That is, independent of the effect of good health on the ability to work or pursue other activities, people prefer to be well rather than unwell. The *Lancet* commission assigned one third of the overall value of health (or 0.5 times GDP per capita) to the intrinsic value of health; however, recent international guidelines for benefit–cost analysis (*29*) recommends 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 the ability to work or increase earnings. Accordingly, results are reported for the productivity and the instrumental benefits alone (by the direct as well as the indirect methods) and also for the productivity (instrumental) plus the social (intrinsic) benefits.

The ROI for each intervention was calculated by comparing the productivity gains made with 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, with a 3% annual discount rate.

The ROI metrics presented in this report refer to both the benefit–cost ratio, which is defined as the present value of total health and/or productivity gains divided by the present value of total intervention costs, and the ROI 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 (*1*).

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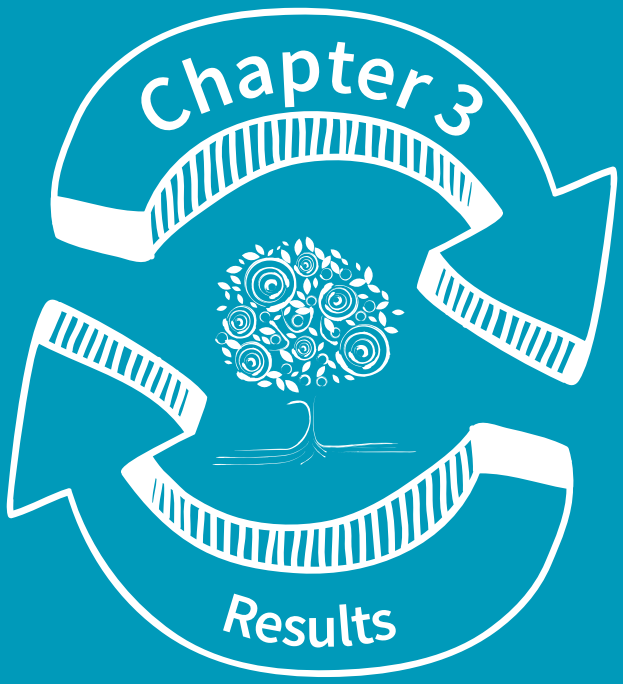

Chapter 3
Results

RESULTS

This section presents the economic burden of mental health conditions in Uzbekistan, summarizes the components of the ROI analysis, including health impacts, economic gains and total costs, and discusses the benefit–cost ratio and ROI for each intervention package.

Economic burden

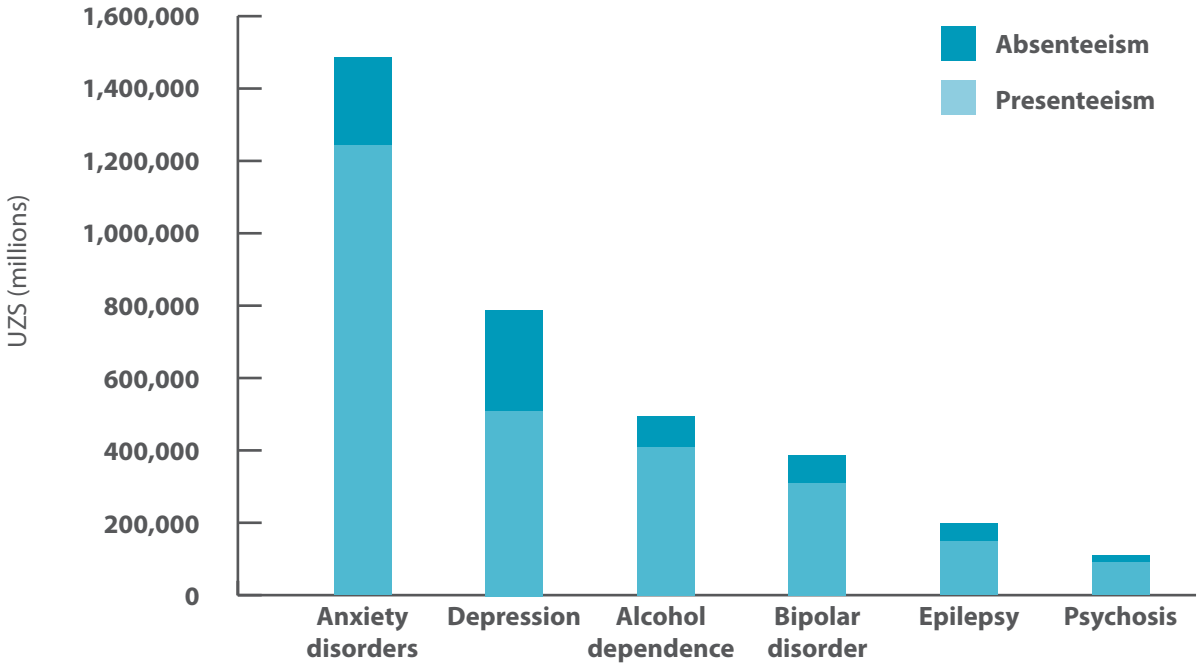
Direct costs

With the percentage of total health spending on mental health reported in the WHO Mental Health Atlas (*14*) for countries with a similar GDP per capita as the basis (2.5%), the total Uzbekistan budget for mental health was provisionally estimated at UZS 820 496 million (US$ 84.6 million) in 2020. It was not possible to disaggregate Government health expenditures by mental health condition.

