

Global Public Health

An International Journal for Research, Policy and Practice

ISSN: (Print) (Online) Journal homepage: <https://www.tandfonline.com/loi/rgph20>

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To cite this article: Monica O. Kuteesa , Emily L. Webb , Racheal Kawuma , Josephine Naluwugge , Kiwanuka Thadeus , Denis Ndekezi & Janet Seeley (2021): 'We shall drink until Lake Victoria dries up': Drivers of heavy drinking and illicit drug use among young Ugandans in fishing communities, *Global Public Health*

To link to this article: <https://doi.org/10.1080/17441692.2021.1873399>



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Published online: 18 Jan 2021.



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'We shall drink until Lake Victoria dries up': Drivers of heavy drinking and illicit drug use among young Ugandans in fishing communities

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ABSTRACT

We investigated patterns and drivers of alcohol misuse and illicit drug use among young fisherfolk. We undertook this study in fishing communities on Koome Island, Lake Victoria, Uganda, from December 2017–July 2018. We conducted six group discussions with men (3) and women (3) and 33 in-depth interviews with: young people [users ($n = 10$); non-users ($n = 2$)], local leaders ($n = 3$), health workers ($n = 2$), parents ($n = 5$), alcohol/illicit drugs sellers/distributors ($n = 5$), law enforcement officers ($n = 5$). We sampled participants using purposive and snowball strategies. Interview themes included: knowledge, experiences and perceptions of alcohol use/illicit drug use, HIV risk behaviour and harm reduction. We mapped alcohol/illicit drug use outlets using a Geographic Information System to capture density, distribution and proximity to young people's homes. We coded and analysed qualitative data using thematic content analysis. Motivations for heavy drinking and illicit drug use were multifaceted and largely beyond individual control. Key contextual determinants included social norms around consumption (acceptability), price (affordability), and ease of purchase (availability). Prevention and harm reduction interventions to tackle alcohol misuse and illicit drug use should be aimed at the structural rather than individual level and must be conducted in tandem with strategies to control poverty and HIV.

ARTICLE HISTORY

Received 17 March 2020


Accepted 2 January 2021

KEYWORDS

Heavy drinking; drug use; substance use; HIV

Introduction

Globally, young people are at high risk of initiating alcohol and illicit drug use and development of related disorders, partly because this is a period of experimentation, identity formation, risk-taking behaviour and assertion of independence (Degenhardt et al., 2016). Young people may take to alcohol and illicit drug use as a strategy to cope with problems of unemployment, neglect, violence, exploitation, marginalisation, and sexual abuse (United National Office on Drugs and Crime, 2016). Furthermore, young people are potentially more likely to engage in more reckless behaviour while drunk (MacPherson et al., 2010; Males, 2009), or on drugs.

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The 2018 WHO global status report shows that Africa bears the heaviest global burden of disease and injury attributed to harmful alcohol use (World Health Organisation, 2018); and that Uganda ranks high for years of lives lost due to alcohol with high total per capita consumption of alcohol (26 litres among all drinkers, 33 litres males, 13 females). About 60% of young Ugandans that use alcohol engage in binge drinking (World Health Organisation, 2014, 2018) and alcohol use among youth has been associated with both suicide ideation and physical fighting (Swahn et al., 2010).

Young people in key population settings may be at heightened risk of alcohol misuse and illicit drug use and its impact on their health and wellbeing. Furthermore, in view of the global epidemiological transitions from diseases of poverty to non-communicable diseases the burden of disease and health risks among adolescents and young adults is likely to change substantially, in ways that will no doubt see substance use playing an increasingly large part (Degenhardt et al., 2016). Most studies in sub-Saharan Africa focusing on young people and alcohol/illicit drug use have been quantitative, covering individual-level indicators of substance use (e.g. frequency of drinking, history of marijuana use) and identification of population-level risk factors associated with use among primarily general population settings (Francis et al., 2014; Francis et al., 2015; Kuteesa et al., 2019). Much of what we know about the patterns and determinants of substance use comes from epidemiological studies in general population settings in middle and high-income countries. Generalisability to other countries and cultures and to sub-populations differing in sex, age, and risk status is uncertain.

In a recent qualitative data synthesis (Kuteesa, Seeley, et al., 2020), we identified several important sociocultural factors associated with alcohol misuse and illicit drug use in fishing communities. Specifically, we noted the presence of occupation-related factors including overnight fishing, availability of cheap alcohol, and lack of alcohol and illicit drug regulation. With increased alcohol advertisement on television/radio, bill boards and the internet, young people are becoming more exposed to messages that normalise the use of alcohol and focus solely on positive effects (Swahn et al., 2013). However, large gaps exist in qualitative data about drivers of substance use among young people in key population settings (Kuteesa, Seeley, et al., 2020).

