

Alcohol and its role in HIV prevention, care and treatment

**AFRICAN NETWORK FOR STRATEGIC COMMUNICATION
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FORUM FOR CHANGE: HIV/AIDS, Alcohol and Gender
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Overview

- Global estimates of alcohol consumption
- Review of different lines of evidence on alcohol, HIV and STD, and risk behavior
- Alcohol and HIV treatment adherence

WHO estimated alcohol consumption per aged 15+,
select regions – 2000 (liters of 100% ethanol per year)

WHO Region	Recorded Consumption	Unrecorded Consumption	Total Consumption	% drinkers	Consumption per drinker
W/N Africa	2.3	2.6	4.9	37	13.3
E/S Africa	3.8	3.3	7.1	43	16.6
North America	8.3	1.0	9.3	65	14.3
Eastern Europe	8.6	5.3	13.9	84	16.5
SE Asia	2.3	0.8	3.1	23	13.7

WHO estimated proportion of abstainers and hazardous drinking score, select regions - 2000

WHO Region	Male % abstainers	Female % abstainers	Total consumption	Consumption per drinker	Hazardous drinking pattern*
W/N Africa	53	73	4.9	13.3	2.5
E/S Africa	45	70	7.1	16.6	3.1
North America	27	42	9.3	14.3	2.0
Eastern Europe	11	19	13.9	16.5	3.6
SE Asia	65	91	3.1	13.7	2.5

*high quantity per session, frequency of drunkenness, drinking not with meals, public drinking, "fiesta drinking"

Alcohol and HIV Infection

- Alcohol use is associated with high-risk sexual behavior
- Alcohol acts directly on the brain to reduce inhibitions and diminish risk perception
- However, alcohol does not necessarily play a direct role in such behavior
 - Bars serve as convenient social settings for meeting potential sexual partners
 - Alcohol abuse occurs frequently among people whose lifestyle or personality predisposes them to high-risk behaviors in general

Alcohol and HIV Infection among TB Patients in Botswana, 1999

Subject or partner drinks before sex	HIV-infected	HIV-uninfected	Total
Yes	72 (77%)	21 (55%)	93 (71%)
No	21 (23%)	17 (45%)	38 (29%)
Total	93	38	131

Prevalence odds ratio = 3.4 (95% CI 1.4-8.1)

Adjusted prevalence odds ratio = 6.8 (1.9-24.1)

HIV in Women Working in Bars and Hotels in Tanzania

- 312 women working in bars and hotels in northern Tanzania
- HIV-1 prevalence - 26.3%
- Risk of HIV-1 increased with:
 - increasing age
 - number of sexual partners during the last 5 years
 - having a male partner with other sexual partners, and
 - **consuming alcohol >2 days per week (AOR, 2.56; 95% CI, 1.12-5.88)**

Alcohol and HIV in Women Attending ANC in Kenya

- 2,844 women attending public hospital antenatal clinic in Kisumu, western Kenya
- HIV seroprevalence - 26.1%
- 5 factors associated with HIV seropositivity:
 - anemia
 - malarial parasitemia
 - history of being treated for vaginal discharge
 - fever
 - **reported alcohol consumption**

Alcohol and HIV Incidence in Women in Tanzania

- 2,471 HIV-negative women attending three large family planning clinics in Dar es Salaam, Tanzania
- Followed prospectively
- HIV incidence - 3.4 per 100 person-years
- **Risk of HIV significantly increased among women reporting alcohol consumption during the follow-up period**

Decline in alcohol consumption associated with declining HIV infection - Tanzania

- Observed decline in HIV infection trends in Kagera Region, Tanzania
- In-depth interviews, focus group discussions, field observations and ethnographic assessments
- Increase in condom use, abstinence, zero grazing (sticking to one sexual partner) and uptake of voluntary HIV testing
- Decline in practices such as polygamy, widow inheritance, **excessive alcohol consumption**, and sexual networking

Systematic Review of Association Between Alcohol Consumption and Sexually Transmitted Diseases

- Of 42 eligible studies:
 - 11 included specific measures of problem drinking, of which
 - 8 found a significant association between alcohol consumption and at least 1 STD
- Relationship did not vary according to gender or pattern of alcohol consumption assessed
- *Conclusion:* Literature supports an overall association between problematic alcohol consumption and STDs, although causal relationship cannot be determined from these observational studies

Alcohol use and sexual risks for HIV/AIDS in sub-Saharan Africa: systematic review of empirical findings.

