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Medical Reasons for Limiting Drinking: Data from a Sexual Health Clinic

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Abstract

Background.—Heavy drinking poses health risks for individuals with HIV, and some individuals with HIV attempt to reduce drinking. Little is known about whether medical reasons motivate HIV-infected individuals to reduce drinking.

Objectives: We evaluated medical reasons for limiting drinking among patients in a sexual health clinic, and explored whether these reasons could be operationalized as a new scale for research and clinical use in sexual health clinics.

Methods.—A sample of 70 patients in a sexual health clinic who reported efforts to limit drinking in the past month (84% with self-reported HIV; 81% male; 50% Black) completed a nine-item medical reasons for limiting drinking scale on a tablet while waiting for their appointment. Exploratory factor analysis was performed to evaluate psychometric properties of the scale.

Results.—Patients most commonly endorsed general concerns about health, and concerns about alcohol's effect on the liver. Support was found for a unidimensional (one-factor) eight-item scale, which evidenced good internal consistency ($\alpha=0.84$). Results were identical when analyses were restricted to the subset of 59 individuals who self-reported HIV infection.

Conclusions/Importance.—This study suggests that individuals in a sexual health clinic most commonly endorse broad non-specific concerns about drinking and health, as well as concerns about their liver. This study yields an 8-item scale to measure medical reasons for limiting drinking in sexual health clinics and among individuals with HIV. This scale should enhance researchers' ability to study this important construct and may facilitate discussion of drinking reduction with HIV-infected heavy drinkers, requiring future study.

Keywords

HIV; Alcohol; Drinking; Limiting; Scale

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1. Introduction

Alcohol poses significant risks to morbidity and mortality at a population level (McGinnis & Foege, 1993; Mokdad, Marks, Stroup, & Gerberding, 2004). Many individuals choose to limit the amount they drink or even to abstain (hereafter simply referred to as limiting drinking), for varied reasons (Amodeo & Kurtz, 1998; Bernards, Graham, Kuendig, Hettige, & Obot, 2009; de Visser & Smith, 2007; Emery, Ritter-Randolph, Strozier, & McDermott, 1993; Hesselbrock, O'Brien, Weinstein, & Carter-Menendez, 1987; Huang, DeJong, Schneider, & Towvim, 2011; Johnson, 2004; Knupfer & Room, 1970; Kranitz, 2008; Matzger, Kaskutas, & Weisner, 2005; Moore & Weiss, 1995; Slicker, 1997; Stritzke & Butt, 2001). For populations already living with serious medical conditions such as HIV, alcohol-related harms and reasons for reducing drinking may be particularly salient.

For individuals with HIV, alcohol can negatively impact health in a multitude of ways. Although heavy drinking has been defined in varied ways in previous research (e.g., exceeding daily limits or cutoffs on screening measures), heavy drinking has generally been found to impede engagement in care (Vagenas et al., 2015), with most attention to interference with medication adherence (Azar, Springer, Meyer, & Altice, 2010). There is also evidence that heavy drinking contributes to liver damage for those with HIV, particularly in those with hepatitis co-infection (Barve et al., 2010), and may impact immune function (Williams et al., 2016). Consistent with these harms, some individuals with HIV report that they try to limit the amount that they drink (J. C. Elliott, Aharonovich, O'Leary, Johnston, & Hasin, 2014). However, we know relatively little about what medical concerns HIV-infected individuals have about their drinking, and whether those with more medical concerns drink less.

A greater understanding of medical reasons for limiting drinking among individuals with HIV may facilitate effective intervention with their heavy drinking. Future research in this area would be facilitated by a brief scale of medical reasons for limiting drinking. The current study aims to describe medical reasons for limiting drinking among individuals in a sexual health clinic and to develop such a scale.

