THE LINKS BETWEEN TUBERCULOSIS AND MENTAL HEALTH: EVIDENCE AND BEST PRACTICE INCORPORATING GUIDANCE TO USAID

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Purpose and Organization of the Paper

The purpose of this paper is to provide USAID with guidance on how to address and incorporate the current evidence and best practices regarding the relationship between mental health and tuberculosis (TB).The focus is **USAID's 23 TB priority countries**, all of which are low- and middle-income based on World Bank criteria.[1]

The paper describes:

- the **scientific evidence for the association of depression, anxiety, and alcohol use disorder (AUD)** as the three main mental health disorders in persons with TB.

- a conceptual framework jointly addressing mental health and TB using a **model of collaborative care** that provides an evidence-based example of how TB and mental health programs can collaborate.

- components of a comprehensive **package of mental health care** for persons receiving TB treatment that includes: training and supervision; screening tools for depression, anxiety and alcohol use disorder; proven interventions; monitoring and evaluation; and research. Ideally, the package should be viewed as a whole, although individual elements may perhaps be singled out for implementation and research.

- **evidence-based community level interventions**, given that the diagnosis and care of people with TB occur mainly in primary health care settings in these countries. Persons who do not respond to these first-level efforts, because they have more complicated or severe mental health issues, or suffer from medication side effects, need to be referred to higher levels of a country's health system.

- an agenda for **further research emphasizing operational and implementation questions**, as the mental health interventions ("the what") are known to work and have been tested in various country settings (although not necessarily for TB). The need is more in the area of "how" implementation can be adapted for a specific community, taking into account such issues as language, cultural dynamics, and structure of the health system.

These points are underpinned by a rights-based, people-centered care approach, defined by the World Health Organization (WHO) in a document from page 2 in the 69th World Health Assembly in 2016, which stated:

> people-centered care: an approach to care that consciously adopts individuals', carers', families' and communities' perspectives as participants in, and beneficiaries of, trusted health systems that are organized around the comprehensive needs of people rather than individual diseases, and respects social preferences. People-centred care also requires that patients have the education and support they need to make decisions and participate in their own care and that carers are able to attain maximal function within a supportive working environment. *People-centred*

care is broader than patient and person-centred care, encompassing not only clinical encounters, but also including attention to the health of people in their communities and their crucial role in shaping health policy and health services (my emphasis).[2]

(NB: Before this specific definition, WHO's Global TB Programme in 2015 explicitly called for a *patient-centered* approach[3]. In 2019, it published a document on a *people-centered framework[4]* (without a definition) which on closer reading, is better described as person-centered approach, as it did not discuss the carers, families, and communities of WHO's 2016 definition. Further confusing the picture and the loose use of the terms, on June 10, 2021, WHO launched a new set of publications on community mental health services, using a *person-centered* (my italics) and rights-based approach. The umbrella document is *Guidance on community mental health services: Promoting person-centred and rights-based approaches,*[5] which is supported by seven technical packages that address a comprehensive set of services encompassing crisis, living services, hospital-based, networks, peer support, community outreach, and centers for mental health. For the purpose of this paper, the broad "people-centered" approach is the basis, as it incorporates the people supporting the person experiencing mental illness and TB and the communities in which they reside.)

Background

Until December 2020, when it was overtaken by SARS-CoV-2, TB, with an estimated 1.5 million deaths per year, caused the most deaths from an infectious disease.[6,7] Another significant cause of morbidity worldwide is mental illness, such as that caused by depression, anxiety, and alcohol.[8,9] Evidence exists that persons with TB suffer higher rates of depression than the general population,[10,11] which can impact on TB treatment outcomes.[12,13,14]

The two conditions are linked bidirectionally. Having TB can lead to mental health challenges, caused by decreased ability to work due to illness, and from rejection by family and society due to stigma. There is evidence that mental illness is linked biologically to an increased incidence of TB due to inflammatory or suppressive effects on the immune system.[15] From a psychosocial point of view, depression, anxiety, and alcohol use disorder can lead to decreased adherence to taking medications, thereby affecting TB treatment and outcomes.

WHO, the United Nations agency responsible for global public health, houses programs for both tuberculosis and mental health. All three pillars of its Global Tuberculosis Programme's End TB Strategy 2016-2035 incorporate, or at least imply, mental health integration. Pillar 1 calls for "integrated patient-centered TB care and prevention" that includes the management of co-morbidities. Pillar 2 calls for

"bold policies and supportive systems… that incorporate social protection, poverty alleviation and actions on other determinants of TB." Finally, Pillar 3 advocates for intensified research on implementation of services and innovative delivery of care.[3] Staff responsible for country level TB programs are aware of the impact that decreased mental health can affect TB treatment outcomes. In a survey of 26 NTP managers, 92% were somewhat or very receptive to incorporating a mental health component into their program.[16]

WHO's Department of Mental Health and Substance Use houses the Mental Health Gap Action Programme (mhGAP),[17] and in 2016, the World Bank and WHO have prioritized mental health as a development issue.[18] Finally, mental health is explicitly linked to multiple other Sustainable Development Goals beyond SDG 3, the only one that directly addresses health.[19]

Evidence Linking Mental Health and Tuberculosis

An excellent scoping review by Van Rensburg and colleagues[20] of co-morbidities between tuberculosis and common mental disorders in low- and middle-income and BRICS countries between 2000 and 2019 revealed four broad conditions: depression, anxiety, alcohol use, and a non-specific category of general mental health. For each of the conditions, the paper highlighted some of the relevant findings regarding TB and mental illness symptom rates, the effect of TB diagnosis and treatment on mental illness and factors such as gender, socioeconomic, and education background. Evidence from this investigation is incorporated below into the individual sections on depression, anxiety, and alcohol use disorder. Doherty et al.,[21] in reviewing the relationship between TB and mental health from 316 articles, noted rates of mental illness of up to 70%. However, the high rate included the two-way effects of anti-TB medications and those used to treat mental illness. An anti-TB medication such as cycloserine is well known to cause psychosis, while rifampicin may decrease the effective dose of anti-psychotic drugs. Side effects of anti-TB medications and the interaction between drugs used to treat mental illness and TB are beyond the scope of this paper.

Evidence Linking Depression and Tuberculosis

WHO defines depressive disorders as including "…sadness, loss of interest or pleasure, feelings of guilt or low self-worth, disturbed sleep or appetite, feelings of tiredness and poor concentration. Depression can be longstanding or recurrent, substantially impairing an individual's ability to function at work or school or cope with daily life" (p. 7).[8]

Depression in the general population

In 2017, WHO published estimates showing that worldwide, depression affected 322 million people, comprising 4.4% of the world's population. Prevalence varied by region of the world, with almost half living in WHO's South-East Asia and Western Pacific regions, due to their larger populations. Depression peaks in the age group 55-74 years, (>7.5% in females and >5.5% in males). In fact, females in every age category between 15 and 80 plus years had a higher prevalence of depressive disorders.[8]

- Lim et al.[22], in a community-based study of 30 countries from 1994-2014, reported a point prevalence of depression of 12.9% and a 10.8% lifetime prevalence. Women were found to have higher rates of depression if from medium development index countries, if a self-reporting versus a clinician-rating instrument was used and if the study was performed in the second half of the survey period.

Depression in persons with tuberculosis

Although reports of the prevalence of depression in persons with TB vary widely, all show a significantly higher rate than the general population.

- Sweetland et al.[23] reported rates that ranged from 11.3% to 80.2%, with a mean weighted prevalence of 48.9%.
- Pachi et al.[24], in a review of 50 studies, reported rates of depression and anxiety of 46-72%.
- Duko et al.[10]. looked at pooled data from 25 studies in eight countries (4903 persons from Brazil, Cameroon, China, Ethiopia, India, Nigeria, Pakistan, Turkey) and found the prevalence of depression to be 45.2%, and was higher in females (51.5%) and persons with multidrug-resistant TB (MDR-TB) (52.3%). The measurement scale used also affected the results, with the PDQ-9, the most commonly used instrument, showing a 38.3% depression rate compared to two other scales (45.5% and 55.6%).
- In Van Rensburg et al.'s[20] review of 100 articles looking at co-morbidities between TB and common mental disorders, the prevalence of depression in individual studies ranged from 9% in Zambia to 84% in India.

Effects of depression on tuberculosis treatment outcomes

- Ruiz-Grosso et al.[25] performed a systematic review and meta-analysis to determine the effect of depression and psychological distress on the TB treatment outcomes of death, loss to follow-up,

and non-adherence. Beginning with 2,904 articles, eight met the inclusion criteria for the review, and four specifically measured depression of varying degrees. A summary of the significant findings showed that depression was significantly linked to lower or non-adherence to TB treatment, lower success rate, shorter survival time within the first six months of follow-up after treatment, loss to follow-up, and death.