In fishing communities in Uganda, HIV is endemic (Bbosa et al., 2019; Opio et al., 2013) and alcohol use is prevalent with reports of illicit drug use. Tumwesigye et al. (2012) reported that harmful alcohol use in two fishing landing sites on Lake Victoria was common, with 62% of male and 52% of female drinkers reporting harmful consumption levels in the previous month. Similarly, Kiwanuka et al. (2017) reported that in a community-based cohort of HIV-negative Ugandan adults from eight Lake Victoria fishing communities, 54% drank alcohol and 64% of new HIV infections were attributed to alcohol consumption. Consumption of alcohol in Uganda's fishing villages has been significantly associated with a complex interplay of factors including HIV, Intimate Partner Violence (Zablotska et al., 2009) and increased sexual risk (e.g. transactional sex, inconsistent condom use) (Tumwesigye et al., 2012).

Recent qualitative studies conducted in Uganda's fishing communities explore reasons for men's drinking (Breuer et al., 2019) and their willingness to participate in harm reduction interventions (Bonnievie et al., 2020). In addition, they show that alcohol and illicit drug use availability and drinking norms are among the socioeconomic factors shaping alcohol misuse, and illicit drug use (Kiene et al., 2017; Sileo et al., 2016). However, there is limited understanding of the underlying reasons for alcohol misuse and illicit drug use, particularly among young people.

In recent years, the physical environment, in particular, the location and concentration of alcohol outlets and the impact on youth drinking (Ibitoye et al., 2019; Letsela et al., 2019; Ransome et al., 2019) has received much attention. Much research in this area was limited to alcohol outlets only and not illicit drug use outlets and did not focus on proximity to young people's homes. The present study aimed to build on previous research, to capture a picture of substance use establishments, both alcohol and illicit drug use, in this area.

Uganda's current legal framework complicates law enforcement and facilitates self-regulation of the alcohol industry partly exacerbating alcohol misuse. Laws on alcohol and illicit drug use date

from 1962, and are fragmented. In March 2019, the Government of Uganda through a directive by the Minister of Trade issued a ban on production, sale and consumption of alcohol packaged in sachets. In September 2019, a national alcohol control policy was approved by Government, but the alcohol control bill is yet to be tabled before parliament.

Understanding the underlying reasons for alcohol misuse and illicit drug use among young fisherfolk is critical to tailoring harm reduction interventions. The aim of our paper is to explore drivers of heavy drinking and illicit drug use among young Ugandans aged 15–24 years in Koome Island, Lake Victoria, Uganda.

Materials and methods

Setting

The broader study setting comprised 27 island fishing villages in Koome island, Mukono district, on Lake Victoria, Uganda, located 2–3 hours from Entebbe by motorised canoe, with a population of 12,300 people, and 7741 households (2016 census). The island communities comprise well-defined, geographically separated villages, situated on the islands' shores, each governed by a single administrative committee (Figure 1) (Nampijja et al., 2015). Koome island is impoverished with inadequate social services. The island has a total of 3 public health facilities, 2 health centre IIs and 1 health centre III with a total of 19 primary schools (7 private, 12 public) and 1 public secondary school. As such, young people aged 15–24 years living in Koome largely constitute an out of school sub-population.

Data collection

Three data collection methods were used: Geographic Information System (GIS) mapping, in-depth interviews (IDIs) and group discussions (GD).

This study was embedded in a large cross-sectional survey ($n = 1280$) which explored epidemiology of alcohol misuse and illicit drug use in fishing communities in Uganda. The survey results are reported elsewhere (Kuteesa, Weiss, et al., 2020). To select young peoples' households, we used a two-stage sampling strategy, yielding a self-weighted sample. First, 20 villages were selected from



Figure 1. The study location on Koome island (Nampijja et al., 2015).

the 27 villages on the islands using simple random sampling. Pre-existing village lists of households (defined as people who sleep in the same house and share meals) were available, but there was no list of individuals to use as a sampling frame. Therefore, we used the households as our sampling unit. We updated the village lists of households, and then sampled households randomly from each selected village. This approach ensured that all households across the study setting had equal probability of selection and mapping. The qualitative study sites were chosen based on experiences of high prevalence of alcohol consumption or reports of illicit drug use found in the survey which preceded the qualitative data collection.

We mobilised the community through community contacts i.e. local leaders and community members, with whom we discussed the study and their role in identifying and linking young people to the study team. The contacts also linked the interviewers to areas where young people accessed and/or used substances. We conducted community entry meetings with community members and used local radio to provide information about the study and for community mobilisation.

GIS mapping

Prior to data collection, two pairs of research assistants that were familiar with community mapping used handheld GPS devices to map the location of alcohol/illicit drug selling venues in each study village, going by all visible outdoor alcohol signage and advertisements they encountered, sign of alcohol/illicit drug use distribution activity, irrespective of licensure status. An outlet was any establishment/building/venue selling/serving alcohol or illicit drugs. If it was unclear if alcohol was sold (e.g. some shops with no visible alcohol or advertisements), the teams were advised by the community mobilisers and study participants. These community contacts also shared information on venues where illicit drugs were served. The teams tallied all obvious alcohol/illicit drug serving outlets regardless of whether they were open or closed at the time of mapping. The mapping excluded hidden outlets (usually illicit drug selling places). Mapping was conducted during the day as there were no restrictions on timing for alcohol sales. Teams tried to be inconspicuous with their documentation so as not to arouse the suspicion of vendors or consumers. Mapping for outlets took five days.