2. Materials and Methods

2.1 Participants

Patients consecutively presenting for treatment at a sexual health clinic were approached in the waiting room and invited to complete a brief (less than five minute) anonymous survey using a tablet. The survey queried demographics, health (e.g., HIV and HCV status), and substance use. The clinic primarily provides treatment for individuals with HIV, but also provides treatment for other infectious diseases (hepatitis C, sexually transmitted infections) and provides pre-exposure prophylaxis (PrEP) to HIV-uninfected persons. The clinic treats

adult men and women, and is racially and ethnically diverse. Eligibility criteria for the survey required patients to be at least 18 years of age, a patient in the clinic, and able to speak and read English. A total of 210 patients completed the survey in a nearby room for privacy. Patients read a consent statement and clicked forward to indicate consent. The study received institutional review board (IRB) approval. Patients received a round-trip subway fare card for their participation.

Patients who endorsed an item on the survey indicating that they had attempted to limit their drinking in the past month ($n=70$) completed the medical reasons for limiting drinking scale. These 70 patients were on average in middle adulthood (mean age = 44.16; SD = 13.98), mostly male (81.43%; 18.57% female), mostly racial/ethnic minority (50% Black; 31.43% Hispanic; 11.43% White; 10% Other; multiple endorsements allowed), and most (87.14%) had completed high school or a GED. Of these 70 individuals, 59 (84.29%) reported that they had HIV. Nineteen individuals (27.14%) reported ever having had hepatitis C virus (HCV); most (15 of 19) of the individuals reporting HCV were HIV/HCV co-infected. Primary analyses in the current study utilize all 70 sexual health clinic patients completing the medical reasons for limiting drinking scale; sensitivity analyses confirm results in the subset of 59 patients who self-reported HIV infection.

2.2 Measures

2.2.1 Demographics.—Patients reported their age, sex, race, and education.

2.2.2 Medical reasons for limiting drinking.—Patients who reported that they had limited their drinking in the past month ($n=70$) completed the medical reasons for limiting drinking scale designed for this study. These patients were asked whether they had limited their drinking for nine medical reasons; they selected any or all that applied. The items were generated to include a range of topics from the scientific literature on drinking-related risks for HIV, including general health reasons, medication-related reasons, and reasons specific to HIV health.

2.2.3 Heavy drinking days.—Patients were asked on how many days in the previous month they consumed four or more drinks. This more conservative definition of a heavy drinking day was chosen over gender-specific definitions (National Institute on Alcohol Abuse and Alcoholism, 2017) due to the danger of drinking for individuals with HIV, following precedent of a recent alcohol reduction clinical trial in HIV primary care (Hasin et al., 2013).

2.3 Analytic Plan

Medical reasons for limiting drinking were first examined descriptively. We then performed an exploratory factor analysis to examine the factor structure of the nine items, utilizing a polychoric correlation matrix given dichotomous variables. The decision regarding number of factors was based on statistical support (eigenvalues greater than 1 rule, analysis of scree plot), as well as coherent factor content and simplicity. Multi-factor solutions were examined using promax rotation (allowing factors to correlate), with items assigned to factors based on their highest loading. Once a factor structure was chosen, internal consistency was evaluated

using Cronbach's alpha. We also explored the association between our scale and frequency of heavy drinking days, using zero-inflated negative binomial regression, given the distribution of the heavy drinking day variable. Finally, findings were replicated in the subsample that self-reported HIV infection ($n=59$) to ensure the robustness of our results as well as the specific applicability to individuals with self-reported HIV.

3. Results

3.1 Descriptive information

Individual items on the scale were endorsed by between 14% and 37% of the sample. More specifically, frequently endorsed items included general items indicating that drinking could be harmful to health (37.14%), could cause new medical problems (22.86%), and could make current medical problems worse (24.29%), as well as the specific concern that alcohol could harm one's liver (24.29%). Moderate endorsement was seen for concerns that alcohol could make medication less effective or make one less likely to remember medication (both 18.57%). The least frequently endorsed items addressed specific concerns that alcohol could make one decide to skip medication (14.29%), that alcohol could decrease immune function (15.71%) and that alcohol could cause one to make risky decisions about sex and drugs (15.71%).

Of the 69 participants limiting drinking who provided data on heavy drinking frequency, 21 (30.4%) reported zero occasions, and 48 (69.6%) reported at least one occasion of heavy drinking. Of those reporting at least one heavy drinking day, the average frequency was 5.1 heavy drinking days in the last month ($SD = 4.5$; range: 1–15).