Depression in persons with drug-resistant tuberculosis

The prevalence and severity of depression in persons with drug-resistant TB can be affected by several, often intertwined issues. Clinical issues can range from the effects of misdiagnosis or delays in diagnosis, the unpleasant nature of the treatment (taste of the medications, the use of injections, the length of treatment); lack of medication efficacy and/or side effects. Programmatic issues include patients feeling they receive incomplete or even lack of information regarding TB; decreased access to medications, both old and new; and lack of psychological support that addresses the specificities of this form of TB.

Effects of depression on tuberculosis treatment outcomes in persons with drug-resistant TB

- Alene et al.[26] performed a systematic review and meta-analysis of 15 studies. The pooled prevalence of depression was 25%, with a range of 3 to 70%. While WHO region, gender and age were univariately associated with depression, only the Eastern Mediterranean region of WHO remained significant in the multivariate model.

- Furin et al.,[27] in a study of 60 persons with MDR-TB in Peru, reported that 18.3% experienced new depression after a median of 8.5 months of treatment (some of which due to the use of cycloserine, although 26.7% were diagnosed with depression as the onlycomorbidity at the *start* of treatment, but was 38.3% if other conditions were included).

- Vega et al.,[28] in a study from the same project in Peru as Furin with a partial overlap in the time period, performed a retrospective case series where 52.2% reported depression at the start of treatment; during treatment, new incidence of depression was 13.3%. Although the initial strategy was to use community health workers to manage the psychiatric issues, 80% of the people with depression discovered during treatment required anti-depressive medications during part of the TB treatment.

- Walker et al.[29] reported that of 135 persons with MDR-TB in two urban clinics in Nepal, rates of depression were 22.2%, compared to a background rate among Nepalis of 3.2%,[8] with persons having physical side effects from treatment reporting a higher score.

Qualitative studies highlight the voice and concerns of the person with multidrug-resistant tuberculosis

- Thomas et al.[30] used a mix of 15 quantitative and qualitative studies to explore the psychological, social, economic, and psychosocial issues facing people with MDR-TB. Of eight studies that explored psychological issues, fear and hopelessness were the most common emotions. Common themes were "depression, stigma, discrimination, side effects of the drugs causing psychological distress and the financial constraints due to MDR-TB" (p. 2).
- Isaakidis et al.[31] interviewed 12 people in Mumbai, India coinfected with MDR-TB and HIV who were cared for by five lay caregivers and five health professionals. The narrative structure with direct quotes from the persons and their families provided a contextually rich picture of the TB journey. Despite free treatment and considerable psychosocial and practical support, patients struggled with adherence to treatment due to, for example, pill burden, their side effects, and painful injections. They mentioned the negative psychological effects on not only themselves, but their families and caregivers, from financial pressures, not being able to work, stigma, and lack of emotional and community support. The authors noted that difficulties with adherence to treatment were more socially, rather than medically driven, but patients, their families, and the staff providing treatment were aware of their limited ability to provide support.

Evidence Linking Anxiety and Tuberculosis

WHO's definition of anxiety disorders refers to "to a group of mental disorders characterized by feelings of anxiety and fear….The duration of symptoms typically experienced by people with anxiety disorders makes it more a chronic than episodic disorder." (p. 7).[8]

Anxiety can be a normal reaction to stress, but to be diagnosed with an anxiety disorder, the fear or worry must be out of proportion to the situation and hinder the ability to navigate daily life. Although several types of anxiety disorders exist, of relevance to TB is Generalized Anxiety Disorder, which has been recognized as a reaction to the TB diagnosis and treatment journey. It involves worry that is so persistent and excessive that it interferes with activities of daily living. Symptoms can include fatigue, difficulties concentrating or sleeping, restlessness, or feeling on edge.

WHO's description of depression notes that "Many people with depression also suffer from anxiety symptoms and medically unexplained somatic symptoms." (p. 7).[33] Thus, depression and anxiety are intertwined. In clinical practice, a validated screening tool, the Global Anxiety Disorder 7 (GAD 7), which uses seven standardized questions, is used to determine the level of anxiety. Although recognized as a separate entity, WHO does not currently present anxiety as a module in its mhGAP materials, but it is being developed for the next edition, due to be published in 2022. In the scientific literature, the two conditions are often presented together, and techniques used to address one also include the other.

Anxiety in the general population

In 2017, WHO published estimates showing that worldwide, anxiety disorders affected 264 million people, comprising 3.6% of the world's population. Prevalence varied by region of the world, with 43% living in WHO's South-East Asia and Western Pacific regions, due to their larger populations. In contrast to depression, prevalence rates were similar between the age groups, although there was a trend toward a decrease in older groups, particularly those who were ≥80 years old. Like depression, anxiety was more common globally among females (4.6%) than males (2.6%). This was even more pronounced in the region of the Americas, where 7.7% of females suffered from anxiety, compared to 3.6% of males. In fact, females in every age category between 15 and 80 plus years had a significantly higher prevalence of anxiety disorders compared to males.[8]

Anxiety in persons with tuberculosis

The prevalence rate of anxiety among person with TB is higher than the general population, as is seen with depression. In addition, the presence of anxiety affects TB treatment outcomes in the same ways as depression and the interventions to address them are usually the same.

- Van Rensburg et al.'s[20] scoping review showed anxiety-related symptoms ranged from 2% in a study from India compared to investigations in Angola (38.3%), Brazil (hospitalized patients 38.4%), Ethiopia (41.5%), and culminating in 47% in Pakistan.
- Vega et al.,[28] in a study of 75 people with MDR-TB in Peru, captured data on anxiety at the startof treatment and during treatment. Six patients (8.7%) had anxiety at baseline, and during treatment, four required psychiatric attention. Nine patients developed anxiety during treatment, associated with having more dependent children and the use of a higher average

dose of cycloserine, a medication well known to cause psychiatric manifestations, including psychosis.

- Alene et al.,[26] in a systematic review and meta-analysis of people with MDR-TB that included the Vega investigation and a report by Furin with a partial overlap of the time period in the same Peru program, identified three studies that reported data on anxiety. The pooled prevalence of anxiety was 24% (range 12-56%). Although Vega's study showed that there were people with increased anxiety after treatment commencement, Furin only reported the presence of anxiety during treatment.

- Walker et al.[29] reported that of 135 persons with MDR-TB in two urban clinics in Nepal, rates of anxiety were 15.6%, compared to overall rates among Nepalis of 3.6%. Persons having physical side effects from treatment reported a higher anxiety score. Being single was linked to greater anxiety in a univariate model, although this effect was not maintained in the multivariate model.

Evidence Linking Alcohol Use Disorder (AUD) and Tuberculosis

Alcohol use disorder in the general population

According to WHO's 2018 Global status report on alcohol and health, in 2016, alcohol caused 5.1% of the global burden of disease,[33] measured in disability-adjusted life years (DALYs). The burden of disease and injury was highest in the WHO African Region (AFRO), while WHO's European Region (EURO) had a higher proportion of alcohol related deaths (10.1%) and DALYs (10.8%). Rates of alcohol use within these and the other WHO Regions also vary. Referring to the two regions with the highest morbidity and mortality, in AFRO, the number of liters of pure alcohol ingested per capita per year in people >15 years ranged from 0.1 in Mauritania to 21.9 in Nigeria. For EURO, the lowest number of liters was in Azerbaijan at 1.5, while the highest was 25.2 in the Republic of Moldova. Religious and cultural traditions obviously play a role in the level of alcohol consumption, and the figures cited here include all people >15 years old, even if they don't drink.

In the WHO 2020 report,[6] deaths attributable to alcohol differ by sex, with men suffering 2.3 million deaths and 106.5 DALYs, compared to 0.7 million deaths and 26.1 DALYs in women.

Although deaths from alcohol consumption is higher in than that caused by tuberculosis, there is an intimate cause and effect relationship between the two conditions. Many studies have explored various aspects of this link, summarized here.

Alcohol use disorder in persons with tuberculosis

Persons with TB have significantly higher rates of alcohol use disorder compared to the general population.

- Necho et al.,[34] in a systematic review and meta-analysis reviewed factors associated with AUD in persons with TB. Of eight studies that reported this information, their qualitative analysis revealed that associated socio-demographic factors were being male; older than 35 years; single, divorced or widowed; unemployed; black American or "coloured ethnicity"; having low or no educational background; having an income less than $70/month or being in poverty. What the authors labeled as "clinical and tuberculosis-related factors" linked to risk of AUD were being on category-II TB treatment, retreatment, or non-adherent to treatment; having a chronic/relapsing form of TB; having cavitary lesions or smear- or culture-positive TB; being HIV-infected; using tobacco; and experiencing issues such as perceived stigma, being ashamed of having TB or having TB or being shunned by others close to them.