We also geocoded households of a sample of young people who participated in the cross-sectional survey using handheld GPS; to examine density of alcohol/illicit drug use outlets and their proximity to young peoples' homes (Centers for Disease Control and Prevention, 2017).

We defined outlet density as the number of physical locations in which alcoholic beverages or illicit drugs were available for purchase per number of households with young people. The GPS coordinates were downloaded from handheld GPS trackers onto the computer and data points were transferred to the open-source Quantum Geographic Information System (QGIS).

Qualitative interviews

Our eligibility criteria were: residence in fishing communities, consent to participate in the study and speaking English or *Luganda* the local language. We excluded participants who could not give consent.

To select participants who use or sell alcohol/illicit drugs, two research assistants in consultation with the local leadership used a snowball sampling approach to identify 'seed' participants who met the eligibility criteria above and were willing to help identify other subgroup members (i.e. individuals who engage in the same types of behaviours) to be included in the sample and to participate in an in-depth interview.

We conducted a total of 32 IDIs before achieving data saturation. To select key informants for the in-depth interviews, we used purposive sampling. Key informants included parents/guardians of young people involved in alcohol misuse or illicit drug use, people involved in sale or distribution of alcohol and illicit drugs, and local health workers. These subgroups were selected a priori to gain

diverse perspectives of substance use among young people in this setting. We identified parents/guardians of young people involved in alcohol misuse/drug use, people selling/distributing alcohol/illicit drugs and other key informants through survey participants and community leaders.

We defined excessive alcohol use as binge drinking (≥ 4 drinks per occasion for women; ≥ 5 drinks per occasion for men); heavy drinking (≥ 8 drinks per week for women; ≥ 15 drinks per week for men); any alcohol consumption by those < 18 years; or any alcohol consumption by pregnant women (Centers for Disease Control and Prevention, 2017; World Health Organisation, 2018) and our previous work on alcohol epidemiology in this setting (Kuteesa, Weiss, et al., 2020). This definition was not provided to participants during selection to allow for interviewers to explore participants understanding of binge/heavy drinking.

We conducted six GDs with men and women aged 15–24 years before reaching data saturation. This process involved interviewers identifying a group of people usually with some commonality, for example, people engaged in a leisurely activity such as playing pool, in homesteads, bars, restaurants, beaches. We had a mix of group discussions and were not limited to talking with groups of people who may already have been interested in talking about drugs/alcohol. To ensure that recruited participants aligned with our research aims, identification and engagement of groups in natural settings were supported by community members and mobilisers. After interacting with the groups, interviewers verbally introduced the discussion, sought participants' consent, interviewed and observed their setting rather than removing them from their setting.

Group discussions in natural settings were deemed a more suitable approach to explore perceptions of heavy drinking and illicit drug use as opposed to traditional formal focus group discussions, in which discussion of sensitive issues such as illicit drug use in settings, such as fishing villages, is challenging. People who were used to being in a group, and were in a place they felt relaxed, were able to discuss with each other quite freely.

Interviews were conducted by experienced social science research assistants fluent in the local language. Interviewers were gender-matched with interviewees and used a verbal preamble to introduce themselves to the study participants. All interviews and group discussions followed a topic guide which covered different aspects of alcohol and illicit drug use. Group discussions lasted 1.5–2 hours while IDIs lasted about 45 minutes. All participants were provided with a snack.

Theoretical approach

We used the socio-ecological framework to aid our understanding of alcohol misuse and illicit drug use risk factors, both systemically and contextually (Bronfenbrenner, 1979). The model was adapted to cover factors which promote healthy behaviours or create risk in the environment for maladaptive behaviours, such as alcohol misuse and illicit drug use (K. W. Allison et al., 1999; Golden & Earp, 2012). This model explores how environmental contexts interact with the individual level and various contextual factors interact to shape diverse young peoples' attitudes, beliefs, and related practices at four major contextual levels: the microsystem (i.e. family, friends), the mesosystem (i.e. interrelationships among microsystem agents, such as parent-to-peer), the exosystem (i.e. broader social contexts, like neighbourhoods), and the macrosystem (i.e. policies, societal modelling, media influence). Young people's risk for alcohol misuse and illicit drug use can be viewed as a complex interplay between these levels.

Data management

Debriefing meetings were held with research assistants and the Principal Investigator (PI), initially daily for the first set of interviews and then weekly. During these debriefing sessions, guidance was provided to the research assistants with a view to (1) probe emerging themes, (2) refine the topic guide and (3) continuously improve the quality of the data obtained. Detailed notes were taken during briefing sessions. In addition, regular meetings were held between the research assistants

and the study PI to further identify emerging themes and ideas. Data collected on voice recorders were transcribed verbatim. Transcription and translation from Luganda to English was done on a regular basis by research assistants.

