


Development and Cultural Adaptation of a Computer-Delivered and Multi-Component Alcohol Reduction Intervention for Russian Women Living with HIV and HCV

Journal of the International
Association of Providers of AIDS Care
Volume 20: 1-7
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DOI: 10.1177/23259582211044920
journals.sagepub.com/home/jia


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Abstract

Background: There is elevated prevalence of problem drinking among Russian women living with HIV and HCV co-infection. This paper describes the development and cultural adaptation of a multi-component alcohol reduction intervention incorporating a brief, computer-delivered module for Russian women living with HIV and HCV co-infection.

Methods: The format and content of the intervention were adapted to be linguistic-, cultural-, and gender-appropriate using the ADAPT-ITT framework. A computer-delivered module and brief clinician-delivered individual and telephone sessions were developed.

Results: We describe the theoretical foundations of the intervention, the cultural adaptation of the intervention, and overview the content of the intervention's multiple components.

Discussion: Interventions to reduce alcohol use that can be integrated within Russian HIV treatment centers are urgently needed. If efficacious, the culturally-adapted intervention offers the promise of a cost-effective, easily disseminated intervention approach for Russian women living with HIV/HCV co-infection engaging in problematic alcohol use.

Keywords

Alcohol reduction intervention, computerized intervention, HIV, HCV, Russian women, multi-component intervention

Date received: 12 January 2021; revised: 23 July 2021; accepted: 22 August 2021.

The Human Immunodeficiency Virus (HIV) and Hepatitis C Virus (HCV) epidemics are intertwined in Russia. As of 2017, there were approximately 1,000,000 people living with HIV (PLWH) in Russia; a prevalence exceeding 1% among adults.¹ Women comprise over one-third (37%) of PLWH in Russia;¹ a rate that has tripled since 2006.² The severity of the HIV epidemic in Russia is further compounded by the intersecting HCV epidemic. A recent meta-analysis of HCV co-infection among PLWH estimated 2.4% of PLWH globally are HCV co-infected.³ However, rates of HIV and HCV

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Supplemental Questions

What do we Already Know About This Topic?

Despite the prevalence of problematic alcohol use and alcohol use disorder among Russian women living with HIV and co-morbid HCV, there are no efficacious, culturally-tailored alcohol reduction interventions for this population.

How Does Your Research Contribute to the Field?

Our research describes the development and cultural adaptation of a multi-component alcohol reduction intervention incorporating a brief, computer-delivered module for Russian women living with HIV and HCV co-infection.

What are the Research's Implications Toward Theory, Practice, or Policy?

The newly designed multi-component alcohol reduction intervention offers a promising approach to address problematic alcohol use within Russian HIV care settings.

co-infection are elevated in Russia; for example, among a sample of women receiving HIV treatment in Saint Petersburg, 57.1% were co-infected with HCV.⁴ The higher prevalence of HIV and HCV co-infection may reflect the impact of injection drug use (IDU) in Russia.^{5,6} For instance, across eight Russian cities, 71% of individuals who inject drugs were infected with HCV.⁷

Problematic alcohol use and alcohol use disorder are common among PLWH⁸ and within Russia.⁹ A meta-analysis of PLWH estimated the prevalence of alcohol use disorder to be 29.8%.⁸ Additionally, a recent meta-analysis of Russian individuals estimated that 55% engaged in heavy episodic drinking in the past month and 58% met diagnostic criteria for alcohol use disorder.¹⁰ Problematic alcohol use has been associated with engagement in other risk behaviors including decreased condom use,¹¹ having multiple sexual partners,¹² and poorer adherence to antiretroviral (ARV) medications.^{13,14}

Elevated alcohol use may lead to a variety of deleterious health consequences for HIV and HCV co-infected individuals. For example, consumption of higher alcohol content drinks was associated with higher HIV viral loads among PLWH in Russia.¹⁵ Alcohol dependence may result in neurocognitive impairment, diminished cerebral cortex functioning, and increased prevalence of HIV-associated dementia.^{16,17} In addition to health complications posed by alcohol directly, interactions between alcohol and ARV medications heighten the health risks posed to HIV-infected individuals who engage in problematic alcohol use. Alcohol and ARV medication interactions may contribute to hepatotoxicity and liver disease,¹⁸⁻²⁰

which may be accelerated by co-morbid HCV.²¹ Alcohol use is also associated with worsening liver damage, elevation of inflammatory biomarkers, and accelerated progression of HCV disease course.^{18,22,23}