- Imtiaz et al.,[9] using population-level data, estimated that in 2014, 1,587,449 incident TB cases were due to alcohol consumption. This is equivalent to 16.5% of the 9.6 million estimated TB cases for that year. In a review of eight studies, they calculated that people with alcohol-related problems had a pooled relative risk of 3.33 compared to those without. WHO's African Region (AFRO) had the highest alcohol-attributable tuberculosis incidence, followed by the South-East Asia Region (SEARO). All the countries with rates more than five times higher than the average global rate were in Africa, comprising Eswatini, Gabon, Namibia, Lesotho, and South Africa. Similarly, AFRO and SEARO had the highest alcohol-attributable mortality. Again, the AFRO countries of Liberia, Angola, South Africa, Lesotho, Gabon, Namibia, and Nigeria had rates more than five times higher than the global rate.

Between 2000 and 2014, alcohol-attributable TB incidence and mortality changed for the 22 high TB burden countries, with the majority increasing by an average of 50%. Myanmar, Vietnam and South Africa showed increases of more than 100%, while there was a mean 13% decrease in Brazil, Tanzania, Thailand, the Russian Federation, and Uganda. Regarding alcohol-attributable mortality, there was an average decrease of 32% in most of the high TB burden countries, with the Philippines and Uganda showing decreases over 50%. However, 10 of them showed a mean increase of 35%, with Kenya, Vietnam, and Zimbabwe with greater than 50% increases.[9]

- WHO's 2020 Global Tuberculosis Report lists alcohol use disorder as one of the top five risk factors for TB (the others being HIV, malnutrition, diabetes, tobacco use), In 2019, 0.72 million new TB cases worldwide were attributable to alcohol use disorder,[6] and alcohol-related problems have a 3.3 times higher risk of tuberculosis compared to no alcohol-related problems.
- Lönnroth et al.[35] reported in 2008 that there is a dose-related response, linking consumption over 40 g per day to a 2.94-fold higher risk compared to non-use.
- Simou et al.[36] in a 2018 systematic review and metanalysis, showed at 12% increase in TB risk for every 10-12 gm of daily alcohol use.

Two causal pathways are linked to this risk. Alcohol depresses the immune system, which causes increased risk of either acquiring TB infection or its reactivation. Second, alcohol consumption takes place in environments such as bars, shelters, and other congregate settings.

- The alcohol-related studies in Van Rensburg et al.'s[20] review used questions about alcohol use habits or made reference to alcoholism, or used the standard Alcohol Use Disorders Identification Test (AUDIT). The range of harmful use of alcohol ranged from 4% in Kazakhstan to 67% in Estonia; other countries with significant problems in general or among people lost to follow-up included India (49.1% "alcoholic") and Russia (62% alcohol abuse or dependence). Men were more likely to use alcohol in a harmful way.

Effect of alcohol use disorder on tuberculosis treatment outcomes

The presence of an alcohol use disorder impacts TB diagnosis and treatment outcomes in several ways.

- Ragan et al.[37] performed a systematic review and meta-analysis specifically examining alcohol use on TB treatment outcomes, separating drug-susceptible and MDR-TB studies. They found that alcohol use was linked to **poor treatment outcomes, including death, treatment failure, and being lost to follow-up** in studies for both drug-susceptible (odds radio 1.99) and MDR-TB (odds ratio 2.0), compared to people who did not use alcohol. They did note that of the 111 studies, only 19% used high quality alcohol definitions based on the use of standardized screening tools, which prohibited the ability to address causality, dose response and any differences in acute versus chronic drinking. They called for the integration of alcohol use questions into TB programs, which were lacking.

- Storla et al,[12] in a systematic review, noted alcoholism or substance abuse as a person-related, rather than a systems-related, reason as a **delay in diagnosis**.
- Franke et al.,[13] in study from Peru on persons with MDR-TB, reported a statistically significant **loss to follow-up** if there was a history of alcohol or substance use.
- Duarte et al.,[14] in a Brazilian study of 313,502 incident TB cases between 2000 and 2004, reported that of the 71.6% who completed treatment, 6.6% of the cohort **died** after post treatment surveillance. In addition to more strongly associated risk factors for death, such as a positive HIV status, older age, unspecified additional lung pathology, and mental disorder, "alcoholism" had a statistically significant odds ratio of 1.49.

A Collaborative Care Framework for Tuberculosis and Mental Health

Multiple researchers have called for collaboration regarding care of persons with TB who suffer from mental health problems, given the well-established biological and psychosocial links between the two entities, the existence of programs for both within WHO, which provides normative guidance for global health; and, as stated above, their inclusion in the Sustainable Development Goals. Updated guidance from WHO's Global TB Programme, due to be published in the second half of 2022, will include mental health as a topic for the first time.

- Sweetland et al.,[38] in light of the links between mental health and TB, have called for a global policy framework to integrate them "within the context of universal health coverage, as well as to substantially reduce global mental health treatment gaps in low-resource settings."p. 2.
- Galea et al.,[39] commenting on the results of a Nepali study by Walker et al.,[29] that showed the high rates of depression and anxiety among persons with TB, promote the use of task-shifting to give paraprofessionals the skills to use evidence-based tools and strategies for both diagnosis and treatment. This would address the mental health care needs of people with depression and anxiety currently being neglected for lack of professionals.
- Pasha et al.[40] incorporated routine psychiatric evaluation by offering up to six sessions in six TB clinics in Pakistan. There was a statistically significant higher rate of TB treatment completion for those who attended at least four sessions compared to those who did not complete the counseling.
- In addition to the published study by Pasha, Sweetland in Brazil and Contreras in Peru are currently investigating how mental health services can be integrated into TB treatment sites

(results not yet published: see presentations done in March 2021 at

https://www.youtube.com/watch?v=eDH98iF-CBo).

- The Friendship Bench developed in Zimbabwe by Chibanda et al.[41] provides support to people
  with common mental disorders. Because he was one of only a handful of psychiatrists serving a
  country with a population of 13 million, he developed a task-shifting model where community
  health workers are trained in a problem-solving approach of up to six tightly structured sessions
  (with an optional six session peer support follow-up). The patient and counselor meet on a
  bench in a discrete area near the clinic to discuss their problems and identify solutions. Results
  from a randomized clinical trial, where almost half of the 573 participants were HIV-positive,
  showed a significant decrease in common mental health disorders, including depression.
  Although the study did not specifically address TB, it is an example of how a community-based
  model can be used effectively in a clinical setting.

Integration of mental health services does not mean that they are "taken over" by the TB program.
Instead, the concept entails using the expertise held by each side to collaborate and complement each
other for the betterment of the person with TB, and importantly, to improve TB treatment outcomes
with evidence-based interventions, as Pasha and colleagues have shown.

A Collaborative Care Model

One method of integrating TB and mental health services is the use of a collaborative care model. In a
2012 Cochrane systematic review by Archer et al.,[42] of 79 randomized control trials on collaborative care
for depression and anxiety, it was concluded that "Collaborative care is associated with significant
improvement in depression and anxiety outcomes compared with usual care, and represents a useful
addition to clinical pathways for adult patients with depression and anxiety." The review used a
definition of collaborative care that included four criteria:

1. **A multi-professional approach to patient care**. A primary care provider (general practitioner, family
physician, primary care physician, or a specialist providing undifferentiated medical care) and at least one
other health professional (e.g. nurse, psychologist, psychiatrist, or pharmacist) or paraprofessional is
involved with patient care. For the purposes of the current review, we characterized primary care as
medical care involving first contact and ongoing care to patients, regardless of the patient's age, gender, or
presenting problem.

2. **A structured management plan**. Introduction of an organized approach to patient care including access to evidence-based management information in the form of guidelines or protocols. Management included either or both pharmacological (e.g. antidepressant medication) and non-pharmacological interventions (e.g. patient and provider education, counselling, or cognitive behavior therapy (CBT)).

3. **Scheduled patient follow-ups**. An organized approach to patient follow-up defined as one or more scheduled telephone or in-person follow-up appointments to provide specific interventions, facilitate treatment adherence, or monitor symptoms or adverse effects.