Indirect costs

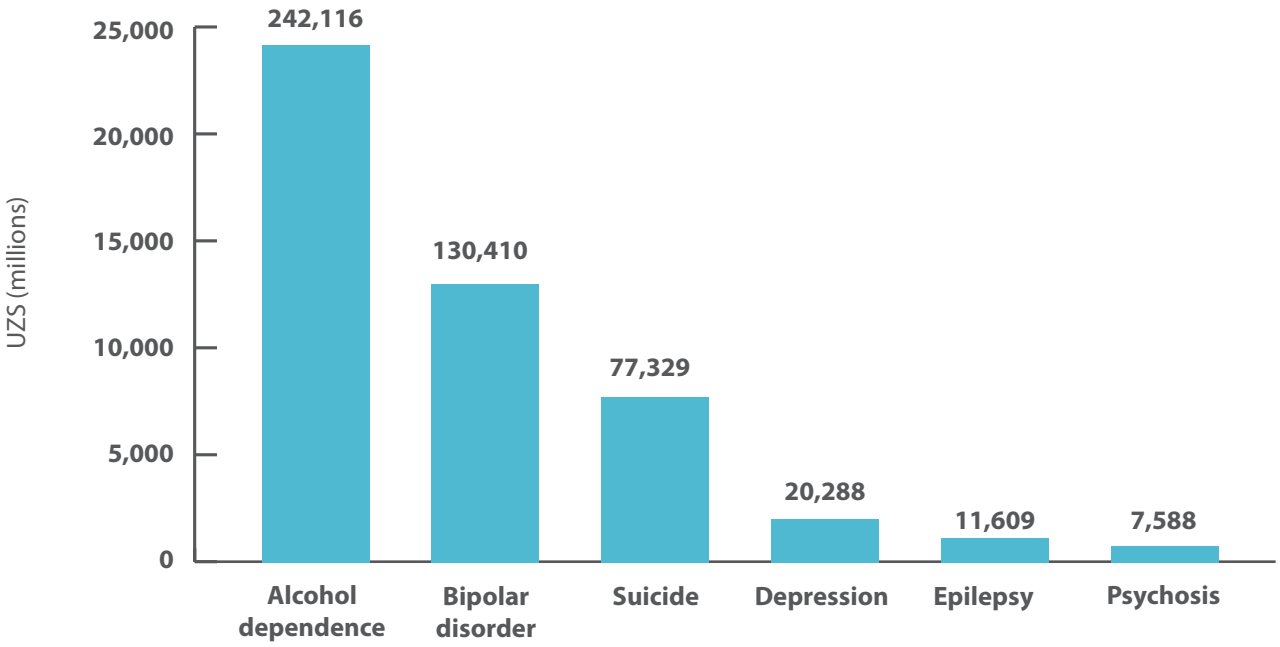
Indirect economic losses due to mental health conditions were estimated as the sum of losses due to absenteeism, presenteeism and premature death. The total combined cost of absenteeism and presenteeism in Uzbekistan is presented in **Figure 1**. The total cost of work days absent was estimated to be UZS 2.7 trillion for absenteeism and UZS 772.5 billion for presenteeism, for a total cost of UZS 3.5 trillion (US$ 359 million). Absenteeism and presenteeism costs are highest for anxiety disorders. Although anxiety is associated with fewer lost work days than depression for the average individual, the estimated prevalence of anxiety in Uzbekistan is much higher than that for depression.

Fig. 1. Costs of absenteeism and presenteeism for mental health conditions (2019 UZS, millions)



The total cost of premature death due to mental health conditions in 2020 was estimated to be UZS 489 billion (US$ 50 million) (**Figure 2**).

Fig. 2. Costs of premature death for mental health conditions (2019 UZS, millions)



Bipolar disorder and alcohol dependence are the costliest mental health conditions in terms of premature death, because of the high excess mortality estimated for these two conditions in the Global Burden of Disease study (*30*), which was used to derive the epidemiological estimates (e.g. 10 times more estimated deaths in the population than from depression or psychosis). High mortality among cases of alcohol dependence was due to various causes of death, ranging from cancers to injuries (e.g. traffic accidents and falls). Anxiety disorders do not lead to death but, as described above, are associated with a high economic burden due to absenteeism and presenteeism.