GIS mapping of alcohol/illicit drug use outlets

We analysed mapping data in QGIS and Open Street Maps to visualise the density of alcohol and illicit drug establishments and their proximity to young peoples' households. We estimated the surface area for each community using aerial photos of World Imagery and calculated the ratio of outlet per household and outlet density.

Qualitative data analysis

Narrative data were analysed using an adapted modified grounded theory approach (Charmaz, 2006) to provide a framework for understanding the determinants of alcohol misuse and illicit drug use. Translated interview transcripts were double-coded manually using a thematic coding framework and managed using N-Vivo 12 software (QSR International Pty Ltd) (Smith, 2000). The coding framework was developed based on the socio-ecological approach following a review of approximately 10 transcripts by the PI and the research assistants. Information from each transcript was charted on to a series of thematic matrices to provide an overview of the coded data. We reviewed the main codes and sub-codes to increase inter-rater reliability and validity, discussed observations and interpretative insights and resolved discrepancies by consensus. Findings were then compared across gender, age groups, villages, and marital status (Sallis et al., 2008; Scribner et al., 2010).

Ethical considerations

The study was approved by the Uganda Virus Research Institute Research Ethics Committee, Uganda National Council for Science and Technology, and London School of Hygiene and Tropical Medicine, UK. We obtained written informed consent from all participants to participate in the study and for the use of voice recorders.

Results

GIS mapping

Overall, alcohol/illicit drugs outlet density was high, although it varied by study village. Some alcohol selling premises were not licenced. On-site outlets included bars, restaurants, brothels, kiosks, groceries, clubs, homes, and breweries. Off-site outlets included some grocery stores and retailers. Illicit drugs were often sold by mobile individuals. Only a few outlets identified by the locals were geocoded. Figure 2 presents results from one village to show the mix and distribution of outlets in reference to households with young people. The size of the study site (village) was estimated at 0.059 square kilometre. A total of 11 alcohol selling outlets and seven drug selling outlets were mapped within this area, translating to an estimate of 303 alcohol/illicit drug outlets per km². Most outlets were temporary structures that doubled as shops, kiosks, pubs, brothels and homes. The ratio of alcohol outlets to number of houses with young people was 11:149. The ratio of illicit drug outlets to number of houses with young people was 7:149.



Figure 2. Density and distribution of alcohol and illicit drug use outlets and proximity to young peoples' homes.

Qualitative interviews

We conducted six GDs: three with men, and three with women aged 15–24 years and a total of 32 IDIs. Of these, 2 young people who did not use illicit drugs; 10 young people were current users of alcohol and or illicit drugs (equal numbers of men and women), all but one were over the age of 18 years, only 3 had attended secondary school. Young peoples' occupations included fishing ($n = 5$), waitresses ($n = 2$), casual- work ($n = 1$), tailoring ($n = 1$), and hairdressing ($n = 1$). We also interviewed five sellers/distributors of alcohol/illicit drugs (three women), five parents, three local leaders, five law enforcement officers (four men) and two health workers.

From both IDIs and GDs, a general consensus emerged that drinking/illicit drug use was a normal social activity embedded in local culture and tradition. Abstinence from drinking was mainly for religious reasons by a significant minority made up of Muslims and a few evangelical Christians.

A variety of alcohol beverages were available for consumption in fishing communities, including *mwenge omuganda* (a mixture of sorghum and fermented bananas), *kwete* (fermented maize), bottled beer, *waragi* (distilled spirits from bananas or sugarcane, available both in locally distilled form and in commercial sachets) and *kasese* (super-strength waragi). Illicit drugs included khat and cannabis which were often consumed together with tobacco leaves and or cigarette smoking.

Alcohol was sold and consumed in a variety of settings that typically marked the social class of drinkers. Those with higher disposable income favoured small bars in trading centres that serve bottled beers and commercially distilled spirits. The majority with less income favoured more informal bars, often an individual brewer's home, or local restaurant or shop where less expensive alcohol sold in sachets or locally fermented and distilled beverages are usually shared in plastic cups or gourds among multiple drinkers. Both young men and women were common in public drinking venues.

Most young people were recreational drinkers or illicit drug users who consumed alcohol and or illicit drugs for enjoyment, usually when they were around friends, after work or over the weekends,

during music festivals and in night-life settings. Some young people were habitual users of drugs or alcohol and sometimes this led to addiction/dependence.

Determinants of alcohol misuse and illicit drug use

Participants identified both individual (the perceived functions of alcohol and illicit drug use, affordability) and social/contextual-level factors (physical infrastructure, social norms, availability and peer influence) that predict heavy alcohol use and illicit drug use. However, the individual and contextual factors were linked. The findings are presented in [Figure 3](#), structured according to the socio-ecological model.

Societal level

Affordability

Cheap (~50 cents) and high strength (>40% ABV-Alcohol by Volume) alcohol, packaged in 50–100 ml sachets, and marijuana rolls for the same cost were ubiquitous. Sachet alcohol is most preferred because of its high alcoholic content (40% Alcohol volume). Men in a GD observed that bottled beer was expensive by comparison to the sachets.