4. **Enhanced inter-professional communication**. Introduction of mechanisms to facilitate communication between professionals caring for the patient, including team meetings, case conferences, individual consultation/supervision, shared medical records, and patient-specific written or verbal feedback between care-givers (p. 4).[42]

One criticism of the Cochrane Review is that the vast majority of the studies were from the United States, (including Puerto Rico) (57); trailed by the United Kingdom (8); the Netherlands (3); Australia, Canada, Chile (2 each); and China, Germany, India, Russia, and Spain (1 each). There were no studies that studied TB.[42]

To summarize, a collaborative care model requires a multidisciplinary team, an evidence-based plan of intervention, longitudinal follow-up of the patient and communication among the team. Within the team is a mental health professional such as a *psychiatrist* or *psychologist* who oversees the activity, but is not involved in the day-to-day care; a *primary health care provider* who provides or supervises the care in the clinical setting, and a *case manager* with training in depression and anxiety who is the key link between the person receiving care, the clinician and the mental health professional. This person should be in charge of the recording and reporting system, and may be involved in the training and supervision of the personnel providing direct services to the person in need.

Collaborative care as a model has been further developed by academic institutions such as the University of Washington's Advancing Integrated Mental Health Solutions (AIMS) Center.[43] Another is the Community Preventive Services Task Force (CPSTF), founded by the U. S. Department of Health and Human Services in 1996, which develops independent evidence for the United States on disease prevention and community-based interventions, for which the U.S. Centers for Disease Control and Prevention provides the task force with administrative and technical support.[44] It has developed guidance for collaborative care models for not only depression in general,[45] but specific guidance for home-[46] and clinic-based care[47] for depressive orders in older adults.

A slightly different program is the Common Elements Treatment Approach (CETA), funded by USAID's Victims of Torture Fund, and housed with Johns Hopkins University's School of Public Health.

Specifically designed for use in low- and middle-income countries, it uses a single treatment model that employs a toolkit of multiple behavioral- and mental health-related interventions to improve, among many issues, problem-solving, decrease stigma, and increase treatment buy-in.[48]

A Mental Health Package of Care for Persons with Tuberculosis

Integrating mental health services within a TB requires interventions that incorporates the expertise of both disciplines. Based on the research performed for this paper, the following package of key elements is proposed as guidance for USAID, and is discussed in detail in the following section on Best Practices. The package includes:

1. _Training and supervision_, which includes three elements: basic knowledge of mental health, how mental health relates to TB, and counseling skills. An overarching issue is pre-service training, the elements for which are described and needs to be planned for in order to ultimately develop a workforce that understands mental health as part and parcel of a person's care, rather than an add-on.

2. _Using validated, standardized tools to longitudinally screen for depression, anxiety, and alcohol use disorder_ that have been used in low- and middle-income countries. These are the PHQ-9 and PHQ-2 for depression; GAD7 for anxiety, and AUDIT and AUDIT-C (C for concise) for alcohol use disorders.

3. _Evidence-based best interventions_ for depression, anxiety, and alcohol use disorder.

4. _Monitoring and Evaluation_ of results. Although well-established for TB, the field is still in evolution for mental health. Two issues need to be addressed: first, how to evaluate changes in an individual's mental health and what to do at the end of TB treatment, if they require further assistance; and second, how to show that attention to mental health affects TB programmatic outcomes.

5. _Supporting and Implementing Collaborative TB and Mental Health Services and Future Research Needs_ on the relationship between mental health and TB. Although the evidence linking the two conditions has been well-described, many questions remain as to HOW the evidence-based interventions for depression, anxiety, and alcohol use can be applied to TB. The input of survivors of TB was solicited and a summary of what was, or could have been, helpful is described.

Best Practices Supporting a Mental Health Package of Care for Persons with Tuberculosis

(Constituting Guidance to USAID)

1. Training and Supervision

PRE-SERVICE TRAINING OF FUTURE HEALTH PROFESSIONALS

The implementation of a collaborative mental health package within a TB program requires a cadre of trained staff with knowledge of both topics. A crucial element is the need for not only theoretical, but practical, pre-service training of health professionals on common mental health conditions encountered at the primary care level. This foundational learning should occur in universities and professional schools, where students are assessed for competence before graduation and subsequent launch into the workplace. This differs from in-service training, which is usually brief and not always supervised or supported after the intervention. WHO's Mental Health Gap Action Programme (mhGAP), the documents for which are described in Appendix 1, delineates in its guide on pre-service training up to seven elements to include in a pre-service curriculum, which an institution can adapt to its specific needs. The phases include:

- **Phase 1:** Create awareness and understanding
- **Phase 2:** Provide mhGAP-IG training for educational leaders
- **Phase 3:** Assemble a team and make an action plan
- **Phase 4:** Review the current curriculum
- **Phase 5:** Adapt the mhGAP-IG to the circumstances of the teaching institution
- **Phase 6:** Deliver a pilot curriculum
- **Phase 7:** Evaluate and revise the curriculum.

These phases are discussed in detail in the mhGAP guide on pre-service training, published in 2020.[49]

TRAINING NON-SPECIALIST HEALTH WORKERS

Given that doctors, clinical officers, nurses, social workers, and other professionals often do not have the time to assess and address the mental health problems of persons with TB, task shifting to non-specialist health workers form the key workforce for this intervention. They must be supported by supervisors who review health workers' counseling skills and provision of didactic information, serve as their sounding board, triage difficult situations, liaise with clinicians and the health system, and maintain the recording and reporting system. Workers need to be trained on tuberculosis, mental health counseling

techniques, and how the two illnesses are linked. The methods used should be informed by adult learning pedagogy, with a combination of didactic lectures and real-time opportunities to practice the use of the screening tools and interview skills.

WHO's mhGAP Training Manual V. 2 (2017)[50] provides a comprehensive model of training that uses master trainers who teach a group(s) of trainers/facilitators, who then train non-specialist health-care providers (doctors, nurses, community workers). Content includes an overview model of "Essential care and practice," followed by individual modules on depression, psychoses, epilepsy, child and adolescent mental and behavioral disorders, dementia, disorders due to substance use, self-harm/suicide, and other significant mental health complaints (a module on anxiety will be included in the next version, due in 2022).

Each module is supported by didactic information, slides, videos, exercises, role plays, and quizzes. Annex 1 shows the learning objectives, key messages, and schedules for depression (4.5 hours) and disorders due to substance abuse (5 hours 55 minutes). The slides and supporting materials are available online:

For depression**:**

http://www.who.int/mental_health/mhgap/dep_slides.pdf

www.who.int/mental_health/mhgap/dep_supporting_material.pdf

For substance use disorders:

http://www.who.int/mental_health/mhgap/sub_slides.pdf

www.who.int/mental_health/mhgap/sub_supporting_material.pdf

An example of the content of training materials at the community level on TB and mental health for a country level program is that of Interactive Research and Development in Pakistan. The TB modules,[51] (Annex 2) are provided over one to two days, after a seven-day (56 hours) practical multi-module course[52] targeted to lay persons who become certified as Mental Health Officers, and who are awarded a certificate of participation at the completion of the course. The training uses a mix of didactic sessions, pre- and post- tests, and role plays. A second offering is a three module, interactive review session given at least once a month, which covers common mental health problems, and reviews of the basics of mental health counseling and interpersonal communication. (Annex 3)

2. _Using validated, standardized tools to longitudinally screen for depression, anxiety and alcohol use disorder_

Myriad screening tools have been developed to uncover depression, anxiety, and alcohol use disorder. In using standardized tools for common mental disorders in the primary health care setting, one must consider what tool to use, how to use it, to whom should it be administered, andat what point(s) in the care spectrum.[53] Which tool to use must take into consideration low- and middle-income settings and cultural issues.[54] In addition, some are used for a specific mental disorder, while others can combine two (or more) conditions.

The following validated questionnaires are the most commonly used, although none have been specifically developed for people with TB. They can be used longitudinally to evaluate progress of a mental health condition over time.

PHQ-9 and PHQ-2 for Depression[55]

For depression, the PHQ 9 is one of the most widely used and is available in multiple languages. It is comprised of a 0 to 27-point scale. Scores are ranked as 1-4 = Minimal; 5-9 Mild; 10-14; Moderate 15-19; Moderately severe; 20-27 Severe depression. Interventions are crafted depending on local protocols, practice and availability of mental health professionals; medications may need to be used in severe cases (Annex 4).

The PHQ 2 comprises the first two questions of the PHQ 9, namely "Little interest or pleasure in doing things" and "Feeling down, depressed or hopeless."[55] If the answer is yes to either question, the rest of the PHQ 9 is administered.

