American Journal of Men's Health
2017, Vol. 11(4) 1269–1278

DOI: 10.1177/1557988315576775
journals.sagepub.com/home/ajmh
SAGE

Men Who Have Sex With Men in Peru: Acceptability of Medication-Assisted Therapy for Treating Alcohol Use Disorders

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Abstract

In Peru, the HIV epidemic is concentrated in men who have sex with men (MSM) and transgender women (TGW). Multiple studies correlate alcohol use disorders (AUDs) with risky sexual behaviors among Peruvian MSM. Qualitative research was used to inform a clinical trial on the acceptability of medication-assisted therapies to assist management of AUDs and improve antiretroviral therapy (ART) adherence among MSM/TGW in Peru. Three focus groups involving HIV-infected or HIV-uninfected MSM/TGW (n = 26) with AUDs (AUDIT $\geq$ 8) were transcribed, translated from Spanish into English, and analyzed using thematic content analysis. Despite having an AUD, participants considered themselves "social" drinkers, minimized their drinking behaviors, and differed about whether or not alcohol problems could be treated. Participants expressed skepticism about medication for treating AUDs. Three concepts emerged as necessary components of a treatment program for alcohol problems: cost, family support, and the potential to drink less alcohol without attaining total abstinence. This study reveals important areas of education to increase potential acceptability of a medication for treating AUDs among MSM/TGW. Given the social conditions and knowledge base of the participants, medication-assisted therapies using naltrexone may be a beneficial strategy for MSM with AUDs.

Keywords

men who have sex with men, alcohol use disorders, HIV, substance abuse treatment, medication-assisted therapy, Peru, treatment acceptability

Introduction

Antiretroviral therapy (ART) is effective at reducing HIV-related morbidity and mortality and reducing HIV transmission among people living with HIV/AIDS (PLH), but its effectiveness is largely dependent on patient adherence (Bartlett et al., 2006; Hammond & Harry, 2008). Suboptimal ART adherence for PLH, which is exacerbated by substance use, including alcohol use disorders (AUDs) (Azar, Springer, Meyer, & Altice, 2010), is associated with lower CD4 lymphocyte counts, higher viral loads, increased transmission risk (Kalichman et al., 2010), and risk of developing antiretroviral drug resistance (Gare et al., 2014). Effective methods for treating substance use and improving ART adherence include behavioral therapy and motivational interviewing, directly observed treatment, and various pharmacotherapies, collectively termed medication-assisted therapies (MAT) (Altice, Kamarulzaman, Soriano, Schechter, & Friedland, 2010; Durvasula & Miller, 2014). Although data on concurrency between any type of substance use and risky sex remains inconsistent (Vosburgh, Mansergh, Sullivan, & Purcell, 2012), drinking severity that meets criteria for an AUD, including binge alcohol consumption (Woolf & Maisto, 2009), has been consistently associated

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with risky sexual behaviors (Vosburgh et al., 2012). This includes increased risk among HIV-infected and uninfected men who have sex with men (MSM) in Peru (Deiss et al., 2013; Ludford et al., 2013; Vagenas et al., 2014) and among HIV-uninfected MSM who engage in increased unprotected anal intercourse with partners who are HIV-infected or status unknown (Hess et al., 2015; Woolf & Maisto, 2009).

In Peru, the HIV epidemic is concentrated in MSM and transgender women (TGW). HIV prevalence has been reported to be as high as 12.4% (Ministerio de Salud, 2012) and 22% (Beyrer et al., 2013; Sanchez et al., 2007) in the capital city of Lima, compared with 0.2% in the general population (Garcia et al., 2012). TGW are markedly vulnerable to HIV/AIDS (Silva-Santisteban et al., 2012) and among PLH, age <35 years and being a TGW are associated with reduced health care access (Silva-Santisteban et al., 2013). HIV transmission among MSM/TGW in Peru is driven by unknown HIV status (Goodreau et al., 2012; Vagenas et al., 2014) and sexual risk behavior (Goodreau, Goicochea, & Sanchez, 2005), which is also correlated with AUDs and drug use (Ludford et al., 2013). In a recent nationwide biobehavioral surveillance study in Peru, 63% of MSM/TGW met criteria for having an AUD (Ludford et al., 2013). Consequently, the convergence of high prevalence of AUDs, increased HIV risk, and the association of PLH not knowing their HIV status makes intervening with AUDs among MSM a major public health priority.