Despite the prevalence of problematic alcohol use and alcohol use disorder among PLWH and associated deleterious health complications, there have been a limited number of alcohol reduction interventions developed for PLWH.²⁴⁻²⁶ Further, to our knowledge, there are no efficacious alcohol interventions tailored to individuals with HIV and HCV co-infection and a paucity of interventions that are gender-tailored for female PLWH.²⁴ Meta-analytic findings indicate that alcohol reduction interventions for PLWH are efficacious in reducing the quantity of alcohol consumed and frequency of heavy drinking relative to comparison conditions.²⁵ Further, reductions in alcohol use are enhanced in interventions that focus exclusively on alcohol use.²⁵ However, the majority of interventions have incorporated alcohol reduction content within interventions targeting multiple health behavior outcomes (eg, enhancing ARV adherence, reducing sexual risk behaviors).^{24,25} For example, Samet and colleagues (2015) evaluated the efficacy of a multi-session intervention (2 individual, 3 group sessions) to reduce incident sexually transmitted infections (STIs) along with secondary outcomes including HIV transmission behaviors (eg, needle sharing) and alcohol use among Russian PLWH who were heavy drinkers. Results indicated the intervention was not associated with fewer incident STIs, reduced alcohol use, or other HIV transmission behaviors across the 12-month follow-up relative to the time-matched control condition.²⁷ Collectively, there is evidence to suggest alcohol-focused interventions for PLWH are efficacious, but to date there are no efficacious alcohol reduction interventions for Russian PLWH.

Extant alcohol reduction interventions for PLWH have typically employed multiple individual sessions delivered by an experienced clinical provider, an approach that is both labor- and time-intensive.^{24,25} Computer-delivered alcohol reduction interventions represent a potentially cost-effective and more easily disseminated intervention approach that can be delivered within HIV care settings²⁴ that are acceptable to PLWH.²⁸ Brief computer-delivered interventions have been efficacious in reducing alcohol use.^{29,30} Such interventions typically seek to enhance motivation to reduce alcohol use (consistent with a harm reduction approach), while also acknowledging that some individuals may desire to discontinue drinking completely (consistent with an abstinence approach). Meta-analytic findings of computer-delivered alcohol interventions indicate larger effect sizes for interventions that incorporate some personal contact, provision of normative feedback on performance, establishment and review of alcohol goals, and among samples with more women.³⁰ Thus, there is evidence to suggest that brief, theory-driven alcohol reduction interventions may be an efficacious, feasible, and acceptable approach to reduce alcohol among women living with HIV.

Given the rapidly escalating rate of HIV among Russian women, heightened prevalence of HIV and HCV co-infection

in Russia coupled with problematic alcohol use, there is a need to develop efficacious interventions that can be implemented within HIV care settings for Russian women. The use of computerized interventions may reduce staff and time burdens, making them a more feasible and cost-effective approach to reach a wider subset of women with HIV and HCV co-infection. While previous studies have found brief, computer-delivered alcohol interventions to be efficacious in other populations, gender- and culturally-tailored interventions for PLWH, especially those with HCV co-infection are limited. In this paper we describe the development and cultural adaptation of a computer-delivered alcohol reduction intervention coupled with a brief clinician session and booster telephone contacts for Russian women living with HIV and HCV. We describe the theoretical foundation and intervention approach, cultural adaptation of intervention content, and the content of the multi-component intervention comprised of a computer-delivered module, a brief clinician session, and booster telephone contacts.

Methods

Theoretical Foundations

The intervention was informed by Screening, Brief Intervention, and Referral to Treatment (SBIRT) approaches such as those described by Substance Abuse and Mental Health Service Administration's SBIRT Technical Assistance Program (TAP 33)³¹ with an emphasis on components that could be administered within the context of an HIV medical care setting via a computer-delivered approach. In accordance with meta-analytic findings contributing to the efficacy of brief, computer-delivered alcohol reduction interventions,³⁰ the intervention incorporated normative feedback regarding current drinking and relevant social norms related to alcohol use. Further, the computer-delivered component was bolstered by a short personalized clinician session and telephone contacts; use of personal contact to complement computerized interventions have been shown to bolster intervention efficacy.³⁰ The intervention also incorporated motivational interviewing techniques in both the computer- and clinician-delivered components; motivational interviewing has received continuing and significant empirical support in the context of successful, brief behavior change interventions with samples using alcohol and other substances.³²

