Addressing Alcohol and Substance Use Disorders among Refugees: A Desk Review of Intervention Approaches

United Nations High Commissioner for Refugees

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Acronyms

ART	Antiretroviral therapy
ASSIST	Alcohol, Smoking, and Substance Involvement Screening Test
ASSIST-BI	Alcohol, Smoking, and Substance Involvement Screening Test Brief Intervention
AUDIT	Alcohol Use Disorders Identification Test
CPDAP	Colombo Plan for Cooperative Economic and Social Development in Asia and the Pacific
CBT	Cognitive Behavioral Therapy
CETA	Common Elements Treatment Approach
CM	Contingency Management
DARE	Drug and Alcohol Recovery and Education
DAT	Drug Abuse Treatment
FAST	Family and Schools Together
FSI-HIV	Family Strengthening Intervention for HIV-affected Families
HCT	HIV Counseling and Testing
IPV	Intimate partner violence
ICD-10	International Classification of Diseases and Related Health Conditions
LMIC	Low- and middle-income countries
LUADA	Liberians United Against Drug Abuse
LINC	Linking Human Systems Community Resilience
LSD	Lysergic Acid Diethylamide
MI	Motivational Interviewing
mhGAP	Mental Health Gap Action Programme
mhGAP-IG	Mental Health Gap Action Programme Intervention Guide
MNS	Mental, neurological, and substance use
NGO	Non-governmental organization
PCP	Phencyclidine
PILOTS	Published International Literature on Traumatic Stress
PTSD	Post-traumatic Stress Disorder
TB	Tuberculosis
RCT	Randomized Controlled Trial
UN	United Nations
UNHCR	United Nations High Commissioner for Refugees
UNICEF	United Nations Children's Fund
UNODC	United Nations Office on Drugs and Crime
WHC	Women's Health CoOp
WHO	World Health Organization

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Executive Summary

Unhealthy alcohol and other drug use is a prevalent but often-neglected problem affecting many refugee communities worldwide. The majority of epidemiologic studies examining substance use in refugees focus on alcohol, which is the most prevalent substance use globally; however, in some settings other drugs are more prevalent among refugees than alcohol. The research on the epidemiology of substance use among refugees is limited and challenged by poor measurement and inconsistent reporting. The challenges of substance use, including medical and social problems, are compounded by the lack of prevention and treatment services for refugees.

The objective of this report is to synthesize the evidence on prevention and treatment interventions for substance use in refugees in low- and middle-income countries (LMIC). To achieve this aim we conducted a broad review of the academic and unpublished literature on substance use interventions that focus on refugee and disadvantaged populations in LMIC. Interventions in non-refugee populations that may be applicable to refugees were included because we anticipated a dearth of available literature focusing on refugees. We searched academic and grey literature databases in November 2017 to identify reports of intervention implementation and evaluation in refugee or relevant populations. Included reports were limited to those published in English.

We identified six substance use interventions evaluated in refugee populations and twenty-nine relevant interventions administered to other disadvantaged populations in LMIC. Interventions for refugees included three brief indicated prevention interventions, two multicomponent community-based treatment programs, and a community-based outreach (i.e., harm reduction) program. Three of these interventions were implemented in refugee camp settings in Thailand. The remaining interventions included one treatment program delivered to women with substance use problems in Kabul, Afghanistan or in a refugee camp in Pakistan, a brief intervention for male refugees who chew khat in Kenya, and a community-based outreach (i.e., harm reduction) intervention for people (primarily refugees) who inject drugs in Afghanistan. The included interventions implemented in non-refugee disadvantaged populations in low- and middle-income countries included five universal prevention interventions, three selective interventions, ten brief indicated prevention interventions, one outpatient psychological treatment, six multicomponent community-based treatment program, two community-based outreach (i.e., harm reduction) interventions and two capacity building programs across settings in sub-Saharan Africa, South and Southeast Asia, Eastern Europe and Central Asia, and Latin America.

The majority of studies reported on the implementation of substance use interventions but lacked an evaluation component. Of those that included an evaluation, few utilized a controlled or experimental study designs that allowed us to make inferences about the causal effect of these interventions. There was some preliminary evidence of the effectiveness of selective prevention interventions and cognitive behavioral therapy on reducing substance use in non-refugee populations. Evidence on brief indicated prevention programs was mixed. Limitations in the design of universal prevention and other treatment approaches precluded conclusions regarding their effectiveness. Common limitations of these studies included measurement issues, inconsistent reporting, non-controlled and non-experimental study designs, and not directly measuring substance use as an outcome. Findings from implementation studies suggest that it is feasible to introduce and integrate brief indicated prevention interventions and multicomponent community-based treatment strategies for substance use in refugee settings.

Based on our review, we identified six key findings and have proposed the following recommendations:

Key Finding 1: There is a lack of specific focus in academic and unpublished literature on refugee substance use prevention and treatment approaches.

Recommendation 1: Utilize existing guidance and interventions implemented in other disadvantaged populations to design and evaluate prevention and treatment interventions for substance misuse in refugee populations.

Key finding 2: More studies have been conducted among disadvantaged, non-refugee populations in LMIC, but many suffer from limitations and the overall evidence-base for interventions is weak.

Recommendation 2: Design evaluations that allow inferences to be made on the efficacy and/or effectiveness of interventions (e.g., randomized controlled trials).

Recommendation 3: Standardize measurement and reporting of substance-related outcomes to improve consistency and comparability across studies.

Recommendation 4: Select outcomes that are relevant and informative for translating research into practice into humanitarian settings. For example, including explicit substance use outcomes (e.g., on quantity/frequency of use, dependence symptoms) instead of focusing only on more proximal behavioral outcomes such as intentions to use substances, child behavior, and anger management

Key finding 3: Most indicated prevention and treatment strategies focus on treating sub-threshold or mild cases of alcohol use disorder.

Recommendation 5: Substance use interventions for substances other than alcohol need to be implemented and evaluated in refugee settings.

Key finding 4: Community-based, peer-led programs, and training of health care workers in substance use treatment are feasible in low resource and refugee settings and may reduce stigma associated with use and help-seeking.

Recommendation 6: Adapt and implement existing community-based and peer-delivered interventions for use in refugee camp settings.

Recommendation 7: Conduct mhGAP substance-use training for camp-based primary healthcare workers. Specific training in family-based, school-based and brief prevention interventions may also be appropriate, as recommended by the UNODC International Standards on Drug use Prevention and Treatment.[1,2]

Key Finding 5: Brief interventions (BIs) have significant potential as cost-effective indicated prevention strategies and as a component of community-based or multicomponent approaches.

Recommendation 8: Test the effectiveness of BIs in reducing alcohol and other substance use among persons with mild or sub-threshold alcohol/substance use problems in camp settings.

Recommendation 9: Conduct a process evaluation of alcohol/substance use screening and brief interventions within camp settings to capture feasibility and implementation outcomes.

Key Finding 6: The majority of studies focus on mild/subthreshold alcohol and substance use problems and more evidence is needed for more severe problems, including moderate-to-severe alcohol/substance use disorders, dependence, polysubstance use, and mental health/psychosocial comorbidities.

Recommendation 10: Interventions for refugees with moderate-to-severe substance use disorders and/or comorbidities need to be evaluated and implemented using a stepped care approach.

1. Introduction

Mental, neurological, and substance use (MNS) problems are substantial drivers of the global burden of disease, accounting for over 10% of all disability adjusted life years.[3] Refugees experience high rates of neglect, abuse, physical injury, stigma, loss of family members and loved ones, and myriad other witnessed and experienced potentially traumatic events that collectively increase their risk for MNS problems. Over the past decade, considerable progress has been made in measuring mental health problems among refugee and other displaced populations, and in evaluating and implementing evidence-based treatments for such problems. Much less research and programmatic attention has been paid, however, to preventing and treating alcohol and other substance use disorders. The purpose of this desk review therefore is to synthesize the current evidence base for approaches to addressing alcohol and substance use problems among refugees and other populations of concern to UNHCR and to make recommendations for next steps in research and practice.

1.1 Substances of concern and types of misuse[4,5]

A wide variety of substance types and degree/severity of substance misuse problems occur across refugee, conflict, and other humanitarian settings.[4,5] Below we summarize the most commonly used substances among refugee and displaced populations in low- and middle-income countries (LMIC) that are targets of the interventions described later in this review. [4,5]

Alcohol is the most widely used substance globally and this is true in refugee and humanitarian settings as well. The most commonly consumed types of alcohol are beer, wine, and liquor; in refugee camp settings, home-brewed alcohol (e.g., brewed with corn, seeds, grains) is also common. These home-brews can be problematic because they can have a wide range of alcohol content (often unknown to the drinker)--in some cases may have very high alcohol content--, are unregulated, and can contain other toxins.[6,7] Alcohol is a sedative and hazardous use can result in impaired judgment, disinhibition, problems with coordination, and extreme drowsiness. Alcohol misuse can lead to heart, liver, and pancreatic issues and an increased risk for certain cancers.[8]

Sedatives other than alcohol are also non-medically used in refugee settings. Often administered in pill form, these are frequently taken to reduce feelings of anxiety. Examples include benzodiazepines and barbiturates.

Cannabis (marijuana) is also a sedative but additionally can have hallucinogenic effects. Most commonly cannabis is smoked but it may also be ingested. Negative effects of cannabis include impaired coordination, neurocognitive impairment, anxiety, suicidal ideation, symptoms of psychosis, cardiovascular and respiratory health problems.[9]

Opioids are sedatives that are taken for pain relief and provide a sensation of euphoria. Other physiological effects of opioids include sedation, respiratory depression, nausea and constipation.[10] They can be administered in a variety of forms, including most commonly by injection, smoking, and orally. Among all substance types, opioids have the highest addictive potential. For example, Tramadol has become a significant problem in refugee camps in sub-Saharan Africa while heroin is a prevalent concern among urban refugees in Afghanistan.[11] Furthermore, as consumption of prescription opioids continue to increase into low- and middle-income countries[12] it is possible that these opioids may become increasingly prevalent among refugees.

Inhalants include aerosol sprays, paint thinners, butane gas, and glues. These substances can have both sedative and hallucinogenic effects, which may vary by the substance that is inhaled. Some negative effects include impaired judgment, nausea, functional impairment, delirium, and asphyxiation.

Stimulants are associated with hyperactivity, restlessness, feelings of being energized, and hyperalert. These include cocaine, amphetamines, and commonly in sub-Saharan Africa, khat. They can be inhaled, injected, or ingested. For example, fenethylline, a synthetic stimulant, has become a major concern in the Syrian conflict as its use has proliferated particularly among those fighting in the conflict due to perceptions it will increase stamina.[13]

Hallucinogens include Lysergic Acid Diethylamide (LSD), phencyclidine (PCP), mescaline, and psilocybin mushrooms. These can cause dramatic swings in mood, behavior, and perception of self and surroundings (including auditory and visual hallucinations). Little is known about the long-term consequences of hallucinogens.[14,15]

Treatment approaches to alcohol and other drug use must take into account not only the *type* of substance being used, but also the quantity and frequency of use, the degree to which use is impacting a person's functioning, harms associated with use, and physiological symptoms associated with use, such as dependence, tolerance, and withdrawal. The International Statistical Classification of Diseases and Related Health Conditions (ICD-10) describes the following substance use disorder types:[4,5]

Acute intoxication refers to use that results directly and temporarily in disturbances to mood, behavior, cognition, or perception. These disturbances resolve completely following the active phase of the substance and the person makes a complete recovery. Complications from acute intoxication can include trauma, accidents, delirium, susceptibility to experiencing or perpetrating violence, risky behaviors (including risky sexual behaviors), and, in very extreme cases, coma or convulsions. Examples include acute drunkenness (with alcohol) or bad 'trips' (with psychoactive substances).

Harmful use (abuse) is distinguished from acute intoxication because it refers to a *pattern* of use over time that is causing harm to the user's health (both physical, such as contracting hepatitis through needle sharing, and mental/emotional health, such as depression and functioning).

Dependence refers to behavioral, cognitive, and physiological symptoms associated with a pattern of use over time and is also commonly referred to as addiction. Symptoms can include: a very strong desire to use the substance; continued use even though it is causing harm to health, legal, social, or familial problems; reduction in one's ability to conduct daily tasks and/or role responsibilities (i.e., functional impairment) because a person is intoxicated or is spending time obtaining the substance; failed attempts to cut down on use or abstain; requiring a higher dosage of the substance to achieve the same effect (tolerance); and physical symptoms that occur when a person ceases use (withdrawal).

In addition to these classifications, it is also important to recognize and develop interventions for *polysubstance use*, which refers to the use of more than one substance type concurrently, and *comorbidity*, which in this case refers to mental health or other psychosocial problems that may co-occur with the substance use problem.

1.2 Literature on alcohol and substance use in low- and middle-income countries

The epidemiological literature on alcohol and substance use among refugees and displaced persons is extremely limited. Further, the vast majority of studies that have been conducted in this area focus on refugees resettled in high income countries where the availability of evidence-based interventions is far greater than in humanitarian settings, refugee camps, or low- and middle-income countries (LMIC) more broadly. This is a significant gap given that over 80% of displaced persons reside in LMIC.[16,17] A recent global systematic review identified 63 studies focused on substance use among forced migrants; of these studies, only 17 (27%) were conducted in LMIC

and none of these studies were among persons displaced by natural disaster.[17] Among the 17 studies, only six (35%) were rated as high quality.

