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“[Drinking is] like a rule that you can’t break”: A qualitative study on perceived barriers and facilitators to reduce alcohol use and improve antiretroviral treatment adherence among people living with HIV with alcohol use disorders in Thai Nguyen, Vietnam

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Abstract

Background: Alcohol use, a highly normative behavior in Vietnam that is associated with high rates of HIV infection and lower antiretroviral treatment (ART) adherence, has been largely overlooked by HIV prevention efforts.

Objectives: Using the risk environment framework, this qualitative study aims to explore the perceived microenvironmental (community-level) and endogenous (individual-level) barriers and facilitators to alcohol reduction among people living with HIV (PLHIV) with alcohol use disorders (AUDs) in Vietnam.

Methods: From June-July 2014, semi-structured interviews were conducted with thirty PLHIV (18 men; 12 women) recruited from an outpatient ART clinic in Thai Nguyen province, Vietnam. All participants had scores of ≥ 8 on the Alcohol Use Disorders Identification Test and ten of the 30 participants were currently using injection drugs. Interviews were transcribed, translated, and analyzed to identify perceived barriers and facilitators to alcohol reduction.

Results: Most participants reported a spike in alcohol consumption at the time of HIV diagnosis. Most perceived barriers existed at the microenvironmental level, including perceived inability to refuse alcohol in the context of community-level social norms and lack of alcohol treatment programs. Two commonly mentioned endogenous barriers were compensatory behaviors when reducing injection drug use and using alcohol as a coping strategy for HIV-related sadness. Those who were able to successfully reduce alcohol use and adhere to ART reported having social support to buffer community-level social pressure and cope with sadness.

Conclusions: It may be effective to introduce targeted alcohol reduction interventions in health care centers to address individual risk practices and microenvironmental social norms.

Keywords

alcohol; HIV/AIDS; ART adherence; qualitative research; Vietnam

Background

Although HIV prevalence in the general population is low, Vietnam continues to have concentrated epidemics among key populations (Ministry of Health [MoH] of Viet Nam, 2014; National Committee for AIDS, Drugs and Prostitution Prevention and Control [NCADP], 2014). The HIV prevalence among these groups, including men who have sex with men (4%), female sex workers (3%), and people who inject drugs (PWID) (10%), is

substantially higher than among the general population (<1%) (MoH of Viet Nam, 2014; NCADP, 2014). The Vietnam Administration for AIDS Control has focused its attention on risk behaviors often associated with these populations, such as unprotected sex with sex workers and sharing needles and syringes (NCADP, 2014). However, alcohol use, a highly normative behavior in Vietnam that is associated with higher rates of HIV infection and lower antiretroviral treatment (ART) adherence, has been overlooked (Tran et al., 2013).

In Vietnam, alcohol use is encouraged through sociocultural practices, including ceremonies for national holidays, weddings, or funerals as well as daily social events with colleagues or friends (Lincoln, 2016; Luu, Nguyen, & Newman, 2014; Tran et al., 2013). Men are expected to drink more heavily than women; men's alcohol use is often seen as a show of masculinity and is a regular part of social life and professional networking (Lincoln, 2016). Alcohol, especially home-brewed rice wine, is widely available and relatively cheap due to the ease and low-cost of traditional alcohol production and limited regulation by the government (Luu et al., 2014). The World Health Organization (WHO) found that annual per capita consumption of pure alcohol in Vietnam was 5.1 litres, of which 1.7 litres was unrecorded alcohol (2014). In comparison, global consumption of pure alcohol per capita has been recorded at 4.3–4.7 litres since 1990 (WHO, 2016).

Alcohol use disorders (AUDs) are generally defined by level of drinking and cause of mental or physical harm due to drinking (Babor, Higgins-Biddle, Saunders, & Monteiro, 2001). Estimates of AUD in Vietnam vary widely. The WHO estimated that 9% of males and 1% of females over the age of 15 years in Vietnam had an AUD (WHO, 2014). Other estimates of problem drinking are higher among men, with one study in rural Vietnam finding the prevalence of alcohol consumption-related problems was 26% among men and 1% among women (Giang, Allebeck, Spak, Van Minh, & Dzung, 2008).