Cultural Adaptation

The adaptation of intervention content was informed by the ADAPT-ITT framework to enhance the linguistic-, cultural-, gender-appropriateness for Russian women with HIV/HCV co-infection.³³ ADAPT-ITT is one of the most widely used models to guide adaptation of evidence-based HIV interventions for other cultural contexts and populations.^{33,34} In accordance with this framework, we first conducted individual elicitation interviews with a sample of 30 Russian women

living with HIV and HCV who endorsed elevated drinking. The elicitation interviews employed a structured interview guide and assessed the unique alcohol use patterns of this population, the cultural context in which alcohol use occurs, and preferences for intervention delivery and content. Consistent with the ADAPT-ITT framework, the elicitation interviews sought to enhance the cultural adaptation of the intervention content within this population via structured prompts. For example, women identified situations where increased alcohol use was common within the Russian context (eg, elevated drinking during certain holidays, increased alcohol use with family members); these situational factors were incorporated into vignettes to illustrate intervention concepts. Women also identified challenges to reducing or abstaining from alcohol use (eg, cultural norms around frequent consumption of alcoholic beverages) that were incorporated into intervention activity examples. Further, the elicitation interviews identified several knowledge gaps regarding the impact of alcohol use on HIV and HCV health outcomes. Next, the collaborative, multi-disciplinary U.S. and Russian study team identified brief alcohol reduction intervention modules for adaptation and theater tested the adapted content. Theater testing is a pre-testing methodology within the ADAPT-ITT approach where the intended audience (ie, Russian women living with HIV and HCV) view the intervention and provide feedback to further refine the intervention's content and format.³³ An initial draft of the intervention was developed and the Russian team provided culturally-appropriate images, graphics, and drafted short vignettes of experiences of Russian women living with HIV and HCV drawn from the qualitative elicitation interviews. Topical experts on both the U.S. and Russian teams then reviewed and iteratively revised the adapted intervention content. After the intervention content was adapted, the Russian study team was trained in the administration of the intervention, particularly the clinician-delivered individualized session and brief telephone contacts. All content was also reviewed to be linguistically appropriate for the population by a bilingual investigator who also provided the complementary audio digital recordings that accompanied content in the computer-delivered intervention.

Intervention Approach

The intervention included multiple, brief components that could be delivered within the context of an HIV care setting. The intervention included the following components: (a) brief computer-delivered alcohol reduction intervention (~20 min); (b) clinician-delivered brief motivational enhancement session (~10 min); and (c) booster telephone calls (~5 min). The computer intervention and clinician sessions were delivered at baseline with abbreviated versions of each administered at three- and six-month follow-up visits. Two booster telephone calls were made between each of the baseline, 3-, 6-, and 9-month visits; a total of six booster telephone calls were attempted across the nine-month period.

Computer-Delivered Brief Alcohol Reduction Intervention: Format. *Intervention programming.* The computer-delivered intervention was created using MediaLab software.³⁵ MediaLab offers a flexible programming framework for integrating assessments and intervention content from a variety of media formats (eg, video, audio, questionnaires). The intervention was designed to be administered on a laptop or desktop computer equipped with headphones. The use of MediaLab software facilitated the creation of an engaging intervention format by incorporating culturally sensitive text, audio, pictures, and other interactive media.

Intervention narrator. The computerized session had a narrator (“Natalia”) who served as the clinician and provided information overviewing the intervention and introduced content throughout the computerized session.

Culturally-adapted vignettes. The intervention incorporated culturally-adapted vignettes of two Russian women living with HIV and HCV (“Maria”, “Anna”) drawn from qualitative elicitation interview responses. Vignettes were designed to make the intervention content more relatable and illustrate cultural and context-specific elements of alcohol use among Russian women living with HIV and HCV. Additionally, the narrator used the vignettes to illustrate the application of intervention skills and to provide normative feedback regarding alcohol use.

Culturally-adapted images and graphics. As part of the intervention adaptation process, the Russian study team identified images that would be culturally appropriate for the narrator and vignette characters. Local images of Saint Petersburg were utilized throughout the intervention. Graphic images to illustrate intervention concepts were also adapted for the Russian context; for example, the sample drinks and size equivalents for standardized drinks were modified to be culturally appropriate.