1.3 Scope of the problem: prevalence of alcohol and substance use among refugees in LMIC

Most of the moderate and high-quality studies from the recent systematic review measuring alcohol and substance use among displaced persons in LMIC focus exclusively on alcohol. In the Mae La refugee in Thailand, Ezard and colleagues (2010) found 36% prevalence of hazardous alcohol use among Burmese refugees and 4% with possible alcohol dependence.[18] In refugee camps in Thailand, Uganda, Liberia, and Kenya, alcohol use was found to be widespread as was production of alcohol, including fermented, cereal-based and distilled 'home-brews,' which served as an income source for women who brewed the alcohol.[19] In camps in Uganda specifically, 32% of men and 7% of women had an alcohol use disorder.[20] In Nigeria, camp, prevalence of alcohol abuse was among refugees 13.5%.[21] Among Bhutanese refugees in Nepal, 23% of males and 9% of females who reported any alcohol use were drinking at hazardous levels.[22] Among high school students in Serbia displaced from Kosovo, 56% reported recent alcohol use and among displaced[23] and conflict-affected persons in Georgia, 28% of men who drank and 1% of women who drank did so at hazardous levels.[24] Among internally displaced persons in Colombia, 8.5% had hazardous alcohol use. [25]

Regarding other non-alcohol drug use, in Nigeria, substance abuse prevalence was 20%-- notably higher than the 13.5% alcohol abuse estimate.[21] In Kenya, khat and inhalants were commonly used among persons living in Kakuma refugee camp.[19] In Iran among Afghan refugees use of opiates, including injection drug use, was frequently reported as was cannabis and, among youth, amphetamines.[19] A study among Afghan refugees who reported recent drug use in Pakistan found that 69% had injection drug use and only 33% of those had received some form of services.[26]

An important limitation in substance and alcohol use epidemiological research is related to measurement. Definitions of alcohol and substance use problems can vary widely across studies and programs and disparate measures are often used, rendering comparisons difficult. Measurement is made even more difficult due to logistical and safety challenges that are ubiquitous in refugee camp and other humanitarian settings.[4] Social desirability bias and underreporting of use may be prevalent among refugees as with other disadvantaged and marginalized groups due to stigma and for fear of consequences of reporting if drug use is prohibited in camp settings.[27,28] Despite this limitation, the available data suggest high rates of both alcohol and other substance misuse among refugees in camp and LMIC settings suggesting a considerable need for appropriate treatment. An examination by UNHCR of primary care visit rates within 90 refugee camps revealed that between 2009 and 2013, the visit rate to primary care centers for substance and alcohol use problems was a slight 2 visits per 100,000 refugees per month, accounting for only 0.4% of all MNS visits during that period.[29] Collectively, these data suggest a substantial substance and alcohol misuse treatment gap for refugees.

The treatment gap is problematic because of deleterious consequences associated with drug and alcohol misuse that may be particularly salient among refugees.[4] As mentioned previously, substance and alcohol use frequently co-occur with common mental health problems, including depression, anxiety, and post-traumatic stress.[30] They can also increase the risk for suicide.[31] Substance and alcohol use frequently intersect with the HIV epidemic, given that 80% of refugees reside in and over 95% of HIV incident cases occur in LMIC.[16,32–35] They are associated with risky sexual behavior, HIV infection/transmission, and poor HIV outcomes, such as linkage to care, adherence to ART medication, and viral suppression.[33,36] Similar to non-refugee populations, substance and alcohol use can cause or exacerbate violence, including intimate partner violence, domestic violence, and child abuse. Food insecurity and poverty can increase as a result of resources being diverted for purchasing drugs and alcohol.[4]

1.4 Risk factors for alcohol and substance use among refugees

Although refugees in camp settings and LMIC may have an increased risk for substance use compared to the general population, it is important to recognize as noted by Streel and Schilperoord (2010) that alcohol and drug use problems may have existed prior to the forced migration or acute humanitarian emergency.[37] It is also important to note that not all refugees will have an increased risk for substance use, and in some contexts, such as some high income countries, refugees may actually use substances at a lower rate than non-refugees.

Demographic factors associated with substance and alcohol use problems that may be independent of refugee status include: gender (males at higher risk), age (young adults at higher risk), marital status (unmarried at higher risk), socioeconomic status (lower income individuals at higher risk), and education (lower education at higher risk).[38] Among refugees, baseline risk for alcohol and other drug use may increase for several reasons. First, *access* to illicit substances may increase. In camp or other humanitarian settings that are unstable, drug enforcement policies and security may be reduced or non-existent, resulting in increased opportunity for drug trafficking and local supply of drugs.[39] Second, exposure to conflict, disaster, abuse/neglect, or other potentially traumatic events; physical injury or mental health problems; new difficult environments (e.g., refugee camps); boredom and marginalization; and loss of resources (e.g., social and/or financial) can precipitate the use of substances as a coping mechanism and amplify pre-existing risk factors and vulnerabilities.[4,24,40,41] That is, alcohol/substances may be used as a way to self-medicate. This can result in both new cases of use (i.e., refugees initiating substance use for the first time[42]) and intensification of pre-existing use: studies have suggested that in conflict settings, quantity and frequency of use tends to increase from the pre-conflict stage to peri- and post-conflict.[28,40,43] Increase in use of one substance can also lead to initiation of new substances, resulting in more complex cases of polysubstance use.[22]

2. Method and Data Sources

The significant burden of substance use problems globally and the potentially heightened risk for these problems among refugees and displaced populations warrants urgent public health attention. This desk review is a first step in creating an evidence-based and informed intervention response. Given the scant research and programmatic attention given to addressing these problems among such populations outlined in the Introduction, we conducted a broader review of the literature on substance use interventions that focuses both on refugee populations specifically and also on other populations facing adversity in LMIC that we believe might be applicable to refugees.

We searched six academic databases (Anthrosource, Embase, PsycINFO, Published International Literature on Traumatic Stress [PILOTS], Pubmed/MEDLINE and SCOPUS), five grey literature databases (ALNAP, IRIN, mhpss.net, ReliefWeb and ACAPS), four agency websites (UNHCR, WHO, UNODC and UNICEF), and conducted targeted hand searches of *Intervention: the Journal of Mental Health and Psychosocial Support in Conflict Affected Areas*. Searches of these databases were built using key terms representing the following concepts: substance use, intervention, and refugee or disadvantaged population in low- and middle-income settings (see appendix for search strategies). Searches were conducted in November 2017. Searches for prevention and treatment strategies yielded 21,679 hits of which 11,283 were reviewed for relevance to this report. Publications were included if they were published in English and described a prevention or treatment intervention delivered to refugees or other populations facing adversity in low- and middle-income countries. Search terms used are included as an annex to this report.

The searches identified six interventions delivered to refugees and twenty-nine interventions delivered to other disadvantaged populations in LMIC. Of the interventions specifically targeting refugees, three were indicated prevention strategies, two were multicomponent community-based interventions, including a spectrum of prevention and treatment services, and one was a community-based outreach (i.e., harm reduction) program. The majority of studies focused on refugees were conducted in Southeast Asia (n=3) followed by East Africa (n=1) and South Asia (n=2). Of the interventions targeting other disadvantaged populations, five described universal prevention interventions, three described selective interventions, ten described brief indicated prevention interventions, one described an outpatient psychological treatment, six described multicomponent community-based treatment programs, two described community-based outreach (i.e., harm reduction) strategies, and two described capacity building programs. The majority of studies targeting other disadvantaged populations in LMIC were conducted in South Africa (n=10) followed by East Africa (n=6), South Asia (n=4), West Africa (n=2), Eastern Europe and Central Asia (n=3), Southeast Asia (n=3) and Latin America (n=1). We extracted data on the following parameters from reports describing all included interventions: location, population, study design, sample size, objective, intervention description, results, moderators/mediators of intervention effectiveness, and implementation factors. By moderators, we mean whether there were specific subgroups for whom the intervention was particularly effective or, conversely, ineffective. By mediators, we mean mechanisms through which the intervention impacted substance use outcomes. The description of studies that follows is organized by intervention type, clustered around two approaches: prevention and treatment strategies.

3. Prevention Strategies

Prevention programs aim to reduce modifiable risk factors known to increase the likelihood of initiation of substance use or development of a substance use disorder. Gordon's framework for disease prevention, which is also used by the United Nations Office on Drugs and Crime, classifies prevention programs as those that are applied universally to members of a population regardless of individual risk (universal prevention), to people at high risk for disease (selective prevention), or to those at high-risk and presenting with early, sub—threshold symptoms of disease (indicated prevention)[1,44]. In this section we will describe the universal, selective and indicated prevention programs identified through literature searches.

Types of Prevention Programs	
Universal	Programs that are aimed at the general population. Programs are generally low cost (per person) and designed to reach a large number of people. Individual risk/symptom presentation is not a factor in eligibility for these programs.
Selective	Programs that are targeted towards those with an elevated risk for an outcome (e.g., substance use).
Indicated	Programs that are targeted towards those who are not only at higher risk for an outcome but who have signs and symptoms (typically sub-threshold or prodromal signs and symptoms) of the outcome itself.

3.1 Universal Prevention

Universal interventions are developed for an entire population or group, not on the basis of a risk factor or profile and assume that the intervention is capable of providing some degree of benefit to all participants.[45,46] Universal interventions are typically implemented during critical periods of development through institutions that are intended to enhance and facilitate social development and functioning for all members of a population (e.g. schools). Practically, universal interventions should be low-cost per person because they are generally applied to a much larger population than in targeted interventions (e.g. selective, indicated) and thus costs accrue rapidly. It is also important that these interventions are low risk and acceptable to justify the ethical principle of beneficence for all that participate. Universal prevention interventions generally do not require specialized facilitators to administer the intervention.[44,45]

Universal community-based interventions to prevent substance misuse have almost exclusively been implemented and evaluated in schools in the United States.[47] The effectiveness of school-based universal prevention interventions in reducing substance use varies by type of program with social skills-based programs typically outperforming fear- and knowledge-based programs.[48,49] Universal prevention programs at the population level may take the form of policies to prevent access to alcohol or other drugs. There is substantial evidence supporting the effect of increased taxation and price of alcohol, restrictions on marketing and other regulations to reduce access to alcohol or consumption at the population-level, particularly in settings with a high prevalence of alcohol use and less prominent unregulated markets for alcohol and other drugs.[50–53]

Universal prevention interventions among disadvantaged populations in LMIC

In our searches we did not identify any universal prevention interventions specifically targeting refugee populations. We identified two community-based, one school-based and two family-based universal prevention interventions in LMIC.

One of the community-based prevention interventions was implemented in Kosovo. Instead of focusing on individual strengths, this community-based intervention attempted to increase connectedness, collective self-efficacy and resilience, as well as other protective factors at the family and community level. The program, Linking Human Systems Community Resilience (LINC) model, encourages communities to mobilize existing resources to strengthen formal and informal support systems. In Kosovo this intervention resulted in the establishment of substance use resource centers that provided education and treatment services to the community.[54] Despite the successful implementation of this program, no evaluation of its effect on substance use or proximal community resilience outcomes were measured or reported.

The second community-based universal prevention program for disadvantaged populations in LMIC was a peer-led substance use prevention program that empowered youth living slums in Kampala, Uganda to develop and lead universal prevention programs in their communities.[55] This program was developed to capitalize on the contextual insight and knowledge of youth in the community with regard to how best to communicate and engage with their peers. First, peer leaders were trained in research methods and ethics. Peer leaders then monitored and collected data on substance use patterns in their communities and disseminated their results along with substance use educational messages to the community through school outreach, drama, community debates/discussions and social media. As part of a UN Day campaign in 2014, peer leaders were able to reach over 600 young people with messages pertaining to preventing the initiation of substance use. Despite the lack of impact evaluation data, this model emphasizes the utility of involving community members in the development and implementation of prevention programming as a means to improve the local relevance and reach of substance use programs.