Alcohol Use Disorders as a Barrier to ART Adherence

Prior barriers to ART adherence for PLH in Lima include side effects, forgetfulness, inconvenience, dietary requirements, being away from home, and fear of stigma (Curioso, Kepka, Cabello, Segura, & Kurth, 2010). A recent study of HIV-infected MSM in care identified only the presence of an AUD as being associated with suboptimal ART adherence (Ferro et al., 2015). For impoverished individuals with HIV-TB coinfection in Peru, low social support, alcohol/substance use, and depression were associated with ART nonadherence (Shin et al., 2008). Effectively treating opioid dependence with MAT improves ART adherence (Altice et al., 2011; Springer, Qiu, Saber-Tehrani, & Altice, 2012), but it remains unknown if pharmacotherapies like naltrexone (NTX) could improve ART adherence among PLH with AUDs.

Medication-Assisted Therapy for Alcohol Use Disorders

NTX, a complete opioid antagonist, is a medication that blocks endogenous opioids released through the brain's mesolimbic reward system (Pettinati & Rabinowitz, 2006), to reduce alcohol cravings in individuals with alcohol dependence (Olive, 2010; Richardson et al., 2008; Tambour & Quertemont, 2007). It is one of four evidence-based MAT used to treat alcohol dependence (Garbutt, 2009; Williams, 2005). NTX decreases days of heavy drinking (Anton et al., 2006) and alcohol relapse (Streeton & Whelan, 2001) and is superior to acamprosate and/or behavioral counseling (Anton et al., 2006). Once-monthly injectable extended-release naltrexone (XR-NTX) confers an adherence advantage (Garbutt et al., 2005; Swift, 2007) over daily oral formulations and is feasible for use in primary care settings (Lee et al., 2010). XR-NTX administration combined with brief medical management counseling reduces alcohol consumption even during holiday periods where heavy drinking is common (Lapham, Forman, Alexander, Illeperuma, & Bohn, 2009). Previous acceptability studies of XR-NTX have assessed treatment availability (Rosenberg, Melville, & McLean, 2002), knowledge and attitudes of counselors (Abraham, Ducharme, & Roman, 2009) and nonmedical addiction professionals in community settings (Thomas & Miller, 2007), and injection aversion (Friedmann, Mello, Lonergan, Bourgault, & O'Toole, 2013), but have not been assessed in middle-income countries nor focused on MSM/TGW as a potential target population. This study presents findings from qualitative research designed to inform a clinical trial on the potential acceptability of XR-NTX for treating AUDs among MSM/TGW in Lima, Peru to reduce HIV risk, heavy drinking and improve ART adherence.

Method

Three focus groups (FGs) were conducted with 26 total participants in November, 2011 at Asociación Civil Impacta Salud y Educación (IMPACTA), a clinical and public health NGO in Lima, Peru that is dedicated to research and community education about HIV/AIDS and other sexually transmitted infections. This research was approved by Institutional Review Boards at Yale University, IMPACTA, University of California Los Angeles, and Fred Hutchinson Cancer Research Center.

Recruitment

Participants were recruited using a convenience sample of participants from a biobehavioral surveillance study conducted in 2011 designed to identify MSM and TGW at high risk for HIV infection. The inclusion criteria for the surveillance study have been previously documented (Nagaraj et al., 2013). Recruitment was based on sexual behavior, not sexual identity, and men who had sex with male or transgender partners but self-identified as heterosexual were

eligible. Individuals were asked to participate in a FG if they scored 8 or greater on the Alcohol Use Disorders Identification Test (AUDIT), a self-administered screening survey used to identify AUDs (Saunders, Aasland, Babor, de la Fuente, & Grant, 1993); data on individual AUD scores of participants is not available.