Total economic costs

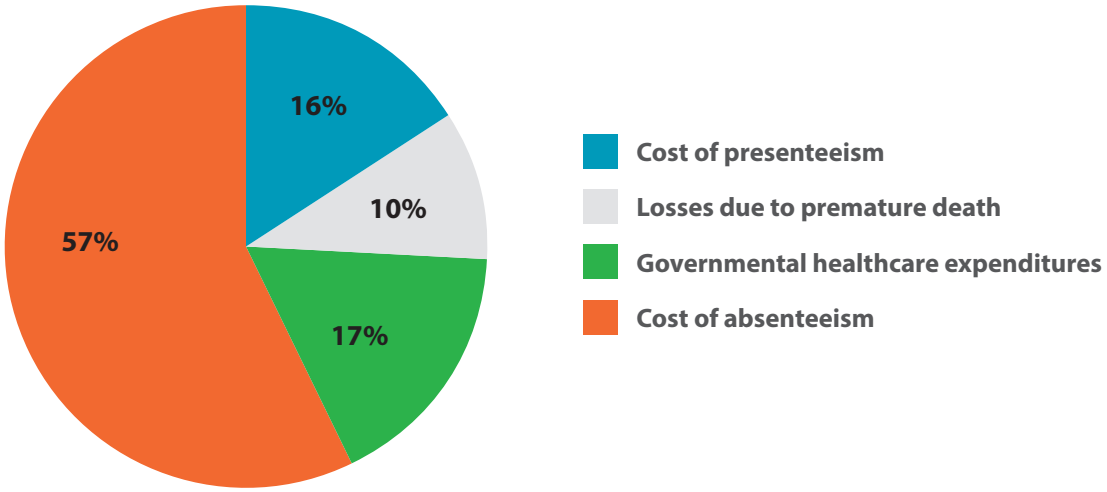
Table 2 shows the total direct and indirect costs of mental health conditions in Uzbekistan. The indirect economic losses are substantially higher than the direct losses. Total Government health-care expenditure on mental health conditions was UZS 820 billion (US$ 84.6 million), while losses to the economy from absenteeism, presenteeism and premature death amounted to UZS 3.9 trillion (US$ 410 million).

Table 2. Economic burden of mental health conditions in Uzbekistan (2019 UZS, millions)

Cost	2019 UZS, millions	2019 US$, millions
Direct costs		
Health care expenditure	820 496	84.6
Indirect costs		
Absenteeism	2 715 750	280.0
Presenteeism	772 597	79.6
Premature deaths	489 340	50.4
Total	**4 798 183**	**494.7**

The total economic burden of the selected mental health conditions on the Uzbek economy in 2019 was UZS 4.8 trillion (US$ 495 million), equivalent to 0.98% of GDP.

Figure 3 shows the structure of the economic burden of mental health conditions in Uzbekistan in 2019. Government health-care expenditure represented only 17% of all mental health-related costs, but these are just a fraction of the economic burden.



Costs of intervention

The costs of intervention were estimated for both the current year (2020, scenario 1) and for the scaling-up period (2021–2030, scenario 2). **Table 3** shows the present value of absolute costs for each of the first 5 years of this period plus the 5-year and 10-year total costs. **Table 4** shows the corresponding per capita costs. Interventions against bipolar disorder were the most costly because of the many requirements for care and support and the higher estimated prevalence than other severe mental health conditions such as psychosis. Interventions involving intensive psychosocial treatment and anti-depressant medication have large planned costs. Nevertheless, numerous low-cost interventions exist, including basic psychosocial treatment, for anxiety disorders and depression in particular. Implementation of the entire intervention package would cost UZS 3.86 trillion (UZS 113 046 per capita) during the 2021–2030 scaling-up period and UZS 1.21 trillion (or UZS 35 732 per capita) over the period 2021–2025.

Table 3. Estimated present value of intervention costs (2019 UZS, millions), 2020–2030

Mental health package	Scenario 1: currently treated cases only (2020)	Scenario 2: scaled-up treatment of prevalent cases in the population	
		2021-2025	2021-2030
Anxiety disorders	3 289	50 963	189 046
Depression	5 173	66 664	241 935
Psychosis	68 172	291 035	687 733
Bipolar disorder	65 250	595 643	2 026 662
Epilepsy	2 223	30 072	109 413
Alcohol use or dependence	8 013	93 439	330 603
School-based SEL (universal)	2 766	41 184	130 340
School-based SEL (indicated)	5 123	52 215	147 788
Total	**160 009**	**1 221 216**	**3 863 520**

The total costs of the two population-based mental health interventions (universal and indicated school-based SEL interventions) were among the lowest of the various intervention packages. Altogether, these cost UZS 278 billion (or UZS 8138 per capita) over the period 2021–2030 and UZS 93 billion (or UZS 2733 per capita) over the 2021–2025 scaling-up period.

Table 4. Estimated per capita costs of interventions (UZS), 2020–2030

Mental health package	Scenario 1: currently treated cases only (2020)	Scenario 2: scaled-up treatment of prevalent cases in the population	
		2021-2025	2021-2030
Anxiety disorders	96	1 491	5 531
Depression	151	1 951	7 079
Psychosis	1 995	8 516	20 123
Bipolar disorder	1 909	17 428	59 300
Epilepsy	65	880	3 201
Alcohol use or dependence	234	2 734	9 673
School-based SEL (universal)	81	1 205	3 814
School-based SEL (indicated)	150	1 528	4 324
Total	**4 682**	**35 732**	**113 046**

Health impacts

All the assessed interventions improve population health, as measured by healthy life years gained (**Table 5**). In the current year of 2020 (scenario 1), a total of 9274 healthy years of life are gained as a result of treating registered cases of mental health conditions. As treatment rates are scaled up in the population over time, the number of healthy life years gained increases markedly, for a total of 377 863 over the entire scaling-up period of 2021–2030. These health gains are realized by various mechanisms: for psychosis, the gains are realized through improved functioning only, while for a condition like depression the effects arise mainly from increasing rates of remission or recovery from an episode, and the primary mechanism of effect of school-based preventive interventions is a reduction in incidence. Certain interventions also reduce mortality, either directly (school-based SEL interventions) or indirectly by reducing the prevalence of conditions associated with excess rates of mortality (depression, alcohol use or dependence).

