



REVIEW OF RESEARCH ON ALCOHOL AND HIV IN SUB-SAHARAN AFRICA

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Background

The links between alcohol consumption, sexual risk behaviour and HIV infection warrant special attention in sub-Saharan African (SSA) countries, where HIV prevalence rates and levels of harmful use of alcohol are high [1;2]. In 2010 sub-Saharan Africa had an estimated 22 900 000 people living with HIV, who comprised approximately 68% of all people living with HIV globally [1]. Moreover, the WHO Africa region has the highest rate of heavy episodic drinking per drinker globally (of 25.1%) which can be contrasted with the lowest rates for the WHO Europe (EUR) and Western Pacific (WPRS) regions of 11.0% and 8.0%, respectively. Previous reviews have been conducted of studies on the roles and impact of alcohol consumption in HIV acquisition and disease progression [3-10]. This policy brief summarises the findings of a report of a review of SSA studies that updated those reviews [11]. The review examined (a) the associations between alcohol use, sexual risk behaviour and HIV infection; (b) the associations between alcohol use and various facets of HIV disease, including the uptake of HIV treatment services, antiretroviral therapy (ART) adherence and HIV outcomes; and (c) the efficacy of interventions to address the negative consequences of the links between alcohol use and HIV. The review included studies published from 2008 to 2011.

Aim of the Review

The overarching aim of the review was to provide recommendations on how to mitigate the effects of alcohol consumption on the acquisition and progression of HIV disease among people in the SSA region.

Methods

Literature searches were conducted on the African Journal Archive, Biomed Central, EBSCOhost, PsychArticles, PubMed Central, Sociological Abstracts, and South African Medical Association databases. We used the search terms: "alcohol", "HIV" and "Africa", and limited our review to articles on primary research conducted anywhere in SSA that had been published between 2008 and 2011.

Following multiple phases of sifting through the obtained literature, we identified 84 articles that met our inclusion criteria. Most articles concerned research on the associations between alcohol use and HIV transmission (n=50), while fewer articles focused on studies of alcohol use and HIV disease (n=22), and even fewer (n=12) described the results of evaluations of interventions to reduce alcohol use and sexual risk behaviour. We were not able to find any papers on the association between alcohol use and disease progression among any population in SSA.

Key Findings of the Review Alcohol Use and HIV Transmission

Fifty papers reported on studies concerned with the association between alcohol consumption and HIV transmission (sexual risk behaviour and HIV infection) as well as HIV testing. Overall, the studies found significant positive associations between alcohol consumption and sexual risk behaviour and HIV infection for multiple settings, viz. health care, school/university, alcohol drinking and community settings. Specifically, of the 72 associations that were examined across the 50 studies, 68% were significant and positive, 6% were significant and negative, 22% were not significant, and 4% were inconclusive. Other trends in the findings are as follows:

- Adolescents who consume alcohol are more likely than their abstinent counterparts to engage in sex, have experienced their first sexual encounter at a younger age, and engage in sex with multiple partners.
- Men who have sex with men (MSM); individuals who engage in commercial and/or transactional sex; women who work in hotels, restaurants and drinking venues; and patrons of alcohol drinking establishments seem to be at particular risk of engaging in alcohol-related sexual risk behaviour.
- Heavy drinkers (i.e. individuals who drink at hazardous or harmful levels or who meet criteria for an alcohol use disorder) are most vulnerable to HIV infection and sexual risk behaviour, compared to non-problem drinkers and

non-drinkers. The HIV risk for non-problem drinkers is often no different from that of non-drinkers.

- There was evidence (from two studies) that alcohol use may delay HIV testing behaviour, although a third study's findings suggested that alcohol use may be associated with a greater likelihood of HIV testing.

Alcohol Use among People Living with HIV

Twenty-two papers concerned alcohol consumption and ART uptake, non-adherence and outcomes. Of these, 14 were quantitative analytical studies, two were quantitative descriptive studies, and six were qualitative studies. The three articles on alcohol use and ART uptake revealed mixed results. Of all the alcohol use and ART adherence associations tested, 55% (6/11) were negative and significant, 36% (4/11) were not significant, while 9% (1/11) yielded inconclusive results. The adjusted odds ratios ranged between 2.1 and 4.7 in the studies which reported these associations. The (one) study on the association between alcohol use and ART outcomes found the association to be negative and statistically significant for a community sample, but non-significant for a workplace sample. There was an absence of primary research in SSA on alcohol and HIV disease progression for the review period.

