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"Addressing noncommunicable diseases and mental health: major challenges to sustainable development in the 21st century"

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1. Introduction and context

This report documents how mental disorders are detrimental to the development of low- and middle-income countries and the poor within these countries. It proposes cost-effective solutions that can be adopted by countries to promote development.

Mental disorders of concern due to high prevalence and/or severity of condition include, but are not limited to, schizophrenia and bipolar disorder (referred to as severe mental disorders), depression, anxiety, somatoform disorders (referred to as common mental disorders), epilepsy, alcohol and substance abuse disorders and child and adolescent mental health problems. Suicide is an extreme but common outcome for people with untreated mental disorders, particularly depression and substance abuse, which are associated with up to 90% of all cases of suicide in some countries.[1]

Contrary to the common belief that these are concerns of high-income countries only, mental disorders and their effects are also important issues for developing countries. Over 80% of people suffering from mental disorders such as epilepsy, schizophrenia, depression, intellectual disability, alcohol use disorders and those committing suicide are living in low- and middle-income countries (LMICs)[i].[2]

In addition it is the poor who are disproportionately affected by mental disorders. People with the lowest socio-economic status (SES) have 8 times greater relative risk for schizophrenia than those of the highest SES.[3] They are also 4 times more likely to be unemployed or partly employed,[4] one-third more likely not to have graduated from high school and 3 times more likely to be divorced[5]. A recent systematic review of epidemiological research in LMICs has shown a very strong relationship between many indicators of poverty and common mental disorders.[6] Rates for common mental disorders are about twice as frequent among the poor compared to the rich in Brazil, Chile, India and Zimbabwe.[7] Studies, including those in low-income countries, show that people who lose their livelihood are more likely to develop mental health problems or commit suicide.[8 9] In Brazil, children living in abject poverty are more than five times more likely to have psychiatric disorders than middle class children.[10] This evidence of an important link with poverty (also highlighted throughout the report), provides further weight to the argument that mental disorders are an important concern for development in LMICs.

[i] World wide of the 50 million people suffering from epilepsy; 80% live in low and middle income countries; of the 66 million people suffering from depression; 85% live in low and middle income countries; of the 24 million people with an alcohol related problem 82% live in low and middle income countries; of the 1 million people commit suicide each year (rates for attempted suicide are 10 to 20 times higher) 84% of these suicides are committed in low and middle income countries.

The following sections highlight the health, social, economic, and human rights effects of untreated mental disorders in LMICs. It then outlines effective interventions and strategies that can be implemented to address mental disorders and their impacts as part of an overall development strategy.

2. Health impact

2.1 The health burden of (untreated) mental disorders is high in low-income countries: Mental and substance abuse disorders are an important cause of disease burden accounting for 8.8% and 16.6% of the total burden of disease in low-income and lower middle-income countries, respectively.[11] Currently, unipolar depressive disorder is the third leading cause of disease burden accounting for 4.3% of the global burden of disease. The estimates for LMICs, 3.2% and 5.1%, respectively, parallel the global figure. Significantly, in low-income countries unipolar depressive disorder represents almost as large a problem as does malaria (3.2% versus 4.0% of the total disease burden; see appendix 1) but the funds being invested to combat depression are only a very small fraction of those allotted to fight malaria. In middle-income countries unipolar depressive disorders are the first major contributor to disease burden and account for twice the burden of HIV/AIDS, yet funds are not being directed to address this priority (see appendix 1). The prediction is that by 2030, depression alone is likely to be the third leading cause of disease burden in low-income countries (4.7%) and the second highest cause of disease burden in middle-income countries (6.7%).[12]

When taking into consideration only the disability component of the burden of disease calculation, mental disorders account for 25.3% and 33.5% of all years lived with a disability in low- and middle-income countries, respectively. Unipolar depressive disorders, schizophrenia, bipolar disorder and alcohol use disorders are placed among the top ten causes of disability due to health-related conditions in all countries, as well as in LMICs, where they represent a total of 19.1 % of all disability related to health conditions (see appendix 1). [13] This is significant because disability reduces individuals' ability to contribute to all aspects of family and community life, thereby negatively affecting development.

Selected statistics on burden and mortality are presented below:

Suicide: Worldwide suicide represents 1.0% and 1.5% of the total burden of disease in low- and middle-income countries, respectively, and is among the top three leading causes of death in young people aged 15-34 years worldwide, including in LMICs.[14] Nine out of the ten countries with the highest rates of suicide are in Eastern Europe and countries of the former Soviet Union. The highest numbers of cases of suicide are found in China and India.[15]

Epilepsy: The global burden of disease due to epilepsy is 0.5% in low-income countries.[16] Systematic reviews on the epidemiology of epilepsy estimate the median prevalence in sub-Saharan Africa as 15 per 1000 people[17] and 17.8 per 1000 in Latin America.[18]

Alcohol and substance abuse: Alcohol use disorders represent 0.6% and 2.6% of the total burden of disease in low and lower middle- income countries, respectively, and 3.4% in high-income countries.[19] These disorders represent one of the most important risks to health and are the leading risk factor in developing countries with low mortality rates.[20]

2.2 Mental disorders lead to higher morbidity and mortality rates: The full impact of mental disorders extends well beyond that which is represented by burden of disease calculations. Mental disorders contribute to the development and outcome of chronic diseases such as cancer, cardiovascular diseases, diabetes and HIV/AIDS, particularly through their impact on unhealthy and risky behaviour, non-adherence to prescribed medical regimens, and diminished immune functioning.[21 22 23 24 25 26 27 28 29]

People with mental disabilities, such as schizophrenia, bipolar disorder and depression are far more likely than the general population to die as a consequence of their untreated mental or physical health problems.[30 31 32 33 34 35 36 37] For example, people with schizophrenia and major depression have an overall increased risk of mortality 1.6 and 1.4 times, respectively, greater than that expected from the general population.[38]