... most of the youths they want to consume such sachets, the sachets are cheap ... just seven hundred shillings ... and the big bottle is for three thousand shillings ... (alcohol seller)

Affordability and accessibility of alcohol and illicit drugs were linked to heavy drinking partly because of shared costs for drinks, shared environment with sex workers, access to drinking on credit and drinking with peers.

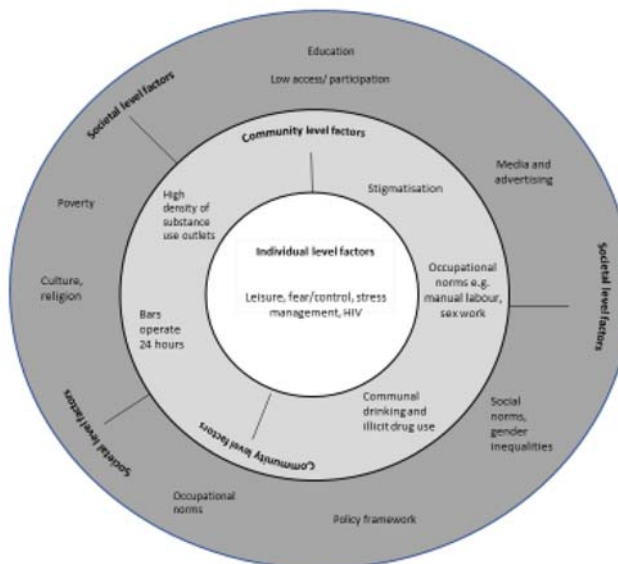


Figure 3. Adapted version of the social ecological framework showing factors driving alcohol misuse and illicit drug use among young people in fishing communities in Uganda.

Community level

Policy and regulation

Alcohol use for under eighteens and illicit drug use irrespective of age are criminal offences in Uganda. Yet, in fishing communities, there are stigmatising attitudes towards young people who use illicit drugs unlike those who consume alcohol. For example, a local leader explains:

...there's a way these drugs affect a person more than alcohol; a person who consumes alcohol is not always hard like one who consumes drugs because what he does is very dangerous to the society; even if you try to use laws to arrest him, you can't. It is also very hard to handle a person you know that is dangerous. Even when you are a law enforcer and you find him where they smoke it from and you tell her that what you are doing is bad, he becomes very dangerous. The way he harms people is different and even the way he steals from people is also dangerous but for a drunkard, even though he is drunk, he does not steal, does not rape women, he goes back home and rests. (Local leader)

Nonetheless, illicit drugs from the mainland and the islands were often sold and distributed directly to drug users through a chain of middlemen disguised as casual visitors or itinerant traders. There were places within the community called 'ghettos' where groups of 10–15 young people gathered daily to consume illicit drugs/alcohol and play board games.

... Those ones you see over there (pointing to a group of young men) all use illicit drugs including young ones aged 10–18 years. In our community we consider them mature ... (male GD)

Drinking for long hours was common because closing hours at bars and brothels were not enforced. In addition, at the bars, alcohol sellers did not monitor the drinking of their customers, and many sellers did not face legal sanctions if they served alcohol to minors or to already heavily intoxicated individuals.

Physical environment

Heavy drinking and illicit drug use among young people were generally deemed to be normal behaviour and acceptable, occurring in the 'ghettos'. These designated places were put in place by local community leaders in an attempt to limit the influence of alcohol and illicit drug users on younger children.

... With drugs, here the Local Council (LC) executives stopped people from taking drugs in the open, and they even gave them a specific place up there where they can go and take it, and even told them that if anyone takes drugs in the open, they would prosecute you. But if you go and sit in the isolated place and take your drugs, there is no problem in that even if any other person found you there, be it when they don't take it, that's their area to take it and that you are the one that has gone to their place ... (male GD)

However, respondents commented that younger children were engaged in alcohol consumption.

Here, you may find children aged 8 years old taking alcohol, sometimes in the company of their parents. Some parents send their children to the shops to buy for them alcohol and share the drink with them ... a mother may thank you for giving her child a drink ... (female GD)

Drinking and illicit drug use environments formed a key element of the recreational lifestyle of many young people in fishing communities. Alcohol and illicit drug use outlet density was high, and often these premises were located in close proximity to homes (Figure 2). These premises provided local employment, and economic investment and recreation but were often not licenced. They were associated with intense drinking and alcohol use-related harm, including aggression, violence and antisocial behaviour.

Poverty

Another GD respondent said that living conditions in fishing communities were tough, making alcohol misuse or illicit drug use an acceptable coping strategy.

... whatever happiness we have it's because of alcohol ... it is very hard in a big fishing community like this ... we are a forgotten lot. The government doesn't care about us. (male user, 17 years)

Peers and social networks

We found that both self-efficacy and perceived peer pressure influenced young people to drink heavily and to use drugs while other participants reported that they simply wanted to fit in with the individuals who were offering them alcohol and illicit drugs. A few young people reported that their decision to use alcohol and or illicit drugs occurred spontaneously when either was offered to them.