- .Kalichman SC, Simbayi LC, et al, Department of Psychology, University of Connecticut
 - 25 studies in South Africa, Zimbabwe, Botswana, Malawi, Uganda, Kenya , Tanzania
 - Studies show a consistent association between alcohol use and sexual risks for HIV infection.
 - Among people who drink, greater quantities of alcohol consumption predict greater sexual risks than does frequency of drinking.
 - In addition, there are clear gender differences in alcohol use and sexual risks; men are more likely to drink and engage in higher risk behavior whereas women's risks are often associated with their male sex partners' drinking.
 - Factors that are most closely related to alcohol and sexual risks include: drinking venues and alcohol serving establishments, sexual coercion, and poverty.
 - Research conducted in southern Africa therefore confirms an association between alcohol use and sexual risks for HIV.

A population-based study on alcohol and high-risk sexual behaviors in Botswana.

- PLoS Med. 2006 Oct;3(10):e392. **Weiser SD, Leiter K**, et al, Physicians for Human Rights, Cambridge, Massachusetts
 - A cross-sectional, population-based study of 1,268 adults from five districts in Botswana. Multivariate logistic regression was used to assess correlates of heavy alcohol consumption (>14 drinks/week for women, and >21 drinks/week for men) as a dependent variable.
 - Gender-specific associations between alcohol use as a primary independent variable (categorized as none, moderate, problem and heavy drinking) and several risky sex outcomes including: (a) having unprotected sex with a nonmonogamous partner; (b) having multiple sexual partners; and (c) paying for or selling sex in exchange for money or other resources.
 - Criteria for heavy drinking were met by 31% of men and 17% of women.
 - Among men, heavy alcohol use was associated with higher odds of: unprotected sex (AOR = 3.48), multiple partners (AOR = 3.08), and paying for sex (AOR = 3.65)
 - Among women: higher odds of unprotected sex (AOR = 3.28), multiple partners (AOR = 3.05), and selling sex (AOR = 8.50). A dose-response relationship was seen between alcohol use and risky sexual behaviors, with moderate drinkers at lower risk than both problem and heavy drinkers.

Alcohol and Risks for HIV/AIDS Among Sexually Transmitted Infection Clinic Patients in Cape Town, South Africa.

- Subst Abus. 2006;27(4):37-43. **Simbayi LC, Kalichman SC, et al**
 - A study of the association between alcohol use and HIV risk-related behavior among 134 men and 92 women receiving sexually transmitted infection (STI) clinic services in Cape Town, South Africa.
 - Participants completed anonymous surveys of demographic information, substance use, and sexual risk behaviors.
 - Results showed that problem drinking was common among STI clinic patients; 58% of men and 28% of women scored above a cut-off of 9 on the Alcohol Use Disorders Identification Test (AUDIT) suggesting possible problem drinking and 46% of men and 19% of women scored above 12 on the AUDIT indicating probable drinking problems.
 - For men, heavier alcohol use was associated with having multiple sex partners in the past month, less condom use, and having a history of sexually assaulting women. Among women, higher scores on the AUDIT were also related to having multiple sex partners as well as a history of exchanging sex for money or materials.

Transactional sex with casual and main partners among young South African men in the rural Eastern Cape: Prevalence, predictors, and associations with gender-based violence.