Findings of increased risk of mortality are not unique to high-income countries. Studies have shown that mental illness combined with HIV and AIDS leads to increased mortality rates in LMICs. HIV-positive individuals are also at a higher risk for suicide.[39 40 41] A Tanzanian study found that 57% of women living with HIV experienced depression at least once during the study period and that depression was associated with disease progression and mortality.[42] These findings are significant given the high level of comorbidity between mental disorders and HIV/AIDS in developing countries; estimates are that between 11% and 63% of HIV-positive patients in LMICs also suffer from depression.[43 44]

2.3 Lack of access to quality health services is a major contributor to the burden of disease: Though there are multiple reasons for higher morbidity and mortality rates among people with mental disorders, one of the most important causes is the inequitable care and treatment that these individuals receive for both mental and physical illnesses. Between 75% and 85% of people with severe mental disorders are unable to access the treatment they need for their mental health problem in low and middle income countries, compared with 35% and 50% of people in high-income countries.[45] A recent study compared treatment rates for physical health problems and mental disorders in high-, middle- and low-income countries, such as Colombia, Lebanon, Mexico, China, South Africa and Ukraine, and found large disparities in treatment rates. For example, treatment gaps for mental and physical disorders were approximately 92% and 47% in LMICs, respectively, compared with 76% and 35% in high-income countries.[46] Large treatment gaps for people with mental disabilities are not surprising given that almost one-third of countries worldwide have no budget for mental health and one fifth of those that have spend less than 1 per cent of their total health budget on it.[47] Not only are services scarce, but many governments in LMICs require individuals to pay for their mental health treatment, while treatment for physical health problems is freely provided. This disproportionately affects poorer people.[48]

General health services are a major part of the problem in that they often do not identify and treat physical diseases when users have a mental disability, however, specialist mental health services almost entirely ignore physical health needs of patients. Reports from many LMICs document the lack of access of patients with mental disorders to basic health care, such as general health check-ups, dental care, and vaccines to prevent the spread of diseases, medications for different health conditions and treatment for cuts or bed sores.[4950515253]

3. Social impact

The social impact of mental disability is diverse and far-reaching, leading to homelessness, higher rates of imprisonment, lack of educational opportunities and poor educational outcomes, lack of employment and income-generating opportunities.

3.1 Homelessness is a common outcome for people with mental disorders exacerbating their marginalisation and precariousness: Numerous studies have documented the high prevalence of mental health problems in homeless persons, including street children.[54,55, 56,57,58,59] Disorders and problems identified among the homeless include schizophrenia, depression, anxiety, attempted suicide, emotional problems, high levels of hopelessness and alcohol and drug abuse. The 12-month prevalence rate of psychiatric morbidity among urban homeless populations in LMICs, such as in Rio de Janeiro, Brazil, has been estimated at almost 50%. [60] The lifetime prevalence rate for major mental illness in this population is three times greater than for the general population in Brazil. [61] [62] High prevalence is to a large extent due to the increased risk of people with mental disabilities becoming homeless as a consequence of their illness, lack of treatment and few opportunities for income generation.[63] [64] Homelessness has been found to be relatively common among people with schizophrenia in rural China[65] and Nigeria.[66] In China a ten-year study of a cohort of people with schizophrenia found that 7.8% had experienced homelessness while the rate of homelessness among the general population during this period was 0.9%.[67] In Nigeria a 13-year follow-up of clinically stable outpatients found that 4% were homeless or had an unstable abode.[68]

However, people living on the street are also at increased risk of developing mental illness.[69] Harsh economic and social conditions in low-income countries–such as poverty, lack of employment, and family disruptions–can lead to large-scale rural-urban migration, as has happened in Ghana and other parts of Africa.[70] This phenomenon can, in turn, lead to transient homelessness with its attendant high levels of stress, violence, lack of access to education and employment, and associated mental health risks, such as parental neglect rooted in extreme poverty.[71]

3.2 The number of people with mental disorders in prisons is disproportionately high: Reports from countries with different levels of income indicate that incarcerated individuals are much more likely to be suffering from mental illness and substance abuse disorders than are those outside of prisons and jails.[72] [73] [74] [75] [76] [77] [78] [79] For example, in the Russian Federation, almost one-third of the country's prisoners, or more than 270,000 individuals, have mental health problems and most use drugs.[80] In Nigeria, researchers found that over one-third of prisoners sampled had a mental disorder.[81]

Persons who have mental illnesses and/or abuse substances are more likely to be detained in prisons than in treatment facilities, especially in countries that lack adequate mental health services. [82] [83] [84] Known in Nigeria as "civil lunatics", these inmates have not committed crimes, but are brought to prisons by family members who could not care for them.[85] Because they do not go to court, they may remain in prison indefinitely. Cases have been documented where people with mental illnesses have languished for up to eight years in prisons in Nigeria.[86]

Poor conditions within prisons and lack of psychiatric treatment are likely to result in a further deterioration of mental health as a result of imprisonment.[87] [88] [89] Disruptive social and political factors, such as the civil wars that occurred in southern Sudan and Yemen, can negatively affect the mental health of individuals, while decreasing a community's ability to provide treatment. [90] [91] In the Hodeida prison in Yemen, Red Cross inspectors found prisoners with mental disorders piled on top

of one another, on beds made of concrete blocks. [92] Others were chained to walls. [93] Even without conditions of severe neglect and abuse, isolation, boredom, lack of sanitation, and lack of privacy are likely to lead to poorer mental and physical health.[94]