GAD 7 and GAD2 for Anxiety

For anxiety, a widely used scale that has been validated in multiple settings and is available in multiple languages is the Generalized Anxiety Disorder 7 (GAD-7), a seven item, 21-point questionnaire, developed by Spitzer and colleagues[56] in 2006.[57,58] Questions are scored on the basis of anxiety symptoms in the previous two weeks, on a 0 to 3-point scale: not at all = 0; several days =1; more than half the days = 2; nearly every day = 3. A score ranked as 0-4 = minimal; 5-9 = mild; 10-14 = moderate; 15-21 = severe anxiety (Annex 5).[56] Appropriate interventions for each level are used based on program design and capacity. Its advantages are that it is short, easy to administer, can be used in longitudinal studies to assess changes over time, and has been used in varied situations such as epidemiologic studies, surveys, and primary care settings.

The GAD-2 is a primary screening tool comprised of the first two questions of the GAD-7 "Over the past 2 weeks, how often have you been bothered by the following problems 1. Feeling nervous, anxious or on edge 2. Not being able to stop or control worrying" p.3.[59] It can be used in settings to determine if additional assessment is needed; a score of 3 or more warrants further evaluation with the GAD-7.[60]

AUDIT and AUDIT-C for Alcohol Use Disorder

The Alcohol Use Disorders Identification Test (AUDIT), is based on a 1989 study from WHO that included low-, medium- and high socioeconomic countries.[61,62] It comprises ten items, culled from a bank of 150 questions, and has been published in approximately 50 languages.[63] "The WHO study included countries of high, medium and low socioeconomic status, different cultures and languages, and different health care systems and different social and political systems. Given these origins, no one country or culture dominated the database for the development of the AUDIT. **The AUDIT therefore has extremely strong credentials as an international instrument** (bolded in original statement)." Quotation on website[63,64]

It addresses three domains on a 40-point scale: the amount imbibed (Questions 1-3); the level of dependence (Questions 4-6) and the harm engendered from drinking (Questions 7-10) within the context of the recent past rather than ever.[61] Annex 6).

> Scores between 8 and 15 are most appropriate for simple advice focused on the reduction of hazardous drinking. Scores between 16 and 19 suggest brief counseling and continued monitoring. AUDIT scores of 20 or above clearly warrant further diagnostic evaluation for alcohol dependence. (p. 20)[61]

The AUDIT-C (concise) asks the first 3 questions from AUDIT, "How often do you have a drink containing alcohol?"; "How many standard drinks containing alcohol do you have on a typical day?" and "How often do you have six or more drinks on one occasion?" Scores range from 0-12; if ≥4 for men or ≥3 for women, additional evaluation is warranted.[65]

The AUDIT and AUDIT-C can be self-administered or via an interview, which although longer, allows for clarifications of ambiguities.[61,66]

3. *Evidence-based Interventions*

In 2008, the World Health Organization launched its Mental Health Gap Action Programme.[67] The main reference text is the mhGAP Intervention Guide (mhGAP-IG), originally published in 2010 and updated in

2016.[32] The mhGAP provides evidence-based guidance and tools for care and practice in non-specialized health settings of priority mental health conditions, and specific modules for such issues as depression, alcohol and substance use, epilepsy, psychoses, and other conditions across the lifespan (NB: anxiety as a specific entity has not been included, although will be added in the next edition to be published in 2022). The audience for mhGAP training materials includes non-specialist health workers, and non-clinical managers, health planners, governments, academics, and non-governmental organizations.[50] In addition to the mhGAP Intervention Guide, v. 2, the programme is supported by guides on stress, operations, pre-service training, training, community field testing and implementation. Appendix 1 provides a table that lists the year of publication of each document, how it is used and a brief description. All documents are on the mhGAP website.[17]

The mhGAP Intervention Guide V.2[32] lists five evidence-based techniques for use with depression – cognitive behavioral therapy (CBT); behavioral activation (BA), (which is the behavioral component of CBT); interpersonal therapy (IPT) (of which a shorter version is interpersonal counseling (IPC)). The guide lists four for substance use disorders, including alcohol – contingency management therapy (CMT); family counseling or therapy (FCT); motivational enhancement therapy (MET) and CBT, which is also recommended for depression. It is beyond the scope of this paper to describe each intervention in detail. See Appendix 2 for a brief description taken directly from the glossary in the mhGAP Intervention Guide, some of which have additional commentary and references for additional information.

4. *Monitoring and Evaluation*

In general, indicators are divided into three types: process, outcome, and impact. TB programs use all three as the basis of monitoring and evaluation both at the individual and program level. To address process, TB Patient Cards are used that contain individual-specific data on dates of appointments, what medications are used, the number of months on treatment, and the outcome of treatment (cured of TB, completed treatment, died, lost to follow-up).[68] This individual-level information is aggregated in program TB Registers to show treatment outcome results at local, regional, and national levels. Finally, country-level data are compiled by WHO to indicate global results and impact. This ability to measure performance of TB programs in a standardized way, whether the country burden is large or small, allows for easy comparison of results and trends over time, identification of progress and gaps, and inform advocacy and policy making.

The world of mental health is in a relatively early state in terms of having indicators of process, outcome, and impact. Similar to the process for TB programs, mental health interventions, can and should be monitored and evaluated in two ways: first, to determine how the mental health of the individual being assessed has changed during TB treatment using validated screening tools against established benchmarks; and second, to evaluate if reaching such benchmarks has impacted a TB program's treatment outcomes.

In the first instance, pre- and post- screening using the appropriate tool for the mental health issue under consideration would be an indication of change, and would be the responsibility of the clinician or mental health researcher.

To date, however, a measure to determine the impact of an evidence-based mental health intervention on programmatic TB treatment outcomes has not yet been developed. In discussion with mental health and TB researchers, the need for such a measurement, that would be one of the proxies for return on investment, is well recognized; further research is needed. This is a more difficult determination than TB treatment outcomes, as mental health is on a continuum. At what point should the measurement of mental health be taken? What could be the minimum set of recovered functions that mark progress (a notion equivalent to smear/culture conversion in TB)? Was the change in mental health the sole factor affecting TB treatment outcomes, or did a myriad of other programmatic or individual factors determine the change? The answer to these questions should run in parallel with the evaluation of the impact of mental health interventions on TB treatment outcomes.

One possible way to record and report mental health status for an individual with mental health problems within the TB program would be to parallel the information on the person's TB treatment card, with this information transferred to the TB register. When HIV was recognized as a significant co-morbidity, similar adjustments were incorporated into the TB program as a way to monitor that HIV testing was being performed and HIV treatment was being given. The TB treatment card could be modified to include information on mental health screening. Each person with TB would be screened for depression, anxiety, and alcohol use and the numeric results recorded. If the cutoffs indicate a need for intervention, counseling would commence, and screening would be repeated at periodic intervals during TB treatment. At the end of TB treatment, the results of a final screening for the mental health issue would be recorded. Similar to TB treatment results, the record would show if the person was "cured" (i.e., no longer needs mental health intervention), is stable, or requires further intervention. Similar to what occurs with persons with HIV at the end of TB treatment, they are then referred to further care as needed with a mental health specialist (if available) or within the primary care setting.

The need for additional care points out the value of pre-service training of health professionals and the incorporation of mental health services within primary health care, which is in the current expansion plan of IRD, which has done the pioneering work of showing that integration of mental health services within TB clinics is feasible.[40]

5. *Supporting and Implementing Collaborative TB and Mental Health Services and Future Research Needs*

This paper has documented the best practices needed to help people suffering from depression, anxiety, and alcohol use disorder during treatment for TB. The next phase is to implement a collaborative package of care to improve both their mental health status and individual and TB program treatment outcomes and to answer outstanding questions. The following list takes into consideration the input of researchers and those who have experienced and survived the "journey" of TB treatment.

Researchers feel the emphasis should be on how services are delivered, given that it is known what interventions work. That said, since issues of local culture and how health systems are organized can impact on results, country-specific studies can bring both insight on how to adapt and modify approaches and increase acceptance and buy in from local decisionmakers.

Many topics were mentioned that would improve the evidence base and/or support people and their families during TB treatment (arranged by category). Some of the issues are TB-specific, while others encompass larger economic and societal issues that even go beyond health. In addition, some of these ideas need the collaboration of people in multiple disciplines, each playing their part.

Programmatic:
- What monitoring and evaluation systems need to be in place to assess process, outcome, andimpact of mental health practices at both the individual and TB program level?
- How can the lessons learned from the collaboration of TB and mental health programs be generalized to the rest of the primary health system?
- There should be dedicated budget lines for mental health in TB programs, with input from all stakeholders as to how the funds should be allocated.

Training and Education:
- Pre-service training of incoming health professionals needs to be supported, so that mental health is seen as part and parcel of physical health. Not only do those in training need technical and didactic information, but also training in counseling informed by "soft skills" of empathy and sympathy.