- Soc Sci Med. 2007 Jun 7; [Epub ahead of print]

Dunkle KL, Jewkes R, et al, Emory University Atlanta, GA, USA.

- Prevalence and predictors of transactional sex with casual partners and main girlfriends among 1288 men aged 15-26 from 70 villages in the rural Eastern Cape(South Africa).
- Data collection: face-to-face interviews with young men enrolling in the Stepping Stones HIV prevention trial.
- A total of 17.7% of participants reported giving material resources or money to casual sex partners and 6.6% received resources from a casual partner. Analysis with multivariable models identified the predictors for giving and for getting material resources in casual and in main relationships.
- Associations with higher socio-economic status, more adverse childhood experiences, more lifetime sexual partners, and alcohol use.
- The most consistent predictors of transactional sex were perpetration of intimate partner violence and rape against women other than a main partner.

Violence and abuse among HIV-infected women and their children in Zambia: a qualitative study.

- J Nerv Ment Dis. 2006 Aug;194(8):610-5. Murray LK, Haworth A, et al, Boston University School of Public Health
 - HIV and violence are two major public health problems increasingly shown to be connected and relevant to international mental health issues and HIV-related services.
 - The study presented in this paper sought to investigate the mental health issues of an HIV-affected population of women and children in Lusaka, Zambia, through a systematic qualitative study. Two qualitative methods resulted in the identification of three major problems for women: domestic violence (DV), depression-like syndrome, and alcohol abuse; and children: defilement, DV, and behavior problems. DV and sexual abuse were found to be closely linked to HIV and alcohol abuse. This study shows the local perspective of the overlap between violence and HIV. Results are discussed in relation to the need for violence and abuse to be addressed as HIV services are implemented in sub-Saharan Africa.

Alcohol and HIV:

A study among sexually active adults in rural southwest Uganda.

- Mbulaiteye, et al *International Journal of Epidemiology*, 29, 911–915. 2000
- 1286 women 1083 men from 15 rural neighboring villages, Uganda
- Having ever drank, days visiting bars, alcohol use in past week, selling alcohol in house
- Lifetime use of condoms, number of sex partners in past 12 month, HIV test
- HIV prevalence in households where alcohol was sold was 15% compared to 8% among those living in households where alcohol was not sold; HIV+ persons reported greater lifetime use of alcohol

Alcohol and HIV Treatment

- Studies associate heavy alcohol use with decreased medication compliance as well as with poorer response to HIV therapy in general

Estimating the impact of alcohol consumption on survival for HIV+ individuals.

- AIDS Care. 2007 Apr;19(4):459-66, Braithwaite RS, Conigliaro J, et Yale University School of Medicine, West Haven, CT, USA.
 - Alcohol consumption is associated with decreased antiretroviral adherence, and decreased adherence results in poorer outcomes. However the magnitude of alcohol's impact on survival is unknown.
 - Used a calibrated and validated simulation of HIV disease to estimate the impact of alcohol on survival. We incorporated clinical data describing the temporal and dose-response relationships between alcohol consumption and adherence in a large observational cohort (N=2,702).
 - Individuals were categorized as nondrinkers (no alcohol consumption), hazardous drinkers (consume ≥ 5 standard drinks on drinking days), and nonhazardous drinkers (consume < 5 standard drinks on drinking days).
 - Our results showed that nonhazardous alcohol consumption decreased survival by more than 1 year if the frequency of consumption was once per week or greater, and by 3.3 years (from 21.7 years to 18.4 years) with daily consumption. Hazardous alcohol consumption decreased overall survival by more than 3 years if frequency of consumption was once per week or greater, and by 6.4 years (From 16.1 years to 9.7 years) with daily consumption. Our results suggest that alcohol is an underappreciated yet modifiable risk factor for poor survival among individuals with HIV.