3.3 People with mental disorders lack educational opportunities and have poorer educational outcomes, negatively affecting opportunities for development: Access to education is well recognised as an essential building block of human and economic development due to its wide-ranging impact, including that on health, employment, poverty and social capital. While gender, socio-economic and geographical inequities in access to education receive significant attention, [95] the exceedingly poor access to education of mentally disabled children is largely overlooked. Globally, only 5% of children with physical or mental disabilities complete primary school compared to nearly 90% of their non-disabled peers.[96] In developing countries, 98% of children with disabilities are not enrolled in school and 99% of girls with disabilities are illiterate.[97]

Education is often overtly denied to persons with mental disorders. For instance, in many LMICs, children with mental disorders or intellectual disability are institutionalized and these institutions frequently do not offer education.[98] [99] [100] [101] When children and adults with mental disabilities do have educational opportunities, instead of receiving the support they need, they are often discriminated against, rejected, and ridiculed in school.[102]

A number of studies across developing countries have also found that emotional and learning disorders are amongst the most important causes of school failure.[103] Evidence from cross-sectional and prospective studies in high- and low-income countries indicates that, after adjustment for potential confounders[ii], mental illness in children and adolescents is associated with higher rates of school drop-out, poor academic performance, poor concentration, low motivation, underachievement, and fewer years of completed schooling. [104,105,106,107,108,109,110, ,111,112, 113]
Studies in South Africa, Brazil, India, Puerto Rico and Ethiopia have found that 6% to 18% of children and adolescents have mental disorders, indicating that this is a substantial problem in developing countries.[114] Given the strong association between mental disorders, poverty and lack of education[115] [116] and the high prevalence of mental illness, untreated mental disorders in children will have a significant, long-term negative effect on social and economic development. The failure to recognize and treat mental disorders during childhood will detrimentally affect educational outcomes in children and employment outcomes for up to 20% of the adult population in LMICs.

3.4 People with mental disorders are denied income generation and employment opportunities which lead them into poverty: Of all disabilities, mental illness is associated with the highest rates of unemployment (up to 90%[117]) leading individuals into economic poverty and depriving them of social networks and status within a community. The large disparity in unemployment rates can be seen from a study in Poland where the unemployment rate for people with mental health problems was 90% compared with 52% for the general population.[118] Rates of experienced discrimination among people with schizophrenia seeking employment are "high and consistent across countries" of varying income levels.[119] In a cross-sectional survey in 27 countries of 732 people with diagnosed schizophrenia, 70% of whom were unemployed; researchers found that 44% of respondents experienced discrimination in finding or keeping work.[120]

[ii] Including age, household income, parental employment, maternal education, race, gender and previous academic performance.

A number of studies have indicated the reluctance of employers to hire people with mental illness.[121] [122] One study in Poland found that 95% of employers reported that they would not want to employ a person with schizophrenia for any position.[123] A second found that 70% of respondents believed that people with mental disabilities should not be employed in positions of responsibility, such as providing childcare, working as a physician or any in governmental position[124]. A recent study in Uganda revealed that an important reason for why people with mental disability are denied access to credit services was that they are believed to have impaired functioning, unable to meaningfully engage in productive work and hence incapable of paying back loans. This discriminatory practice has denied people with mental disability the opportunity to escape poverty through income generating activities.[125]

Although persons with mental disabilities may not be able to work during periods of untreated illness, thus limiting their ability to earn an income, for many people, acute episodes are interspaced with good health, and the overwhelming majority of persons with mental disorders can manage their illnesses with treatment, as can persons suffering from chronic physical disorders. For instance, a patient with schizophrenia, like a cancer patient, can spend most of his or her life healthy, with the illness in remission. However, for persons recovering from mental illnesses, discrimination against them severely limits income-generating opportunities.

4. Human rights impact

The stigma, myths and misconceptions surrounding mental illness are the root cause of much of the discrimination and human rights violations experienced by people with mental disabilities on a daily basis. The lack of knowledge about mental illness, its causes, symptoms and treatability results in common but erroneous belief that it is caused by individuals themselves or by supernatural forces possession by evil spirits or punishment by God in LMICs.[126127,128,129,130,131,132,133] A study in northern Nigeria found that almost one-half the respondents had negative feelings towards persons with mental disabilities.[134]

In addition, since people with mental disabilities are often not seen as being curable or valued members of the community, resources are not directed towards providing them with treatment and support. Instead, they are abandoned and/or placed in psychiatric hospitals or prisons[135], [136], [137], [138], where they are not treated but are instead subjected to abuse and neglect that exacerbates their illness.

Unhygienic and inhuman living conditions are common in many facilities, as are harmful and degrading treatment practices. People are locked up in these institutions against their will for long periods, even years. Informed consent to treatment is systematically ignored in some cases, while in others people are subject to neglect and receive no treatment or care. Basic rights such as the right to confidentiality, to access information (including clinical records), to privacy and to communication are frequently violated.[139] [140] An examination of 37 hospitals in Bangalore, India, found that 14 facilities that were due to be converted from jails into mental hospitals in 1980, had undergone no structural transformations. Sixteen hospitals used single-person cells to house several patients. Many hospitals placed patients in cells without water facilities, toilets, or beds, so people had to urinate and defecate in their cells. In addition, the patients received inadequate drug treatment

and poor supervision. Comprehensive medical and psychosocial treatments were almost non-existent in a third of the hospitals investigated.[141]

Another factor compounding these abuses is the fact that people with mental disabilities lack access to proper judicial mechanisms to protect their rights, for example complaints mechanisms or procedures to contest or appeal their detention in mental health facilities.[142] This means that their fundamental rights such as the right to liberty and security of person, and their right to be free from torture, cruel, inhuman and degrading treatment and punishment continue to be violated arbitrarily and with impunity.