One program was a school-based curriculum in post-conflict Croatia, which was adapted from a traditional U.S. school-based prevention program.[56] In the aftermath of the Yugoslav wars in the 1990s-early 2000s there was an increase in alcohol misuse and a decline in available resources to prevent and treat alcohol misuse in Croatia. Thus, the school-based program, Project Northland, aimed to delay initiation of alcohol use and reduce alcohol misuse and related problems in students 10-14 years of age by decreasing individual, family and community-level risk factors. The program also integrated promotion strategies to strengthen protective factors including parent-child communication and peer support. The program included alcohol education, behavior change components, peer and social skills training, as well as parental and community involvement. Project Northland engaged youth from the communities to assist in adapting the content of the curriculum to make it age- and culturally-appropriate, which improves upon a common criticism of U.S. school-based prevention programs which have historically lacked developmental relevance.[57] Project Northland was evaluated through a cluster randomized controlled trial in 26 schools (n=975 Project Northland students; n=976 control students). The primary outcome was intention to drink alcohol. Although intention to use alcohol increased in both the intervention and

control condition over the course of the 3-year follow-up, the increase was significantly greater for the control relative to the intervention condition during the first 2 years of follow-up suggesting that participation in Project Northland may have mitigated increases in intention to drink alcohol. Subgroup analyses revealed that these benefits were only experienced among female students. Qualitative interviews conducted with parents and teachers after participation in Project Northland revealed that the intervention was perceived to be more effective in younger children, with some indication that younger students (e.g., 5th graders) may derive benefit from Project Northland material. Moreover, parents and teachers observed that students became bored as the program progressed during later years (e.g., 8th grade).[58]

Two family skills-based universal prevention interventions have been tested in nine LMIC in Central America, Central Asia and Eastern Europe to build protective factors that increase resilience among youth in primary school and their families. The first intervention, known as Family and Schools Together (FAST) is comprised of weekly multi-family groups led by trained health, education and social services professionals who guide family-based activities such as responsive play and family meals. This intervention targeted families with primary school-aged children and was found to result in in improved family dynamics, child behavior and parental involvement in the school as well as reduced family conflict in the post-test period.[59,60] The second intervention, Strengthening Families, targeted families with adolescent children and similarly were structured as facilitated multi-family group sessions involving structured activities with parenting and teen skill-building components. Parents reported improved anger management skills and children reported improved problem solving and family dynamics at the end of the intervention.[59,61] Both of these interventions were originally developed in high-income settings; thus implementation of these programs in three diverse low- and middle-income regions represented by nine countries required substantial cultural adaptation including dedicated support and participation by government partners. In both interventions one of the primary aims was to improve family interaction and behaviors as a means of reducing substance use among both children and parents in the long-term. Evaluation of these programs primarily focused on proximal risk factors for substance use; yet, the Strengthening Families Program has been found to reduce alcohol and drug use, including among high-risk families suggesting that this intervention may serve as a promising universal and selective prevention program[60]

We did not identify any studies that explicitly evaluated implementation or outcomes of alcohol and other drug policies and population-level interventions in refugees or other disadvantaged populations in LMIC. Although not reporting on the implementation of alcohol control policies, one qualitative study investigated the challenges of introducing alcohol legislation in post-conflict settings. Interviews with representatives from United Nations agencies, non-governmental organizations, academic institutions or independent health consultants with experience working in post-conflict settings described the need for effective policy implementation and enforcement to address alcohol-related harm in post-conflict societies. Some of the challenges identified included low political will and prioritization of alcohol-related problems, limited resources, poor enforcement of policies and an influential alcohol industry that actively resists efforts to reduce consumption.[62]

Table 1. Summary of universal (primary) prevention approaches for substance and alcohol use disorders

Non-Refugee Populations									
Author/ Organization	**Country/ Setting**	**Population**	**Study Design**	**Sample size**	**Objective**	**Intervention Description**	**Evidence (clinical, statistical)**	**Moderators Mediators**	**Implementation factors**
Abatemarco 2004,[56] West 2008[58]	Croatia, post-conflict	6th-8th grade students	Cluster RCT	1951	Delay initiation of drinking, reduce alcohol use, limit number of alcohol-related problems	School-based curriculum promoting active parental involvement, behavioral and educational curricula, peer activities and community involvement	Increase in intention to use alcohol for all groups, but increase was significantly smaller in intervention group during first 2 years	Gender: significant effect of intervention across all 3 years of follow-up for females; no intervention effect for males Age: qualitative reports that younger students were more engaged and derived more benefit	Required dedicated project coordinator and community buy-in; Competing priorities in post-conflict reconstruction period; Government turnover
Agani 2010[54]	Kosovo, post-conflict	Family and community members in Kosovo	Description of program	Not reported	To strengthen community resilience and mobilize resources to address substance use	Linking Human Systems (LINC) Community Resilience model facilitates linkages and strengthening of relationships between existing resources and persons within communities	No evaluation	None reported	None reported
Kasirye 2015[55]	Uganda	Youth living in slums	Description of program	40 peer leaders trained; >600 beneficiaries reached in 1 day	Empower youth to prevent substance use in their communities	Peer-led prevention program involving monitoring substance use in their community and communicating information about substance use prevention to their peers	No evaluation	None reported	Involving youth and peers in prevention activities can improve implementation and acceptability
Maalouf 2014[59]	Honduras, Guatemala, Panama, Serbia	Families with adolescent children	Retrospective pre-post-test	218 parents	Build protective factors to increase resilience among youth by strengthening families and	Strengthening Families: 14 weekly family skills training sessions involving family meals, parent and teen skills training	Improved anger management among parents; Improved problem-solving and family dynamics reported by children	None reported	Cultural adaptation of Strengthening families was difficult and required sustained, dedicated support from government; Retention was high

					parental involvement				
Maalouf 2014,[59] McDonald 2013[60]	Tajikistan, Kyrgyzstan, Kazakhstan, Turkmenistan, Uzbekistan	Families with children in primary school	Pre- post-test; Qualitative interviews	Approx. 100 children/ families per site (range: 90-140)	Build protective factors to increase resilience among youth by strengthening families and parental involvement	Family and Schools Together (FAST): 8 weekly multi-family groups led by trained professionals (health, education, social services) and involves family meals, structured family activities and responsive play	Improved family dynamics, child behavior, peer relationships, parental involvement with school and the community, and reduced family conflict (note: outcomes reported varied by site)	None reported	Cultural adaptation of FAST was difficult and required sustained, dedicated support from government; Retention was high

3.2 Selective Prevention

Selective interventions are prevention programs that target individuals whose risk of substance misuse or disorder is greater than the population average as determined by the presence of a risk factor(s).[45] Research from high-income settings suggests that these programs are likely to be more cost-effective than universal prevention interventions,[46] which is particularly relevant for refugee and humanitarian settings where resources are extremely limited. Moreover, the associated risks and benefits of participation in a secondary prevention intervention are likely higher than that of a universal prevention or promotion program.[44,45] In high-income settings, interventions have recruited participants for selective prevention programs based on risk factors including personality traits such as impulsivity or anxiety sensitivity[63] and family history of substance use disorder.[64] Similar to universal interventions, selective prevention programs can typically be further classified into school-, family- and/or community-based programs. Evaluation of skills-based and longer duration (e.g., >10 weeks) programs provide preliminary evidence of effectiveness; however, outcomes of many studies are limited to proximal outcomes such as knowledge and coping skills as opposed to substance use and misuse.[64] Other selective interventions that are tailored to address personality types through psycho-education and elements of motivational enhancement and cognitive behavioral therapy in individual and/or group sessions have displayed moderate effects on reducing substance use outcomes.[63] Some of the aforementioned universal prevention interventions (e.g., family-based interventions) may also be strong candidates for selective prevention programming given that results of moderation analyses suggest that intervention effects are larger for higher-risk participants .[61]

Selective prevention interventions among disadvantaged populations in LMIC

In our searches we did not identify any selective prevention interventions specifically targeting refugee populations. Three selective substance use prevention interventions in LMIC were identified, all of which were conducted in HIV-affected communities in sub-Saharan Africa. Two of these prevention programs were integrated home-based interventions for pregnant women in low-income peri-urban settlements surrounding Cape Town, South Africa[65] and HIV-affected families in Rwanda.[66] The third selective prevention intervention was conducted within the context of HIV counseling and testing delivered in inpatient wards and outpatient clinics within a hospital in Uganda.[67] Both home-visiting programs were integrated programs that targeted multiple behavioral outcomes. The peri-natal home-visiting program, Philani Plus, was delivered in six sessions, on average, by lay health workers who were trained to provide information and promote behavior change surrounding the following topics: maternal and child health, HIV/AIDS, tuberculosis, mental health, alcohol use, breastfeeding and nutrition. In this sample, 27% of women reported using alcohol during pregnancy. The selective prevention program was found to reduce alcohol use during pregnancy; however, alcohol use resumed during the post-partum period. The authors suggest that a more intensive, focused intervention may be necessary to produce reductions in alcohol use that are sustained in the long-term.[65] Trained counselors delivered the family-focused home-visiting intervention, the Family Strengthening Intervention for HIV-affected Families (FSI-HIV), over the course of eleven sessions, on average. This intervention combined prevention strategies to reduce risks related to HIV/AIDS and family challenges with promotion strategies aiming to enhance resilience and goal setting. As compared to usual care, families that received the FSI-HIV intervention reported significantly greater

reductions in hazardous alcohol use, measured using an adapted version of the Alcohol Use Disorders Identification Test (AUDIT), at 3-months post-intervention among HIV-affected caregivers.[66]

The hospital-based selective prevention program evaluated in Kampala, Uganda targeted patients that were engaging in HIV counseling and testing services. Participants were randomly allocated to a brief or full-length HIV counseling and testing session as well as either standard or enhanced linkages to HIV care depending on the results of their HIV test. HIV counseling and testing guidelines recommend advising against the use of alcohol or other drugs before sexual activity; however, beyond this messaging there was no specific intervention components targeting alcohol administered during the HIV counseling and testing sessions. In both HIV-positive and HIV-negative participants who reported drinking alcohol at baseline, a substantial decline in the prevalence of hazardous and non-hazardous drinking was observed immediately after completing HIV counseling and testing, which stabilized at three months and was maintained through the 12-month follow-up; however, study condition (brief vs. full-length HIV counseling and testing; standard vs. enhanced linkages to HIV services) was not associated with alcohol use trajectories after baseline. The authors conclude that the observed reductions in alcohol use may have arisen due to the interaction with healthcare providers, the presence of other health problems that led to admission to the hospital, the impact of unmeasured services obtained through referrals resulting from the HIV counseling and testing, or assessment reactivity.[67] Regardless, these results suggest that a brief intervention delivered by a healthcare provider may be capable of producing sustained reductions in alcohol use, but further research comparing the impact of HIV counseling and testing to an inactive control condition is warranted.

Table 2. Summary of selective (secondary) prevention approaches for substance and alcohol use disorders

Author/ Organization	Country/ Setting	Population	Study Design	Sample size	Objective	Intervention Description	Evidence (clinical, statistical)	Moderators Mediators	Implementation factors
Non-Refugee Populations									
Chaudhury 2016[66][2]	Rwanda	HIV-affected families	Mixed methods RCT	82 families	Prevent alcohol use and violence	Family-level intervention to build resilience, improve communication and parenting, psychoeducation, and engagement with support systems	Qualitative and quantitative findings indicate that alcohol reduced significantly more in intervention families compared to control families 3 months post-intervention	None reported	None reported
[3]Hahn 2014[67]	Uganda	Adults receiving HIV counseling and testing (HCT)	Pre-post study	2056 adults	Observe changes in self-reported alcohol use before and 3-months and 1-year after HCT	HCT	Hazardous and non-hazardous drinking declined significantly 3 months after HCT	Decline in drinking was greatest among those with HIV	Findings suggest that HCT and ART initiation are ideal venues for brief interventions
Rotheram-Borus 2015[65]	South Africa	Pregnant women	Cluster RCT	1238	Assess effectiveness of a home-visiting intervention	Home-based care workers conducted prenatal and postnatal visits and provided sessions on goal setting, problem solving, relaxation, assertiveness, and shaping	The intervention reduced alcohol use in pregnancy, but drinking resumed after childbirth	IPV and HIV were mediators of alcohol use	None reported

3.3 Indicated Prevention

Indicated interventions target individuals displaying early signs and symptoms of substance use disorder but have not yet developed a full-blown disorder. One of the challenges with indicated interventions has been distinguishing mildly symptomatic persons who already have the disorder and will thus need treatment) from individuals that have yet to develop a given disorder and are thus eligible for a prevention program. Regardless, the inclusion of early or sub-threshold cases of substance use disorder in prevention programming is reasonable given that the objective is to prevent the occurrence of more severe symptoms or associated disability, which aligns with the concept of tertiary prevention.[44] From a substance use perspective, individuals displaying high-risk patterns of alcohol or other drug use (i.e., hazardous use), but have yet to meet criteria or be determined to have a substance use disorder may be most appropriate for indicated prevention programming. Indicated interventions represent the most targeted form of prevention interventions, and tend to be more intensive and higher cost.[45,46]

To date, most indicated interventions to prevent substance use disorder are brief and involve elements of motivational interviewing to encourage reductions in substance use as a means to decrease negative consequences associated with use. Motivational interviewing was developed as a client-centered, goal-oriented counseling intervention where the provider supports the client to explore their ambivalence towards behavior change and, ultimately, resolve it.[68] Numerous randomized controlled trials of motivational interviewing, predominantly in high-income settings, have been conducted and meta-analyses suggest that this indicated prevention program can reduce substance use, but its effects may be comparable to that of other interventions.[69] The World Health Organization has developed the Alcohol, Smoking and Substance Involvement Screening Test (ASSIST), a screening tool that has been validated in over 10 countries and can be used to classify people as low-, moderate- or high-risk of substance use disorder.[70,71] The ASSIST is intended to then link people with appropriate services such that people at moderate risk of substance use disorder receive a brief indicated prevention intervention, whereas those at high risk also receive this brief intervention in addition to a referral to more specialized care. The brief intervention involves discussion of the participant's scores on the ASSIST, motivational interviewing techniques and a cultural take-home self-help guide. The intervention has undergone adaptations for many of the countries in which it has been implemented and evaluated. Randomized controlled trials from two middle- and two high-income countries suggest that ASSIST-linked brief intervention was effective in reducing substance involvement (measured using the ASSIST), particularly in the middle-income countries, Brazil and India.[72] Furthermore, such brief interventions have utilized non-specialist healthcare workers as providers in many settings to address the gap in available substance use and mental health treatment, which may be particularly suitable for refugee and disadvantaged populations in low-income settings where there tends to be a paucity of specialized providers.[73]