Alcohol and TB Treatment Interruption, Botswana 2000

Drank alcohol during TB treatment	Number (%) of TB Treatment Interrupters	Number (%) of TB Treatment Completers	Total
Yes	20 (36)	17 (13)	37
No	35	114	149
Total	55	131	186

Odds ratio 3.8 (95% CI 1.7-8.7)

Data on ARV Adherence and Alcohol in Botswana

- Study of 153 patients on ARV in Gaborone
- “Among those with adherence problems, interviews suggested that the primary causes included stigma and social issues, geographic constraints, and **alcohol abuse.**”

Patient-related factors predicting HIV medication adherence among men and women with alcohol problems.

- J Health Psychol. 2007 Mar;12(2):357-70, Parsons JT, Rosof E, Mustanski B, Hunter College and the Graduate Center of the City University of New York
 - The study explored the relationship between HIV medication adherence and alcohol, cognitive, social and affective factors in 272 persons with alcohol problems.
 - Alcohol and cognitive factors significantly differentiated those who did and did not adhere. Specifically, adherence confidence and number of drinks emerged as subfactors driving the associations to adherence.
 - Among those who were less than perfectly adherent (n = 154), only alcohol factors predicted levels of nonadherence. Cognitive factors play a role in understanding some of the differences between those who do and do not adhere to their HIV medications, but they do not differentiate among levels of nonadherence.

Patterns of ARV adherence among Kenyan patients and factors related to non-adherence

- Sidle, J, Kimalyo, S, et al, IAS, 4th HIV pathogenesis conference, WEPEB099
- Patterns of self-reported adherence over one year
- 7381 patients
- Non-adherence was associated with less education, larger households, less condom use
- Alcohol use was significantly associated with non-adherence with increasing non-adherence as alcohol use increased

Interventions

- Interventions can be aimed at: individuals, more broadly at the societal level(families, schools, churches, other social institutions) and structural issues(places that serve alcohol, policy, legal)

HIV/AIDS risk reduction counseling for alcohol using sexually transmitted infections clinic patients in Cape Town, South Africa.

- J Acquir Immune Defic Syndr. 2007 Apr 15;44(5):594-600. [Links](#)
 - **Kalichman SC, Simbayi LC**, et al, Department of Psychology, University of Connecticut
 - To test a behavioral risk reduction counseling intervention for use in sexually transmitted infection (STI) clinics in southern Africa.
 - **METHODS:** A randomized intervention trial was conducted with 143 STI clinic patients in Cape Town, South Africa. Participants received an experimental 60-minute HIV and alcohol risk reduction behavioral skills intervention or a control 20-minute HIV education condition. Participants were followed for 3 and 6 months after the intervention, with 73% retention.
 - **RESULTS:** Overall, the experimental intervention demonstrated more than a 25% increase in condom use and a 65% reduction in unprotected intercourse over the 6-month follow-up period, with risk reduction significantly greater for the experimental condition than for the control condition at both follow-ups. Alcohol use in sexual contexts [$F(1,94) = 6.2$; $P < 0.05$] and expectancies that alcohol enhances sexual experiences [$F(1,94) = 8.3$; $P < 0.01$] were also significantly lower for the experimental condition at the 3-month follow-up.
 - **CONCLUSIONS:** An HIV prevention counseling intervention reduced HIV transmission risks for up to 6 months in this STI clinic population. Effects may be sustained with structural interventions to reduce alcohol use in sexual contexts and support risk reduction behavior changes over the long-term.

Alcohol Policy and STD Rates - U.S.