Table 5. Estimated absolute health impacts

Mental health package	Healthy life-years gained			Averted cases			Averted deaths		
	2020 (current)	2021–2025	2021–2030	2020 (current)	2021–2025	2021–2030	2020 (current)	2021–2025	2021–2030
Anxiety disorders	442	8 403	40 487	1 057	31 643	178 147	0	0	0
Depression	1111	20 824	88 852	3 320	63 038	268 523	5	150	665
Psychosis	5377	25 038	64 557	0	0	0	0	0	0
Bipolar disorder	326	4 755	19 251	0	0	0	0	0	0
Epilepsy	1434	22 971	98 879	218	7 778	51 658	1	58	401
Alcohol use or dependence	153	3 929	20 646	510	12 267	59 466	5	218	1 202
School-based SEL (universal)[a]	419	11 126	43 144	2 643	42 533	149 439	9	109	358
School-based SEL (indicated)[a]	12	505	2 047	0	1 730	7 623	0	3	11
Total	**9 274**	**97 551**	**377 863**	**7 748**	**158 989**	**714 857**	**20**	**538**	**2 636**

[a] Prevalent cases of depression or anxiety and deaths due to suicides attributable to depression

Economic gains

As described above, both a direct and an indirect approach were taken to assess the economic value of health gains associated with interventions. In the direct approach, which is based on estimated improvements (of 5%) in workforce participation and productivity and an increased labour supply due to averted mortality, close to UZS 1.7 trillion of productivity gains are generated during the scaling-up period. This method, however, is based mainly on estimated numbers of averted cases of disorders and does not ascribe any benefit to a particular condition (such as psychosis or bipolar disorder). It also includes only avoided mortality in the school-based interventions; that is, no economic value is placed on increased school attendance or performance of school-aged children. In the indirect approach, which simply ascribes a multiple of GDP per capita to each healthy life year gained, an economic value can be attached to all components of the mental health package. The results show a total estimated productivity gain of over UZS 4 trillion over the period 2021–2030, the greatest contributions being from treatment of depression and epilepsy. Thus, the direct approach represents a lower-bound estimate of the economic gains and the indirect approach an upper-bound estimate.

Table 6. Productivity gains from mental health interventions (UZS, millions) over 10 years

Mental health package	Productivity gains					
	Direct approach			Indirect approach		
	2020	2021–2025	2021–2030	2020	2021–2025	2021–2030
Anxiety disorders	2 646	86 478	438 729	5 971	110 405	480 812
Depression	8 963	193 927	751 066	15 010	273 968	1 060 575
Psychosis	0	0	0	72 644	332 785	792 448
Bipolar disorder	0	0	0	4 404	62 634	230 328
Epilepsy	587	24 954	149 256	17 436	272 083	1 061 798
Alcohol use or dependence	1 983	66 446	308 828	2 067	51 542	244 360
School-based SEL (universal)	1 047	14 230	42 531	5 660	146 185	518 454
School-based SEL (indicated)	31	429	1 284	168	6 625	24 547
Total	**17 652**	**386 462**	**1 691 694**	**123 360**	**1 256 227**	**4 413 322**

Return on investment

Comparison of the total costs of current or scaled-up treatment and prevention with the monetized value of productivity and other benefits allows determination of the ratio of benefits to costs and the net ROI. The ROI results are shown in **Table 7** for the three periods assessed with the indirect approach to valuation of productivity gains, with and without addition of the social value of health.

Table 7. Net returns on investment for mental health interventions in the indirect approach

Mental health package	Productivity gains only			Productivity gains plus social value of health		
	2020	2021–2025	2021–2030	2020	2021–2025	2021–2030
Anxiety disorders	0.9	1.2	1.5	3.8	4.4	5.4
Depression	2.1	3.1	3.4	6.7	9.3	10.0
Psychosis	0.1	0.1	0.2	1.8	1.9	1.9
Bipolar disorder	–0.9	–0.9	–0.9	-0.8	–0.7	–0.7
Epilepsy	7.3	8.0	8.7	19.8	21.6	23.3
Alcohol use or dependence	-0.7	-0.4	–0.3	-0.3	0.4	0.8
School-based SEL (universal)	1.2	2.5	3.0	4.4	7.9	8.9
School-based SEL (indicated)	–0.9	–0.9	–0.8	-0.9	–0.7	–0.6

As shown in **Figure 4**, the resulting ratios of benefits to costs depend on whether a direct or indirect approach was used to estimate effects on productivity and on different conditions. The interventions with the highest ratio of benefits to costs include scaled-up anxiety, depression and epilepsy treatment, while those with the lowest ratio include treatment for psychosis and bipolar disorder and indicated SEL programmes in schools.