AUDs among people living with HIV (PLHIV) in Vietnam may be even more prevalent. In 2013, a Vietnam study found that 30% of HIV-infected patients reported hazardous drinking, 22% reported binge drinking behavior, and HIV-infected drug users were found to have a higher likelihood of AUD than non-drug users (Tran et al., 2013). Additionally, research has shown that PWID who reduced their injection frequency were more likely to increase their alcohol consumption (Go et al., 2013).

For PLHIV, AUDs are associated with premature mortality (Bryant, Nelson, Braithwaite, & Roach, 2010), decreased viral suppression (Chander, Lau, & Moore, 2006), increased liver damage among those co-infected with hepatitis C virus (Braithwaite & Bryant, 2010), and reduced ART adherence (Chander et al., 2006; Do, Dunne, Kato, Pham, & Nguyen, 2013; Tran, Nguyen, Do, Nguyen, & Maher, 2014). A meta-analysis showed that PLHIV who drink alcohol were 50–60% as likely to be adherent as compared with those who abstain from alcohol or drink relatively little (Hendershot, Stoner, Pantalone, & Simoni, 2009). In Vietnam, HIV-infected non-drug users were more likely than HIV-infected drug users to be non-adherent while engaging in at-risk or binge drinking (Tran et al., 2014). Furthermore, alcohol consumption among PLHIV has been associated with depression, which has been associated with accelerated HIV disease progression (Ghebremichael et al., 2009; Leserman, 2008; Sullivan, Goulet, Justice, & Fiellin, 2011).

Providing effective ART to PLHIV improves life expectancy and general health (May et al., 2014; UNAIDS, 2012) and prevents further transmission to uninfected sexual partners (Cohen et al., 2011). However, current ART regimens require compliance to life-long treatment, and poor adherence can lead to virologic failure and drug resistance (WHO, 2009). Common barriers to ART adherence in Vietnam include HIV-related stigma and lack of adherence support, in addition to alcohol consumption (Van Tam, Pharris, Thorson, Alfvén, & Larsson, 2011).

Although AUD has been established as a risk factor for poor ART adherence, little is known about the clinical and sociocultural experience of PLHIV with AUDs. To develop effective alcohol reduction programs for PLHIV, research is needed to understand the motivations for problem drinking among PLHIV who have initiated ART. Our qualitative study aims to explore the perceived barriers to and facilitators of reducing alcohol use and the perceived effects of alcohol drinking on ART adherence among PLHIV with AUDs in Vietnam.

Conceptual Framework

The risk environment framework highlights social, structural, and environmental factors that shape an individual's behaviors rather than focusing exclusively on endogenous factors such as risk practices, demographic characteristics, or pathogenic characteristics (Figure 1) (Rhodes, 2009; Strathdee et al., 2010). The model shows how four types of environmental influence – physical, social, economic, and policy – operate at both the microenvironmental and macroenvironmental levels (Rhodes, 2009; Rhodes & Simic, 2005). While the risk environment framework has previously been used to understand how social and structural factors influence HIV infection associated with drug injection, we applied this framework to understand the association between problem drinking and poor ART adherence (Rhodes, 2002; Strathdee et al., 2010). Similar to injection drug use, research has shown that problem drinking is influenced by external modalities (Luu et al., 2014; Nash, McQueen, & Bray, 2005; Richardson, Hill, Mitchell, Pearce, & Shortt, 2015). In our framework, the microenvironmental level focuses on personal decisions and community-level norms around alcohol, and the macroenvironmental level focuses on high-level structural factors, such as laws or policies related to alcohol or wider cultural beliefs about alcohol (Strathdee et al., 2010; Rhodes & Simic, 2005). Due to the focus of the study on individual- and community-level factors, our results center on how the microenvironmental level within the risk environment framework shapes the process of reducing alcohol use and improving ART adherence.

Methods

Study setting and recruitment

This research was conducted to inform the cultural adaptation and evaluation of two psychosocial interventions to reduce problem drinking among HIV-infected clinic patients in Vietnam. We conducted in-depth interviews with 30 HIV-infected problem drinkers, and purposively sampled men and women and PWID and non-PWID to compare drinking patterns and norms. Participants were defined as PWID if they reported having used injection drugs at least once in the previous 30 days.