- Additional ways to foster understanding and sensitization about mental health were to provide for students to have in-person internships on mental health during their pre-service training; including TB survivors and the media in trainings.
- What educational topics need to be included for staff and the person with TB on mental health, and what is the best way to provide this education, to improve both mental health and TB treatment outcomes? For example, should education be done with staff and person(s) together or separately, or both?

Policy:
- As much is still unknown about the relationship between mental health and TB, country/region-specific desk audits of current mental health services within TB programs and a plan that discusses future needs would be an immediate first step.
- Economic studies are needed to show the return on investment when mental health is addressed, both for the person, the TB program, and the entire health system.
- Advocacy of donors is needed to support the inclusion of mental health services within TB programs.
- How can mental health be included specifically as a co-morbidity of TB in Global Fund policy, just as diabetes, tobacco use, and HIV are?
- TB can cause economic distress both directly (being too ill to work, being fired from jobs due to stigma) and indirectly (the person becomes mentally ill from the TB diagnosis and is unable to work). Social protection schemes are needed to address income loss and falling into poverty. Some strategies mentioned were food, insurance schemes, income-generating projects, and direct monetary support.
- To address mental health within TB services, there is a need for increased investment to train existing and new mental health professionals and paid community staff to provide direct services to address the large unmet need.

Delivery of Services/ support of persons with TB:
- Additional research of many types: implementation, operational, randomized control trials, qualitative, to show the impact of addressing mental health within TB programs. What are the best support systems for persons with mental illness and TB? Some of the topics that survivors felt needed to be addressed were stigma, fertility (a particular concern of women), proper treatment, medication side effects and adverse reactions, loneliness, and isolation, advocating for their rights as patients, including families in care and support, income support and

generation. (NB: most of the TB survivors interviewed stated that there is not only misinformation, but a dearth of both technical information and lack of psychosocial and practical support).

- What are the best methods of providing support for persons with mental illness, especially given that the COVID-19 pandemic has precluded in-person meetings? How can talk-lines, use of mobile technology help?

- What are the best interventions for a person who have more than one of the main mental health disorders (for example, while cognitive behavioral therapy has been helpful for both depression/anxiety and alcohol use disorder, some of the evidence-based techniques have been tested for one but not the other)?

- What are the relative values of individual vs group counseling for mental health problems?

Community support

- How can community-based organizations be used in a leadership role to address mental health support of persons with TB, both during and particularly after treatment? Instead of being considered a stand-alone group or an afterthought, communities should work in partnership with governments, donors, and other stakeholders, such as faith leaders and the media.

- Use community to raise awareness of the link between mental health and TB, and mental health issues in general. In particular, since the prevalence of alcohol use disorder is problematic in and of itself, even without the connection to TB, addressing it could have societal benefits beyond the TB program.

- TB survivors/activists should be engaged to give input on the development of interventions, services, or policies as they experienced first-hand what helped or hindered them both mentally and physically during treatment.

Conclusion

In conclusion, this paper has provided the evidence base, best practices, and a package of mental health care within TB program services to guide USAID staff as they develop collaborative activities. This can be used on two levels: to help the mental health of a person with TB suffering from depression, anxiety, or alcohol use disorder; and to help optimize TB program treatment outcomes. Many implementable and operational research questions remain, some of which require a multidisciplinary approach. Considering all of the current tools and approaches together potentially could help to holistically address the scourge of mental illness on not only the TB program, but the entire primary and public health system.

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Annexes

1. mhGAP Training Manual Pages for Modules on Depression and Substance Abuse
2. Interactive Research and Development; TB course Table of Contents and Curriculum
3. Interactive Research and Development's Behavioral Course Table of Contents
4. PHQ9 Screening Tool for Depression
5. GAD 7 Screening Tool for Anxiety
6. AUDIT Screening Tool for Alcohol Use Disorder

Appendices

1. List of All mhGAP Materials and Explanations for Use
2. Glossary of Evidence-based Interventions for Depression and Substance Use Disorders with Key References

Module: Depression

Overview

Learning objectives

- Promote respect and dignity for people with depression.
- Recognize common symptoms of depression.
- Know the assessment principles of depression.
- Know the management principles of depression.
- Perform an assessment for depression.
- Use effective communication skills in interactions with people with depression.
- Assess and manage physical health conditions as well as depression.
- Assess and manage emergency presentations of depression (see Module: Self-harm/suicide).
- Provide psychosocial interventions for people with depression and their carers.
- Deliver pharmacological interventions as needed and appropriate, considering special populations.
- Plan and perform follow-up for depression.
- Refer to specialists and link with outside services where appropriate and available.

DEP

Key messages

- Depression commonly presents with:
    - Multiple persistent physical conditions with no clear cause.
    - Low energy, fatigue and sleep problems.
    - Persistent sadness or depressed mood and anxiety.
    - Loss of interest in activities that are normal and pleasurable.
- Depression results from a combination of biological, psychological and social factors which significantly impact on a person's ability to function in daily life.
- You can use the mhGAP-IG to assess and manage people with depression.
- You can use effective communication skills to deliver psychosocial interventions to everyone with depression including:
    - Psychoeducation for the person and their carer/family.
    - Strategies to reduce stress and strengthen social support.
    - Promoting functioning in daily activities and community life.
- Many people with depression benefit from brief psychological interventions if available.
- Many people with depression benefit from being prescribed antidepressants that need to be continued for at least 9–12 months after the resolution of symptoms.
- Special populations to consider are children, adolescents and women who are pregnant or breastfeeding.

Module: Depression

Session	Learning objectives	⏲ Duration	Training activities
1. Introduction to depression	Recognize the common symptoms of depression Promote respect and dignity for people with depression	50 minutes	**Activity 1: Person's story followed by group discussion** Use the person's story to introduce depression **Presentation on depression** Use the person's story to illustrate the presentation on: • Symptoms of depression • Contributing factors to depression • How depression impacts on a person's life • Why it is a public health priority
2. Assessment of depression	Know the assessment principles of depression Use effective communication skills in interactions with people with depression Perform an assessment for depression	40 minutes	**Activity 2: Video demonstration: Assessment** Use videos/demonstration role play to show an assessment and allow participants to note: • Principles of assessment (all aspects covered) • Effective communication skills (what and how this is done)
	Assess and manage physical health conditions in depression Assess and manage emergency presentations of depression (see Module: Self-harm/suicide)	30 minutes	**Activity 3: Role play: Assessment skills** Participants practise how to assess for depression Feedback and reflection
3. Management of depression	Know the management principles of depression Provide psychosocial interventions for persons with depression and their carers	50 minutes	**Activity 4: Management of depression – which interventions?** Poster presentations and discussions on delivering management interventions
	Deliver pharmacological interventions where appropriate, considering special populations Refer to specialists and link with outside services where appropriate and available	30 minutes	**Activity 5: Video demonstration: Managing depression** Use video/demonstration role play to evaluate a management session discussing use of pharmacological and psychosocial interventions **Presentation and quiz on pharmacological interventions**
		30 minutes	**Activity 6: Role play: Psychosocial interventions** Feedback and reflection
4. Follow-up	Plan and perform follow-up for depression	30 minutes	**Activity 7: Video demonstration: Follow-up** Video with an improving patient at follow-up
5. Review		15 minutes	Multiple choice questions
Total duration (without breaks) = 4 hours 30 minutes			

Module: Depression

Module: Disorders due to substance abuse

Overview

Learning objectives

- Promote respect and dignity for people with disorders due to substance use.
- Know the common presentation of disorders due to substance use.
- Know the assessment principles of disorders due to substance use.
- Know the management principles of disorders due to substance use.
- Perform an assessment for disorders due to substance use.
- Use effective communication skills in interactions with people with disorders due to substance use.
- Assess and manage physical health in disorders due to substance use.
- Assess and manage emergency presentations of disorders due to substance use.
- Provide psychosocial interventions to persons with disorders due to substance use and their carers.
- Deliver pharmacological interventions as needed and appropriate in disorders due to substance use, considering special populations.
- Plan and perform follow up for people with disorders due to substance use.
- Refer to specialists and link with outside agencies when appropriate.

Key messages

- Substance use disorders are associated with health and social problems.
- People with substance use disorders can present as:
    - acute intoxication
    - overdose
    - withdrawal from substance use
    - harmful uses
    - dependence.
- All health-care providers can make a difference. It is important to ask people about their substance use.
- The withdrawal features from alcohol and benzodiazepines can be life threatening. Ensure that you closely monitor and help people who are withdrawing from substance use and refer to hospitals when required.
- Assess and treat the physical health of people with disorders due to substance use.
- Use psychosocial interventions, including brief motivational interviewing to explore a person's motivation to stop using substances.
- Provide pharmacological interventions when appropriate.
- Offer care and support to the family and carers of people with disorders due to substance use.
- Offer regular follow-up to people with disorders due to substance use.