Fig. 4. Net returns on investment, by intervention package (productivity gains only; 2021–2030)

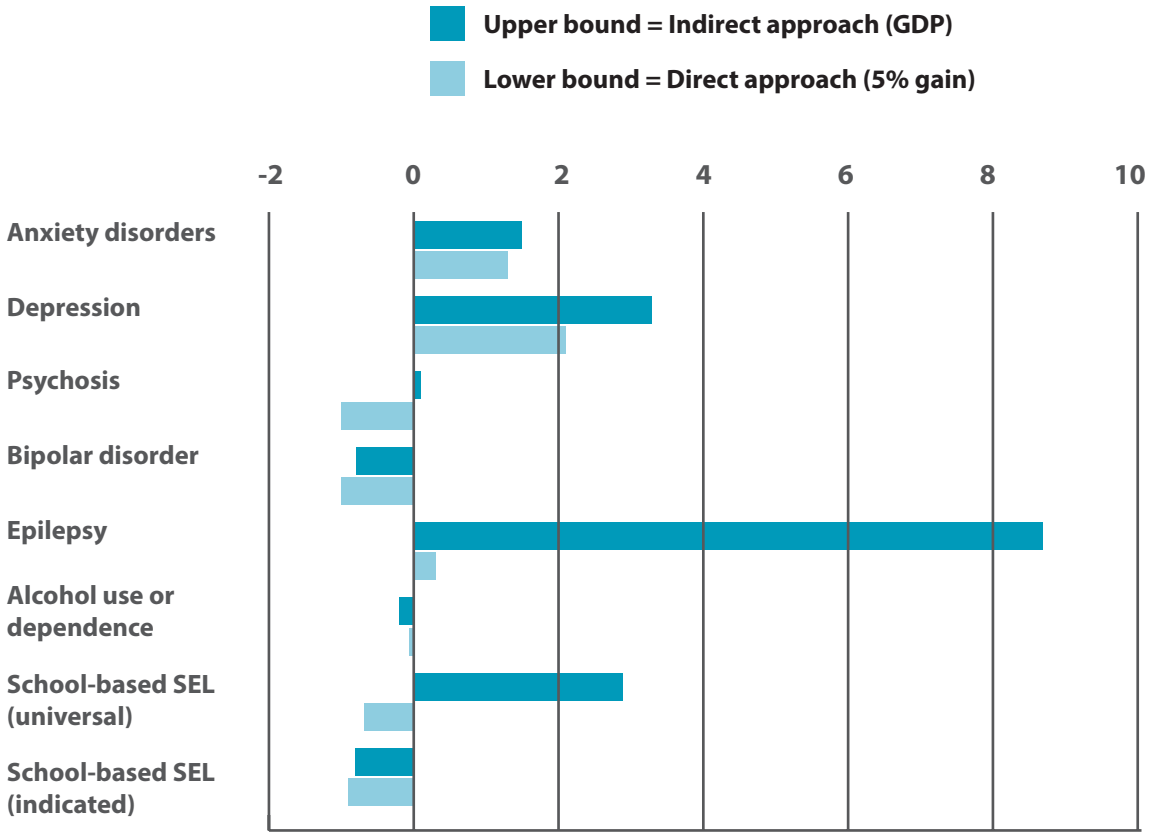
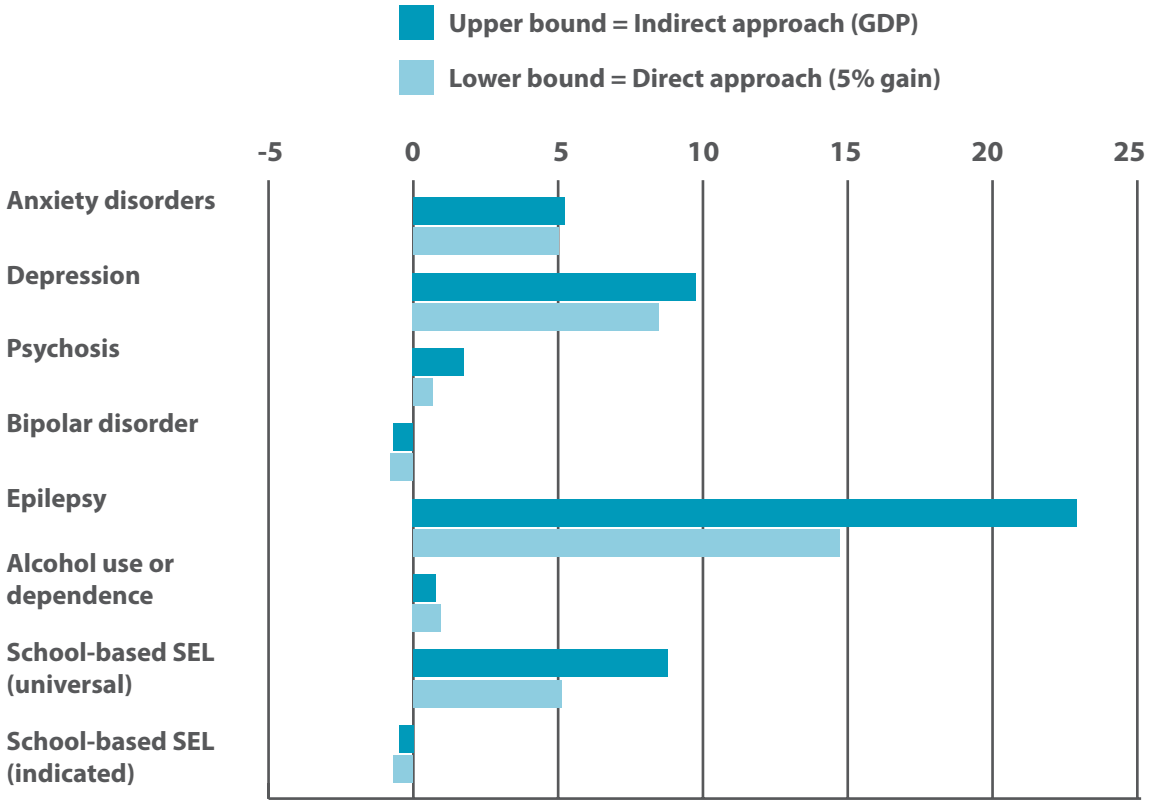