Study Procedures

FGs attempt to gain an understanding of the attitudes, beliefs, and perceptions of a specific population. For this study, a FG guide consisting of open-ended questions with probes was designed to elicit normative information on drinking behavior, sex, HIV, and perspectives on treatment for alcohol use problems among MSM/TGW. Questions were designed from literature on alcohol use, sexual behavior, and HIV/STIs and previous research conducted by the research team with this population on these topics (Fisher, Bang, & Kapiga, 2007; Schroder, Johnson, & Wiebe, 2009; Vagenas et al., 2013). A Peruvian facilitator trained in qualitative research with local MSM/TGW populations conducted and audio recorded the FGs in the presence of a note taker who wrote a summary of participants' responses. Each FG lasted 60 to 90 minutes. After each FG, the facilitator, note taker and on-site researchers would discuss the responses to identify preliminary patterns and themes. FGs were transcribed verbatim in Spanish, and then translated and back-translated by a bilingual English-Spanish speaker (Brislin, 1970). Because FG participants were recruited from the LGBT (lesbian, gay, bisexual and transgender) community in Lima and might still be identifiable, participants did not use identifiers during the FGs, resulting in responses not being traced to any one participant. Therefore, each quote is attributed to a specific FG and not to an individual. Each participant was compensated 55 Soles (US$20) for their time.

The FGs were arranged with MSM/TGW with AUDs in the following configurations to elaborate on certain aspects of the interaction between alcohol use and HIV risk: (a) HIV-uninfected participants to address general issues of alcohol use and sexual behavior; (b) HIV-infected participants to address general issues of alcohol use and sexual behavior as well as the impact of alcohol use on ART adherence; and (c) mixed HIV-infected and HIV-uninfected, to address potential acceptability of NTX treatment. Discussions addressed lived experiences as well as hypothetical situations, such as participating in a future clinical trial of XR-NTX to reduce HIV risk and improve adherence to ART. Participants were encouraged to ask questions about the medication and speculate about what structures and educational tools would be needed for MAT to be accepted by the MSM community. The HIV-infected group was specifically asked about the role of alcohol in the lives of HIV-infected men and its possible role in ART adherence difficulties. All groups were asked about potential acceptability of pharmacological treatment and other interventions for alcohol use, but to avoid the potential spread of misinformation about XR-NTX as a result of FG participation, only Group 3 received specific information about XR-NTX and discussed the medication by name.

Qualitative Analysis

FG transcripts were analyzed using content analysis to obtain salient themes from the participants' responses (Krueger & Casey, 2000; Onwuegbuzie, Dickinson, Leech, & Zoran, 2009). Two coders (SB, PV) conferred to develop the themes, analyzed the transcripts, and communicated preliminary findings to the research team. Using the FG guide and summaries, a set of preliminary topic categories was developed. The transcripts were reviewed using an in-depth, systematic strategy to identify patterns in responses and fit responses into the coding categories while revising preliminary categories to better fit the responses (Franzosi, 2008). Responses were organized under broader themes associated with the main topics from the interview protocols. This process was facilitated with the qualitative analytical software NVivo®.

Findings

Group-Level Participant Characteristics

Across the FGs, the participants were young (mean = 28.3 years; range = 20-40 years). The mean age of the participants in Group 1 ($N = 10$) was 26.0 years (range = 23-30 years) with three self-identifying as bisexual, three as TGW, three as heterosexual, and one as homosexual. Five participants were college educated, three finished high school, and two did not finish high school. Other demographic information on the participants, such as socioeconomic status, is not available. For Group 2 ($N = 6$) the mean age of the participants was 26.5 years (range = 20-38 years). Three participants were college educated and four had finished high school. Participants self-identified themselves as homosexual ($N = 3$), bisexual ($N = 1$), and TGW ($N = 2$). For Group 3 ($N = 10$), there were nine HIV-uninfected and one HIV-infected participant. The participants' mean age was 31.6 (range = 22-40) years. Four participants had college education, three finished high school, two had not finished high school, and one finished primary school. Four participants self-identified as homosexual, one as bisexual, one heterosexual, and one as a TGW. Two participants did not report their sexual orientation.