Indicated prevention interventions among refugee populations

In our searches we identified three brief indicated prevention interventions to reduce alcohol or khat use in camp and urban refugee settings. Two of these interventions were administered to Burmese refugees living in camps on the Thai-Burma border.[18,74] The third intervention was administered to Somali urban refugees in Kenya.[75] The two brief interventions in Thailand focused

on reducing hazardous alcohol use among Burmese refugees that met criteria (score≥8) for hazardous alcohol use using the 10-item Alcohol Use Disorders Identification Test (AUDIT). Both brief interventions incorporated motivational interviewing techniques to promote reduced alcohol misuse. One intervention included only men and did not contain an evaluation of the impact of this intervention on alcohol use; however, the researchers reported that it was feasible to introduce a 30-minute brief intervention for alcohol misuse into a primary health system in a refugee camp setting.[18] The second intervention was conducted in the context of a randomized controlled trial evaluating the efficacy of a brief transdiagnostic psychotherapy, Common Elements Treatment Approach (CETA) delivered by lay health workers to Burmese survivors of torture and significant traumatic events. Only participants that met criteria for hazardous alcohol use received the brief intervention as part of their participation in the study. The CETA brief intervention consisted of motivational interviewing and cognitive behavioral therapy elements. With only 33 participants meeting this criterion, the study was significantly underpowered to detect a possible effect of the intervention on alcohol use.[74]

The ASSIST-linked brief intervention was implemented and tested in a sample of Somali refugees living in a suburb of Nairobi to evaluate whether it reduced khat use. Unlike the prior indicated prevention studies in refugee populations, eligibility criteria for this intervention did not require meeting a specified level of hazardous khat use, but instead enrolled participants reporting any khat use in the past month. The ASSIST-linked brief intervention was adapted to this population based on the results of in-depth formative qualitative research with ASSIST experts. On average, screening and the brief intervention took about 35 minutes to administer by members of the Somali refugee community who were college graduates and received training in screening and brief intervention by expert therapists and researchers. Receiving the brief intervention was associated with significantly greater decreases in time using khat and increases in functioning over the three month follow-up relative to individuals that were not randomly assigned to receive the brief intervention; however, the intervention was found to be less effective for participants with comorbid depression or post-traumatic stress disorder.[75] Several implementation challenges were noted in these studies of brief interventions including supervision and communication challenges,[74] stigma related to disclosure,[18] mistrust towards health workers,[18] criminality and political tensions.[75]

Indicated prevention interventions among disadvantaged populations in LMIC

In our searches we identified ten brief indicated prevention interventions targeted to populations with hazardous patterns of alcohol and other drug use. Five of these interventions targeted people in primary care or other outpatient healthcare settings.[76–80] The remaining indicated prevention programs targeted people with risky alcohol or other drug use and at risk of alcohol-exposed pregnancy,[81] living with HIV,[82–85] using drugs other than alcohol,[83] or were university students.[86] Similar to the interventions delivered to refugee populations, indicated prevention programs targeting disadvantaged populations in LMIC were also delivered in the form of brief interventions. In contrast to brief interventions delivered to refugees, which were a single session in length, the brief interventions for non-refugee populations ranged from a single to, more commonly, four or five sessions in length. The interventions were rooted in motivational interviewing and typically used the ASSIST-linked brief intervention model. The majority of brief interventions focused on hazardous alcohol use and yielded mixed results.

Several randomized controlled trials of brief interventions did not find significantly greater reductions in alcohol use in the intervention relative to the control condition,[77,79,80,84] but some did find greater reductions in hazardous patterns of drinking associated with the brief intervention.[78,86] The interventions that were found to be effective included a 20-minute brief intervention for university students that included psychoeducation, motivation and behavioral skill-building elements,[86] a combined 4-session problem solving therapy and ASSIST-linked brief intervention for adults presenting to emergency departments,[78] and some evidence supporting a single brief intervention for women living with HIV/AIDS, but the intervention was not found to be effective for men.[84] Several studies measured abstinence, instead of hazardous patterns of use, as their primary substance use outcome. These studies did find that women exposed to brief interventions were significantly more likely to be abstinent up to 1-year post-intervention.[83,85] A brief intervention delivered in primary care found that women who received a 4-session motivation-based intervention had significantly lower odds of being at risk for an alcohol-exposed pregnancy, which was defined as risky drinking and not using effective contraception, at 3- and 12-months post-intervention relative to women that did not receive motivational interviewing.[81] In summary, evaluations of these brief interventions reveal mixed evidence, suggesting that these strategies may have promise, but it is unclear which populations, intervention components or other implementation factors may impact their effectiveness. One included study focused on evaluating the feasibility and acceptability of screening and brief intervention in Thailand and reported that the ASSIST-linked brief intervention was perceived as acceptable by both patients and providers.[76] Other included studies focusing on evaluating the impact of these brief interventions similarly reported that brief interventions are acceptable in primary care, emergency departments, university settings and in the context of HIV counseling and testing.[77,78,81,85,86]

Table 3. Indicated (tertiary) prevention approaches for substance and alcohol use disorders

Author/ Organization	Country/ Setting	Population	Study Design	Sample size	Objective	Intervention Description	Evidence (clinical, statistical)	Moderators Mediators	Implementation factors
Refugee Populations									
Bolton 2014[74]	Thailand	Burmese refugee trauma survivors experiencing psychological distress and harmful alcohol use	Randomized controlled trial	33	Reduce alcohol use and co-occurring psychological distress	Transdiagnostic psychotherapy with brief motivational interviewing	Decrease in alcohol use during follow-up, but no difference between treatment and control	None reported	Supervision and communication challenges
Ezard 2010[18]	Thailand	Adult male Burmese refugees	Cross-sectional	1256	Identify hazardous alcohol use and motivate people to change their risky drinking patterns	Screening and brief intervention in primary care	No evaluation	None reported	Stigma; Mistrust
Widmann 2017[75]	Kenya	Male refugee khat chewers with initial motivation to stop chewing	Randomized controlled trial	330	Reduce khat chewing	ASSIST-linked brief intervention	Participants who received ASSIST-BI had a greater reduction in khat-use (frequency and amount) and an increase in functional time compared to control	Mental health comorbidities nullified treatment effect; Among those with depression or PTSD who received ASSSIT-BI, khat use reduction was less than those without a comorbidity.	Criminality; Political tension
Non-Refugee Populations									
Assanangkornchai 2014[76]	Thailand	Primary care patients	Implementation study	185	Investigate acceptability of screening and brief intervention and barriers and facilitators to implementation	Alcohol, Smoking, and Substance Involvement Screening Test-Brief Intervention (ASSIST-BI)	5,931 patients screened over a one-year period. Over 30% were identified by the ASSIST as those who would benefit from intervention	None reported	ASSIST-BI was perceived as acceptable to staff and patients.
Mertens 2014[79]	South Africa	Young adults in primary health care clinic	RCT	403	Evaluate the effectiveness of a brief MI in	Brief MI based on Rollnick et al (1999) training manual.	At-risk alcohol and substance use rates did not differ	None reported	None reported

					reducing alcohol and substance use	Delivered by nurse practitioners	between intervention and control at 3-month follow-up, although alcohol ASSIST scores were significantly lower among those who received brief MI		
Peltzer 2013[77]	South Africa	TB patients in primary healthcare facilities	Cluster RCT	1196	Evaluate the effectiveness of a screening and brief intervention	Two 15-20 minute counseling sessions based on Information-Motivation-Behavioural Skills Model	Alcohol use was reduced at a 6-month follow-up but the brief intervention was not significantly better than control (leaflet)	None reported	Short duration of the intervention increases its feasibility in primary care
Pengpid 2013[80]	South Africa	Outpatients with hazardous or harmful alcohol use	RCT	1419	Evaluate the effectiveness of a screening and brief intervention	20-minute brief intervention with personalized feedback. Intervention based on the Information-Motivation-Behavioural Skills Model	Hazardous alcohol reduced in both the brief intervention and control (provision of educational leaflet) but the difference in reduction was not significant	None reported	None reported
Pengpid 2013[86]	South Africa	University students	RCT	722	Evaluate the effectiveness of a screening and brief intervention	Same SBI as above Pengpid et al., 2013	Students receiving the SBI had a significantly greater reduction in hazardous alcohol use compared to control (educational leaflet)	Drinking norms were assessed as a mediator (i.e., perception on how much others drink). Norms decreased over time but was not significant.	None reported but authors note given the 20-minute brevity of the intervention it should be implementable in university settings
Rendall-Mkosi 2013[81]	South Africa	Women at risk of alcohol-exposed pregnancy	RCT	165	Reduce risk of alcohol-exposed pregnancy in high-risk sample	5-session Motivational interviewing	Compared to control, women who received MI had significantly lower odds of being at risk for an alcohol-exposed pregnancy at 3- and 12 months post-intervention	None reported	Intervention could be feasibly integrated within primary care
Sorsdahl 2015[78]	South Africa	Adults presenting to emergency departments	RCT	2736	Evaluate the effectiveness of two brief interventions for reducing substance use among patients	ASSIST-BI, and ASSIST-BI+ 4 sessions of Problem Solving Therapy based on CBT	At 3-month follow-ups ASSIST scores were significantly lower in the patients who received ASSIST-BI + problem solving	None reported	ASSIST-BI and problem solving therapy were feasible in emergency departments

					in emergency departments		therapy compared to the arm receiving just ASSIST-BI and the control group (brochure with information)		
Wandera 2017[84]	Uganda	Persons living with HIV	RCT	337	Evaluate the effectiveness of a brief MI intervention in reducing hazardous alcohol use among persons living with HIV	Single 20-30 minute MI counseling session	No significant difference in change in alcohol use between treatment and control (10-30 minute session on information and advice) at 6-month follow-up. Women who received MI had a statistically significant reduction in alcohol use.	None reported	None reported
Wechsberg 2014[83]	South Africa	720 women living with HIV who have drug use (other than or in addition to alcohol)	RCT	720	Assess effects of WHC on drug use	Women's Health CoOp (WHC). 4 1-hour intervention modules over 2 contact sessions on risks of drinking related to unsafe sex, condom use and sexual negotiation skills, communication within relationships, dealing with violent situations.	A significantly greater percentage of women receiving WHC were abstinent from drugs at a 12-month follow-up compared to control	None reported	None reported
Zule 2014[85]	South Africa	84 women living with HIV who report drinking alcohol	RCT	84	Assess effects of a woman-focused intervention on alcohol use among women with HIV	Same as Wechsberg 2014 above	WHC women more likely to abstain from alcohol at 12-month follow-up compared to control.	None reported	None reported. Suggest that HIV counseling and testing and HIV care settings would be useful places to begin implementing the intervention

4. Treatment Strategies

The United Nations Office on Drugs and Crime have proposed six modalities to categorize substance use treatment interventions: 1) Community-based outreach, 2) Screening, brief interventions and referral to treatment, 3) Short-term in-patient or residential treatment, 4) Outpatient treatment, 5) Long-term residential treatment, and 6) Recovery management.[2] In our review, we identified one outpatient treatment intervention, three community-based outreach programs, two capacity building interventions and seven multicomponent community-based interventions that incorporated elements of multiple modalities.

4.1 Community-Based Outreach

Community-based outreach involves a variety of services including the provision of information to link people to basic needs, needle exchange and condom distribution, HIV/HCV testing and counseling, hepatitis B vaccination, substance use education, basic assessment of substance use disorder, brief intervention to motivation change, referral to treatment, basic counseling, referral to health services as needed and overdose prevention (e.g., naloxone).[2] In our review we identified three community-based outreach programs, both of which focused on harm reduction. The aim of harm reduction programs is to reduce the negative consequences of use. The ultimate goal may or may not be abstinence; goals may include safer use of substances or managed use. These strategies aim to address conditions associated with use in addition to the use itself. Unlike some other treatment strategies, harm reduction enables the client to set the goals and pace of recovery and *any* reduced harmful use is typically considered to be a positive outcome. A distinct advantage of harm reduction is that it permits care providers to engage clients with substance use problems who are not ready to commit to abstinence as the ultimate treatment outcome. As such, treatment efforts are focused on reducing the harm of use, not necessarily the quantity and frequency of use (although these may be associated). Common examples of harm reduction programs include needle/syringe exchanges, methadone and opioid maintenance therapy programs, and safe injection areas.