Participants were recruited at the Pho Yen District Health Center in Thai Nguyen, a semi-mountainous province with a population of 1.1 million located approximately 50 miles north of Hanoi. Thai Nguyen is the province with the highest HIV prevalence among PWID (34%) in Vietnam (NCADP, 2014). Eligible participants were 18 to 64 years old, were receiving ART, scored an 8 or above on the Alcohol Use Disorder Identification Test (AUDIT), and were residing in Thai Nguyen. Clinic providers briefly introduced the project and referred interested patients to the study site, located in a private room in the ART clinic. A trained recruiter described the project, obtained oral informed consent in Vietnamese, and administered the AUDIT to identify problem drinking among interested individuals (Babor et al., 2001). Oral informed consent was obtained because no personal identifying information was collected from individuals participating in the once-off qualitative interviews.

Patients with AUDIT scores of 8 or greater were characterized as problem drinkers with a high risk for alcohol dependence (Babor et al., 2001). AUDIT has been used in previous research in rural Vietnam and found to be valid and reliable in detecting AUD using similar cut-offs (Giang, Spak, Dzung, & Allebeck, 2005). Participants received snacks and monetary compensation for their time and travel (equivalent of United States Dollar [USD] 11.50). This study protocol, including the consent procedures, received ethical approval from Institutional Review Boards at University of North Carolina and Thai Nguyen Center for Preventive Medicine.

Demographics of participants

The sample consisted of 30 PLHIV (18 men; 12 women) (Table 1). The participants ranged in age from 30 to 48 years (median age=38 years). At the time of the study, 10 participants were PWID, although 20 reported ever using injection drugs. Very few women reported injection drug use currently or ever as compared to men. Half were married and almost all (n=25) were employed either full-time or part-time. The mean AUDIT score was 11.5 and the median score was 11 (IQR=6).

Data collection

Interviews explored perceptions of alcohol use patterns in Thai Nguyen, participants' drinking and drug use practices before and after their HIV diagnosis, perceived barriers to and facilitators of reducing their alcohol use, and impact of alcohol use on ART adherence. Prior to data collection, three interviewers with over 10 years of experience in qualitative methods completed an intensive one-week training on study-specific procedures and guides. Interviews were conducted in Vietnamese in private patient rooms at the ART outpatient clinic using semi-structured interview guides. Interviews took about 90 minutes and were audio recorded, transcribed, and translated into English. Interviewers recorded field notes to capture nonverbal expressions and contextual insight.

Data analysis

Transcribed interviews were read and summarized by two investigators and their notes were used to determine when thematic saturation was reached, meaning no new information was added by participants. Transcripts were imported into Atlas.ti software for coding and

analysis. After reading the transcripts multiple times, investigators independently summarized each transcript and compared key themes and topics of interest. Preliminary codes were developed and described in a codebook. Once data collection was completed, ten percent of transcripts were coded simultaneously by two investigators to assess inter-rater reliability. Both investigators coded each transcript individually and then discussed similarities and differences in how codes were applied to refine initial codes. During discussion, patterns and themes emerged and additional inductive codes were added to the codebook.

After coding all transcripts, patterns were compared across different groups of respondents as well as within the individual narratives to identify commonly mentioned barriers to or facilitators of alcohol reduction. In particular, the risk environment framework shaped how these barriers or facilitators were conceptualized and categorized (physical, economic, social, or political on the microenvironmental level; and pathogenic characteristics, demographic characteristics, or risk practices as endogenous factors). These barriers and facilitators were then compared between the group of respondents that reported reducing their alcohol use since their HIV diagnosis and the group that reported maintaining or increasing their problem drinking since their HIV diagnosis. Key findings were presented to the two interviewers to ensure agreement with the analysis and accuracy of the interpretation in the Vietnamese context.

Results

In this paper, we present the perceived barriers to and facilitators of alcohol reduction (Table 2). First, we describe perceived microenvironmental level and endogenous barriers. Second, we describe perceived microenvironmental facilitators of reducing alcohol use. Among the microenvironmental barriers or facilitators, barriers were categorized as physical (access points for alcohol drinking); economic (price of various types of alcohol); social (sociocultural norms around alcohol use); or political (coverage of community-based harm reduction programs) (Strathdee et al., 2010). Finally, we present the perceived effects of drinking on ART adherence.