Links Between Alcohol Use and Sexual Behavior

During the FGs, participants were asked about changes in their behavior, especially sexual behavior, while drinking alcohol. The facilitator asked if sex is better with alcohol than without, and if participants believe that alcohol makes them do things they would not otherwise do. Participants in all three groups described the same phenomenon: alcohol increases sexual interest, makes shy people more adventurous, and increases the chances of having sex with strangers.

> When people are drunk they loosen up and want to touch you; also your sex drive rises and you get more sexual and passionate. (Group 1)

> Even the ones who are still in the closet, when they are drunk, they already want to feel you up, touch your leg. (Group 1)

> With alcohol you have the tendency of thinking many things. Alcohol changes us. You are in the disco, you look at a guy and you like him. You say, I want it [alcohol] till I have sex with that guy and you don't know who that guy is at the moment. (Group 3)

In addition to generally describing the influence of alcohol on sexual behavior, participants shared anecdotes about their own experiences:

> A friend from work, my best friend, used to drink pure pisco. All of a sudden I woke up naked with her in her bed. We are no longer good friends! (Group 1)

> I feel a bit shy, in my case, but then the guys start to approach and yes, I am already tipsy. (Group 2)

> One day I was asleep and I woke up and there was somebody sleeping by my side that I haven't seen before in my life. (Group 2)

For the participants, alcohol is an accessory to sexual encounters, some of which are not remembered.

Perceptions About Alcohol Problems

In discussing problems with alcohol, participants spoke more often about other people than themselves, even though all of the participants met screening criteria for an AUD. Most participants enjoyed drinking as part of regular social interaction, including binge drinking on weekends, and only considered problem drinking to be present if an individual's alcohol use prevented them from basic functioning on a daily basis (e.g., showing up for work, attending to family responsibilities, etc.). Each quotation comes from a different speaker.

> If you drink two or three days in a row and frequently during the week, that is an alcoholic, if he stops eating and likes drinking. I have friends and girlfriends that prefer beer over food. This would be an alcoholic person, who stops eating to drink beer. (Group 2)

> When they cannot stop drinking, like they say, when they drink daily, even if they do not have the money to drink and they do not even care about the damage their body could be going through. They just want to drink at any cost. (Group 1)

When participants compared their own behaviors with descriptions of people with alcohol problems, they added details about their social drinking as markers of their ability to practice restraint.

> These are the people who drink to excess, right? They are the kind of people who drink and get drunk. At least you are not addicted to alcohol—you remember [the evening's events], unless you get tipsy, very tipsy, but you remember. (Group 2)

> As I am having fun, I am not a drunk. I don't drink and drink and drink as if I had some type of anguish, right? I drink, I socialize, dance, sometimes I drink water, I "make it last," right? It is not that I drink as a competition. (Group 3)

> Once I have reached my limit, I grab the bottle and I serve myself just a little. I am enjoying the company and all but I serve myself less. (Group 3)

Participants described behaviors such as drinking water and filling their glasses halfway as habits to maintain control over their drinking. In this way, they distinguished themselves from people with drinking problems, which stem from depression or a lack of limits, in their views.

Alcoholism as a Treatable Condition

Participants in the FGs differed about whether or not alcoholism could be treated.

> I believe that an alcoholic has no cure, because if he/she always is going to drink and drink, he/she always is going to have this anxiety. It's like a human being when he is fat; eats, eats, and always eats more. (Group 2)

Of participants who believed that alcohol problems could be treated, the central idea in their responses was the notion that a patient must be self-motivated to be treated.

> If a person does not have self-control it is very difficult . . . the person has to have enough courage to confront this vice

> and say "no," "no more," but that is very difficult. Sometimes alcohol is stronger than you. (Group 3)

> The alcoholic has to know that he is an alcoholic, and if he doesn't recognize himself as an alcoholic, it is very difficult for him to get treated. (Group 3)

> I think that it can be treated. If it is a life threatening situation you can change. (Group 3)

> It depends how you have lived your life when you were in that period of being with the drinks and that wild look—a car had to run over me for me to say stop. (Group 3)

Participants who believed that alcohol problems could be treated suggested that extreme circumstances such as a life-threatening incident would be the catalyst for someone to make changes and develop inner self-control.