People with mental disabilities experience human rights violations, not only in the health care context but also in their daily lives in the community.[143][144] The laws and practices of many LMICs allow extensive powers to be given to guardians of people with mental illness. These people than make decisions about many aspects of the lives of people with mental illness, including their place of residence, their movements, their personal and financial affairs and their medical treatment.[145]

People with mental disabilities also experience restrictions in the right to work, to obtain an education (see societal impact above), as well as to marry and found a family. In Bulgaria, for example, people with mental disabilities may not adopt or foster children.[146] In the Russian Federation, they may not file for divorce, and may lose custody of their children.[147].

In many LMICs people with mental disabilities are denied rights of citizenship and participation, such as the right to vote. In Thailand anyone "being of unsound mind or mental infirmity" cannot vote.[148] People under guardianship are also denied the right to vote in many countries, as is the case in Hungary.[149] In Bulgaria, in 2003, it was reported that the director of a state psychiatric hospital ordered the psychiatrists working at the hospital to assess the capacity of inpatients to vote, when the director had no power in law to seek to deny the patients their vote.[150] This situation contributes to the political marginalization, disenfranchisement and invisibility of people with disabilities.

Participation means not only the right to vote and to stand for election but also to effectively and fully participate in the conduct of public life. Every individual, no matter how poor or marginalized, has the right to participate in public affairs and have representation in the decisions affecting them. Participation allows for the creation of an active civil society able to give a voice to the poor and marginalized and drive national reform.[151]

Yet in the majority of countries, particularly in LMICs, mental health consumers and their family members are not able to actively participate in decision-making processes on issues affecting them.[152] This is in contrast to issues such as HIV and AIDS and physical disabilities, for example, where those most directly affected have had an important say in policy-making and in how development aid is utilized.

This failure can in part be explained by the lack of mental health consumer movement or organizations in many parts of the world, especially in developing countries. However, the assumption that people with mental disabilities lack the capacity to make meaningful contributions to society due to their mental illness is also a significant barrier to their participation in decision-making processes.

5. Economic impact

5.1 Mental disorders lead individuals and families into poverty: People with untreated mental disorders are at much higher risk of descending into poverty than people without disorders. Firstly, people may not be able to work because of their illness. If employed, their illness may result in more sick days being taken or reduced productivity while at work. All these aspects reduce income and promotion chances. Furthermore, if people are not employed they will not qualify for employment-related pension or health insurance coverage when such programs exist. Secondly, if someone has had a history of untreated mental illness they will not have had the same opportunities as other people to accumulate human capital–that is, general and specific skills–that allow them to be competitive when searching for work or applying for a promotion. The impact on human capital can be particularly detrimental if their illness began in childhood or adolescence, as many mental illnesses do. Thirdly, because of discrimination, which is particularly strong for mental disorders, people may be systematically denied work opportunities. [153] [154] [155]

Poverty also exposes people to risk factors for the development or worsening of mental disorders. For example, stressors related to an inability to maintain basic living standards, fewer educational and employment opportunities, exposure to adverse living environments (such as poor housing or homelessness), substance abuse and violence are all positively associated with poor mental health. [156] [157] [158] [159] [160] [161] [162] Moreover, people living in poverty are often unable to access treatment[163] or spend scarce resources on treatment, thus exacerbating their already precarious financial position. [164] Because people with untreated mental illness are often unable to generate income they often have to rely on the financial support of family members to meet basic living needs and to pay for any health expenditure associated with mental illness.[165] Furthermore, family members may have to set aside a significant amount of their time to care for an ill family member. This can diminish caregivers' chances to get or keep a job or earn income, which affects their eligibility for insurance and pensions, thus further increasing the risk of povery. Thus the economic effects extend beyond that of the ill individual to significantly impact the household income.[166] The relationship described between mental disorders and poverty is similar to that of other chronic diseases, except that the stigma and discrimination associated with mental illness have an additional and sizeable negative impact leading to increased risk of illness or relapse and deepening poverty.

5.2 Untreated mental disorders negatively affects economic development at the national level: While studies on the effects of untreated mental illness on national economic development have not been conducted in LMICs, research in developed countries provides an important framework and data for understanding these costs in developing countries. The total annual cost of depression in 28 European countries was estimated at 118 billion Euros, of which 42 billion were for direct costs related to treatment, including drugs, outpatient care and hospitalization, and 76 billion were for indirect costs due to loss of employment, productivity and increased insurance and social benefit payments.[167] Overall, not treating mental disorders results in much higher expenses than does treatment, because of the higher indirect costs associated with greater morbidity. Most of the quantifiable costs of untreated mental illness occur outside the health sector, due to loss of employment and income generation, increased absenteeism, poor performance within the workplace and premature retirement.[168] These indirect costs account from 60% to 80% of the total economic impact of major mental health problems in Europe.[169][170] In the United States, 18.2 % of employed people had evidence of a mental disorder, which had impaired their work performance within a 30-

day period.[171] The Association of Canadian Insurance Companies estimates that mental health problems are the leading cause of long-term absence from work.[172] Providing access to psychosocial treatment can greatly redress this situation.[173]

The impact of unemployment and productivity losses for people with untreated mental disorders in LMICs can be estimated in relation to data from developed countries. We expect that the unemployment rates for people with mental illness in LMICs to be higher than in developed countries, due to less access to treatment and more discrimination. Based on the WHO World Mental Health Survey (2004), which included LMICs, the 12 month prevalence of mental disorders ranges between 4-26%.[174] Colombia and Mexico, for example, had prevalence rates for mental disorders of 17.8% and 12.2%, respectively.[175] A recent epidemiological study in South Africa identified prevalence rates of common mental disorders to be 16.5% of the population.[176] Studies indicate that 3% of the population in LMICs is affected by a severe mental illness [177] and that 90% of those affected are both untreated[178] [179] and unemployed.[180]Therefore it is reasonable to expect that 2.7% of the population will be economically disadvantaged as a direct result of mental illness or associated discrimination. In addition, there will be productivity losses associated with common mental disorders. Based on the South African prevalence estimate of common mental disorders, a further 16.5% of the population will experience productivity losses. Therefore, almost 20% of the population will lose productivity due to untreated mental disorders, with substantial impact at the national level. These estimates are conservative, given the effect of an individual's untreated mental illness on the income of other members of the household, as in the case of care-giver income losses.