Highlights of the (mainly) qualitative studies were as follows:

- Individuals who drink alcohol may delay seeking/initiating ART services due to a misperception that abstinence is a prerequisite for ART enrolment.
- Constructions of masculinity that promote alcohol use and self-reliance may indirectly hinder and/or delay men's presentation to treatment and the uptake of ART services.
- Higher levels of alcohol consumption tend to be associated with more ART non-adherence, as evidenced by the 6/11 studies that assessed this association. These associations may be attributable to patients' toxicity beliefs regarding mixing alcohol and ART; service providers' advice to their clients to refrain from using ART while consuming alcohol; and the actual effects of alcohol on memory, causing individuals to forget to ingest doses of their ART.

Alcohol and HIV Risk Reduction Interventions

Twelve papers reported on evaluations of interventions to reduce HIV risk and alcohol consumption. These included studies of interventions to reduce unprotected sex, sex under the influence of alcohol, number of sexual partners, alcohol use and early onset of sex. There were positive intervention effects in all settings (military, health care, community and learning) in which the studies were conducted. Positive effects were obtained most consistently in health care environments (80% of the outcomes were statistically significant), whereas the least promising outcomes were obtained in learning environments (43%). The interventions were most effective in reducing alcohol use and transactional sex, and in increasing HIV testing, but least effective for reducing the number of sexual partners and young people's early initiation of alcohol use. Just over 50% of the condom reduction interventions were successful. Other highlights were as follows:

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- The effects of short-term interventions (e.g. 1 to 5 sessions) tend to dissipate over time, suggesting that interventions should be longer-term (e.g. 12-15 sessions) rather than brief and/or enhanced by repeat or booster sessions in order to have long-term success.
- Some community and health setting-based studies revealed that group interventions may be as effective as individual interventions. One study demonstrated the efficacy of group-based cognitive behavioural therapy (CBT) for reducing alcohol use among HIV patients.
- Interventions can often be delivered effectively by non-professionals or lay counsellors.
- There were no published studies of evaluations of HIV prevention interventions in alcohol drinking settings, or of interventions to reduce ART non-adherence among alcohol-users.

Strengths and Limitations of the Studies

The studies varied in quality, but their main strengths were their use of large representative samples, standardised measures, and appropriate designs and analytical techniques. Also, some of the intervention studies involved randomised controlled trials and had high retention rates, which exceeded 80%. However, most studies were hampered by their reliance on self-reporting of alcohol use, sexual risk behaviour, and/or ART adherence, which is often influenced by social desirability. Use of more objective measures of all these behaviours may have been more appropriate. Finally, study limitations were most common among the intervention studies, some of which lacked representative samples, used only pre-post designs (which lacked control groups), had short follow-up periods and/or employed small convenience samples.

Strengths and Limitations of the Review

The review's first strength is its inclusion of studies on alcohol's role in various aspects of HIV disease and the effectiveness of interventions, thereby giving a broad overview of recent research developments in alcohol and HIV in SSA. Secondly, while it is a narrative review, it highlights the extent and consistency of significant associations between the variables measured and intervention effects. Lastly, the review distinguishes between findings according to settings and populations, thus highlighting research and intervention needs of specific sub-populations.

However, the review is limited by its reliance on papers that had been published in English, thereby excluding non-English publications, such as articles published in Portuguese or French. Second, we did not include studies based on their quality, so those that are included are of varied quality. Lastly, we did not include unpublished studies or grey literature in this review.

Recommendations

The findings of this review of 84 published articles have implications for HIV prevention, treatment, care and support, and further research on alcohol and HIV in SSA. The following recommendations emerged from the findings:

HIV Prevention

Given alcohol's association with sexual risk behaviour and HIV infection, HIV prevention interventions should seek to reduce alcohol consumption while also enhancing protective behaviours such as consistent condom use. Such interventions can be delivered in multiple settings (including health care, school/university, community and workplace environments). Key recommendations include the following:

- Special attention should be paid to developing and testing interventions to address sexual risk behaviour among high school learners and university students, given the relative lack of studies in learning environments. Existing programmes that address sexuality and substance use among young people (e.g. life skills) should incorporate sessions on the associations between alcohol use, sexual risk behaviour and HIV infection.
- There is a particular need to develop and implement effective interventions for high-risk groups, such as MSM, men and women who engage in commercial and/or transactional sex, women who work in the hospitality industry, and patrons of drinking establishments.
- Group rather than individual interventions may be appropriate in some settings. Being more cost-effective, they are a more viable option for resource-limited settings.
- In some instances it may be feasible for lay counsellors to deliver HIV interventions. Given the limited availability of professional health care providers and other resource constraints in SSA, this may be a cost-effective option.
- Long term (rather than short-lasting) programmes or interventions (e.g. 12 to 15 sessions) that include booster sessions are needed to maintain positive intervention effects on alcohol-related sexual risk reduction.
- Considering that levels of alcohol-related sexual risk among moderate drinkers are often similar to those of non-drinkers, it may be appropriate for interventions to aim to modify alcohol consumption patterns to either abstinence or moderate drinking levels.
- Individuals who engage in heavy drinking should be discouraged from delaying HIV testing, and should have easy access to widely available and non-stigmatising testing facilities.