3.2 Factor analysis

In the initial factor analysis with all nine items, eigenvalues suggested a two-factor scale, with two eigenvalues exceeding the cutoff of 1 (first four eigenvalues: 5.50, 1.61, 0.71, 0.48). The first factor accounted for the majority (61%) of variance (the next three eigenvalues accounted for substantially less: 18%, 8%, and 5%, respectively). Visual analysis of the scree plot also suggested two factors or subscales. However, the two-factor solution only separated out the item “*Because drinking more could cause me to make risky decisions about sex or drugs*” into a second subscale (see Supplemental Table A). This solution suggested that only the last item did not fit with the others. This item was also conceptually unique in that it (a) addressed social behavior with potential for medical consequences (e.g., HIV transmission) *for others*, (b) collapsed two different constructs (risky decisions about *sex or drugs*), and (c) addressed potentially stigmatized behavior (e.g., syringe sharing, unprotected sex). As these statistical and conceptual differences suggested that this item did not function well with the others, we omitted this item and repeated the factor analysis with the remaining eight items.

The revised factor analysis on the eight remaining items suggested a unidimensional scale, with one eigenvalue over 1 (first four eigenvalues: 5.49, 0.97, 0.63, 0.40), and all items loading highly on a single factor ($r>0.60$; Table 1). The one-factor scale evidenced good

internal consistency ($\alpha=0.84$), indicating generally good agreement (high correlations) among the eight items.

Of the 8 remaining items, the average participant endorsed 1.8 (SD = 2.3) medical reasons for limiting drinking. Specifically, in the sample of 70, 27.1% (n=19) endorsed no reasons on the list, 45.7% (n=32) reported one reason, and 27.1% (n=19) endorsed two or more reasons (2 reasons: n=3, 4.3%; 3 reasons: n=5, 7.1%; 4 reasons: n=3, 4.3%, 5 reasons: n=1, 1.4%; 6 reasons: n=1, 1.4%; 7 reasons: n=1, 1.4%; 8 reasons: n=5, 7.1%). For the 32 participants reporting only one reason, this reason was most commonly a general health concern or a concern about medication (34% reported because drinking could be harmful to health, 19% reported because drinking could decrease medication efficacy, 13% reported because drinking could cause new health problems, 13% reported because drinking could make medical problems worse, 9% reported because drinking could make one forget medication, 6% reported concern over liver, 6% reported concern over immune function). The number of reasons endorsed did not relate to the occurrence or frequency of heavy drinking days ($p>0.40$), suggesting that more medical reasons for limiting drinking did not predict actual drinking level.

3.3 Replication with self-reported HIV sample

Conclusions were consistent when analyses were restricted to the subsample of 59 individuals with self-reported HIV infection (see Supplemental Table B).

4. Discussion and Conclusions

The current study indicates preliminary support for an eight-item scale of medical reasons for limiting drinking for HIV patients and in sexual health clinics. The scale evidenced good internal consistency and factor structure. These items may provide a mechanism to facilitate discussion with patients on why drinking reduction is important, and could potentially be used as a motivational tool to encourage such reduction; research is needed to assess these possibilities. Interestingly, many patients endorsed only one medical reason for limiting drinking, often a nonspecific concern about health. This suggests that some individuals may know that drinking is dangerous for them, but may not know the nature of the risks. This provides a potential avenue for interventions that clearly elucidate and discuss the risks posed by alcohol. Interestingly, number of reasons did not relate to actual drinking level, suggesting that endorsements of more reasons does not indicate that the individual is already successfully reducing drinking to a safe level.