6. Recommended mental health interventions to improve the development of the poor in low and middle income countries

Wealth currently created in countries is not necessarily penetrating deeply enough for the poor and the most vulnerable in societies to benefit and economic inequality in some countries is increasing. Given that one of the primary aims of development programs is to help those who are the poorest and most disadvantaged in society, people with mental disorders are an important group for interventions.

As this report has demonstrated there is a huge health, social, economic and human rights burden to address. At the same time there are many interventions with demonstrated efficacy that can be used to improve the development of poor people in poor countries.

Targeted poverty alleviation programmes are needed to break the cycle between mental illness and poverty. These must include measures specifically addressing the needs of people with mental illness, such as the provision of accessible and effective treatment and support, facilitation of education, employment opportunities and housing, and enforcement of human rights protection. Many low-income countries have identified mental health as an important issue, yet lack the finances and technical expertise to address the problem. Financial investments have not always been used in technically sound ways, for example, building of psychiatric institutions when the best evidence indicates the need to transfer mental health care to the community. Having mental disability on the agenda of development organizations will be a critical step for overcoming the negative development consequences of mental disability.

6.1 Interventions to promote education and mental health: Despite the fact that child and adolescent mental health problems are associated with poorer educational and employment outcomes in later life, leading to long-term social and economic consequences, most developing countries have a "near complete absence of any child and adolescent mental health services".[181] These needs must be addressed more directly and comprehensively.

Not only is it important to build schools, but it is necessary to think about who is receiving schooling and the content of the education being delivered. The exclusion of children with disabilities is discriminatory and leads to further marginalization of this already vulnerable group.. Moreover, people with mental disabilities (as well as those with emotional and learning problems that may not reach clinical diagnostic criteria) need "mental health" support to achieve optimal educational attainment. It is imperative that educational institutions identify and assist these children and adolescents.

There is now mounting evidence concerning the effectiveness of early childhood education and parenting interventions. Contemporary early childhood education or preschool programmes address the cognitive, sensory-motor (physical) and psycho-social development of the child, as well as the child-parental relationship.[182] Evidence for the effectiveness of interventions in early childhood is robust, coming from meta-analyses and systematic reviews of randomised controlled trials and longitudinal studies. The evidence coheres around the finding that investment in early child development (in low- and high- income countries) is both highly effective and cost-effective, Interventions have resulted in improvements in short-term cognitive and mental health benefits, such as improvements in children's social skills, self-confidence, relationships with adults and motivation,[183,184] Specific benefits include improved school enrolment rates, younger age of school entry and better retention rates and academic performance.[185186] Long-term payoffs include reduced burdens on health and social systems, such as reduced need for incarceration, substance abuse treatment and unemployment payments. Multiple positive effects of pre-school interventions have been documented well into adulthood, for example up to 17 years after the intervention, in low-income countries,.[187] Early childhood and parenting interventions are clearly a major investment opportunity for development.

6.2 Interventions for treatment and services, including prevention: Mental health interventions, including pharmacological, psychosocial and care-management strategies for schizophrenia, depression, alcohol misuse and epilepsy and for suicide prevention have proved effective in LMICs (including poor populations within these countries), as they have in wealthier nations.[188 189 190 191 192] (See appendix 2 for evidence related to interventions for depression, schizophrenia and alcohol misuse.) For example, group psychotherapy with depressed individuals in rural Uganda and community outreach to people with schizophrenia in rural India reduced the severity of psychotic and depressive symptoms, the effects of disability and the burden to patients' families. [193 194 195] Improvements in cognition, life activities, and participation in society (including use of peer support) were significant and sustained. [196 197] Improvements were seen in functioning related to domains that individuals specified as important to their everyday life, such as work, social and community life, care for children and domestic activities, suggesting that mental health treatment can be beneficial not just to individuals with mental illness but for the welfare and development of their community as well. [198]

Interventions for alcohol use disorders: To be effective, strategies and policy element options should address levels, patterns and context of alcohol consumption through a combination of measures that target the population at large, vulnerable groups, such as young people and pregnant women, affected individuals and particular problems such as drunk-driving and alcohol-related violence.[199][200]

The cost-effectiveness of interventions varies according to the prevalence of heavy drinking and the overall level of alcohol consumption. In settings with high rates of heavy drinking, both individually oriented interventions, such as brief physician advice, as well as population-wide measures, such as taxation on alcoholic beverages, can have a notable impact on population health. When there are low rates of hazardous drinking, specific intervention targeting particular subgroups or settings, such as drinking drivers or heavy drinkers, appear to be more cost effective. When there is a high level of unrecorded production and consumption, increasing the proportion of alcohol that is taxed could be a more effective pricing policy than a simple increase in tax.[201] [202]

Interventions for suicide prevention: Suicide is a complex phenomenon, resulting from the interaction of multiple factors. Comprehensive public health action to prevent suicidal behaviours should comprise at least the following effective interventions in LMICs: reduction of access to means for suicide, responsible and deglamourized reporting in the media, and early identification and treatment of people with mental and substance use disorders.[203] [204] [205] [206] [207]

Interventions for intellectual disability: Many potential interventions exist for the prevention of intellectual disability. Effective and cost-effective interventions include the provision of skilled care at birth, effective community-based maternal and child health care services, and adequate nutritional supplementation programs.[208] For example, folic acid fortification in the diet of pregnant women can reduce the occurrence of neural tube defects by 50% or more.[209] Salt iodisation is the most cost-effective way of delivering iodine and of substantially improving cognitive development[210].