Community-based outreach among refugees

Our review identified one report of a community-based outreach program among refugees who inject drugs. In Afghanistan, qualitative research among people who inject drugs found that harm reduction efforts that included psychoeducation on the hazards associated with injecting were beneficial in improving clients' knowledge.[11,87] By providing counseling and new supplies, needle exchange programs were also viewed positively among clients, but noted limitations were small coverage areas and insufficient quantity of supplies. Results suggested a needle exchange outreach program, as opposed to an exchange program housed in a drop-in center, would be more successful.

Community-based outreach among disadvantaged populations in LMIC

Our review identified two reports of community-based outreach interventions among persons who inject drugs in LMIC. In Thailand, researchers used a community-based participatory research

approach and found that it was acceptable and feasible to rapidly reach a community of persons who inject drugs and connect them with peer-led harm reduction services, including needle exchange, food and peer support, and psychoeducation on safer injection practices and overdose prevention.[88] The authors noted, however, a significant challenge due to a lack of political and financial support for harm reduction programs from the government, which supports primarily criminal justice efforts in combating substance use issues. A second study, conducted in Afghanistan among a patient population of Afghans who had almost all had been refugees in neighboring countries, described a drop-in center that provided harm reduction substance use services, including psychoeducation on available resources, treatment of harmful conditions associated with use, such as somatic and psychological issues, and antiretroviral therapy for HIV treatment. The report suggested that psychoeducation was critical for compliance in treatment and that harm reduction strategies including peer education and supportive therapy, family involvement and medication-assisted treatment were perceived as beneficial to clients, particularly those with comorbid mental health problems. Similar to the other two reports, however, although this harm reduction study suggests the potential for efficacy, it did not include a formal programmatic evaluation.

Table 4. Summary of community-based outreach for substance and alcohol use disorders

Author/ Organization	Country/ Setting	Population	Study Design	Sample size	Objective	Intervention Description	Evidence (clinical, statistical)	Moderators Mediators	Implementation factors
Refugee Populations									
Todd 2009,[11] Todd 2012[87]	Afghanistan	People who inject drugs	Qualitative evaluation	61	Reduce injection-related harms	Harm reduction; Needle-exchange program	Benefits of needle exchange include preventing infection, distribution of syringes, and availability of counseling, which was associated with provision of information and increasing motivation to seek treatment.	None reported	Challenges included insufficient scope of services, logistical and organizational problems
Non-Refugee Populations									
Hayashi 2012[88]	Thailand	People who inject drugs	Community based participatory research	2,727	Address the health and human rights concerns of people who inject drugs	Harm reduction; peer-led programs including needle exchange, food and peer support, information and education surrounding safer injection practices and overdose prevention	No evaluation	None reported	Lack of political support and funding for harm reduction activities
Vogel 2012[89]	Afghanistan	People who inject drugs (many former refugees)	Cross-sectional pilot study	30	Reducing high-risk behaviors, morbidity and mortality	Harm reduction drop-in center providing health and social services including dissemination of information regarding available resources in the community, treatment of somatic conditions, antiretroviral therapy, basic psychological services	Strategies perceived as beneficial, particularly for those with co-occurring mental health problems, include supportive therapy, family involvement, medication assisted treatment and peer education	None reported	Psychoeducation is critical for compliance in treatment;

4.2 Outpatient treatment

In our review we identified outpatient psychological interventions, which have been evaluated in both refugee and non-refugee populations in LMICs. Both of these interventions were cognitive-behavioral therapy-based psychological interventions; however, the intervention for refugees was classified as an indicated prevention intervention that incorporates some of the elements from outpatient treatment modalities into the intervention content. Cognitive Behavioral Therapy (CBT) has a strong evidence base in high income countries for the treatment of substance use disorders (see review by McHugh et al. 2010).[90] Core components of CBT for substance use generally include: functional analysis and case conceptualization; psychoeducation; relaxation; cognitive coping, restructuring, and rehearsal; shifting contingencies; skills training; emotional regulation; and goal-setting. Despite the strong evidence base, the therapy is very seldom used for substance use outside high-income settings. Although length of treatment can vary on the specific CBT intervention and patient symptom presentation and severity, CBT is typically delivered over multiple sessions (typically up to 12 weekly sessions that may each last approximately one hour) and is not considered a brief intervention. The length of treatment combined with a widespread (although incorrect) belief that lay counselors in LMIC could not be trained to deliver CBT with fidelity has resulted in few instances of CBT being used to address substance use in LMIC.

Outpatient CBT among refugee populations

In the indicated prevention section, we described the CBT-based Common Elements Treatment Approach (CETA), which in its published trial from the Thailand refugee camp, focused primarily on individuals with hazardous or harmful alcohol use and also included elements of motivational interviewing. We note here that CETA specifically, as with CBT more broadly, is also designed to treat more severe substance use problems (i.e., dependence) and thus can be considered a prevention *and* treatment approach, depending on the context. Ongoing trials in Zambia and Ukraine aim to test the effectiveness of CETA for more severe alcohol and substance use problems. These and several other trials of CETA have demonstrated that training counselors in CBT in LMIC is feasible and that counselors can deliver the intervention effectively and with fidelity.[91,92] Notably, CETA is designed to be a *transdiagnostic* treatment approach, meaning that counselors are trained to address a range of comorbidities in addition to substance use itself. This may include depression, anxiety, trauma, aggression, and functional impairment. The ability for *one* counselor to treat a range of problems is a potential strength among refugee populations where comorbidity is common and referral to outside specialists for specific mental health problems is infeasible. Our review revealed no other trials of CBT for substance use among refugees.

Outpatient CBT among disadvantaged populations in LMIC

We identified one study that tested the efficacy of CBT for alcohol use reduction in LMIC. Papas and colleagues (2011) conducted a randomized trial to compare a 6-session group-based CBT for alcohol reduction (each session lasting 90 minutes) vs. usual care among persons living with HIV with hazardous alcohol use or frequent binge drinking in Kenya.[93] Similar to CETA, this version of CBT was delivered by paraprofessionals; authors found that training of these lay counselors was both feasible and acceptable. Results indicated statistically significant and large clinical effect sizes (>0.7) of CBT compared to usual care 30 days after the end of the intervention for several

alcohol outcomes. Alcohol abstinence among the CBT group was 69% 90 days after intervention and 38% among the usual care group. In addition to the promising clinical and statistical effects, the group-based delivery of CBT in this setting is encouraging for possible adaptation in refugee camp settings where individually-delivered therapy may not be feasible. Limitations of the study included a small sample size and only short-term follow-up. A larger study of this intervention is currently underway in Kenya (n=614) with preliminary results suggesting that percent days drinking and mean drinks per drinking day were significantly lower among CBT participants relative to control participants.[94]

Table 5. Summary of outpatient treatment approaches for substance and alcohol use disorders

Author/ Organization	Country/ Setting	Population	Study Design	Sample size	Objective	Intervention Description	Evidence (clinical, statistical)	Moderators Mediators	Implementation factors
Non-Refugee Populations									
Papas 2011[93]	Kenya	HIV-infected outpatients with hazardous alcohol use	RCT	75	Evaluate the effectiveness of paraprofessional delivered CBT in reducing hazardous alcohol use among HIV patients	6 weekly 90-minute sessions	CBT had large, significant effect size compared to treatment as usual control in reducing alcohol use at 30-day follow-up	None reported	CBT was feasible and delivered with competence and fidelity by lay counselors

4.3 Multicomponent Community-Based Interventions

Multicomponent community-based intervention approaches comprise a range of strategies for addressing alcohol and substance use problems. The articles from LMIC covered in this review include treatment approaches such as inpatient/residential and detoxification, community-based outreach, outpatient treatment, recovery management, and in some cases prevention activities, such as educational campaigns.

Multicomponent community-based treatment approaches to alcohol and substance use have been used effectively in high-income countries. One form of multicomponent interventions is stepped care, which features the provision of interventions that range in intensity--and resources required--commensurate with symptom severity. Referral for alcohol or substance use treatment is made to the lowest-intensity level intervention appropriate for presenting symptoms. If treatment fails, the patient is referred to a higher 'step' intervention.[95,96] Applied to alcohol or substance use treatments among refugee populations, this could involve a lower-intensity intervention, such as psychoeducation or a brief intervention with motivational interviewing, for patients who present with harmful use, and a higher-intensity intervention, such as CBT, for patients with more severe substance use disorders. A third step may include referral to a specialist and consideration of pharmacotherapy, when available.[96] Although recommended by the World Health Organization (WHO) to improve reach and efficient delivery of interventions,[97] we found only 3 studies investigating a multicomponent approach for the treatment of substance use problems among refugees; however, these programs did not explicitly describe a stepped care model. A stepped care model is likely to be an appropriate option for refugee populations given that the goal of these approaches is to provide cost-effective and efficient services, which is critical in refugee settings.

Multicomponent community-based approaches among refugee populations

On the Thai/Burma border, the Drug and Alcohol Recovery and Education (DARE) Network is a national NGO that provides the only comprehensive substance abuse programs to refugees.[98,99] DARE provides a range of non-medical, culturally appropriate substance abuse treatment as well as prevention education and community programming to provide support to families affected by substance use. Treatment options include: self-care, counseling, education and reintegration, home visiting programs, and Narcotics Anonymous. In a program pre-post evaluation, 63% of clients in treatment 'recovered' (drug free in the past 12-months as opposed to relapsed), including 56% of clients who received in-patient residential treatment and 65% of clients who received non-residential treatment. The large-scale, comprehensive nature of the DARE program suggests that it is feasible for multicomponent, community-based substance use services to be implemented in refugee camp settings and reach significant numbers of clients in need, however additional rigorous evaluation is warranted.

In Afghanistan and Pakistan refugee camps, UNODC piloted a program to prevent and reduce substance use among women and promote community reintegration through improved capacity of the healthcare system and social workers to provide substance use interventions.[100,101] A range of intervention types were used including in-patient detoxification, motivational interviewing, skills-based programs, and psychoeducation. The program demonstrated feasibility in reaching large numbers of women (e.g., 4000+ were exposed to education and awareness materials), however,

no formal evaluation of the program's effectiveness was conducted. Notably, implementation challenges included cultural barriers, client illiteracy, stigma, and a lack of trust in new services. It should also be emphasized that although detoxification programs are useful and even necessary in certain situations, they should not be viewed as a sufficient intervention for substance use when used as a stand-alone strategy. They are best utilized as per the UNODC program as a component of a package of intervention strategies.

Multicomponent community-based approaches among disadvantaged populations in LMIC

We identified five examples of multicomponent community-based substance use interventions in non-refugee populations affected by adversity in Afghanistan, India, Liberia, South Africa and Vietnam. Other models for implementing a spectrum of treatment services (i.e., multicomponent intervention strategies) in low-resource and rural settings and disadvantaged populations are available,[102] but require additional implementation and evaluation. In Afghanistan, the Colombo Plan for Cooperative Economic and Social Development in Asia and the Pacific (CPDAP) has piloted a community-based Drug Abuse Treatment (DAT) model.[103,104] The CPDAP model includes three complimentary approaches: (1) pre-treatment, including community and family environment/support, integration of the program within the community, and assessment of symptoms and severity; (2) treatment, including inpatient treatment (if available) and after-care that includes psychoeducation, counseling (such as motivational interviewing), skill building, religious sessions (if applicable); and (3) post-treatment, which includes a phase of counseling, re-integration, self-help and monitoring. In resource limited settings, such as refugee camps, these three stages would necessitate modification (i.e., inpatient treatment would likely be infeasible in most cases), with likely emphasis on community mobilization (phase 1), outpatient counseling, and self-help. In a non-randomized cohort study that evaluated this model, authors found a 12% statistically significant decrease in any past-30 day drug use. Notably the study included outcomes on both alcohol and other drugs, including opiates, methamphetamine, THC, and benzodiazepines. Decreases in delinquent behavior related to substance use also significantly decreased. A similar program focused on people with severe alcohol use disorder in rural South India developed community programs in a center that included community and client engagement, comprehensive community-based treatment and detoxification, and family and community support. Similar to the comprehensive community treatment model in Afghanistan, evaluation of this model identified improved health and functioning among participants.[105] Also supported by the Colombo Plan, the Liberians United Against Drug Abuse (LUADA) has been piloted through CPDAP in Liberia (http://www.colombo-plan.org/index.php/outreach-and-drop-in-centre-programme-in-liberia/) and included community-based drop-in centers featuring prevention activities, such as education, community campaigns, counseling, and treatment referrals for individuals with substance use disorder, however, this specific program has not been formally evaluated.[106]

In South Africa, a community-level risk reduction intervention was employed to reduce alcohol and other drug use in an effort to in turn reduce the impact of substance use on the HIV epidemic.[107] Peer outreach workers were trained in the World Health Organization's *Training guide for HIV prevention outreach to injecting drug users* and conducted outreach visits to community locations, including homes, religious, and educational institutions.[108] The intervention included evaluation of client's symptoms (i.e., types of substances used), the development between the peer and the client of a risk reduction plan, a counseling session featuring primarily psychoeducation, and a

referral for services (if appropriate), such as to HIV counseling and testing. A follow-up appointment (the timing of which was non-specified) consisted of a re-assessment and revision to the risk reduction plan. A preliminary evaluation of the program (non-randomized design) found it to be feasible and acceptable to conduct outreach interventions with peer workers. Results showed a significant reduction in alcohol use but not other drugs.