Although it has been found that individuals with HIV sometimes limit their drinking (J. C. Elliott et al., 2014), we knew relatively little about the medical reasons that contribute to this decision. Consistent with empirically documented harms of drinking for HIV patients, in addition to a broad concern for health, some patients endorsed concerns about unintended and intended medication nonadherence (Azar et al., 2010; Kenya et al., 2013), liver function (Barve et al., 2010), immune function (Williams et al., 2016), and risky decisions about sex (Shuper, Joharchi, Irving, & Rehm, 2009) and drugs (Stein, Charuvastra, Anderson, Sobota, & Friedmann, 2002). However, the item on risky sex and drug use did not load well on the general factor of medical reasons for limiting drinking. Therefore, although not unimportant,

it seems that this content should be addressed separately, and likely only with a selected few who resonate with its content (who may differ from individuals who endorse other reasons on this scale). However, that individuals most commonly reported relatively few, mostly nonspecific, medical concerns suggests that the specific risks of alcohol may not be universally recognized or deemed important, requiring further study.

Findings should be considered in the context of study limitations. First, only 70 individuals in the clinic (and a subset of 59 individuals with self-reported HIV infection) endorsed limiting drinking, limiting our sample size and the power of our analyses. Although replication in a larger sample would be beneficial, results were relatively clear and internal consistency was respectable. Second, items on the proposed scale may not be entirely comprehensive regarding medical reasons endorsed by individuals with HIV and in sexual health clinics. However, the scale was developed in an effort to represent a diversity of medical concerns relevant to individuals with HIV, as represented in the empirical literature. To allow self-report of additional reasons, the scale could be administered including an additional item for “other” reasons, with the option to write-in a specific response. Future research, possibly qualitative in nature, could query about other medical reasons individuals with HIV have for decreasing drinking, which could be used to expand the scale. Additionally, clinicians and researchers should be aware that individuals with HIV also acknowledge a range of non-medical reasons for limiting drinking (J. Elliott, Aharonovich, & Hasin, 2014). Third, some general items (e.g., drinking more could be harmful to my health) may subsume concerns also addressed by other more specific items (e.g., drinking more could harm my liver). However, these general items are valuable in their detection of a nonspecific concern that alcohol is unhealthy, and/or specific concerns not addressed by other items. Further, the general items do evidence good internal consistency with other more specific scale items, indicating that they function well together as a scale. Fourth, many patients declined to participate in the overall survey. Anecdotally, participants often reported concern about missing their appointment, or limited familiarity reading English, the latter of which may limit generalizability to the Spanish-speaking HIV-infected population. Fifth, although patients reported the frequency with which they exceeded daily drinking limits, we did not ask about exceeding weekly drinking limits, which could have provided additional useful information on heavy drinking. Finally, it is possible that participants may have misunderstood terminology used in the scale. However, efforts were made to use simple language, and participants were invited to ask questions as needed (with few if any questions regarding the content of these items).

In sum, the current study provides data on what medical concerns about alcohol are held by patients of a sexual health clinic, and offers a brief, face valid, internally consistent, unidimensional scale designed to measure these concerns. Such a scale could be used to assess patient motivation to reduce drinking in sexual health clinics, potentially facilitating discussion of important issues related to health. Given typical endorsement of relatively few items, intervention could target the few concerns endorsed by the patient, or provide more detailed education for those with general concerns. Further research could consider extending the scale using a fill-in “other” response or generating new items through qualitative research. Research using the existing scale could replicate findings in a larger sample, evaluate validity, and assess the utility of this scale as a motivational tool.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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Table 1.

Factor loadings for one-factor solution using eight items (sexual health clinic sample, n=70).

	Factor loadings
Because drinking more could be harmful to my health.	0.68
Because drinking more could cause me new medical problems.	0.87
Because drinking more could make my current medical problems worse.	0.85
Because drinking more could make my medication less effective.	0.65
Because drinking more could make me less likely to remember my medication.	0.77
Because drinking more could make me decide to skip my medication.	0.96
Because drinking more could harm my liver.	0.92
Because drinking more could decrease my immune function.	0.87

Note: The original scale had 9 items, and the original factor analysis on these items suggested two factors. However, the two-factor solution only separated out the item “Because drinking more could cause me to make risky decisions about sex or drugs.” Due to statistical and conceptual indications that this item did not function well with the others, it was omitted from the revised, final factor analysis on eight items presented above.