Interventions for epilepsy: Approximately two-third of patients with epilepsy can live without seizures with first-line antiepileptic medications. Phenobarbital is the most cost-effective intervention for managing epilepsy. Its cost can be as low as $5 USD per person per year in resource-poor countries.[211]

A study on the avertable burden of epilepsy and the population-level costs of treatment with first-line antiepileptic medicines in developing countries across nine WHO subregions showed that extension of coverage of treatment with antiepileptic medicines to 50% of primary epilepsy cases would avert 13-40% of the existing burden, at an annual cost per person of 0.20–1.33 international dollars.[212] At a coverage rate of 80%, the treatment would avert 21-62% of the burden.[213]

A demonstration project carried out in China showed that by providing basic training to primary care physicians, it is feasible and effective to treat patients with epilepsy using phenobarbital.[214] The total one-year expenses per treated patient before the demonstration project were 1494.30 yuan and 213.09 yuan in rural Shanghai and Ningxia, respectively. These expenses decreased to 91.52 yuan and 45.90 yuan respectively during the demonstration project.[215]

Interventions delivered in primary care: Numerous studies have also demonstrated that mental health services delivered at the level of primary care result in good health outcomes. Compelling

evidence has been generated from a range of settings, including numerous LMICs and targeted poor populations[216]

The treatment of mental disorders is as cost-effective as antiretroviral treatments for HIV/AIDS, secondary prevention of hypertension or glycaemia control for diabetes. Scaling up a full package of primary care intervention for schizophrenia, bipolar disorder, depression and hazardous use of alcohol over a 10-year period would require a total additional investment of only US$0.20 per capita per year in low-income countries and US$0.30 per capita per year in lower middle-income countries.[217]

A recent World Health Organization and Wonca Report, "Integrating Mental Heath into Primary Care: A Global Perspective", identified ten principles for the successful integration of mental health into primary care in LMICs. They ranged from clear policy directions and resource allocation at national level through to local-level commitment and capacity building.[218] The best practices described in the report show that by adopting the ten principles many LMICs can improve health worker knowledge, skills and confidence to provide mental health intervention; improve health and social outcomes for patients with mental disability and substantially increase the coverage of mental health interventions. Importantly, the report not only shows what can be achieved but provides detailed guidance on how mental health can be integrated into primary care and scaled up.[219]

6.3 Interventions for poverty reduction and income generation:

Article 27 of the UN Convention on the Rights of Persons with Disabilities recognizes the right of persons with disabilities to work on an equal basis with others including the opportunity to gain a living by work freely chosen or to be accepted in a labour market and work environment that is open, inclusive and accessible to persons with disabilities. It requires that States Parties safeguard and promote the realization of the right to work by taking appropriate steps, including through legislation, to enable people with disabilities to have effective access to general technical and vocational guidance programmes and training, and placement services.[220] Article 3 of the ILO Convention concerning Vocational Rehabilitation and Employment (Disabled Persons) similarly requires that competent authorities "take measures with a view to providing and evaluating vocational guidance, vocational training, placement, employment and other related services to enable disabled persons to secure, retain and advance in employment."[221]

People with mental disabilities are capable of working and being productive, especially when they are given appropriate mental health interventions, such as medication and counseling, and provided with vocational skills and social support, such as peer self-help and home visits. This has been demonstrated in many scientific and case studies.[222] [223] [224] [225] [226] A striking, but typical, example is that of a man in a remote village in East Timor. After being chained by his family for 15 years because they were unable to cope with his psychotically motivated violent behavior, he recovered sufficiently, after receiving two months of treatment, to be able to assist his family working in the rice fields, with ongoing treatment.[227]

However, important barriers to employment such as stigma and discrimination must be overcome. [228] [229] [230] In developing countries economic activities consist primarily of self-employment and small business operations.[231] Initiatives to improve employment for individuals with mental disorders that

have provided grants and support for small business operations have demonstrated benefits not only for these individuals but for their families and communities as well.[232] [233] [234] For example, individuals with mental illness in Uganda, India, the United Republic of Tanzania, Sri Lanka and Ghana who received treatment and support were able to engage in small farming, producing crops and tending poultry, and contributing to their families' food supply.[235] BasicNeeds, an NGO working in the area of mental health and development, recently assessed economic outcomes of people with mental disabilities in their North India Programme, which promotes livelihoods and treatment and care. Key economic gains achieved by users and their families resulted from reduced costs to access treatment (thus avoiding the need to sell family assets to pay for treatment) and improved capacity to work and earn (which also meant fewer days of work missed by the user as well as carer).[236].

These results are consistent with those from studies examining employment programs for other disadvantaged groups. Initiatives that assisted vulnerable peasants in Bangladesh, India, Nepal and Viet Nam to produce and sell irrigation pumps to local farmers improved the financial situation of these peasants and allowed the farmers who bought the pumps to increase their crop yields.[237]

Interventions that have proved effective in developed countries can be beneficial in developing nations as well. A Cochrane review found that supported employment programs, in which people with severe mental disorders performed paid work with on-going support and training, resulted in higher employment rates, better wages, more hours of employment per month as well as better mental health than those who received pre-vocational training without support, or standard psychiatric care alone.[238] In China employees working in factories who develop mental illness are provided with vocational rehabilitation in a sheltered workshop environment until they are well enough to return to their previous competitive employment. This approach has been empirically evaluated and shown to be effective.[239]

Grants for people living with severe mental illness are routinely available in most high-income countries, but not in most LMICs. To address this and provide a financial safety net to people with mental disability and their families (particularly during episodes of illness), it is incumbent upon governments to develop policies and establish systems for the administration of such grants. This is underscored in General Comment 5 (on Persons with Disabilities) of the UN Committee on Economic, Social and Cultural Rights which emphasizes the importance of providing adequate income support to persons with disabilities, including mental disabilities.[240] Studies conducted in relation to other vulnerable groups have shown that receiving income transfers has a positive effect on mental health.[241] [242]