Perceived Microenvironmental Barriers to Reducing Alcohol Use

Physical: Perceived availability of alcohol—In Thai Nguyen “wine is available everywhere” (Participant Identification [PID] 308; male, 37 years) and those who want to “can drink anywhere” (PID 204; male, 38 years). Participants believed that drinking was common and widespread, in other words, “it is a fact that everyone in this locality drink[s]” (PID 203; male, 46 years). Participants described how alcohol “appears in all occasions, all the time” (PID 201; male, 46 years), playing an important role in casual gatherings, family celebrations, and cultural and religious ceremonies. Participants could not recall a wedding or funeral that did not include alcohol, and could not imagine such a situation.

Economic: Perceived affordability of alcohol—Home-brewed or traditional alcohol is affordable and easy to buy at street stalls, vendors, or restaurants. It is also often given in-kind to family or neighbors to celebrate seasonal holidays or special events, such as weddings. Participants believed alcohol’s low cost and accessibility made it more acceptable

to drink. “Drinkers practically only need about 1000–2000 Vietnamese Dong (VND) [approximately \$0.10 USD] to drink...with 2000 VND they can go to stalls to buy some cups...then they can drink for hours with friends” (PID 308; male, 37 years). Almost no one, regardless of income status, considered alcohol a significant personal or household expense.

Social: Community norms—Almost all participants explained that they continued to drink, at least occasionally, at social events despite learning the health consequences from their HIV providers. Few believed they could reduce their drinking because of high social pressure to continue drinking. Even fewer felt comfortable refusing a drink in a social setting because they felt it may be perceived as rude, or worse, it can signal that this person is ill or abnormal. “[Drinking is] like a rule that you can’t break” (PID 204; male, 38 years). Social drinking was seen as a critical symbol of support, either to celebrate a friend’s good news or to help them cope with adversity. Also, during large celebrations, such as weddings or funerals, hosts and honorees circulate and are expected to share a toast with each guest.

Due to the vital role alcohol plays in social events, about half of participants felt it would be extremely difficult for HIV-infected individuals to reduce their alcohol use.

[PLHIV] are human beings, so they have their own needs. They used to drink wine before the [ART], and since they have the disease, they still drink wine as usual. They have daily needs, like normal people. And they need a family also. The people with HIV go to family events, they go to parties, they have fun, so they drink. (PID 101; female, 30 years)

Some participants even equated quitting alcohol with giving up one’s social or work life, saying that if they successfully quit alcohol they would have to “stay alone” (PID 310; male, 39 years).

Although alcohol use is highly acceptable in Thai Nguyen, participants spoke about community stigma towards addicted individuals who exhibit destructive behavior, such as physical, verbal, or sexual violence against community or family members. However, participants explained that if someone (usually referring to men) drinks excessively but remains high-functioning, community members do not feel there is a problem. In fact, these individuals are expected to continue drinking heavily. Therefore, participants explained that the burden was on the individual to regulate his or her drinking to avoid community stigma. “Whether to stop drinking or not depends on the person’s will” (PID 101; female, 30 years). Many explained that an individual was expected to gain control before becoming destructive.

Participants who had reported current or previous injection drug use were asked to compare their experience with injection drugs to alcohol. Participants described injection drug use as being significantly less acceptable than alcohol use in the community. “People would be afraid of drug addicts more than alcohol addicts. They also do not respect drug addicts as they respect alcohol addicts” (PID 307; male, 45 years). Although there was agreement among participants about the higher acceptability of alcohol as compared to injection drug use in the community, there was disagreement among participants regarding which substance was easier to quit. Some participants felt that quitting alcohol is easier than quitting drugs because the effects from drugs are more desirable than the effects from

alcohol. One participant described the way he felt on drugs: “We often say that if we are confined in toilet, but are provided with sufficient drug, then we don’t need big house or nice car, we will choose to spend all day in toilet with sufficient drug” (PID 204; male, 38 years). However, despite the strong and addictive effects of drugs, others felt that quitting drugs is easier because alcohol is readily available and highly acceptable.

Political: Lack of alcohol treatment programs—When asked about the availability of alcohol treatment programs in their communities, all participants responded that they were unaware of such programs, although most were aware of substance use treatment centers or Methadone Maintenance Therapy (MMT). In fact, participants often stated that they had never seen a community member quit drinking alcohol.