... my fellow workmate used to smoke marijuana and one day we went together and she asked for the stick and puffed. So, when she did, she told me to try it and I did but got choked and started coughing. Then she showed me how to do it like sssiiii and then take it into your lungs, and when I took some, I felt bad just like you can take something new, and I slept off without any energy to do anything ... (IDI, female 23 years old)

Social norms around drinking patterns

Fisherfolk described multiple interrelated social norms that influenced heavy drinking and illicit drug use among young people, partly arising from mixing of drinks, poly-substance use, and heavy episodic drinking justified by the belief that it was temporary behaviour associated with the freedom of youth. Mixing drinks to increase the effects was common. It was common to combine alcohol use and illicit drug use, apparently with a view to disinhibit side-effects of heavy drinking such as hangovers.

... it was my first day and I consumed too much. I mixed bottled beer and that from sachets and also added in a locally brewed beverage to reduce on the fatigue. It is common to find your friend consuming empire (one type of alcoholic drink) and you are consuming another type and when you meet, you just get what he is consuming and you consume it too ... (IDI, male 19 years old.)

In addition, a phenomenon referred to as 'galas', whereby frequent promotional events were organised by bar owners to promote heavy drinking and drug use and commercial sex, with a view to increasing sales from alcohol and sometimes also illicit drugs. The galas were also an opportunity for young men to compete with women and to show off their socio-economic status. The men who bought many drinks for women were perceived to be well-off compared to their counterparts who did not.

'... The more alcohol you buy, the more you stand a chance to win a larger number of female sex workers ...' one young man told us. (male GD)

Occupational norms

Many young people said that heavy drinking was mainly for leisure and because they were idle in between fishing engagements. However, for the fishermen, the physically and mentally demanding nature of work due to high levels of personal risk, high levels of stress associated with an uncertain catch and robberies on the lake, and enforcement of bans on illegal fishing which were common in the study area, enhanced alcohol misuse and illicit drug use.

... When we go out fishing, we may encounter strong winds and robbers. Upon return, we sell our fish and take alcohol to celebrate our wins ... (Male GD)

A police officer similarly observed that the nature of work done by many of the young people exposes them to excessive use of alcohol and drugs.

... If someone is from fishing, they have nothing to do, they tend to go to bars, and others go to smoke opium, others join love affairs with women, others go in playing board games.

Individual level

Sexual negotiation and risk

Both young women and older women frequented public drinking places as customers. Bars were commonly owned by older men while bar attendants were mostly young women. Bars were recognised as a convenient space to negotiate sexual relationships, where clear terms of exchange were recognised. Either men or women could initiate the process. Interest in a sexual engagement was expressed directly by accepting a drink or a roll of illicit drugs. For young men, alcohol and illicit drug use enhanced their boldness, confidence, and bravery facilitating negotiations for casual sex. Young women valued men who bought them drinks/illicit drugs in large quantities. They described fishermen as more loving and caring compared to other men on the mainland because they are more generous with their disposable income.

We found that both self-efficacy and perceived peer pressure influenced young people to drink heavily and to use drugs, often leading to binge drinking.

... sometimes I may be with my friends and get in the company of men who will be buying us alcohol. Then I will lured into having sex with this man which I will because I have taken alcohol. Besides I will not have any kind of shame since I will be drunk and I will not have any shame or any kind of fear to engage in sex with this man ... (female user, 23 years)

Perceived benefits of alcohol and illicit drug use

While many young people were cognizant of the negative effects of heavy drinking and illicit drug use, they associated alcohol and illicit drugs more with benefits than risks. Benefits included facilitation of engagements with multiple sexual partners, sexual stimulation, and renewed energy for manual labour such as fishing and digging, and bravery as explained by one man (aged 20 years):

... sometimes they don't give us money for upkeep so I just borrow one marijuana stick then I stay on the waters boldly even if it rains, I just pick my stick and smoke, I will always be energetic after smoking so I can fish well ... (male drug user, 19 years)

While many young people said that heavy drinking was mainly for leisure and because they were idle in between fishing engagements, drug users claimed that illicit drugs helped to calm them down, to give them vitality ready for work.

... I don't think a day will come and I think about stopping to consume alcohol and I don't think it will ever happen. Even if I drink it and I vomit the next day I will wake up and consume it again so it is hard to stop consuming alcohol, you feel like consuming it all the time like the way you want to eat food every day. Together with my friend we consume a crate of beer (24 bottles) (male GD)

Community suggestions for the way forward

Two categories of solutions emerged. The first was punitive, including suggestions for stricter enforcement of existing regulations in fishing communities. For instance, limiting time of opening and closure of bars and fining those caught drinking afterwards, regulating sale and consumption of alcohol and illicit drugs including revising upwards minimum pricing of alcohol.