In Vietnam, researchers investigated the effectiveness of a community-based peer-delivered behavioral intervention in reducing substance use among persons who inject drugs.[109] The intervention was delivered to clients in group format and was based on social learning, social influence, social norms, and diffusion. Peers acted as recruiters at community locations and referred clients to the program. Group sessions included approximately 12 clients. Six weekly sessions lasted for approximately 2 hours each and there were booster sessions at 3, 6, and 9 months. The program showed that group sessions were feasible and well-attended. A randomized trial of the intervention showed significant reductions in risky drug behavior such as needle and syringe sharing, and these results were sustained 12-months following the intervention, however, the reduction was not statistically different than a control, treatment as usual condition.

Table 6. Summary of multicomponent community-based interventions for substance and alcohol use disorders

Author/ Organization	Country/ Setting	Population	Study Design	Sample size	Objective	Intervention Description	Evidence (clinical, statistical)	Moderators Mediators	Implementation factors
Refugee Populations									
DARE 2011,[98] Lai 2014[99]	Thailand	Refugees on the Thai-Burma border	Pre-, post-test	Range: 71-37,057[a]	Deliver community-based, culturally-appropriate, non-medical substance use treatment and prevention services to refugees and migrant workers	Drug and Alcohol Recovery and Education (DARE) Network; Drug and alcohol rehabilitation program including detoxification, self-care, counseling, education and reintegration; Prevention education campaign; Home visiting program; Narcotics Anonymous meeting	63% of clients in treatment "recovered" (56% of clients in residential treatment recovered; 65% of clients in non-residential treatment recovered)	None reported	None reported
UNODC 2003,[100] 2004[101]	Afghanistan, Pakistan refugee camps	Women with substance use problems in Kabul and refugee camps in Pakistan	Description of program	Range: 85-4,000[b]	Prevent and reduce substance misuse among women, promote community reintegration and built capacity of healthcare and social workers to provide services for women with substance use problems	*Refugee Camps:* Capacity building was accomplished through training workshops; Development of community awareness materials; community-based rehabilitation (e.g., relapse prevention), income generating activities, establishing linkages between health and social services and refugee community groups *Kabul:* education, motivational interviewing, detoxification, treatment, aftercare	No evaluation	None reported	Cultural barriers, illiteracy, lack of services, lack of trust in new services, stigma, lack of resources; Importance of engaging women in services
Non-Refugee Populations									
Courser 2013[103]	Afghanistan	Men, women and children seeking treatment for substance use problems at residential centers	Pre-post-test	Range: 353-1452[c]	Not reported	Drug abuse treatment (DAT) employing the CPDAP model: community awareness activities, motivational interviewing, detoxification, inpatient treatment, and aftercare	Reduced past-month drug/alcohol use and criminal activity post- vs. pre-treatment; Treatment compliance associated with greater reductions	None reported	Substantial attrition

Go 2013[109]	Vietnam	People who inject drugs	RCT	419	Test whether a group peer-educator training session reduced drug use and risky sexual behaviors	6 2-hour small group peer-educator training sessions plus 3 booster sessions. Intervention modeled on Self-Help in Eliminating Life-Threatening Diseases (SHIELD; Latkin et al., 2013) drawing on social learning, social influence, social norms, and diffusion.	Needle and syringe sharing dropped significantly at 3-months post-intervention and was sustained at 12-months, but there was no difference between treatment and control (HIV counseling and testing alone)	None reported	None reported
How 2014[104]	Afghanistan	Community members (prevention activities); Adults and children with opiate use problems (treatment activities)	Description of program	Range: 280-9000[d]	Build community support for identifying and referring community members with substance use problems; treat opiate use disorders; provide ongoing support for reintegration for recovering clients	Community-based substance used treatment involving 3 phases: 1. Pre-treatment (community awareness, motivational interviewing), 2. Treatment (detoxification, counseling, psychoeducation, group therapy, referrals), and 3. Aftercare (follow-up, monitoring and self-help)	No evaluation	None reported	Security, identifying facilities where services could be provided, medication supply
Parry 2017[107]	South Africa	Alcohol or other drug users	Pre-post	138	Test whether a community-based intervention reduced risky alcohol/drug use and sexual risk behavior	Adapted WHO *Training guide for HIV prevention outreach to injection drug users.* Adapted for drugs commonly used in South Africa and with a focus on HIV risk behaviors. Delivered by peer outreach workers	Alcohol use reduced significantly at follow-up but no change in cannabis, cocaine, heroin, or Ecstasy.	None reported	Feasible and acceptable to conduct community-based outreach interventions with peer outreach workers. Injection drug users were not reached through the program.
Colombo Plan 2013[106]	Liberia	Disadvantaged people with substance use problems	Description of program	3000+	Serve the needs of disadvantaged people with substance use problems	Liberians United Against Drug Abuse (LUADA): community-based drop-in center that includes prevention activities (e.g. education, campaigns in the	No evaluation	None reported	None reported

						community), counseling and other treatment services and referrals			
UNODC, 2008[105]	India	People with severe alcohol use disorder in rural areas	Description of the program	Not reported	To make cost-effective treatment accessible in rural settings	Community-based substance use treatment including community and patient engagement, comprehensive treatment, follow up	Improved health and functioning	None reported	Prioritization of alcohol treatment; Partner engagement

[a]257 clients in treatment; 1238 NA attendance; 71 self-treated; 37,057 received prevention education; 1050 adolescents in youth programs
[b] *Refugee Camps:* 1304 received prevention training, 300 received motivational interviewing, 25 treatment providers trained, 130 were detoxed; 85 registered for treatment, 20 referrals, 230 participated in income-generating activities, 23 participated in skills-based programs. *Kabul:* 4000+ exposed to education and awareness material, 325 women treated
[c]504 interviewed at baseline; 353 interviewed post-treatment; centers had capacity to treat 1452 people
[d]9000 received awareness information, 450 received motivational interviews, 280 received treatment

4.4 Capacity Building

Treatment approaches in this section do not refer to one specific intervention strategy but rather efforts that we uncovered through our review that aim to build capacity among local workforces to deliver a variety of evidence-based substance use services. Below we describe four such explicit efforts at capacity building for substance use treatment in LMIC (none were identified among refugee populations specifically), however, it is critical to note that essentially all of the approaches (prevention and treatment) described in this review will require at least some level of capacity building of local staff, such as peer educators, community outreach workers, or paraprofessional counselors. In-depth trainings are available through UNODC's Treatnet and Universal Treatment Curriculum.[110] To address challenges in delivering trainings to providers in rural and low-resource settings, UNODC has piloted tele-supervision and support programs whereby providers may consult with specialists and receiving ongoing training and supervision.[102] The WHO/UNHCR mhGAP-Intervention Guide provides guidance specifically for non-specialized providers on the provision of basic services for substance use and other mental health problems. [111,112]

Capacity building for substance use treatment among disadvantaged populations in LMIC

In Nigeria, investigators piloted training 198 primary care workers in identifying and treating mental, neurological, and substance use problems using the WHO/UNHCR mhGAP-Intervention Guide (mhGAP-IG).[111,112] The primary care workers were based in local government areas with a combined population of almost 1 million. The mhGAP-IG includes modules on the identification and management of substance use disorders generally, including information on psychological and pharmacological interventions. Psychosocial interventions include psychoeducation, brief interventions featuring motivational interviewing, discussing strategies to reduce or stop use, and mutual help groups (e.g., Narcotics/Alcoholics Anonymous). The study in Nigeria focused on alcohol use disorders specifically and not other substance use. Primary care workers completed a baseline assessment on knowledge and skills and then received the mhGAP training, which was delivered with a cascading training model (i.e., expert trainers trained facilitators, who then in turn trained primary care workers). A post-training assessment as well as an additional assessment nine months after the training were then conducted. Results showed that both knowledge and skills increased following the mhGAP-IG training as did the number of persons treated for MNS problems in the primary care workers' clinics. A slight decay in knowledge was observed at the 9-month follow-up. Authors concluded that the training was pragmatic, cost- and clinically-effective. A limitation of the study is that results were not differentiated by disorder type (i.e., mental health vs. alcohol use).

In Ethiopia, a separate study also examined the efficacy of mhGAP-IG in training primary care workers.[113] Authors used a quasi-experimental (non-randomized) design in which 94 primary care workers were trained using mhGAP-IG. Knowledge, attitudes, and practices regarding mental, neurological, and substance use problems were assessed before and after the training. Knowledge, attitudes, and identification rates of alcohol use disorder increased significantly (clinically and statistically) after the training. Similar to the Nigeria study, non-alcohol substances were not specifically examined. The two studies provide evidence, however, that a fairly straightforward training for primary care workers can dramatically improve identification of alcohol use disorders, which is a necessary first step in providing appropriate treatment.

Table 7. Summary of capacity building approaches for substance and alcohol use disorders

Author/ Organization	Country/ Setting	Population	Study Design	Sample size	Objective	Intervention Description	Evidence (clinical, statistical)	Moderators Mediators	Implementation factors
Non-Refugee Populations									
Ayano 2014[113]	Ethiopia	Primary care workers	Quasi-experimental pre-post design. Evaluation of knowledge, attitudes, and practices	94 primary care workers	Assess effectiveness of mental health (including substance use) training course for scale-up of services in primary care	mhGAP-IG	Following training, there was statistically significant improvement in knowledge, attitudes, and practice among primary care workers for alcohol use disorder	None reported	Training was effective in increasing knowledge, attitudes, and practices, which is critical for integrating treatment of substance and alcohol use disorders into primary care
Gureje 2015[111]	Nigeria	Primary care workers	Pre-post assessment of on acquired knowledge and skills and on number of patients in primary care clinics receiving care for MNS problems	198 primary care workers from 68 clinics	Increase access to MNS services by improving availability of services in primary care through task-shifting approach	mhGAP-IG	Knowledge and skills increased following mhGAP-IG training as did number of persons treated for MNS problems. Slight decay in knowledge was observed 9 months post-training	None reported	Training was found to be pragmatic and cost-effective. Feasible to scale-up MNS services in primary care through mhGAP-IG

5. Key Findings and Recommendations

Key Finding 1: There is a lack of specific focus in academic and unpublished literature on refugee substance use prevention and treatment approaches

Despite clear evidence that substance use is a public health problem in refugee populations, there is very limited information on the implementation and effectiveness of promotion, prevention and treatment strategies for refugees and other disadvantaged populations in low-resource settings. In our review we did not identify any primary or secondary prevention strategies for substance use in refugee populations. Refugees are often entering new contexts where there are changes in supply of alcohol and other drugs, different social norms and expectations and other factors that may modify contextual vulnerability to unhealthy substance use. Furthermore, populations affected by humanitarian emergencies may experience elevated individual risk for unhealthy substance use due to acute and chronic stressors, comorbid mental health problems, lack of economic opportunity and other consequences of disaster, conflict and displacement.

Recommendation 1: Utilize existing guidance and interventions implemented in other disadvantaged populations to design and evaluate promotion, prevention and treatment interventions for substance misuse in refugee populations.

Guidelines are available providing recommendations for assessment and interventions targeting substance use and other mental and behavioral health problems in humanitarian settings;[4,114] however, there is limited information available on their implementation for substance use specifically. The UNHCR Rapid Assessment of Alcohol and Other Substance Use in Conflict-affected and Displaced Populations field guide has been implemented in six settings of protracted displacement in Africa and Asia.[4,19] The methods described in the field guide should be used to assist in selecting and adapting promotion, prevention and treatment interventions for varying refugee contexts and populations.

The mhGAP Humanitarian Intervention Guide provides specific guidance on assessment and basic management of hazardous and harmful alcohol and other drug use with a focus on brief motivational interviewing techniques and treatment of severe alcohol withdrawal. Notably this guide does not provide guidelines for managing severe substance use disorder; More elaborate guidance is provided in the mhGAP Intervention Guide developed for non-specialist health settings.[112,114] Other resources, such as Treatnet, provide more in-depth training on specialized care for substance use disorders,[110] but have yet to be used to train health care providers for refugees.

Although these guidelines were constructed based on evidence reviews and expert consensus, applications of the recommended substance use assessment and intervention procedures have yet to be evaluated in humanitarian settings. Despite the lack of evidence, these resources may serve as a foundation for developing and evaluating the feasibility and effectiveness of assessment and intervention programs for refugees.

Key finding 2: More studies have been conducted among disadvantaged, non-refugee populations in LMIC but many suffer from limitations and the overall evidence-base for interventions is weak.

Of the 35 interventions included in this review, only six were implemented in refugee populations. Furthermore, three of these interventions were either indicated prevention or community-based treatment and recovery programs implemented in refugee camp settings in Thailand and focused on alcohol use. The remaining two studies included one multicomponent community-based treatment program for females with substance use problems in Afghanistan or refugee camps in Pakistan and one indicated prevention program for male refugees who chew khat in Kenya. All studies focused on adults. Only two studies employed a randomized controlled trial design; however only one of these studies was adequately powered to detect an effect of the intervention under study. Among the studies in disadvantaged, non-refugee populations in LMICs, only a few employed an experimental design that allow for changes in outcomes to be causally attributed to the intervention.