There is no way to make them forget the crave for wine. They just drink wine when they think of it. For those who are addicted to drug, there is Methadone now. But for those who are addicted to alcohol, there is nothing. (PID 101; female, 30 years)

Most participants expressed interest in accessing medical centers like substance use treatment centers for alcohol addiction to receive support and medical treatment.

Furthermore, although almost all participants explained that their HIV providers advised them to reduce their drinking, few were provided with concrete strategies to use. “I know when being under ART, drinking is not good, but I don’t know how to quit it” (PID 108; female, 44 years). Participants often expressed that they had no tools to avoid alcohol use.

Endogenous Barriers

Risk practices: Alcohol use as a coping strategy—Many participants described an increase in heavy alcohol drinking immediately following their HIV diagnosis. This spike in alcohol consumption was often attributed to feelings of sadness or shock. While about half of participants were able to eventually reduce their alcohol drinking over a period of six months or a year after the diagnosis, the other half explained that they continued to drink the same amount of alcohol or more.

Participants who did not reduce their alcohol consumption explained that they continued to drink alcohol as an attempt to alleviate their mood or forget their problems, most of which were related to dealing with their HIV status. However, participants presented differing opinions regarding the effectiveness of alcohol in combatting sadness. Many felt that drinking alcohol when feeling sad was not productive, explaining that drinking does not help you forget or find solutions. However, some participants explained that drinking alcohol did help them “overcome their problems” (PID 103; female, 39 years) and “feel happier” (PID 106; female, 32 years). A few participants also shared that drinking alcohol improved their ability to express themselves, as it made them feel more confident and honest. For these participants, this change in confidence and expressiveness was seen as healthy and positive. One participant even compared it to a “medical treatment” (PID 304; male, 37 years).

Risk practices: Injection drug use and alcohol use

Participants reporting current or previous injection drug use discussed how drug and alcohol use influenced each other. Most of these participants explained that mixing alcohol and drugs was a common practice, termed “hai mang” or double addiction (PID 204; male, 38 years). Some participants described a formula for mixing alcohol and drugs. Specifically, they explained that consuming alcohol would lessen the drug effects. To anticipate this, they would inject a larger quantity of drugs if they knew they were going to drink later on. Others explained an opposite phenomenon: that they would wait to inject drugs until after they had consumed alcohol, as alcohol would increase their desire for drugs.

Additionally, participants reported increasing alcohol use once quitting drugs or on MMT because they felt sad. Some, however, felt “afraid of wine” (PID 305; female, 39 years) because they thought it would cause a relapse.

Perceived Microenvironmental Facilitators of Reducing Alcohol Use

Social: Social support—The half of participants who reported successfully decreasing alcohol use over time after their HIV diagnosis spontaneously mentioned that HIV provider advice and social support strongly influenced their ability to reduce their alcohol use.

Almost all participants spoke positively about their clinical experience, with some participants describing their HIV doctor providing meaningful support. “Generally, if I didn’t know about my disease, I would still drink alcohol. Since I knew about my situation and got counseling from my doctor, I’ve reduced my drinking a lot and don’t drink much” (PID 310; male, 39 years). A few participants also cited doctors being encouraging. One participant noted that there was “not any symptom of discrimination” (PID 105; female, 45 years) by the doctors.

Participants often mentioned that family or friends would offer encouraging words or reminders to curb their drinking. “[My wife] asks me to think for her and children, drink less to stay healthy” (PID 201; male, 46 years). Participants also explained that social support helped them cope with sadness stemming from their HIV diagnosis.

There were the periods when I was exhausted, I was ill and was depressed. I thought: “What if I drink until I die anyway?” I had that thought, but generally speaking, I got a lot of encouragement from my family and my siblings, so I am no more depressed. (PID 102; female, 34 years)

Most participants explained that they received this type of support due to family or friends’ concerns for their HIV-related health.

Effects of Drinking on ART Adherence

All participants were asked about their ability to adhere to their ART regimen. Participants who had been unsuccessful at reducing their alcohol use commonly reported missing ART doses. Common reasons for missing ART doses included forgetfulness while under the influence of alcohol or perceived inability to take the pills when at a social or work event during a medication time.