... Those ones should start right away from banning the small bars that keep on opening, reduce the number of bars and issue licenses to people opening up bars and tax them highly to stop them from opening freely ... anyone even with just 50,000/- (~14 USD) can open a bar. (male non substance user, 20 years)

All sub-groups interviewed recommended strengthening behaviour change communication for affected communities with a special focus on youth, focusing on establishing more schools in the community. However, there were divergent views on whether such interventions should be led by faith-based organisations, the health sector or law enforcement officers. While law enforcement

officers and local leaders felt that they were better positioned to lead behaviour change efforts, parents and young people said that they were easily compromised.

Parents and law enforcement officers submitted that passing and active enforcement of bye-laws limiting opening hours of bars and hours of sale of alcohol, and diversification of income generation projects beyond fishing were critical. Parents and local leaders recommended the use of punitive measures on 'errant youth' to deter their peers from heavy drinking and illicit drug use. Similarly, young people using substances felt that law enforcement around substance use could be strengthened.

... I suggest that even the sellers should be restricted on the working hours and whoever is caught drinking alcohol late hours should be punished ... (Parent)

Discussion

We provide insights into factors influencing heavy drinking and illicit drug use among young people in Ugandan fishing communities including poverty, cultural and occupational norms (i.e. sex work and fishing-related activities); affordability (i.e. low-cost high strength alcohol and illicit drugs), accessibility (i.e. high density of alcohol and illicit drug selling outlets, in close proximity to homes and schools, unrestricted entry to alcohol-serving venues and affordability of alcohol and illicit drugs). Taken together, these factors facilitate early initiation and heavy use of alcohol and illicit drugs.

Bars were a convenient space for sexual negotiation, heavy drinking and illicit drug use and other risk behaviour. There is increasing evidence that there are multiple and varied contexts within which sex work, drug and alcohol use overlap. This overlap has previously been documented in fishing communities in East Africa, including the complex dimensions of fish-for-sex transactions in sub-Saharan African inland fisheries (Béné & Merten, 2008). Social, political, economic (Deane & Wamoyi, 2015), and environmental contexts, such as legislative/policy frameworks, social networks (Ditmore, 2013; Van Hout et al., 2019), physical locations of bars, brothels (C. Parry et al., 2009) and policing practices (Rhodes et al., 2006), may affect risk and vulnerability not only for addiction but also for HIV transmission (Seeley et al., 2012).

High alcohol outlet density has been associated with heavy drinking and risky sexual behaviour (Ibitoye et al., 2019; Letsela et al., 2019). In addition, a linear relationship between alcohol outlet density and alcohol consumption, and a range of alcohol-related harms has been established (Popova et al., 2009; Treno et al., 2014). We go further to show that the high density of alcohol and drug selling outlets, open 24 hours a day and located in close proximity to schools and young peoples' homes might further increase young people's vulnerability to early initiation of alcohol and illicit drugs. Therefore, harm reduction interventions addressing the risks of alcohol/illicit drug use need to be tailored to households with young people, and alcohol drinking or selling places, such as bars, brothels, and places where young people commonly gather for leisure activities.

Elsewhere, in Ugandan fishing communities, alcohol and illicit drug use availability and drinking norms are understood to be among the economic and social factors shaping alcohol misuse, and illicit drug use (Kiene et al., 2017; Sileo et al., 2016).

Our study has shown how the physical environment may influence illicit drug use, underage and heavy drinking as key elements of youth recreation. This influence may be exacerbated by broader contextual influences of poverty, high mobility, lack of rehabilitation facilities and inadequate local and national policies. For instance, despite Uganda having one of the world's highest per capita alcohol consumption (World Health Organisation, 2014, 2018), the country has no national alcohol policy on production and sale of alcohol. Alcohol regulation remains weak compared to neighbouring countries, allowing young people easy access to cheap high-strength alcohol (Kalema et al., 2015). The country still uses the outdated *Enguli* (manufacture and licencing act of 1966) which stipulates that illegal manufacture, trade and consumption of alcohol are punishable with three

thousand shillings (<USD 1.00) or imprisonment of 6 months (Schaffer, 2012). This fine is too small to be a deterrent. Recently, the government banned production and sale of alcohol sold in sachets and volumes of under 100 mls. While this might have an impact on alcohol misuse, the effectiveness depends on enforcement. Further restrictions on production and distribution of cheap alcohol, licencing of premises and promotion to minors could be implemented. These have shown to be effective in Zambia, Tanzania and Kenya (C. Parry et al., 2012; Swahn et al., 2013); underpinned by strong local and community-level advocacy and monitoring to ensure compliance.

Fishing communities in Uganda have been characterised as ‘hyper-masculine’ environments with inequitable gender norms that drive sexual risk-taking and risky alcohol consumption (E. Allison & Seeley, 2004; Seeley & Allison, 2005). In our study, men often used illicit drugs and drank heavily at ‘galas’ to display wealth and get women. Taken together, such social norms may not only account for men’s increased vulnerability to alcohol and illicit drug use but may also increase their risk for sexually transmitted infections (STI) and reduce health care seeking (Sikweyiya et al., 2014; Siu et al., 2013; Siu et al., 2014). Engaging men in harm reduction programmes and supporting gender equity in relationships is an important aspect not only for harm reduction but also for the prevention of STI.