Individually tailored exercises and feedback. Throughout the intervention, participants were prompted to complete exercises to apply core alcohol-reduction concepts and practice alcohol reduction skills. The activities were delivered via computer and required participants to respond to prompts. For example, participants responded to questions regarding their drinking goals and personal strategies to modify their current alcohol patterns. Following each exercise, participants received tailored feedback based on their responses through programming branching logic. Thus, the program was highly engaging and involved practice exercises with tailored feedback.

Computer-Delivered Brief Alcohol Reduction Intervention: Content. *Psychoeducation regarding effects of alcohol use on HIV and HCV.* The intervention included information regarding the potential negative health consequences of alcohol use, generally, and more specifically the impact on HIV and HCV disease progression. For example, content highlighted the possibility of accelerated liver disease and interactions with prescribed medications.

Assessment of problem alcohol use and feedback. Participants completed the alcohol questions from the

Alcohol, Smoking, and Substance Involvement Screening Test (ASSIST).³⁶ The ASSIST was created by the World Health Organization to screen for problematic alcohol and other substance use; the ASSIST has been translated into Russian and validated among a sample of Russian participants. Responses to the alcohol questions were summed to create the alcohol involvement score. Participants received feedback regarding their drinking via the corresponding risk classification established by the ASSIST.

Monitoring alcohol use. Participants first received information regarding standard drinks for different alcoholic beverages. The intervention included an interactive Timeline Followback activity for participants to record their alcohol use during the past month.³⁷ This component utilized a calendar where participants would first indicate salient events during the last month (a technique to aid recall) and then document the number of standard drinks consumed on each day. The number of standard drinks consumed in the past month was totaled.

Personalized alcohol goal setting and motivational enhancement. Participants first received information regarding the number of standard drinks consumed in the last month. Next, participants reflected on whether they were interested in either: (a) reducing their drinking (a harm reduction goal) or (b) stopping drinking completely (an abstinence goal). For those with a harm reduction goal, participants engaged in exercises to determine the planned number of drinking days and quantity of alcohol use for the coming month. To enhance motivation to reduce or abstain from alcohol use, intervention activities assessed personal reasons to modify drinking patterns and employed motivational interviewing approaches (eg, “How important from 0–10 is your identified drinking goal?”).

Identifying alcohol triggers and high-risk situations. Participants engaged in an exercise to identify potential triggers or high-risk situations for alcohol use. For example, participants responded to prompts regarding whether there were places, people, or other situational circumstances when they would be more likely to drink. At the end of this activity, participants generated a list of potential high-risk situations for drinking. Thus, the activity drew upon principles of functional analysis (a behavioral substance use treatment approach), namely the identification of high-risk antecedent factors associated with alcohol use, patterns of alcohol use, and corresponding reinforcers of drinking.³⁸

Strategies for reducing alcohol use and managing alcohol cravings. The final section of the intervention provided strategies to reduce alcohol use and manage cravings. Behavioral strategies were presented to avoid triggers and navigate high-risk situations (eg, limiting access to alcohol). Strategies also included pacing alcohol consumption, spacing alcoholic drinks with non-alcoholic drinks, and not consuming alcohol on an empty stomach. For participants experiencing alcohol cravings, strategies to manage cravings included use of distraction, delaying drinking, relaxation, and listing reasons for not drinking. Participants were also given a worksheet to record situational features associated with drinking occasions or those times when they experienced high-risk situations or cravings

to drink but did not consume alcohol. Lastly, assertive communication skills to refuse alcohol were incorporated.

Clinician-Delivered Brief Motivational Enhancement Session: Format. The brief clinician-delivered intervention was designed for delivery by a wide range of clinicians who have no specialty training in addiction treatment. The session employed a motivational enhancement approach to augment participants' motivation and confidence to change their drinking. The session utilized participants' responses to the computerized intervention to tailor session content. Specifically, the session incorporated the participant's score on the ASSIST and corresponding risk stratification, personalized drinking goal (abstinence, harm reduction), and identified alcohol reduction strategies from the computer-delivered component. The session was designed to be approximately ten minutes in length. Clinicians were provided with a session outline with suggested scripting for each of the content areas.