6.4 Interventions to promote and protect human rights: There are a number of key measures that can be taken to promote and protect the rights of people with mental disabilities. The ratification and implementation of the UN Convention on the Rights of Persons with Disabilities[243] by countries worldwide represents one such measure. The Convention sets obligations on governments and the international community to promote full inclusion and participation of people with mental disabilities in community life. It includes provisions aimed at preventing abuses in health care and community contexts. In addition it protects a full spectrum of rights, including the right to legal capacity to manage one's own financial affairs, to marry and found a family and to participate in political and public life, to access education, to work, to have an adequate standard of living and social protection and to obtain health and habilitation/rehabilitation services.[244]

The development and implementation of mental health policies and laws is another important measure that can act as catalyst for reform. South Africa's Mental Health Care Act (2002), for example, which integrates international human rights and best practice standards, has driven service reform at the provincial and district level within the country.[245] Well formulated, human rights oriented policies and laws can help to ensure that people have access to good quality mental health services based in the community. Policies and laws can help prevent abuses in mental health, social care facilities and prisons and promote the rights of people with mental disabilities in general. They can facilitate the introduction of complaints mechanisms as well as procedures to end arbitrary detention in these facilities. Comprehensive policies and laws can ultimately empower people with mental disabilities to make choices about their lives and promote their full integration and participation into the community.[246][247] In addition to the establishment of mental health-specific policies and laws, it is also essential to integrate mental health issues into other relevant existing laws and policies related, for example, to health, social welfare, employment, education and criminal justice.[248]

The establishment of independent mechanisms, such as visiting committees, to monitor conditions in mental health facilities is another important measure. Such committees provide a critical function in ensuring that conditions in mental health facilities are acceptable, that people within the facility are receiving the treatment and care they need and that their human rights are being respected.[249]

Also key to human rights promotion and protection is the strengthening of civil society in the area of mental health. The active and meaningful participation in public affairs of people with mental disabilities and others representing their interests is critical to bringing about positive reform in mental health. Their unique perspective means they are in a key position to identify the strategies best able to meet their needs and requirements. Through government lobbying, participation in decision-making processes, awareness raising on human rights and denouncing of abuses, the consumer movement can be active participants in change in LMICs.[250] The Mental Health Users Network of Zambia (MHUNZA), for example, has established working relationships with the government of Zambia and today their activities include contributing to the revising of mental health legislation; mobilizing and sensitizing communities around mental health issues; helping to mitigate the impacts of HIV and AIDS on people with mental disabilities; visiting the homes of people with mental disabilities and sensitizing family and community members; identifying needs and using this for lobbying for rights and services for people with mental disabilities and participating on radio shows.[251]

Recommendations

1. Implement the specific interventions recommended in this report.

2. Promote the provisions of the UN Convention on the Rights of Persons with Disabilities in accordance with Article 32, which requires that international cooperation, including international development programmes, is inclusive of and accessible to persons with disabilities including mental disabilities.

3. Integrate mental health as an important health issue in international and regional partnerships and into strategies for health, disability, poverty reduction and development.

4. Promote research examining impact and outcomes of interventions for reducing poverty, promoting employment and income generation, promoting access to education and ending human rights violations in low and middle income countries.

5. Integrate indicators on the treatment gap for mental disorders into the core MDG monitoring and evaluation system during the 2010 review of the MDGs.

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APPENDIX 1

Table 1: Leading global causes of YLD, high-income and low- and middle-income countries, 2004

	Low- and middle-income countries				High-income countries		
	Cause	YLD (millions)	Per cent of total YLD		Cause	YLD (millions)	Per cent of total YLD
1	Unipolar depressive disorders	55.3	10.4	1	Unipolar depressive disorders	10.0	14.6
2	Refractive errors	25.0	4.7	2	Hearing loss, adult onset	4.2	6.2
3	Hearing loss, adult onset	23.2	4.4	3	Alcohol use disorders	3.9	5.7
4	Alcohol use disorders	18.4	3.5	4	Alzheimer and other dementias	3.7	5.4
5	Cataracts	17.4	3.3	5	Osteoarthritis	2.8	4.1
6	Schizophrenia	14.8	2.8	6	Refractive errors	2.7	4.0
7	Birth asphyxia and birth trauma	12.9	2.4	7	COPD	2.4	3.5
8	Bipolar disorders	12.9	2.4	8	Diabetes mellitus	2.3	3.4
9	Osteoarthritis	12.8	2.4	9	Asthma	1.8	2.6
10	Iron-deficiency anaemia	12.6	2.4	10	Drug use disorders	1.7	2.4

COPD, chronic obstructive pulmonary disease

Source: World Health Organization. The global burden of disease: 2004 update. Geneva, World Health Organization, 2008 (table 11, page 37).

Table 2: Leading causes of burden of disease (DALYs), countries grouped by income, 2004

	Disease or injury	DALYs (millions)	Per cent of total DALYs		Disease or injury	DALYs (millions)	Per cent of total DALYs
	World				***Low-income countries***[iii]		
1	Lower respiratory infections	94.5	6.2	1	Lower respiratory infections	76.9	9.3
2	Diarrhoeal diseases	72.8	4.8	2	Diarrhoeal diseases	59.2	7.2
3	Unipolar depressive disorders	65.5	4.3	3	HIV/AIDS	42.9	5.2
4	Ischaemic heart disease	62.6	4.1	4	Malaria	32.8	4.0
5	HIV/AIDS	58.5	3.8	5	Prematurity and low birth weight	32.1	3.9
6	Cerebrovascular disease	46.6	3.1	6	Neonatal infections and other	31.4	3.8
7	Prematurity and low birth weight	44.3	2.9	7	Birth asphyxia and birth trauma	29.8	3.6
8	Birth asphyxia and birth trauma	41.7	2.7	8	Unipolar depressive disorders	26.5	3.2
9	Road traffic accidents	41.2	2.7	9	Ischaemic heart disease	26.0	3.1

[iii] Countries grouped by gross national income per capita (see 2.7Annex C, Table C2).