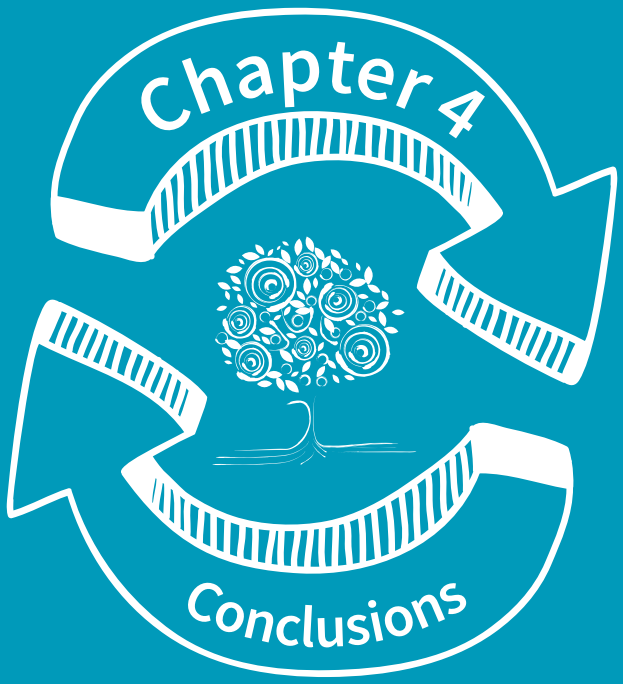
Figure 5 shows the impact of including the social value of health, in addition to productivity gains, in calculating ROI. The social value of health is the intrinsic value of improving health as an end in itself, estimated to be one healthy life year gained multiplied by 1.5 times GDP per capita. The net ROIs increased for almost all the intervention packages, although they remained absolutely low and even decreased for some conditions or intervention packages (e.g. bipolar disorder, indicated SEL intervention in schools). For other intervention packages, the ROIs range from 0.8 to 2 for alcohol dependence and psychosis, 5 to 10 for anxiety, depression and universal SEL programmes and > 23 for epilepsy treatment. Despite their low ROI, the packages of interventions for psychosis and bipolar disorder are critical services that meet human rights objectives and the SDG target of leaving no one behind. The ROI for these packages was lower than those for other mental health interventions because treatment affects mainly the burden of disability of these disorders, rather than prevalence or mortality. Furthermore, these treatment options have less potential to increase labour force participation.

Fig. 5. Net returns on investment (GDP plus social value), by intervention package, 2021–2030



The ROIs of the population-based mental health interventions may be underestimated for the following reasons. In the case of the universal and indicated school-based SEL interventions for adolescents, the only productivity gains that were valued were those due to reductions in premature mortality. There is presently no method for calculating the net present value of future gains in productivity or employment due to improved educational outcomes among adolescents when they reach adulthood.

Photo: © WHO / Jerome Flayosc


Chapter 4
Conclusions

CONCLUSIONS

Mental health conditions take significant tolls on the economy and social and sustainable development in Uzbekistan every year. In addition to the health and social impact of these conditions, the investment case model estimates that they caused UZS 4.8 trillion (US$ 495 million) in total economic losses for Uzbekistan in 2019. These losses include UZS 820 billion (US$ 84.6 million) in direct Government expenditure and UZS 3.9 trillion (US$ 410 million) in indirect productivity losses – a total equivalent to 0.98% of Uzbekistan's GDP.

As mental health conditions occur throughout the life-course but are more prevalent in vulnerable groups of the population, including higher rates of common mental health conditions such as depression and anxiety among young people and women, they represent an impediment to the country's broader development priorities of increasing human capital, reducing poverty and inequality and strengthening inclusive economic growth. Furthermore, the current configuration and financing of the mental health care system, which is oriented mainly towards specialized biomedical care in psychiatric hospitals, is hindering Uzbekistan's efforts to increase the efficiency of the health sector and to extend service access and financial protection as part of its drive towards universal health coverage.

While the results of the investment case confirm the large impact of mental health conditions on health and the economy, they also 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. Thus, these investments contribute to the overall socio-economic development of the country, with positive ripple effects across society, and to accelerating economic growth and social development.