- Rates of STDs are responsive to increases in alcohol taxes and in the drinking age
- More restrictive alcohol policy reduces alcohol consumption which in turn reduces risky sexual behavior
- Regressions of STD rates on state alcohol taxes 1981-95
 - \$US1 increase per-gallon liquor tax reduces gonorrhea rates by 2.1%
 - \$US0.20 increase per six-pack beer tax reduces gonorrhea rates by 8.9%
- Increases in the drinking age reduces STD rates among youth

Changes in Alcohol Consumption and STD Rates, U.S. - 1983-1998

- Multivariate analyses to examine state-level changes in STD rates (gonorrhea and syphilis) and state-level changes in alcohol consumption
- Changes in alcohol consumption significantly associated with changes in gonorrhea and syphilis rates
- Each 1% increase in per-capita alcohol consumption was associated with increases of 0.4%-0.7% in reported gonorrhea incidence and 1.8%-3.6% in reported syphilis incidence

WHO Report

- Widely applied prevention strategies, such as education and persuasion, not necessarily effective
- Population-based policy measures such as taxation (or drinking age) most cost-effective public health response to the alcohol-related disease burden in countries with moderate and high levels of alcohol consumption
- Measures targeted at high-risk or harmful drinkers, such as brief interventions, more effective where the rates of hazardous consumption of alcohol are lower
- Interventions need not be complex or expensive, and their institution after early identification of hazardous or harmful patterns of alcohol consumption is an **effective** and **cost-effective** strategy
- ***Resolution adopted by WHA in May 2005 requesting action by member states and Director-General***

Ten “Best Practices” Policy Options

- Expert analysis of 31 policy options rated 10 as “best practices”:
 - minimum legal age to buy alcohol,
 - government monopoly of retail sales,
 - restrictions on hours or days of sale,
 - restrictions on the density of sales outlets,
 - taxes on alcohol,
 - sobriety checks,
 - lowered limits for blood alcohol concentration,
 - administrative suspension of licences for DUI
 - graduated licensing for novice drivers, and
 - brief interventions for hazardous drinkers

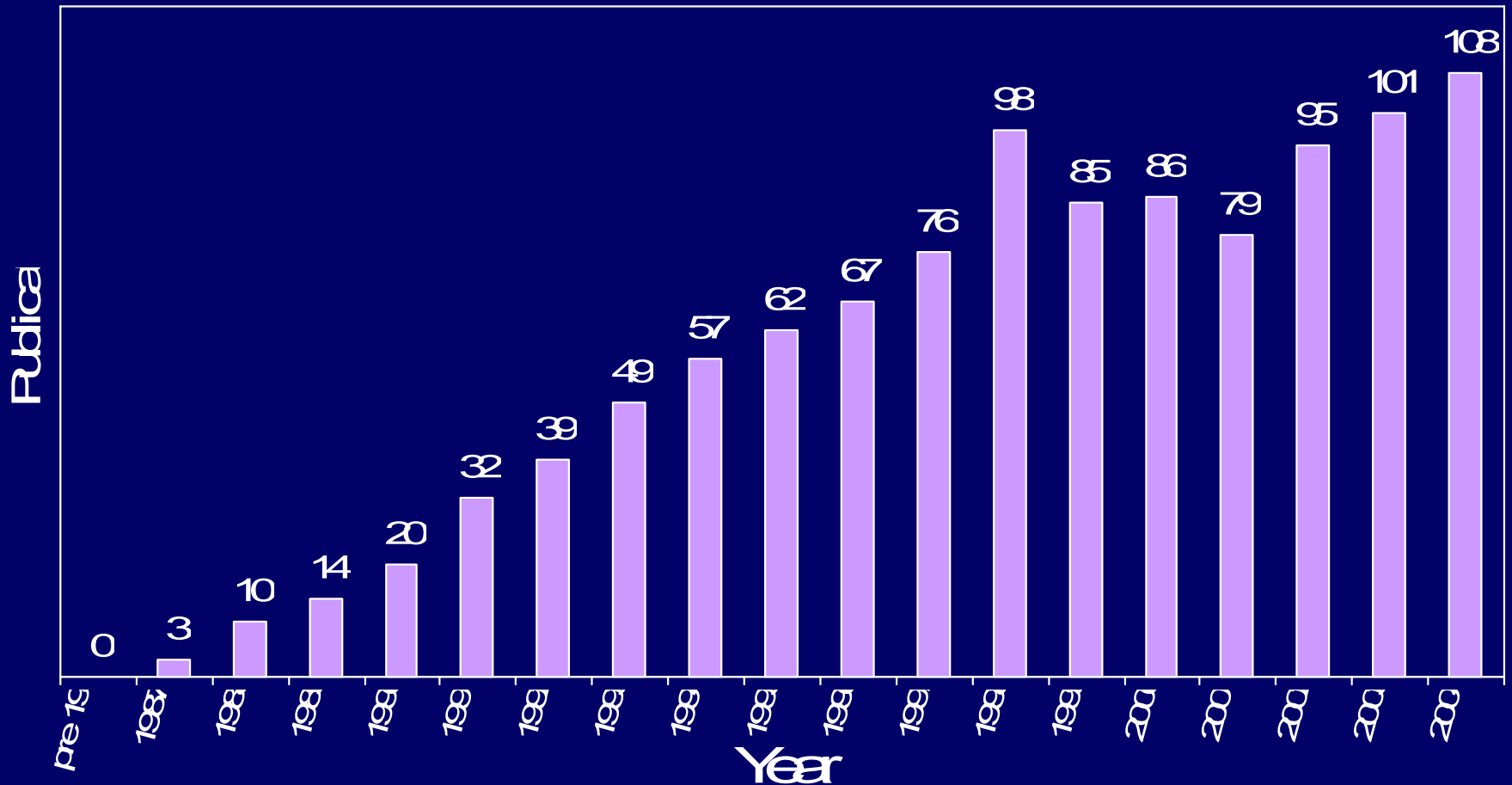
Report by the Secretariat
58th World Health Assembly - 7 April 2005

