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EDITORIAL
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Alcohol consumption and HIV/AIDS: the neglected interface

Many countries with heavy HIV and alcohol burdens do not fully recognize these epidemics as intrinsically interconnected. Missed opportunities for synergistic prevention and treatment of HIV and alcohol abound. Few HIV policies, services for HIV prevention or research projects adequately address alcohol-HIV harms or include alcohol use as an HIV risk factor.

Alcohol impacts, invariably negatively, on essentially all human organ systems. In excess of 30 ICD-10 codes include alcohol in their name or definition, with alcohol a necessary cause for these conditions [1]. Many of the negative effects of alcohol on health are, however, difficult to measure, or causality remains to be demonstrated definitively. This is especially true of social harms, such as domestic violence. Data are not even captured on vehicle passengers who are killed in drunk-driving incidents. Although the culpability of alcohol in these examples is broadly acknowledged, connections between alcohol consumption and HIV remain contested. Many countries with heavy HIV and alcohol burdens do not fully recognize these epidemics as intrinsically interconnected. Missed opportunities for synergistic prevention and treatment of HIV and alcohol abound.

Sexual intercourse, aside from procreation, is a core constituent of social cohesion and individual identity. Similarly, throughout the ages, alcohol has held social and ritual connotations. The lucrative alcohol industry taps into age-old connections between alcohol and sexuality, often using sex to sell alcohol. Physiologically, alcohol is a depressant, decreasing sexual activity. However, its suppression of inhibitions potentially enhances sexual activity [2]. Further, psychoactive effects such as alcohol myopia and altered cognition, together with psychological manifestations (especially alcohol-outcome expectancies), encourage sexual encounters. In these contexts, sex is more likely to be unprotected, with a casual or concurrent partner, transactional, coerced and regretted. Unprotected sex foments transmission of sexually transmitted infections including HIV, and also unintended pregnancies. Furthermore, alcohol use is linked with high-risk sex in those already HIV-infected [3]. Upwards of 70% of HIV-infected adults remain sexually active post-HIV diagnosis and approximately a third have sex without condoms [4].

Few HIV policies, services for HIV prevention or research projects address alcohol-HIV harms adequately or include alcohol use as an HIV risk factor [5]. This is surprising; Southern Africa and Eastern Europe have concomitant massive HIV and alcohol burdens [6]—regions with lower alcohol use have lower HIV rates. South Africa, for example, has the largest number of HIV-infected people (estimated 5.6 million [7]) and among the highest consumption of alcohol per drinker globally. Unsafe sex and the harmful use of alcohol rank first and third in disease burden estimates, respectively, in this country [8]. In the South African study [8], the burden attributed to alcohol excluded effects on HIV acquisition or disease progression, owing to a lack of consensus around alcohol-HIV causal links [8].

Reviews and meta-analyses have documented causal pathways between alcohol, sex and HIV, and attempted to quantify this relationship [9]. Although evidence of these interconnections is mounting, especially in subSaharan Africa, unequivocal evidence is lacking [10]. Both variables are complex: HIV infectiousness fluctuates across its disease course, and consequences of alcohol use vary by drinking context and the volume and pattern of drinking. In the context of sexual activity event-level parameters are especially important, as they impact upon how alcohol affects behaviour [2]. Furthermore, confounding by risk-taking personality, for example, might partly explain the observed associations. In people with such traits, risky sex might still occur even if alcohol consumption were removed.

Studies of intersections between alcohol and human sexuality have grown exponentially in the AIDS era, with the medical literature expanding more than 1000% between 1986 and 2005 [11]. In this review, 90% (114 of 126) of HIV-alcohol studies were non-experimental, however, probably reflecting the nascent although progressively developing theoretical conceptualization of the topic. The stage is set for a randomized trial comparing HIV incidence in controls with that in individuals who lower their alcohol use following receipt of alcohol-reduction interventions. Such a trial could provide compelling evidence of causality. In the meantime, alcohol interventions should still be incorporated within HIV prevention. Oversimplistic messaging about alcohol increasing sexual activity are probably ineffective, as this link is likely to be mediated by various contextual and other factors.Counselling should be cognizant of the complexity of these relations, which encompass the influence of alcohol on condom negotiation and their correct

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application, decisions about having multiple partners and selection of partners.

Hazardous alcohol use is linked with many facets of HIV disease, besides sexual risk-taking, ranging from reduced adherence to antiretroviral treatment (ART), immune system impairment, drug interactions and hepatotoxicity [12]. A meta-analysis found non-adherence to ART was almost twice as common in drinkers compared to abstainers [13]. Viral resistance and treatment failure occur rapidly following suboptimal adherence. Alcohol use might also influence uptake of HIV testing and HIV care [14]. Health personnel in HIV, tuberculosis (TB) and sexually transmitted infection (STI) clinics should screen patients for alcohol problems and manage them accordingly [10]. Standard screening, for example the Alcohol Use Disorders Identification Test, can ascertain which individuals require interventions, such as brief interventions. Integrated services are required for patients requiring alcohol and HIV treatment.

Although the 2009 *Lancet* series on health in South Africa drew attention to the nexus of alcohol and violence [15], connections between alcohol and infectious diseases went unmentioned [16]. The *Global Status Report on Alcohol* [17] noted the links between alcohol use and infectious diseases, namely that alcohol weakens the immune system, facilitating TB infection. However, no estimate of the size of this association is provided, and HIV is rarely mentioned. Although the South African HIV Strategic Plan [18] recommends that programmes be developed to reduce the impact of alcohol on the sexual transmission of HIV, it provides no specifics. Alcohol use in patients receiving ART is also neglected—the word 'alcohol' is absent from the national ART guidelines [19].

Currently, as there is no HIV vaccine or cure, behavioural and other biological interventions are crucial to curb the HIV epidemic and assist those already infected. The alcohol–HIV interface is particularly important for research and development of policies and intervention programmes. Delays in proving definitively that alcohol causes HIV infection (and in mitigating competing explanations) partly explain the dearth of conjoined HIV–alcohol interventions. Other probable explanations include preoccupations with uncovering a biomedical, rather than a behavioural or social, remedy for HIV; the reluctance of policy makers to confront their own relationship with alcohol; and concerted efforts by industry to influence the policy agenda and downplay alcohol's harms. Despite these factors, linkages between harmful alcohol consumption and HIV acquisition and transmission need to be addressed urgently. The absence of a definitive position on whether alcohol causes HIV acquisition does not negate the overwhelming evidence about the interconnectedness of these problems, and does not excuse the lack of multi-level alcohol interventions implemented synergistically within HIV prevention and treatment initiatives.

Declarations of interest

None.

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