SUB

Module: Disorders due to substance use

Session	Learning objectives	🕐 Duration	Training activities
1. Introduction to disorders due to substance use	Know the common presentations of disorders due to substance use	30 minutes	**Activity 1: Group brainstorm: What substances?** Group brainstorm about different psychoactive substances
	Know the impact of disorders due to substance use of individuals and the family	20 minutes	**Activity 2: Person's story followed by group discussion** Use a person's story to introduce disorders due to substance use
	Understand the importance of managing substance use in primary health-care settings	60 minutes	**Presentation to supplement person's story** Use the story as a basis for discussions on:
	Promote respect and dignity for people with disorders due to substance use		• Common presentations of substance use • Impact of substance use on individuals and families • Why substance use is a public health priority • Role of primary health care
2. Assessment of disorders due to substance use	Perform an assessment for disorders due to substance use	40 minutes	**Activity 3: Video demonstration: Assessment** Use videos/demonstration role play to show an assessment and allow participants to discuss the principles of assessment, including when to refer
	Assess and manage physical health in disorders due to substance use	30 minutes	**Activity 4: Role play: Assessing substance use** Feedback and reflection
	Use effective communication skills		
	Refer to specialists and link with outside agencies for people with disorders due to alcohol use		
3. Management of disorders due to substance use	Provide psychosocial interventions to persons with disorders due to substance use and their carers	45 minutes	**Presentation on the principles of managing disorders due to substances** **Activity 5: Video demonstration: Motivational interviewing**
	Deliver pharmacological interventions as needed and appropriate in disorders due to substance use, considering special populations	30 minutes	**Activity 6: Role play: Motivational interviewing** Practise using motivational interviewing
		45 minutes	**Activity 7: Group work: Understanding the role of pharmacology in substance use disorders**
4. Follow-up	Plan and perform follow-up for people with disorders due to substance use	10 minutes	**Presentation on principles of follow-up**
5. Emergency presentations	Perform assessment and management of emergency presentations including when to refer	30 minutes	**Activity 8: Role play: Assessing and managing emergency presentations**
6. Review	Review the information and skills taught during the training	15 minutes	**Multiple choice questions and discussion**
Total duration (without breaks) = 5 hours 55 minutes			

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Annex 2: TB and Mental Health Training Programs. Training Module for TB and Mental Health, Interactive Research and Development, 2016. Used with permission, Aneeta Pasha, IRD

Contents[1]

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[1] This table of contents is presented for informational purposes only. Please consult *Training Module for TB and Mental Health, Interactive Research and Development, 2016* for information on each topic.

Training Module for TB and Mental Health

2.0 OUTLINE/ STRUCTURE OF THE MODULE

Module Title	Unit	Methods and tools
TB Basics	- What is TB, and how is it transmitted - What are some signs and symptoms of TB? - Diagnosing TB – General and in children	PowerPoint presentation and Interactive lecture
Management of TB	- Basics of treatment in adults - Side effects of medication	PowerPoint presentation and Interactive lecture
Adherence to TB Treatment	- Importance of adherence to treatment - Support and supervision by the counsellor - Why patients default from treatment	PowerPoint presentation and Interactive lecture
Drug Resistant TB	- What is Drug Resistant TB - Prevention of Drug Resistant TB	PowerPoint presentation and Interactive lecture
Role of Nutrition in TB	- Nutrition and Malnutrition - Nutritional Interventions in TB	PowerPoint presentation and interactive lecture
TB Prevention	- Strategies for TB prevention - BCG Vaccine - TB Education - TB Treatment as Prevention - Preventing TB in households	PowerPoint presentation and interactive lecture

Annex 3: Trainer's Manual: Basic Mental Health Counseling Skills, Interactive Research and Development, 2015. Used with permission from Aneeta Pasha, IRD

Trainer's Manual: Basic Mental Health Counseling Skills

TABLE OF CONTENTS[2]

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[2] [2] This table of contents is presented for informational purposes only. Please consult *Trainer's Manual: Basic Mental Health Counseling Skills, Interactive Research and Development, 2015* for information on each topic.

Annex 4: PHQ-9 and PHQ -2 Questionnaire for Depression (from phqscreeners.com)

Over the last 2 weeks, how often have you been bothered by any of the following problems? (Use "✔" to indicate your answer)	Not at all	Several days	More than half the days	Nearly every day
1. Little interest or pleasure in doing things	0	1	2	3
2. Feeling down, depressed, or hopeless	0	1	2	3
3. Trouble falling or staying asleep, or sleeping too much	0	1	2	3
4. Feeling tired or having little energy	0	1	2	3
5. Poor appetite or overeating	0	1	2	3
6. Feeling bad about yourself — or that you are a failure or have let yourself or your family down	0	1	2	3
7. Trouble concentrating on things, such as reading the newspaper or watching television	0	1	2	3
8. Moving or speaking so slowly that other people could have noticed? Or the opposite — being so fidgety or restless that you have been moving around a lot more than usual	0	1	2	3
9. Thoughts that you would be better off dead or of hurting yourself in some way	0	1	2	3

FOR OFFICE CODING   _0_ +_____+_____+ _____

=Total Score: _____

If you checked off any problems, how difficult have these problems made it for you to do your work, take care of things at home, or get along with other people?

Not difficult at all	Somewhat difficult	Very difficult	Extremely difficult
D	D	D	D

GAD-7

Over the last 2 weeks, how often have you been bothered by the following problems? (Use "✔" to indicate your answer)	Not at all	Several days	More than half the days	Nearly every day
1. Feeling nervous, anxious or on edge	0	1	2	3
2. Not being able to stop or control worrying	0	1	2	3
3. Worrying too much about different things	0	1	2	3
4. Trouble relaxing	0	1	2	3
5. Being so restless that it is hard to sit still	0	1	2	3
6. Becoming easily annoyed or irritable	0	1	2	3
7. Feeling afraid as if something awful might happen	0	1	2	3

(For office coding: Total Score T____ = ____ + ____ + ____)

Please circle the answer that is correct for you

1. How often do you have a drink containing alcohol?

· Never
· Monthly or less
· 2-4 times a month
· 2-3 times a week
· 4 or more times a week

2. How many standard drinks containing alcohol do you have on a typical day when drinking?

· 1 or 2
· 3 or 4
· 5 or 6
· 7 to 9
· 10 or more

3. How often do you have six or more drinks on one occasion?

· Never
· Less than monthly
· Monthly
· Weekly
· Daily or almost daily

4. During the past year, how often have you found that you were not able to stop drinking once you had started?

· Never
· Less than monthly
· Monthly
· Weekly
· Daily or almost daily

5. During the past year, how often have you failed to do what was normally expected of you because of drinking?

· Never
· Less than monthly
· Monthly
· Weekly
· Daily or almost daily

6. During the past year, how often have you needed a drink in the morning to get yourself going after a heavy drinking session?

· Never
· Less than monthly
· Monthly
· Weekly
· Daily or almost daily

7. During the past year, how often have you had a feeling of guilt or remorse after drinking?

· Never
· Less than monthly
· Monthly
· Weekly
· Daily or almost daily

8. During the past year, have you been unable to remember what happened the night before because you had been drinking?

· Never
· Less than monthly
· Monthly
· Weekly
· Daily or almost daily

9. Have you or someone else been injured as a result of your drinking?

· No
· Yes, but not in the past year
· Yes, during the past year

10. Has a relative or friend, doctor or other health worker been concerned about your drinking or suggested you cut down?

· No
· Yes, but not in the past year
· Yes, during the past year

Scoring the AUDIT

Scores for each question range from 0 to 4, with the first response for each question (eg never) scoring 0, the second (eg less than monthly) scoring 1, the third (eg monthly) scoring 2, the fourth (eg weekly) scoring 3, and the last response (eg. daily or almost daily) scoring 4. For questions 9 and 10, which only have three responses, the scoring is 0, 2 and 4 (from left to right).

A score of 8 or more is associated with harmful or hazardous drinking, a score of 13 or more in women, and 15 or more in men, is likely to indicate alcohol dependence.