Many times I drank wine and felt so cheerful that I forgot to take medicine. When I woke up with a start at night, I remembered that drinking wine had made me forget to take medicine. I have been in such a situation many times. Drinking wine somehow weakens my memory. (PID 207; male, 48 years)

Many participants noted that family members reminded them to take their ART, even if they drank alcohol. For example, one participant said he would rarely get drunk, but if he did, his mother would remind him to take his ART. Another participant explained that his son would bring him the necessary pills if he was out drinking.

Discussion

This is the first study to our knowledge that has explored barriers to alcohol reduction among HIV-infected clients with AUDs. These findings are supported by current research that drinking alcohol in Vietnam is highly normative, alcohol is readily available and affordable, and alcohol reduction interventions are sparse (Luu et al., 2014). Importantly, the findings highlight how community norms about alcohol can lead to intense social pressure that prevents PLHIV from reducing their alcohol use. These predominant microenvironmental barriers align with the risk environment framework, demonstrating that environmental, social, and structural barriers can greatly influence individuals' alcohol use-related behavior. However, endogenous factors, specifically risk practices, were also mentioned when participants discussed reasons they drank alcohol, showing that both endogenous and exogenous factors need to be addressed when developing alcohol reduction interventions for HIV-infected clients.

For those who reported maintaining or increasing their alcohol use, most felt that reducing alcohol use was extremely challenging, often more difficult than quitting drugs because of its high prevalence, acceptability, and affordability. Although almost all participants recognized the harmful health consequences of alcohol use, many could not conceptualize quitting alcohol and also felt they had no strategies to reduce their alcohol use. In fact, participants were not aware of any alcohol treatment programs. The lack of alcohol treatment options was supported by formative research conducted with providers and Department of Health officials in Thai Nguyen. These findings are further highlighted by the richness and weight of discussion regarding multiple complex barriers to alcohol reduction compared with only one commonly mentioned facilitator (social support) during interviews. It may be that the burden of navigating through multiple microenvironmental barriers immobilizes individuals despite their knowledge of the HIV-related health consequences of problem drinking.

One nuanced point of discussion revealed by the data was the positive and negative influence of social support among participants. Some participants stated that support from family, friends, or HIV providers was instrumental to reducing their alcohol use and improving their ART adherence. The importance of social support in facilitating HIV disclosure (Go et al., 2016) and improving ART adherence (Van Tam et al., 2011) has been found by previous research in Vietnam. In the instances of positive social support, the family members or friends that were referenced were aware of the individual's HIV-positive status. This may

have contributed to their understanding and support of the individual's need to seriously reduce their alcohol use. Commonly, these supportive relationships involved people who seemed non-judgmental towards the HIV-infected person, which may be an especially important characteristic of social support for PLHIV.

However, the majority of participants expressed feeling overwhelming pressure to drink alcohol at social events to maintain relationships. For PLHIV who are stigmatized and socially isolated, the need for social acceptance may be particularly high, thereby increasing the impact of the microenvironmental factors on this highly vulnerable population. One study in Thai Nguyen found layered HIV-related stigma existed, with community-level responses to PLHIV being negative, but family-level responses being supportive and driven by concern (Rudolph et al., 2011). This may explain why participants described receiving social support from people close to them in their social networks, but still felt pressure to consume alcohol at most social events. Furthermore, because of the normativity of alcohol use, participants may have believed that refusing to drink would require an explanation tantamount to HIV disclosure with individuals outside of their network of close family and friends. Thus, participants may have been resistant to alcohol refusal in social settings because it exposed them to both social stigma and HIV-related stigma. More research should be done to understand the relative influence of social pressure and HIV stigma on alcohol use among PLHIV.

The interaction between sadness and alcohol use among HIV-infected patients emerged as an endogenous factor. Specifically, participants commonly referenced alcohol use as an attempt to manage sadness, often stemming from their HIV-positive status. A global systematic review found that the likelihood of achieving good ART adherence was lower among those with depressive symptoms as compared to those without (Uthman, Magidson, Safren, & Nachega, 2014). Additionally, research has shown that alcohol consumption was associated with depression among PLHIV (Ghebremichael et al., 2009; Sullivan et al., 2011). This self-perpetuating cycle of increasing alcohol use to cope with HIV-positive status, depression and alcohol use decreasing ART adherence, and alcohol use increasing the likelihood of depression may highlight the need for a mental health intervention to accompany any alcohol reduction programs. Furthermore, although most of these participants felt that alcohol did not actually improve their well-being, a few participants explained that alcohol provided an important outlet for expression and happiness. For these participants who felt alcohol was not only beneficial, but vital, access to mental health and alcohol reduction programs may be desperately needed.