[iii] This category also includes other non-infectious causes arising in the perinatal period apart from prematurity, low birth weight, birth trauma and asphyxia. These non-infectious causes are responsible for about 20% of DALYs shown in this category.

10	Neonatal infections and other[iv]	40.4	2.7	10	Tuberculosis	22.4	2.7
	Middle-income countries				***High-income countries***		
1	Unipolar depressive disorders	29.0	5.1	1	Unipolar depressive disorders	10.0	8.2
2	Ischaemic heart disease	28.9	5.0	2	Ischaemic heart disease	7.7	6.3
3	Cerebrovascular disease	27.5	4.8	3	Cerebrovascular disease	4.8	3.9
4	Road traffic accidents	21.4	3.7	4	Alzheimer and other dementias	4.4	3.6
5	Lower respiratory infections	16.3	2.8	5	Alcohol use disorders	4.2	3.4
6	COPD	16.1	2.8	6	Hearing loss, adult onset	4.2	3.4
7	HIV/AIDS	15.0	2.6	7	COPD	3.7	3.0
8	Alcohol use disorders	14.9	2.6	8	Diabetes mellitus	3.6	3.0
9	Refractive errors	13.7	2.4	9	Trachea, bronchus, lung cancers	3.6	3.0
10	Diarrhoeal diseases	13.1	2.3	10	Road traffic accidents	3.1	2.6

COPD, chronic obstructive pulmonary disease

Source: World Health Organization. The global burden of disease: 2004 update. Geneva, World Health Organization, 2008. (table 13 page 44)

References

World Health Organization. The global burden of disease: 2004 update. Geneva, World Health Organization, 2008.

COPD, chronic obstructive pulmonary disease.

APPENDIX 2

Table 1: Evidence for effectiveness of interventions for selected mental disorders by income level of country

	High income countries		Low-income and middle-income countries	
	Evidence	Level of evidence*	Evidence	Level of evidence*
Depression				
Antidepressants	Antidepressants are more effective than placebo[252, 253, 254] but similar to psychotherapeutic interventions;[255] a combination of antidepressant and psychotherapy is the most effective treatment[256]	1	Antidepressants, alone or in combination with other treatments, are efficacious.[257, 258, 259]	2
Psychological interventions	Brief psychotherapeutic approaches (cognitive behaviour therapy or interpersonal therapy or problem solving) are more effective than placebo for treatment of moderate or severe depression[260]	1	Individual psychoeducation is more effective than usual care[261] Group interpersonal therapy is more effective than usual care[262, 263] and psychoeducational groups, as part of a stepped-care programme, are more effective than usual care[15]	2
Schizophrenia				
First generation antipsychotics	First generation antipsychotics are more effective than placebo[264, 265] and as effective as second generation antipsychotics[266, 267, 268, 269, 270, 271]	1	First generation antipsychotics are as effective as second generation antipsychotics for treatment of first-episode psychosis[27]	3
Family therapy and community-based interventions	Programmes such as assertive community treatment,[272] supported housing,[273] and vocational rehabilitation[274] are effective for integration of people with schizophrenia within the community	1	Family interventions are effective for reduction of relapse rates and improvement to the lives of people with schizophrenia[275, 276, 277]	2
Alcohol misuse and alcohol dependence				
Pharmacological interventions	Naltrexone is effective for reduction of relapse rates and lowered risk of treatment withdrawal.[278, 279] Acamprosate reduces drinking frequency[37, 280]	1	Acamprosate is associated with significantly higher continuous abstinence time;[281] naltrexone is associated with improved completion rates in outpatient treatment programmes for people with alcohol dependence[282]	2
Psychological interventions	Brief physician-delivered interventions are effective, especially for patients with less severe drinking problems.[283] Brief screening tools are an effective method for detection of drinking problems in primary care[284]	1	Brief physician-delivered intervention is associated with reduced intensity and amount of alcohol consumption, especially in men[285]	2

Developmental disabilities				
Pharmacological interventions	Antipsychotic medication reduces the severity of problem behaviours associated with mental retardation[286], [287] and autism.[288] Methylphenidate improves behaviour in children with ADHD[289] and is cost-effective[290]	1, 2	A herbal preparation reduces the severity of problem behaviours associated with mental retardation.[291] Methylphenidate improves behaviour in children with ADHD[292]	3
Psychosocial interventions	Functional analysis helps reduce problem behaviours associated with mental retardation.[293] Cognitive-behaviour methods have a modest impact on reduction of aggressive behaviour in the short-term;[294] individual psychological treatments have a modest benefit[295]	1	Interactive group psychoeducation improves parental orientation towards child-rearing, knowledge towards intellectual disability, and attitude towards management of mental retardation[296]	3
Community interventions	Community living offers lifestyle and skill-development advantages associated with improved life quality compared with living in large residential institutions.[297]	4	Community-based rehabilitation improves activities of daily living in adults with mental retardation, and school participation in children with mental retardation[298, 299, 300]	4

*Levels of evidence: 1=systematic review; 2=two or more randomised controlled trials (RCTs); 3=one RCT; 4=observational evidence. ADHD=attention deficit hyperactivity disorder.

Source: Patel V et al. Treatment and prevention of mental disorders in low-income and middle-income countries. *The Lancet*, 2007, 370(9591): 991-1005. (table 4, page 993).

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