Treatment, Care and Support

Given alcohol's apparent deleterious effects on presentation to HIV services and ART uptake, there is a need for interventions to negate these effects. Misperceptions about alcohol abstinence as a prerequisite to ART enrolment need to be addressed. On the other hand, reduced drinking, and in some cases, abstinence may be essential to mitigate alcohol's negative effects on HIV disease (adherence and disease progression) and thereby improve disease prognosis.

- Multi-disciplinary and integrated approaches to the treatment, care and support of people living with HIV/AIDS (PLWHA) who consume alcohol are recommended.

- Services should entail one-stop centres to enable patients to access core medical treatment, as well as ancillary psycho-social services (including those of psychologists and adherence counsellors).
- Individual screening for harmful/hazardous alcohol use, brief intervention and referral to treatment (SBRIT) of clients/patients should be performed routinely by trained health care workers using standardised treatment protocols and screening tools, such as the CAGE [12], or the Alcohol Use Disorders Identification Test (AUDIT) [13].
- Alcohol services should be tailored to each individual's risk profile which could be determined via a screening instrument such as the AUDIT [13]. Based on WHO brief intervention guidelines [13], we would recommend that: (a) people with a low risk profile, who drink low levels or abstain from alcohol (and would have an AUDIT score around 0-7), are best suited to receiving simple information about alcohol and all pertinent aspects of HIV disease; (b) people with a medium-risk profile who may engage in hazardous drinking (with an AUDIT score of 8-15) should be offered brief interventions (e.g. 5 minutes of risk reduction counselling/Motivational Interviewing; MI) and boosters at subsequent visits; (c) those with a high risk profile whose drinking has started to cause them harm (and who score between 16-19 on the AUDIT) are best suited to brief interventions and active case management to reduce the risk of re-infection, ART non-adherence and disease progression and to promote alcohol treatment and aftercare; and finally (d) those who are likely to have alcohol dependence (with a score of 20-40 on the AUDIT), should be considered possible candidates for more intensive treatment for an alcohol use disorder.
- HIV patients deserve clear, accurate and comprehensive information about the effects of alcohol use on their disease. Potentially useful messages are as follows: (a) individuals need not delay presenting to HIV care due to their drinking, as once in care, efforts may be made to taper their drinking, if necessary; (b) alcohol consumption may hinder ART adherence; (c) under some conditions the effectiveness of ART may be compromised by alcohol consumption; and (d) alcohol may interfere with medications for opportunistic infections.
- Health care workers and lay counsellors need specific guidelines and on-going in-service training on the management of ART patients who use alcohol. Training should cover the effects of alcohol on ART and all aspects of HIV disease (e.g. alcohol's effects on the immune system, ART adherence, sexual risk behaviour, and risk of re-infection).
- Health care providers who are assigned to conduct SBIRT should also be given training, guidelines and standardised materials on SBRIT, as well as training to reduce stigma associated with the harmful use of alcohol.

Further Research

This review has highlighted various research gaps in SSA and the need for further studies in the following areas:

- More research on the association between alcohol use and HIV testing given that current studies are limited and have mixed findings.
- Investigations of the associations between alcohol use and HIV disease progression, given the dearth of research on this topic in SSA.
- More qualitative and theoretically-driven research studies to better explain the interrelationships among alcohol use, sexual risk behaviour and HIV infection.
- Evaluation studies of HIV prevention programmes that focus on alcohol reduction among vulnerable populations. Such research is needed in a variety of settings, including drinking venues, where such studies are lacking.
- More studies on alcohol and HIV transmission among under-researched groups such as adolescents, members of most-at-risk-populations (MARPS) and people in the workplace, given the few studies in these areas.
- Research to evaluate interventions to reduce alcohol-related ART non-adherence.

We recommend the following regarding measurement of alcohol and ART adherence for research purposes:

- In general, researchers should use standardised and validated measures of alcohol use and ART adherence to allow comparability of findings across studies.
- Adherence measures should not be limited to pill-taking but should also assess multidimensional aspects of adherence including dietary instructions, regimen schedule, and storage.
- Where feasible, objective measures of alcohol use (such as biological markers) should be employed to minimise reliance on self-reports.

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