Speculations About Treatment Options for Alcohol Use Disorders

MAT for AUDs was described in all three groups by the facilitator but no participants had ever used or heard of it. Instead, counseling is the only treatment with which they expressed familiarity.

> You should have counseling, a place where a person can express himself, find within himself what he has done and define in the therapy, in this treatment, in that counseling, and that he can recognize, give himself the opportunity to confront himself and confront his inner "self" and move forward. (Group 3)

> Mainly in those groups they help you to talk and share, so that you never drink again. (Group 1)

Counseling was considered a possible treatment for AUDs of a shared belief that counseling brings about inner healing since during counseling sessions "you can learn to love yourself" (Group 1).

Potential Problems of MAT Adherence

Across the FGs, participants identified potential problems of adherence to MAT such as distrusting the efficacy of the medication or stopping treatment when positive effects are achieved. A few participants in Group 3 described worries about pill frequency and nausea, which they associated with taking medications. The adverse effects that they describe are what they imagine would happen, not their actual experiences of taking medications generally or to treat AUDs.

> There isn't a pill that says that if you take the pill you are going to want to stop drinking. (Group 2)

> If [doctors] say "you have to take this dosage of pills" someone doesn't do it, someone takes one pill, he feels good and stops taking the rest. Because we are lazy . . . (Group 3)

> I believe that pills do not help in anything. (Group 2)

> You are still drugging. Even you don't drink alcohol you are taking the pill and if you take the pill to avoid the alcohol, you are drugging. (Group 2)

> I leave a problem to be in another problem; about the daily pills for not drinking, it would be better to take occasionally per week and not take a daily pill. (Group 2)

Participants expressed doubts about the potential for medical treatment for alcohol problems, describing daily pharmacologic therapy as a burden that substitutes one drug for another.

Necessary Components of Treatment for AUD

Three concepts emerged as necessary components of a treatment program for alcohol problems: attaching a cost to the medication, client's family support, and the potential to drink less alcohol without total abstinence. Participants preferred the inclusion of a nominal fee for the treatment to providing medication for free. In Group 3, the group that specifically discussed NTX, participants stated that due to its high cost, NTX should not be given for free, either because the participants would feel indebted to the investigators, because they would not have any "buy-in" to the treatment, or because they would suspect that they were being given an ineffective or potentially harmful substitute:

> Nothing is free in this life. Why are you giving it to me for free? There is always doubt. (Group 3)

> I would think that the medicine [is] stolen. (Group 3)

> An accessible but important enough cost would give people more desire to buy, an effort to buy it and start it. (Group 3)

> You eliminate the sense . . . of being guinea pigs or lab rats—"they are experimenting with me." (Group 3)

Treatment cost was very important to the participants and suggests a broader question about how these individuals relate to clinical trials in general. Receiving free access to an expensive medication was described as problematic, both by raising suspicion of the investigators' motivations as well as by limiting participants' personal investment in the treatment. Family support was mentioned in the FGs as an important part of treatment:

> First, he has to think of himself and the family has to back him up. This means it would be a start to begin the treatment. (Group 3)

> From the family, the friends, support from your circle, right? (Group 2)

When participants discussed MAT in terms of their own drinking, they expressed initial willingness in using a medication to drink "less" alcohol, but the participants began to specify that they did not want to reach total abstinence from drinking. Although all participants in our study had been screened for AUD during the surveillance study, most considered social drinking important to their lives and not problematic, and did not want to give up drinking alcohol altogether:

> Something would be missing, because, if I'm going to have fun I'm not going to be with my bottle of water. (Group 2)

> I would prefer something that would make you want it in a lesser degree. An alcoholic with a glass . . . gets a little tipsy and is looking to drink more. I would like something that diminishes my urges to drink more. (Group 3)

> I like alcohol and I know I can control myself, I mean I am not an alcoholic. (Group 1)

> Well, if I know that I am going to drink in excess, then I think so. (Group 1)

> If we could drink less would be excellent because if you want to drink ten, with that you can help control your intake level, but it depends on your experience right? (Group 3)