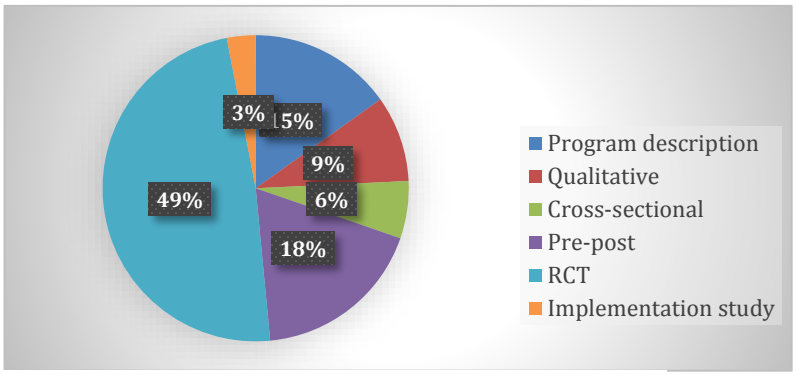

Figure 1. Study designs included in the review

Another important limitation of the existing literature is heterogeneity in the measurement and reporting of outcomes. For example, some studies report on hazardous alcohol/drug use while others focus on abstinence, which makes cross-study comparisons difficult. Many studies operationalize "success" as improvements in proximal behavioral outcomes (i.e., indirect outcomes that are related to substance use but not substance use itself), particularly among youth, and do not measure substance use directly or have strong enough evidence that those proximal primary outcomes will inevitably result in reductions in substance use initiation or disorder. Very few studies measured implementation factors, which is critical to successful adoption and integration of interventions in resource-limited settings. Lastly, there was a lack of focus on measuring hypothesized mechanisms of change in substance use (i.e., mediators) or moderators to identify differential effects across subgroups. One exception was gender, for which there was preliminary evidence that some interventions may be only effective for women.

<u>Recommendation 2: Design evaluations that allow inferences to be made on the efficacy and/or effectiveness of interventions</u>.

Randomized controlled trials provide the strongest evidence of intervention effects; however, in many settings these types of designs may not be feasible. In such circumstances, researchers and practitioners should design evaluations that include a control condition, sufficient descriptions of participants in both study conditions and sampling procedures, as well as sufficient follow-up assessments with relevant substance use outcomes measured using valid instruments. The descriptions of the interventions and control conditions should also be detailed such that future

studies are able to identify the effective elements of promotion, prevention and treatment strategies. Many of the reports included in this review described general intervention strategies (e.g., therapy, treatment), but did not describe what these services included. Carefully designed non-experimental studies may provide a balance between feasibility and scientific rigor that could inform the effectiveness of substance use interventions tested in complex settings.

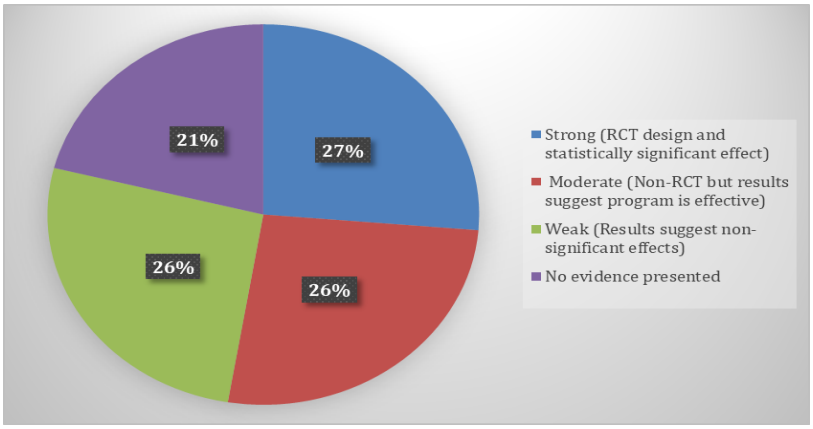

Figure 2. Strength of programs described in reviewed studies

Recommendation 3: Standardize measurement and reporting of substance-related outcomes to improve consistency and comparability across studies.

Validated measures of hazardous substance use, such as the Alcohol Use Disorder Identification Test (AUDIT) and the Alcohol, Smoking and Substance Involvement Screening Test (ASSIST),[95,115] are publicly available and have been used as screening tools and measures of alcohol and other drug misuse in previous research. Standardizing measurement practices for substance use interventions may improve our ability to interpret results from intervention evaluations and synthesize the evidence on the effectiveness of interventions across studies by making outcomes more comparable. Further research validating these instruments, including valid cutoffs, in refugees and humanitarian settings is also needed.

Recommendation 4: Select outcomes that are relevant and informative for translating research into practice in humanitarian settings.

The selection of outcomes should consider their utility for informing practice. It is important that substance use outcomes are included in the evaluation of these interventions instead of focusing only on more proximal behavioral outcomes such as intentions to use substances, child behavior and anger management. Many of these proximal outcomes lack the evidence needed to infer that modifying these outcomes will inevitably result in reductions in substance use initiation or disorder. Similarly, when possible, including potential mediators (mechanisms through which interventions act on substance use) and moderators (subgroups for whom interventions are particularly effective or ineffective) of interventions may improve our ability to explore how and for whom these interventions are effective, respectively. Including outcomes that can directly inform implementation of substance use interventions should also be prioritized.

Key finding 3: Most indicated prevention and treatment strategies focus on treating sub-threshold or mild cases of alcohol use disorder**.**

The majority of interventions included in this review focused on preventing and/or treating unhealthy alcohol use, particularly those displaying hazardous and less severe forms of alcohol use disorder. This is appropriate given that alcohol is the most prevalent substance used globally, most people who use alcohol do not have severe alcohol use disorder, and alcohol is associated with the greatest burden of disease; however, more research and programmatic attention is needed for substances other than alcohol and for severe alcohol and other drug use disorders. For example, in refugee camps in sub-Saharan Africa, Tramadol has emerged as a significant opiate of concern and in Syria, the suspected prevalence of fenethylline (Captagon) is increasing rapidly. Concerningly, there is almost no research on the use of these substances in refugee settings. Treatment strategies may differ by severity and type of substance. For example, more severe substance use disorder and people who are using drugs with higher addictive liability may be less amenable to brief interventions.

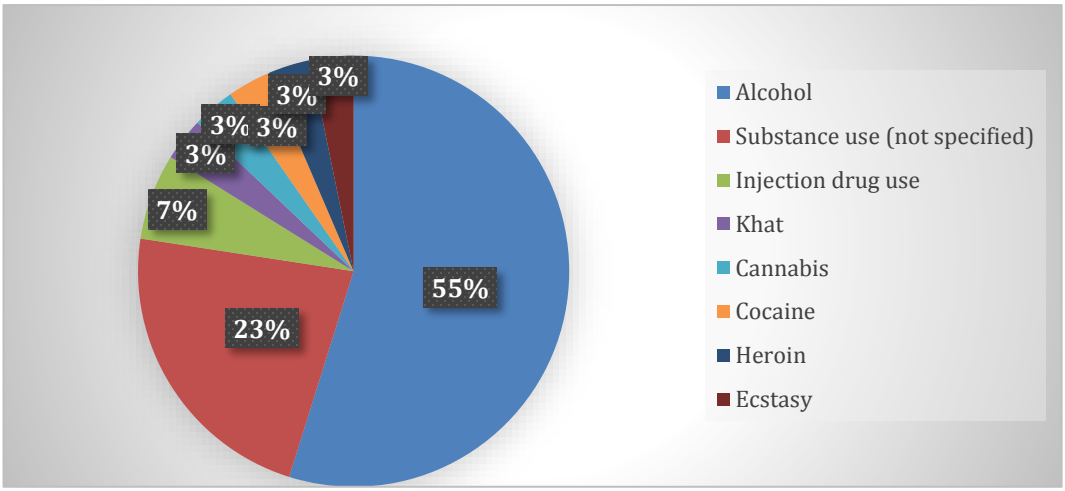

Figure 3. Substance types measured in included studies

Recommendation 5: Substance use interventions for drugs other than alcohol need to be implemented and evaluated in refugee settings.

Although alcohol use is the most widely used drug globally, there are settings where other drugs may be the primary substance used by refugees and host communities. Much less is known about the epidemiology, prevention and treatment of substances other than alcohol in refugees relative to alcohol. Intervention implementation, effectiveness and other considerations, particularly as they relate to community-based outreach (e.g., harm reduction), may differ by primary substance. Substances may be differentially stigmatized in certain contexts due to socio-cultural norms, which may impact acceptability of these interventions for refugees. Furthermore, there may be additional ethical and protection considerations associated with providing services to populations that are using illicit drugs that are heavily criminalized in certain settings. Additionally, studies need to focus on more severe substance use disorders (see Key Finding 6).

Key finding 4: Community-based, peer-led programs, and training of health care workers in substance use treatment are feasible in low resource and refugee settings and may reduce stigma associated with use and help-seeking.

Across prevention, and treatment approaches, included studies indicated that interventions featuring community-based methods and/or peer delivery were both feasible and acceptable. Promotional activities, such as *Strengthening Families* (Honduras, Guatemala, Panama, Serbia) and *Family and Schools Together (FAST)* (Tajikistan, Kyrgyzstan, Kazakhstan, Turkmenistan, Uzbekistan) appeared to be useful in improving family dynamics and communication, parental involvement, and reduced family conflict, all of which may collectively reduce the risk of substance use among family members. In Uganda, a peer-led program empowering youth to monitor substance use in the community was viewed as acceptable and empowering. Community-based treatment options included: inpatient and detoxification services, community awareness and outreach activities, psychological approaches such as motivational interviewing, aftercare and self-care skills building, peer-led group therapies, and even prevention activities, such as educational campaigns. The range of approaches in scope, intensity, and cost make community-based treatment options a potentially appropriate choice in refugee and humanitarian settings. Depending on the context, a community-based approach could be employed with treatment options commensurate with feasibility and need. Crucially, the involvement of peers and community members can help to reduce stigma associated with substance use problems and thereby improve rates of help-seeking.

Capacity building approaches were also found to be feasible and effective in LMIC. Studies suggest that primary care workers trained in mhGAP-IG had increased knowledge, attitudes, practices, and skills in identifying and treating substance use problems in primary care settings. mhGAP training was found to be pragmatic, feasible, and cost-effective. Furthermore, we identified other promising resources for training in more specialized substance use services in LMICs.[102,110]

Recommendation 6: Adapt and implement existing community-based and peer-delivered interventions for use in refugee settings.

Adaption and piloting in camp settings can follow the example of community-based activities that have been developed for other health conditions, such as HIV. Outreach efforts can similarly be modeled after and integrated within existing camp programming. Following adaptation and piloting, formal evaluations of program effectiveness (i.e., in knowledge, attitudes towards persons who use substances, stigma, pre-post surveys on prevalence of use) should be conducted.

Recommendation 7: Conduct substance-use training based on mhGAP for primary healthcare workers who provide care for refugees.

Studies suggest that the training will increase the ability of providers to identify substance use problems. Evaluation of the trainings should measure change in not only knowledge, attitudes, practices, and skills of the provider, however, but also client-level outcomes, such as change in substance use following treatment to assess whether substance use problems are being identified, managed, and treated appropriately. In addition to training in mhGAP-IG or HIG generally, training in specific intervention approaches can be commensurate with the provider's previous education and training (e.g., lay provider, medical training, etc.) and responsibilities, and can

include, for example, brief intervention (Key Finding 5), family-based interventions, or more advanced treatment approaches (Key Finding 6).

Key Finding 5: Brief interventions have significant potential as cost-effective indicated prevention strategy and as a component of community-based or multicomponent approaches.

This review identified brief interventions (BIs) as the most commonly employed indicated prevention strategy. Studies suggest that BIs can have a small but meaningful impact on alcohol use among persons with mild or sub-threshold alcohol use problems. These interventions have significant potential in refugee settings because they can be delivered by non-specialists in both primary healthcare settings and in other, informal settings based on availability and client preference. Feasibility studies in refugee settings indeed suggest that BIs may be acceptable and feasible to implement. Studies also suggest that BIs may be more effective when they include evidence-based components, such as motivational interviewing and skill building. Psychoeducation is a necessary but likely insufficient component to fully addressing alcohol or other substance use problems. It is also important to note that BIs are not designed for persons with more severe substance use problems or with co-occurring mental health conditions. A stepped care approach, in which prevention/treatment options are provided commensurate with symptom severity is likely warranted in camp settings, when feasible (see Figure 4) and this should be tested. Finally, despite the promise of the BI approach, additional research is needed in several areas, including its effectiveness for non-alcohol substance use, the best combination of content to include in a BI session, and the most appropriate number of BI sessions to maximize efficiency and cost-effectiveness—the studies included in our review described BIs that ranged from 1 to 5 sessions in length.