The investment case assessed several clinical interventions to reduce the prevalence of and/or manage existing mental health conditions, including anxiety, depression, psychosis, bipolar disorder, epilepsy and alcohol use and dependence, as well as population-based preventive mental health interventions. The economic modelling accounted for baseline coverage of each intervention and assumed significant but realistic scaling-up of coverage levels. The main findings for the intervention packages are as follows:

ESTIMATED HEALTH IMPACT

ALL INTERVENTION PACKAGES	5 years 2021–2025	10 years 2021–2030
MENTAL HEALTH CONDITIONS AVERTED	160 000	715 000
LIVES SAVED	538	2 600
HEALTHY LIFE-YEARS GAINED	97 700	378 000

PRODUCTIVITY GAINS FROM MENTAL HEALTH INTERVENTIONS

MENTAL HEALTH PACKAGE	Total cost (UZS) 2021–2025	Total cost (UZS) 2021–2030	5 years ROI FOR EVERY UZS INVESTED	10 years ROI FOR EVERY UZS INVESTED
EPILEPSY INTERVENTIONS	30 billion	109 billion	8	8.7
DEPRESSION INTERVENTIONS	67 billion	242 billion	3.1	3.4
UNIVERSAL SCHOOL-BASED SEL INTERVENTIONS	41 billion	130 billion	3.5	3

Other intervention packages would have lower ROIs, from a little over 1 for anxiety disorders to negative values for bipolar disorder and the indicated SEL intervention (negative values imply that the net cost of scaled-up treatment would exceed the expected benefits). For bipolar disorder and psychosis, the health gains are relatively modest, as cases are not prevented by the intervention and only the average level of functioning is improved, and there is less potential to increase labour-force participation. There are, however, strong non-economic arguments for the inclusion and prioritization of evidence-based treatment and care of people with these more severe, typically chronic mental health conditions, including vertical equity (prioritization towards those most in need or vulnerable), social inclusion, protection of human rights and the SDG commitment to leave no one behind.

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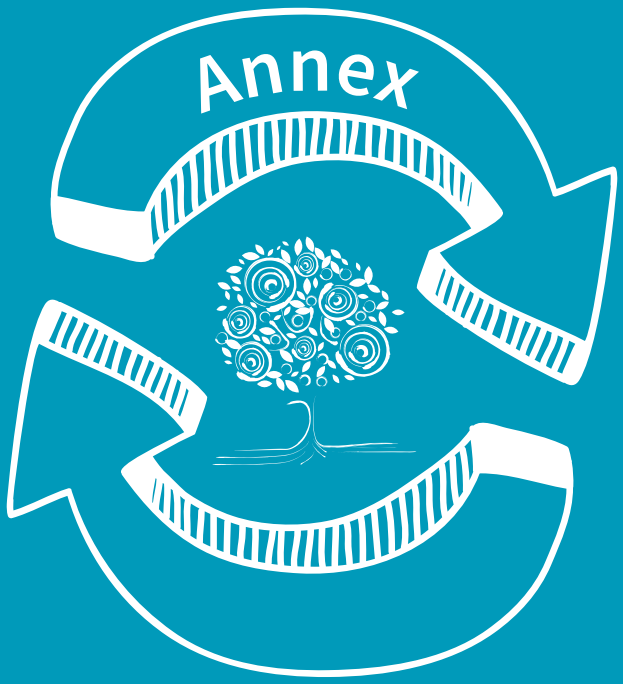
Annex

Annex – Data used for calculating the burden of mental health conditions

Table A1. Demographic and economic data

Item	Value	Year	Source	Notes
Population (baseline year)	34 176 668	2020		
Population aged 15–64 years	67%	2020	OneHealth Tool	
Adolescents aged 12–17 years who regularly attend school	97%	2015	UIS.Stat[a]	Inverse of out-of-school rate for adolescents and children of secondary school age
GDP	US$ 50 500 000 000	2018	World Bank	Current US$
GDP per capita	US$ 1478	2018	Calculation	
GDP per employed person (average productivity)	US$ 3642	2018	Calculation	
Projected GDP growth per year	5%	2018	World Bank	
Discount rate (for present value calculations)	3%		Analyst's choice	
Country income grouping	Middle-income	2018	World Bank	
Local currency unit (LCU) – currency name	Uzbek sum			
Local currency unit (LCU)– alphabetical code	UZS			ISO 4217 currency code
Exchange rate (LCU/US$)	9700		OneHealth Tool	Units: LCUs per US$
Labour force	15 289 093	2019	World Bank	Age ≥ 15 years
Employed labour force	13 867 207	2017	Calculation	Age ≥ 15 years
Unemployment rate (national)	9.3%	2019	World Bank	Projected; ages 15–64 years
Labour force participation rate (≥ 15 years)	62.2%	2019	World Bank	Age ≥ 15, modelled International Labour Office estimate
Retirement age (years)	60			
Average number of days worked per year	220			
Total number of suicides attributable to pesticide self-poisoning	3.9%		WHO mortality database	2008 estimate
Adolescents aged 12–17 years with subthreshold depression	5.0%		Assumption	
Value of a partial day not working as proportion of a full day not working	0.33			
Instrumental value of health (multiple of GDP per capita to apply to healthy life years)	1.00		Lancet Commission on investing in health (2013)	Psychosis and bipolar disorder
Intrinsic value of health (multiple of GDP per capita applied to healthy life years gained)	1.50		Lancet Commission on investing in health (2013)	