> A little glass, it's always necessary. (Group 2)

Discussion

Given the high prevalence of AUDs among Peruvian MSM/TGW overall (Ludford et al., 2013), and among them in HIV care (Ferro et al., 2015), it is crucial to understand their understanding of the relationship between their drinking on sexual risk-taking, medication adherence, and on the potential for receiving treatment. In this study, MSM/TGW with AUDs were noticeably cognizant that drinking large amounts of alcohol resulted in decision making that put them and their partners at risk, yet they remained quite unaware that MAT existed, but were open to treatment with MAT under certain circumstances where the pharmacological treatment would help them "drink less" without the expectation of achieving total abstinence. Consequently, MAT like NTX that blocks the euphoric response to alcohol might have a beneficial impact on HIV risk behaviors and ART adherence and not require patients to be abstinent, while MAT like disulfiram, which causes numerous unpleasant symptoms with any alcohol consumption and would be less acceptable to participants. Thus, it was important to assess the potential acceptability of MAT to treat AUDs among MSM/TGW and identify possible facilitators and barriers to introducing this intervention in a clinical trial setting.

The current standard of care for AUDs in Peru is counseling (Ministerio de Salud, 2006), despite evidence that intensive counseling is inferior to NTX (Anton et al., 2006) and MAT could be incorporated into a comprehensive treatment for populations at-risk for HIV transmission. The near complete unawareness about MAT presents a barrier to uptake, unless dissemination was linked to making a diagnosis of an AUD, providing the medical justification for treatment, motivating patients about effective treatment options, and making it routinely available. Thus, brief interventions recommended by World Health Organization (Babor & Higgins-Biddle, 2001; Saunders et al., 1993) for screening, providing brief counseling interventions, and linking patients to treatment will be required with introduction to MAT.

Based on their responses, participants did not perceive problematic alcohol use as occurring across a continuum of drinking, as defined by *Diagnostic and Statistical Manual of Mental Disorders–Fifth edition*. Instead, they defined a person with alcohol problems as being only those with the most severe problems—someone who has no limits, who is experiencing "some type of anguish," whose employment is negatively affected, and who has to encounter an extreme incident in order to recognize themselves as having a drinking problem. By contrast, participants described their own drinking habits as having a fun, social purpose and minimized their role in drinking through statements such as "they want to get me drunk." Participants described harm reduction strategies such as occasionally drinking water, but recent research has identified that for this population, drinking water at discos is a socially unacceptable behavior because consuming alcohol is more preferable (Vagenas et al., 2015). Participants insisted that they do not have drinking problems and spoke in abstractions about how a person with alcohol problems could be helped, without connecting their recommendations to their own lives. Their use of language evoking 12-step recovery models suggests that future interventions may be able to build on the evident rhetoric of transformation (Swora, 2004) that the participants already use. Perhaps recognition of the local social importance of alcohol in conjunction with empowerment and solidarity (O'Halloran, 2006) among the MSM and TGW in communities around Lima may encourage further discussion about treatment for AUDs.

One participant in the HIV-infected group called alcohol problems a "social problem with a medical solution." Participants were interested in maintaining social drinking

but avoiding problematic drinking. The consensus across the groups was that alcohol problems can be treated through counseling, especially group counseling, because of its ability to forge new relationships with people and begin to change behaviors. Statements about the importance of family support address a similar point: the perceived importance of social support, whether from family members, friends, or a therapy group, for successfully controlling AUDs. This point is particularly important because it also relates to the issue of how alcohol is heavily integrated into social interactions among MSM/TGW in Peru.