Expanding research on the role of alcohol consumption and related risks in the prevention and treatment of HIV/AIDS.

- Subst Use Misuse. 2006;41(10-12):1465-507, **Bryant KJ**, NIAAA
 - This article is a review of some of the major epidemiological, behavioral, biological, and integrative prevention research issues and priorities in the area of HIV/AIDS and alcohol consumption.
 - Drinking alcohol increases both the risk for infection with HIV and related illnesses and the morbidity and mortality of patients who progress to AIDS.
 - Both the direct and indirect effects of alcohol misuse appear to be major contributors to both the risk for infection with HIV and the transmission of HIV/AIDS at the individual and population levels.
 - There is increasing evidence that perhaps no level of alcohol consumption is "safe" for those who are HIV infected and receiving antiretroviral treatment.
 - Interdisciplinary basic behavioral and biomedical research is needed to develop comprehensive culturally appropriate strategies
 - High-priority topics include improving adherence to antiretroviral medications, prevention of infection in young minority women in the United States, and treatment of HIV+ pregnant women who are alcohol abusers to prevent adverse fetal outcomes, which is an international focus in under-resourced settings in Africa.

Alcohol-HIV Publications, by Year

PubMed search: "alcohol" + "HIV" in title or abstract - August 2005



*Stall R, et al. The prevention of HIV infection associated with drug and alcohol use during sexual activity. Adv Alcohol Subst Abuse. 1987.

Summary – Alcohol and HIV

- Several lines of evidence relating alcohol consumption with risk of HIV infection
- Although alcohol may also cause immunosuppression, it does not “cause” HIV/AIDS
- At a minimum, alcohol consumers represent a critical target group for HIV prevention, treatment and care interventions
- Role of alcohol must be addressed to achieve goals as set out by national governments
- Alcohol use in the context of HIV is a gender issue
- The interventions needed are multisectoral and involve program and policy responses

Alcohol Consumption Definitions

- USE = Ingestion of substance without experiencing negative consequences
- MISUSE = Same activity but now experiencing negative consequences
- ABUSE = A continued pattern of use in spite of negative consequences
- ADDICTION/DEPENDENCE = The compulsive use of substances regardless of negative consequences