There are limitations to this research. First, no inferences can be drawn about the prevalence of the observed findings beyond the sample. Additionally, participants were asked to speak about past events both pre- and post-HIV diagnosis, which may have introduced recall bias into the study. For example, participants may have remembered events post-HIV diagnosis as more or less traumatic than reality. Since all participants had AUDs, they may be more likely to perceive alcohol use as prevalent and acceptable in the community. Furthermore, the perceived pressure to drink alcohol in social situations could be heightened among individuals with AUDs as they may be more likely to socialize with other heavy drinkers. Also, there may have been social desirability bias among participants when reporting their

alcohol use, as most had been advised to reduce or quit drinking alcohol by their health care providers. Lastly, all participants were already receiving ART when recruited, which could introduce self-selection bias into the study, as participants may represent a more motivated group of individuals than other PLHIV with AUDs.

Despite these limitations, these data highlight the need for further research on problem drinking among HIV-infected clients in settings where alcohol use is highly normative. These data also provide evidence that the risk environment framework may be an effective model to use when developing alcohol reduction interventions for ART clients with AUDs. While the risk environment has been applied to harm reduction research, the focus has mainly been on injection drug use and HIV risk (Rhodes, 2009; Rhodes, Singer, Bourgois, Friedman, & Strathdee, 2005). Applying the risk environment framework to alcohol reduction among PLHIV highlights the complex and multilevel barriers PLHIV with AUDs face to avoid a highly normative behavior with few resources while navigating through community-level HIV-related stigma, and, in some cases, drug use-related stigma. In alignment with previous applications of the risk environment framework, our findings shift responsibility from just the individual to include other social and structural institutions influencing alcohol consumption (Rhodes, 2009).

Overall, our findings suggest that it may be effective to introduce targeted alcohol reduction interventions in health care centers to address individual risk practices and microenvironmental social norms. Specifically, immediately upon diagnosis, individuals with AUDs need to learn how to cope with sadness and culturally sensitive strategies to reduce alcohol consumption gradually over time, as another strategy in addition to trying to quit alcohol immediately. Access to a PLHIV support group to enhance or create social support may be especially useful (Van Tam et al., 2011; Meade et al., 2010).

At the microenvironmental level, interventions aimed at shifting sociocultural norms about alcohol use to reduce positive alcohol expectancies and access to alcohol are needed (Anderson, Chisholm, & Fuhr, 2009). Past policies in Vietnam to prohibit the making of traditional alcohol have failed because of the high value of home-brewed alcohol in social and cultural gatherings. However, developing programs that find a balance between preserving the tradition of alcohol-making while regulating it may have a greater chance of success (Luu et al., 2014). Since PLHIV are a stigmatized population seeking acceptance from the community, they are a group especially vulnerable to social pressure to consume alcohol (Salter et al., 2010; Go et al., 2015). Until there is a shift in attitudes towards drinking, PLHIV with AUDs will be faced with an extremely difficult context within which to reduce their drinking.

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Figure 1.
Risk and protective factors in PLHIV with AUDs to reduce alcohol use and improve ART adherence. The figure has been reprinted with permission from Strathdee et al., 2010
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Table 1.

Demographic and behavioral characteristics of all interview participants in Thai Nguyen, Vietnam

Characteristic	All participants (n=30)
Median age of participants	38.0 years
Number of married participants (%)	15 (50%)
Number of employed participants (%)	25 (83%)
Number of participants reporting current injection drug use (%)	10 (33%)
Number of participants reporting injection drug use ever (%)	20 (67%)
Mean AUDIT score of participants	11.5

Table 2.

Perceived barriers to and facilitators of reducing alcohol use and improving ART adherence among participants

Theme	Level of influence	Type of influence
Perceived barriers		
Availability of alcohol	Microenvironmental	Physical
Affordability of alcohol	Microenvironmental	Economic
Community norms	Microenvironmental	Social
Lack of alcohol treatment programs	Microenvironmental	Political
Alcohol use as a coping strategy	Endogenous	Risk practice
Injection drug use and alcohol use	Endogenous	Risk practice
Perceived facilitator		
Social support	Microenvironmental	Social