Saunders JB, Aasland OG, Babor TF et al. Development of the alcohol use disorders identification test (AUDIT): WHO collaborative project on early detection of persons with harmful alcohol consumption —

II. Addiction 1993, 88: 791–803.

Appendix 1: mhGAP Documents with Brief Descriptions

Publication Date	Type of Document	Name of Document	Brief Description
2008	policy	mhGAP : Mental Health Gap Action Programme : scaling up care for mental, neurological and substance use disorders	introduction of mhGAP as the action plan for low- and middle-income countries to scale up services for mental, neurological and substance use disorders.
2011	how to	Psychological first aid: Guide for field workers	Addresses social and psychological first aid for low- and middle-income countries in crisis situations.
2013	how to	Guidelines for the management of conditions specifically related to stress	addresses management strategies for problems due to a major stressful event. For use in primary health care and other non-specialized health care settings
2013	policy	Mental health action plan 2013-2020	Principles and approaches to be used for mental health. Produced as response to the 2012 World Health Assembly resolution to address mental disorders using a coordinated response at the country level. complements mhGAP
2015	how to	mhGAP Humanitarian Intervention Guide (mhGAP-HIG): clinical management of mental, neurological and substance use conditions in humanitarian emergencies.	As stated in the title, specifically written for humanitarian emergencies, following the mhGAP Intervention Guide model
2015	how to	Update of the Mental Health Gap Action Programme (mhGAP) guidelines for mental, neurological and substance abuse disorders, 2015	Update that was subsequently integrated into the 2016 mhGAP Intervention Guide, version 2.0
2016	how to	mhGAP intervention guide for mental, neurological and substance use disorders in non-specialized health settings: mental health Gap Action Programme (mhGAP) - version 2.0	the key guide that explains mhGAP with modules on essential practice and individual modules for depression and substance use disorder, as well as other major mental health issues. Anxiety is not included, but will be in the upcoming version
2016	how to	PROBLEM MANAGEMENT PLUS (PM+): Individual psychological help for adults impaired by distress in communities exposed to adversity	as described; being tested as part of mhinnovation.net, which brings together community researchers to test innovations
2016	how to	Group Interpersonal Therapy (IPT) for Depression	as above for PM+; but for groups
2017	how to	mhGAP training manuals for the mhGAP Intervention Guide for mental, neurological and substance use disorders in non-specialized health settings- version 2.0 (for field testing)	referred to a mhGAP IG-2.0. Includes section on training of trainers and supervisors and section on training of health care providers on depression/SUD; slides and videos available from WHO website
2018	operations	mhGAP operations manual: mental health Gap Action Programme (mhGAP)	step-by-step, practical guidance to help district level and other staff to integrate mental health services with physical health services. It includes preparation, implmentation, monitoring and evaluation tools
2019	planning	mhGAP community toolkit: field test version	intended for planners, community and faith leaders, etc who wish to promote mental health and identify settings, activities, providers in the community
2020	planning	Enhancing mental health pre-service training with the mhGAP intervention guide: experiences and lessons learned	for planners who need to implement pre-service training in universities, professional schools before students become part of the workforce.
2021	how to	Implementing the mental health Gap Action Programme intervention guide: a job aid for non-specialist health professionals	developed to help non-specialists to conduct standardized clinical interviews and examinations, and deliver interventions, as outlined in the mhGAP-IG 2.0

Documents available at https://www.who.int/teams/mental-health-and-substance-use/mental-health-gap-action-programme/evidence-centre

Appendix 2: Evidence-based Interventions

Name of Intervention	Used for:	Selected References
Behavioural activation Psychological treatment that focuses on improving mood by engaging again in activities that are task-oriented and used to be enjoyable, in spite of current low mood. It may be used as a stand-alone treatment, and it is also a **component of cognitive behavioural therapy**.	Depression/Anxiety	69. Sturmey P. Behavioral activation is an evidence-based treatment for depression. Behav Modif. 2009 Nov;33(6):818-29. doi: 10.1177/0145445509350094. PMID: 19933444. 70. Ekers D, Webster L, Van Straten A, Cuijpers P, Richards D, Gilbody S (2014) Behavioural Activation for Depression; An Update of Meta-Analysis of Effectiveness and Sub Group Analysis. PLoS ONE 9(6): e100100. https://doi.org/10.1371/journal.pone.0100100
Relaxation training Involves training in techniques such as breathing exercises to elicit the relaxation response.	Depression/Anxiety	71. Namuwali D, Mendrofa FAM, Dwidiyanti M. Deep Breathing Relaxation Techniques Improve Emotional Control on Tuberculosis Patients. International Journal of Public Health Science (IJPHS) Vol.5, No.3, September 2016, pp. 325~328 ISSN: 2252-8806 72. Prathikanti S, Rivera R, Cochran A, Tungol JG, Fayazmanesh N, Weinmann E (2017) Treating major depression with yoga: A prospective, randomized, controlled pilot trial. PLoS ONE 12(3): e0173869. https://doi.org/10.1371/journal.pone.0173869
Problem-solving counselling Psychological treatment that involves the systematic use of problem identification and problem-solving techniques over a number of sessions.	Depression/Anxiety	
Interpersonal therapy (IPT) a variation called interpersonal counseling is a simplified version that can be used in the primary care settling. See: Weismann IPC in Primary care Amer J Psycho 2014 Psychological treatment that focuses on the link between depressive symptoms and interpersonal problems, especially those involving grief, disputes, life changes and social isolation. It is also known as Interpersonal Psychotherapy.	Depression/Anxiety	73. Weissman MM, Hankerson SH, Scorza P, Olfson M, Verdeli H, Shea S, Lantigua R, Wainberg M. Interpersonal Counseling (IPC) for Depression in Primary Care. Am J Psychother. 2014;68(4):359-83. doi: 10.1176/appi.psychotherapy.2014.68.4.359. PMID: 26453343; PMCID: PMC4603528.
Cognitive behavioural therapy (CBT) Psychological treatment that combines cognitive components (aimed at thinking differently, for example through identifying and challenging unrealistic negative thoughts) and behavioural components (aimed at doing things differently, for example by helping the person to do more rewarding activities).	Depression/Anxiety; Substance Use Disorder	74. Twomey C, O'Reilly G, Byrne M. Effectiveness of cognitive behavioural therapy for anxiety and depression in primary care: a meta-analysis. Fam Pract. 2015 Feb;32(1):3-15. doi: 10.1093/fampra/cmu060. Epub 2014 Sep 22. PMID: 25248976.

Appendix 2: Evidence-based Interventions

Contingency management therapy A structured method of rewarding certain desired behaviours, such as attending treatment and avoiding harmful substance use. Rewards for desired behaviours are reduced over time as the natural rewards become established	Substance Use Disorder	75. Petry NM. Contingency management: what it is and why psychiatrists should want to use it. *Psychiatrist* . 2011;35(5):161-163. doi:10.1192/pb.bp.110.031831
Family therapy Counselling that entails multiple (usually more than six) planned sessions over a period of months. It should be delivered to individual families or groups of families, and should include the person living with mental illness, if feasible. It has supportive and educational or treatment functions. It often includes negotiated problem-solving or crisis management work	Substance Use Disorder	76. O'Farrell TJ, Clements K. Review of outcome research on marital and family therapy in treatment for alcoholism. J Marital Fam Ther. 2012 Jan;38(1):122-44. doi: 10.1111/j.1752-0606.2011.00242.x. Epub 2011 Aug 30. PMID: 22283384; PMCID: PMC3270890.
Motivational enhancement therapy A structured therapy (lasting 4 or less sessions) to help people with substance use disorders. It involves an approach to motivate change by using motivational interviewing techniques i.e. engaging the person in a discussion about their substance use including perceived benefits and harms in relation to the persons own values, avoiding arguing with the person if there is resistance, encouraging the person to decide for themselves what their goal may be.	Substance Use Disorder	77. NIDA. Motivational Enhancement Therapy (Alcohol, Marijuana, Nicotine). National Institute on Drug Abuse website. https://www.drugabuse.gov/publications/principles-drug-addiction-treatment-research-based-guide-third-edition/evidence-based-approaches-to-drug-addiction-treatment/behavioral-therapies/motivational-enhancement-therapy. June 1, 2020 Accessed June 6, 2021. 80. https://www.goodtherapy.org/learn-about-therapy/types/motivational-enhancement-therapy

Additional Interventions being Researched (see: mhinnovation.net)		
Program Management + IPT simplified and modified	Depression/ Anxiety	78.https://www.who.int/mental_health/emergencies/problem_management_plus/en/
Group interpersonal therapy for depression	Depression/ Anxiety	80. https://www.who.int/mental_health/mhgap/interpersonal_therapy/en/
Problem Management Plus and Alcohol (PM A+)	Substance Use Disorder	81. Fuhr DC, Bogdanov S, Tol WA, Nadkarni A, Roberts B. Problem Management Plus and Alcohol (PM+A): A New Intervention to Address Alcohol Misuse and Psychological Distress Among Conflict-Affected Populations. Intervention 2021;19:141-3