Clinician-Delivered Brief Motivational Enhancement Session: Content. The clinician-delivered session was designed to reinforce content covered in the computerized intervention. First, the clinician reviewed the participant's ASSIST score, provided normative feedback regarding current alcohol use, and elicited the participant's understanding of the potential health effects posed by current alcohol use. Next, the clinician sought to enhance the participant's motivation to modify their alcohol use by employing motivational interviewing techniques. For example, participants identified personally motivating factors to modify their drinking along with their confidence to do so. Clinicians then reviewed the participant's identified harm reduction or abstinence goal and solidified the goal on a written goal worksheet that included both the planned number of weekly drinks and number of drinks per occasion. Last, the clinician and the participant jointly reviewed the strategies identified to support efforts to reduce alcohol use and listed them on the goal worksheet.

Booster Telephone Contacts. Between each of the three-month follow-up sessions, participants received two brief telephone contacts of approximately five to ten minutes in length. The phone session was delivered by a clinician employing a motivational enhancement approach. The phone call began by reviewing the participant's drinking goal and discussion of successes and challenges with progress towards the identified goal. As necessary, the clinician discussed a modified drinking goal and reviewed potential strategies to facilitate progress towards the identified drinking goal and address recent challenges encountered.

Ethical Approval and Informed Consent

The Institutional Review Boards of New York University (Number IRB-FY2019-2519) and Saint Petersburg State University (number 02-186) approved all study protocols. Written informed consent was obtained from all participants.

Discussion

Despite recent reductions in per capita alcohol use, Russia continues to experience elevated prevalence of problematic drinking and alcohol use disorder.⁹ Data suggest that HIV/HCV co-infected individuals engage in elevated rates of problematic alcohol use. For example, among a sample of Russian female PLWH in HIV medical care in Saint Petersburg, there was heightened problematic drinking, as measured by the AUDIT, among HIV/HCV co-infected women relative to Russian women with HIV mono-infection.⁴ Despite the adverse health complications posed by alcohol among those with HIV/HCV co-infection, there is a paucity of efficacious alcohol-reduction interventions for this at-risk population.²⁴

Within Russia, collaborative treatment models to address psychiatric and substance use disorders within HIV care settings along with access to specialty addiction treatment are limited.³⁹ Development of brief alcohol reduction interventions that can be integrated within HIV treatment settings are urgently needed. SBIRT approaches to identify and intervene in early stages of problem drinking coupled with referral to more intensive treatment services when necessary have demonstrated efficacy in primary care⁴⁰ and HIV treatment settings.⁴¹ However, SBIRT in primary care settings among PLWH is not routinely utilized.³⁹ Brief computer-delivered alcohol reduction interventions, especially those complemented with personal interactions, have been efficacious in reducing alcohol use among PLWH.^{25,30} The newly developed intervention, if efficacious, may offer one viable strategy to provide brief alcohol reduction content within a SBIRT approach within the Russian HIV treatment settings. The use of implementation science approaches to effectively integrate the intervention within an HIV care context may aid the broader dissemination of the intervention approach.

Cultural adaptation of existing alcohol evidence-based interventions allows for more rapid dissemination and uptake by providers.³³ Utilizing the ADAPT-ITT framework, the collaborative U.S. and Russian study team adapted the intervention content and format to be locally appropriate for the Russian context, including delivery in HIV care settings, an approach that should enhance credibility among the at-risk population of women living with HIV/HCV co-infection. The ADAPT-ITT framework provides a systematic approach to adapt not only the content of extant evidence-based interventions, but also the adaptation to a digital, computer-delivered format.^{42,43} As such, the intervention content was adapted to optimize the brief, interactive computer-delivered format.

The adapted multi-component intervention is currently being evaluated relative to a treatment as usual control condition (NCT03362476) to gather preliminary data regarding the intervention's efficacy to reduce alcohol use as measured by an alcohol biomarker ethyl glucuronide. Future research should examine the acceptability of the developed intervention approach among Russian women living with HIV/HCV and clinicians who delivered the intervention. Should the intervention demonstrate efficacy, future research should consider the development of a complementary intervention approach for HIV/HCV co-infected Russian men and

explore optimal strategies to disseminate the intervention to other Russian HIV treatment centers. Additional efforts to incorporate systematic alcohol screening within Russian HIV care contexts will also bolster the integration of this and other intervention approaches for at-risk drinkers.




Acknowledgments

This study was funded by the National Institute on Alcohol Abuse and Alcoholism (R01AA025882: DiClemente, Brown: MPI).

Ethical Statement:

Our study was approved by the New York University Institutional Review Board (IRB-FY2019-2519). All participants provided written informed consent prior to enrollment in the study.

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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 work was supported by the National Institute on Alcohol Abuse and Alcoholism (grant number R01AA025882).

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