Similar to the way participants distinguished their own drinking behaviors from those with alcohol problems, they discussed MAT in terms of medication for AUDs for people other than themselves. Participants seemed willing to try MAT yet preferred not to entirely abstain from alcohol use. Potential pharmacotherapy clients may not be highly motivated to change their drinking and they may not believe that AUDs can be treated using medications; addressing what constitutes problem drinking will be crucial as part of future educational interventions for this population. This approach is currently recommended as part of the AUDIT manual for providing brief interventions for AUDs, where AUDs are presented along a continuum and attempts to address information and motivation deficits (Babor & Higgins-Biddle, 2001), which were clearly identified by the responses of study participants who were misinformed about what problems with alcohol entail and what are evidence-based strategies for treatment. This approach is central for the effectiveness of Screening, Brief Intervention, and Referral to Treatment strategies where the brief intervention is crucial to link individuals with substance use disorders to effective treatment (Krupski et al., 2010; Madras et al., 2009; Quanbeck, Lang, Enami, & Brown, 2010; Robinson, 2010; Vaca & Winn, 2007; Vaca, Winn, Anderson, Kim, & Arcila, 2011).

As research on and dissemination of MAT continues, it will become increasingly important to identify and integrate available MATs as smoothly as possible into an existing social framework, which influences how a medication is believed to work. Although disulfiram has good outcomes for patients whose medication is supervised and who wish to remain abstinent from drinking (Pedersen, Askgaard, & Oppedal, 2013), findings here suggest it would be unacceptable here where drinking is ubiquitous and socially important and where lower levels, but not abstinence, is the stated goal. By contrast, oral or XR-NTX, in conjunction with counseling-based therapy, may improve acceptability of a pharmacotherapy for MSM/TGW with AUDs. The ability to administer treatment at extended intervals, and its effect on controlling binge drinking, as opposed to completing eliminating alcohol use, are consistent with reported patterns of social drinking and the normative use of alcohol in this population.

Limitations

Specific characteristics of our study may limit the generalizability of our findings. Limitations of time and resources meant that the research design had a fixed number of groups rather than continuing in an open-ended process until achieving saturation. Three FGs is a small number, but they have yielded important information about perspectives on the relationship between alcohol and risky behaviors and medication adherence and on acceptability of treatment, with or without medication. FGs as a method elicit normative information, not deviant information, and it is often difficult for someone in a FG to provide an opinion contrary to the group norm. Thus, one-on-one interviews might identify additional MAT facilitators and barriers for improving adherence to ART. In addition, only one of our groups received information specifically about NTX, while the other two were asked to discuss medication for alcohol dependence more broadly. Consequently, comparisons of responses specifically about NTX are not available. Including MSM and TGW in the same FGs may have affected the interpersonal dynamics of the participants, and participants may not have been treatment seeking at the time of the FG. Stratifying the participants by MSM and TGW may provide richer insights. Smaller age ranges might reveal important information about how drinking alcohol changes over a person's lifetime and may identify important stages where interventions may be targeted. Despite these limitations, our findings provide important information on the social contexts of alcohol use and the potential for pharmacologic therapies to reduce problem drinking and improve antiretroviral adherence in this population.

Conclusions

For MSM/TGW, drinking alcohol has strong social importance meaning that is not easily modifiable. The expressed desire to be able to reduce, but continue drinking while being treated for AUDs restricts intervention options for this population, but creates opportunities for educating and motivation MSM/TGW about MAT opportunities for individuals with AUD, which are not widely available or endorsed in Peru. Central to introducing evidence-based interventions for treating AUDs in this context where heavy drinking is normative and MAT is not readily available will require sufficient screening, delivery of counseling interventions that address information and motivation deficits, and then provide a culturally

appropriate and accurate array of evidence-based treatment options is crucial. Additionally, these findings have broader implications for social marketing campaigns more broadly. For MSM/TGW with AUDs, the use of NTX appears to remain a viable option since it does not have the negative reinforcing factors inherent in medications like disulfiram that induces aversive flushing, nausea, and vomiting when alcohol is consumed while taking it. More specifically for PLH with AUDs, better education is needed to link drinking with problematic adherence.

Acknowledgments

The authors would like to thank the participants for their time and effort and the staff at IMPACTA, UCLA Program in Global Health, and the Yale University AIDS Program for their help and support.

Declaration of Conflicting Interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding

The author(s) disclosed receipt of the following financial support for the research, authorship, and/or publication of this article: This research was funded by the National Institute on Drug Abuse for research (R01 DA032106) and career development for FLA (K24 DA017072) and diversity supplement for SB (R01 DA030768).

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