Recommendation 8: Test the effectiveness of BIs in reducing alcohol and other substance use among persons with mild or sub-threshold alcohol/substance use problems in camp settings.
Our review did not identify any randomized trials of BIs within refugee camps. The BI described in the mhGAP-IG training manual is one possible approach to test in an RCT because it includes several evidence-based components and can be delivered by non-specialists (e.g., primary healthcare workers) and possibly lay providers.

Recommendation 9: Pilot a process of alcohol/substance use screening and brief interventions within camp settings and capture implementation outcomes including scale-up potential.
Screening and BI provision can be piloted within existing camp healthcare infrastructure. Pilots should collect information on feasibility, implementation, and scale-up to inform how best BIs can be integrated into camp settings. This can help to determine the appropriate length and location of BI sessions. The piloting can also include provision of referral for persons in need of higher stepped care, when available (see Key Finding 6).

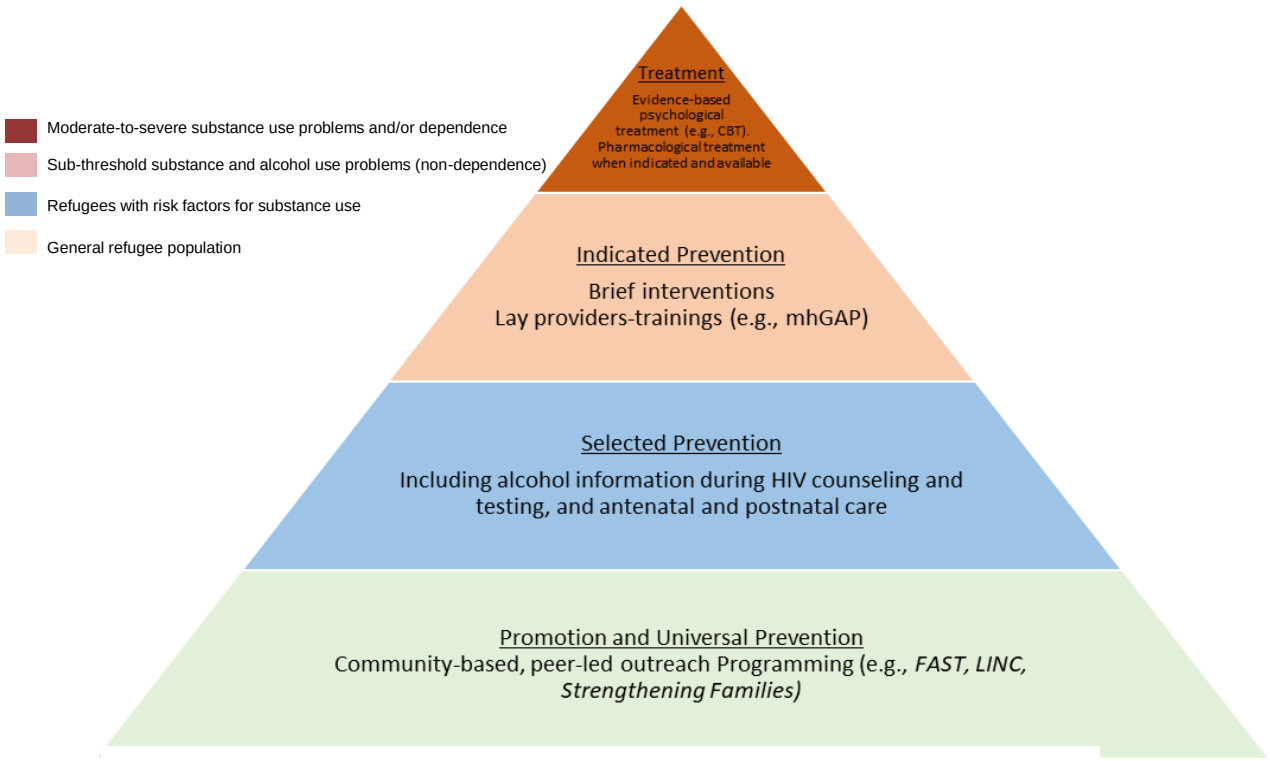

Figure 4. Hierarchy of intervention approaches for increasing severity of substance use

Key Finding 6: The majority of studies focus on mild/subthreshold alcohol and substance use problems and more evidence is needed for higher 'step' problems, including moderate-to-severe alcohol/substance use disorders, dependence, polysubstance use, and mental health/psychosocial comorbidities.

Evidence-based psychological treatment approaches are warranted for more severe alcohol and substance use problems. In high income countries, there is a large body of literature indicating that therapies such as CBT and contingency management (CM) are effective. Two RCTs included in this study found that training lay providers in CBT was acceptable and feasible, including in a refugee camp setting. CBT based approaches may be particularly useful for persons with co-occurring mental health and other psychosocial problems, such as depression, anxiety, post-traumatic stress, and interpersonal violence, which all may be common among refugees.

Although not investigated in any of the included studies, it is important to note that treatment for severe substance use problems may also include pharmacological methods, especially when a person is displaying symptoms of dependence. These can include agonist therapy, in which drugs are provided to the client that mimic the effects of the addicted substance (e.g., buprenorphine and methadone for heroin addiction), or antagonist therapy, in which drugs are administered that block the pleasurable effects of the addictive substance (e.g., naltrexone for alcohol or opioids, disulfiram for alcohol). Often, the most successful drug treatment programs combine pharmacological and psychological treatment. During detoxification treatment, a range of agonists and antagonists may be used in addition to antidepressants and/or pain relievers to reduce withdrawal symptoms. Given

that pharmacological treatment will be not readily available in most refugee settings, these medications should be used only in very severe cases and under the supervision of mental health specialists and physicians.

Finally, it is important to note 12-step and mutual-help group therapies for addiction. These are not considered evidence-based treatment approaches and there are few experimental studies supporting their effectiveness, however, they remain popular generally in LMIC, particularly among religious communities. Given their likely cultural acceptability and possible de-stigmatizing effects to treatment seeking, it would be unwise to discount them entirely. Possible avenues for future research include ways to integrate evidence-based components within existing 12-step/self-help group settings.

Recommendation 10: Interventions for refugees with moderate-to-severe substance use disorders and/or comorbidities need to be evaluated and implemented using a stepped care approach. Guidelines for preventing and treating more severe cases of substance use disorder are available but may need to be adapted for refugee contexts. Components of evidence-based treatments that could be adapted include CBT, CM, pharmacological treatments. Studies should focus on both clinical effectiveness and implementation outcomes. These components can also be tested within existing 12-step/self-help groups using different survey methods and rapid assessments.

6. Conclusion

Refugees experience a range of potentially traumatic and other adverse events that increase their risk for alcohol and substance use problems. This review shows that research and programmatic attention to this issue is woefully inadequate. The evidence-base for interventions in LMIC generally is relatively low compared to high income countries and is almost non-existent for refugees in camp settings. This desk review is intended to be a foundational report to inform next steps. Recommendations are focused on adapting, testing, and implementing prevention and treatment approaches that have been proven effective in non-refugee specific settings. All three steps—adaptation, testing, and implementation—are critical for ensuring that the services provided to refugees are culturally relevant, appropriate and acceptable, effective, and feasible. The recommendations are pertinent for UNHCR as well as researchers, NGOs, and other implementing partners. Given the paucity of previous efforts in substance use in refugee camp settings, the scope of work to build an evidence-base is significant and progress will only be possible through partnerships across these actors. Although beyond the scope of this review, it is also important to note that the recommendations will be best implemented with support and collaboration of governments, policy-makers, and relevant ministries (e.g., health, justice and education). Improvement in outcomes is likely to be accomplished only if substance use is treated as the public health problem it is at the policy level and persons with substance use disorders are provided with appropriate and effective services and not punitive measures.

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8. Annex

9.1 Review Search Terms

(“hazardous alcohol use”[tiab] OR “alcohol misuse”[tiab] OR “alcohol use”[tiab] OR alcohol[tiab] OR “alcohol consumption”[tiab] OR “heavy drinking”[tiab] OR “binge drinking”[tiab] OR “alcohol use disorder”[tiab] OR “alcohol abuse”[tiab] OR “alcohol dependence”[tiab] OR alcoholism[tiab] OR alcoholic[tiab] OR “Drinking behavior”[MeSH] OR “Alcohol Abstinence”[MeSH] OR “Alcohol Drinking”[MeSH] OR “Binge Drinking”[MeSH] OR “Underage Drinking”[MeSH] OR “Alcohol-Related Disorders”[MeSH] OR “Alcohol Intoxication”[MeSH] OR Alcoholism[MeSH] OR “drug use” [tiab] OR “drug misuse” [tiab] OR “substance use” [tiab] OR “substance misuse” [tiab] OR “substance use disorder”[MeSH]) OR “substance abuse”[MeSH]) OR “substance abuse treatment centers”[MeSH] OR “drug use disorder”[MeSH] OR “drug abuse”[MeSH]) AND (intervention OR prevention OR prevent OR treatment OR treat OR servic* OR counseling OR therapy) AND (“refugee” [tiab] OR "developing country"[tiab] OR "developing countries"[tiab] OR "developing nation"[tiab] OR "developing nations"[tiab] OR "developing population"[tiab] OR "developing populations"[tiab] OR "developing world"[tiab] OR "less developed country"[tiab] OR "less developed countries"[tiab] OR "less developed nation"[tiab] OR "less developed nations"[tiab] OR "less developed population"[tiab] OR "less developed populations"[tiab] OR "less developed world"[tiab] OR "lesser developed country"[tiab] OR "lesser developed countries"[tiab] OR "lesser developed nation"[tiab] OR "lesser developed nations"[tiab] OR "lesser developed population"[tiab] OR "lesser developed populations"[tiab] OR "lesser developed world"[tiab] OR "under developed country"[tiab] OR "under developed countries"[tiab] OR "under developed nation"[tiab] OR "under developed nations"[tiab] OR "under developed population"[tiab] OR "under developed populations"[tiab] OR "under developed world"[tiab] OR "underdeveloped country"[tiab] OR "underdeveloped countries"[tiab] OR "underdeveloped nation"[tiab] OR "underdeveloped nations"[tiab] OR "underdeveloped population"[tiab] OR "underdeveloped populations"[tiab] OR "underdeveloped world"[tiab] OR "middle income country"[tiab] OR "middle income countries"[tiab] OR "middle income nation"[tiab] OR "middle income nations"[tiab] OR "middle income population"[tiab] OR "middle income populations"[tiab] OR "low income country"[tiab] OR "low income countries"[tiab] OR "low income nation"[tiab] OR "low income nations"[tiab] OR "low income population"[tiab] OR "low income populations"[tiab] OR "lower income country"[tiab] OR "lower income countries"[tiab] OR "lower income nation"[tiab] OR "lower income nations"[tiab] OR "lower income population"[tiab] OR "lower income populations"[tiab] OR "underserved country"[tiab] OR "underserved countries"[tiab] OR "underserved nation"[tiab] OR "underserved nations"[tiab] OR "underserved population"[tiab] OR "underserved populations"[tiab] OR "underserved world"[tiab] OR "under served country"[tiab] OR "under served countries"[tiab] OR "under served nation"[tiab] OR "under served nations"[tiab] OR "under served population"[tiab] OR "under served populations"[tiab] OR "under served world"[tiab] OR "deprived country"[tiab] OR "deprived countries"[tiab] OR "deprived nation"[tiab] OR "deprived nations"[tiab] OR "deprived population"[tiab] OR "deprived populations"[tiab] OR "deprived world"[tiab] OR "poor country"[tiab] OR "poor countries"[tiab] OR "poor nation"[tiab] OR "poor nations"[tiab] OR

"poor population"[tiab] OR "poor populations"[tiab] OR "poor world"[tiab] OR "poorer country"[tiab] OR "poorer countries"[tiab] OR "poorer nation"[tiab] OR "poorer nations"[tiab] OR "poorer population"[tiab] OR "poorer populations"[tiab] OR "poorer world"[tiab] OR "developing economy"[tiab] OR "developing economies"[tiab] OR "less developed economy"[tiab] OR "less developed economies"[tiab] OR "lesser developed economy"[tiab] OR "lesser developed economies"[tiab] OR "under developed economy"[tiab] OR "under developed economies"[tiab] OR "underdeveloped economy"[tiab] OR "underdeveloped economies"[tiab] OR "middle income economy"[tiab] OR "middle income economies"[tiab] OR "low income economy"[tiab] OR "low income economies"[tiab] OR "lower income economy"[tiab] OR "lower income economies"[tiab] OR "low gdp"[tiab] OR "low gnp"[tiab] OR "low gross domestic"[tiab] OR "low gross national"[tiab] OR "lower gdp"[tiab] OR "lower gnp"[tiab] OR "lower gross domestic"[tiab] OR "lower gross national"[tiab] OR lmic[tiab] OR lmics[tiab] OR "third world"[tiab] OR "lami country"[tiab] OR "lami countries"[tiab] OR "transitional country"[tiab] OR "transitional countries"[tiab] OR Africa[tiab] OR Asia[tiab] OR Caribbean[tiab] OR West Indies[tiab] OR South America[tiab] OR Latin America[tiab] OR Central America[tiab] OR "Atlantic Islands"[tiab]) AND ("2007"[Date - Publication] : "3000"[Date - Publication]