In the broader cultural environment, we found that young people in fishing communities tended to work, and to consume alcohol and illicit drugs in small closely-knit groups in designated areas within the community. Young people were often targeted for special alcohol promotional events where illicit drugs were also available. This might suggest that short brief interventions through peer networks (MacArthur et al., 2016; Mason et al., 2015) could improve and change perceptions about alcohol and illicit drug use and foster behaviour change and social support.

Another key finding of our study is that linear relationships often do not exist between social determinants such as poverty and patterns of alcohol or illicit drug use consumption. Ironically, young people tended to spend their small disposable income on the consumption of large amounts of high-strength alcohol and did not necessarily switch to bottled beer when their wages increased.

In this study, stakeholders identified several modifiable barriers that we were able to link to appropriate intervention functions. For example, multiple informants highlighted the importance of enhancing the knowledge of the dangers of alcohol misuse and illicit drug use among young people through education. Another intervention function identified was enablement, physical and emotional support provided by family or community members to help affected individuals access and adhere to medical and psychosocial therapy, and supporting the engagement and retention in HIV care of HIV positive alcoholics (often a hard-to-reach population). Two new systematic reviews undertaken by Sileo and colleagues, reviewed the alcohol intervention literature finding very few structural level approaches tested in controlled trials or among young key population groups (Sileo, Miller, Huynh, et al., 2020; Sileo, Miller, Wagman, et al., 2020). Importantly, additional structural adjustments may be required to address the stigma endured by young people living with HIV who have drinking and or illicit drug problems (Jiloha, 2017), particularly the manifold ways in which felt stigma may hinder the retention of such persons in harm reduction and HIV treatment programmes.

Although not mentioned by stakeholders, we identified the need for secondary prevention among individuals who are already suffering alcohol and/or illicit drug use related consequences (Jiloha, 2017). We recommend environmental restructuring interventions, such as creating private spaces for counselling, and shifting screening from the clinics which would normally be inaccessible to community members.

Strengths and limitations

A strength of our study was the diverse sample, including alcohol and illicit drug sellers and distributors, parents/guardians and local leaders, and sub groups who may be at increased risk for

alcohol misuse and illicit such as drug use, bar workers, young people including early and late initiators and sex workers.

We conducted group discussions in natural settings. This enabled us to explore the sensitive topic of substance use and elicitation of conversations and interactions with groups of young people who already knew each other. This setting allowed local residents to freely engage with each other through discussion and analysis of issues related to substance use in the community. This study had limitations. Mapping could not only have excluded hidden outlets for both illegal drug and alcohol selling, but it could also have excluded informal alcohol consumption gatherings/alcohol made at home. Also, it is possible that the members of the data collection team represented people who were more willing to talk about drug/alcohol use. This has implications for reporting bias. There were limitations in identifying illicit drug retailers, particularly since some may not operate in a specific shop or store but rather informally e.g. in-home settings, or by hawking. We relied on self-reports of alcohol and illicit drugs for some of the study participants. This may introduce bias, because of the potential influence of social desirability. While the main advantages of the snowballing sampling technique are that it can expand the geographical scope and facilitates the identification of individuals engaging in substance use, our findings are unlikely to be generalisable to the wider population.

Conclusion

The key contextual determinants of heavy drinking and illicit drug use among young people in fishing communities include the social norms around their consumption (acceptability), low price (affordability), and ease of purchase (availability). Our findings extend prior work on alcohol and illicit drugs in fishing communities in Uganda through a specific focus on young people. We highlight the importance of both community factors such as social norms, weak alcohol/illicit drug sale and distribution policy dimensions that can be addressed through changes in policy. While harm reduction interventions are critically important and beneficial for young people's wellbeing, they must be conducted in tandem with strategies to reduce the root causes of poverty and high rates of HIV-infection.

Acknowledgements

We recognise the contribution of our study participants the research team, and Andrew Packwood for assisting with GIS data analysis.

Disclosure statement

No potential conflict of interest was reported by the author(s).

Funding

This research was funded by the UK Medical Research Council (MRC) and the UK Department for International Development (DFID) under the MRC/DFID Concordat agreement, the MRC Tropical Epidemiology Group (TEG) [MR/K012126/1] and International AIDS Vaccine Initiative (made possible by the support of many donors, including: the Bill & Melinda Gates Foundation, the Ministry of Foreign Affairs of Denmark, Irish Aid, the Ministry of Finance of Japan in partnership with The World Bank, the Ministry of Foreign Affairs of the Netherlands, the Norwegian Agency for Development Cooperation (NORAD), the United Kingdom Department for International Development (DFID), and the United States Agency for International Development (USAID)). The full list of IAVI donors is available at <http://www.iavi.org>.

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