[a]UNESCO Institute for Statistics (UIS); http://data.uis.unesco.org/

Table A2. Drugs and interventions

Drugs and supplies	Cost (UZS) (2020)
Acamprosate, 333 mg	2 828
Amitriptyline, 50 mg tab	250
Buprenorphine, 8 mg	24 951
Carbamazepine 200 mg	161
Chlorpromazine, 100 mg	166
Clonidine, 1 mg	2 495
Diazepam, 5 mg	72
Disulfiram, 250 mg	6 487
Donepezil, 10 mg	2 495
Electroencephalogram	83 170
Fluoxetine, 20 mg tab	166
Fluphenazine decanoate, 25 mg/mL	6 903
Haloperidol, 5 mg	166
Haloperidol, 5 mg tab	83
Methadone, 5 mg	41 585
Naltrexone, 50 mg	55 474
Phenobarbital, 100 mg	83
Risperidone, 2 mg tab	166
Thiamine (vitamin B1), 100 mg	166
Thyroid function test	0
Valproate, 500 mg	2 578

Table A3. Incidence of mental health conditions in Uzbekistan, 2019

Conditions	OneHealth Tool data	Ministry of Health
Anxiety	850 326	25 938
Depression	573 833	6 329
Psychosis	66 060	85 662
Bipolar disorder	224 512	Not available
Epilepsy	131 500	9 618
Alcohol dependence	835 941	48 949
Suicide	5 752	1 921

Table A4. Prevalence (per 1000), UZB 2019, OneHealth Tool

Age (years)	Anxiety		Depression		Psychosis		Bipolar disorder		Epilepsy		Alcohol dependence		Suicide	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F
0–4	1	1	0	0	0	0	0.0	0.0	2.0	2.0	0.0	0.0	NA	NA
5–9	8	13	1	1	0	0	0.0	0.0	4.0	4.0	3.0	1.0	NA	NA
10–14	18	28	6	8	0	0	3.0	3.0	4.0	4.0	14.0	4.0	NA	NA
15–19	21	35	15	18	0	0	8.0	9.0	4.0	4.0	27.0	7.0	NA	NA
20–24	21	36	19	20	1	1	9.0	10.0	4.0	4.0	38.0	10.0	NA	NA
25–29	21	36	18	18	3	3	8.0	9.0	4.0	4.0	55.0	15.0	NA	NA
30–39	22	39	17	19	4	4	9.0	10.0	4.0	4.0	73.0	20.0	NA	NA
40–49	23	40	18	27	4	4	9.0	10.0	4.0	4.0	69.0	19.0	NA	NA
50–59	22	40	20	35	3	3	8.0	9.0	4.0	4.0	49.0	13.0	NA	NA
60–69	21	40	23	45	2	2	6.0	7.0	4.0	4.0	24.0	6.0	NA	NA
70–79	18	38	26	55	2	1	5.0	5.0	5.0	4.0	14.0	4.0	NA	NA
80–100	14	31	27	47	1	1	3.0	3.0	4.0	4.0	9.0	2.0	NA	NA

NA, not available

Table A5. Mortality (per 100 000), Uzbekistan 2019, OneHealth Tool

Age (years)	Anxiety		Depression		Psychosis		Bipolar disorder		Epilepsy		Alcohol dependence		Suicide	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F
0–4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12.9	10.1	0.0	0.0	0.0	0.0
5–9	0.0	0.0	0.6	0.6	0.0	0.0	1.2	1.2	11.6	9.3	8.2	2.4	0.0	0.0
10–14	0.0	0.0	6.2	3.3	0.0	0.0	164.6	172.2	16.2	12.5	111.1	27.6	36.1	21.8
15–19	0.0	0.0	30.2	14.0	0.7	0.7	562.8	574.2	28.1	19.9	253.3	60.5	253.3	114.7
20–24	0.0	0.0	68.4	22.7	7.2	5.5	407.6	402.1	34.8	24.1	523.1	124.0	390.5	108.8
25–29	0.0	0.0	93.3	22.4	22.1	16.8	209.3	198.7	35.9	24.3	1 051.5	252.7	364.3	87.4
30–39	0.0	0.0	111.9	26.7	25.5	20.1	253.3	239.6	38.8	26.7	2 599.6	650.6	334.8	72.7
40–49	0.0	0.0	112.4	31.0	32.5	26.3	539.3	530.3	35.6	24.3	2 011.3	536.0	373.3	79.5
50–59	0.0	0.0	113.8	32.0	39.8	33.3	444.9	440.0	34.2	22.2	1 427.6	394.4	391.4	92.7
60–69	0.0	0.0	120.1	39.3	51.1	46.0	396.0	422.1	44.0	28.8	417.3	125.2	437.5	134.8
70–79	0.0	0.0	132.9	50.0	50.8	44.4	351.8	372.1	66.4	41.7	83.5	28.2	753.1	318.7
80–100	0.0	0.0	147.8	58.2	34.8	38.8	243.4	257.1	95.6	58.2	25.9	11.2	256.9	139.2

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