Alcohol and HIV in India: A Review of Current Research and Intervention

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This supplemental of AIDS and Behavior is a collection of recent work by Indian researchers and Indo-U.S. partnerships, examining the intersection of alcohol and HIV in India. A decade ago, when some of the research reported on in these papers was in its infancy, the AIDS epidemic in India was believed to be accelerating dramatically and shifting from vulnerable high risk populations such as sex workers, truckers and injection drug users to the general population. At the time there was a great urgency to identify facilitators and routes of transmission and to find strategies that could immediately be effective in containing the AIDS epidemic and preventing its economic, social and health consequences.

During this period, international and domestic alcohol manufacturers were seeing an opportunity to market their products to an ever expanding Indian middle and upper middle class with resources to spend on leisure time activities. Alcohol production and use has a long history in India, as the paper by Sharma et al. in this supplement illustrates. Recently, however, the sale and consumption of new forms of alcohol containing more pure alcohol content

such as “strong beers”, and associated with higher status and prestige such as “English liquors” including whiskey, scotch and brandy, has begun to replace traditional beverages with lower alcohol content and more nutritional components such as *tadi madi* (date wine), *fenny* (distilled coconut or cashew wine) and toddy (palm liquor). Well known Indian substance use and mental health researchers such as Benegal and Patel were writing about the intersection of alcohol and mental health but they were paying less attention to alcohol’s role in fueling the AIDS epidemic [1, 2].

In 2000, two new WHO publications highlighted the growing significance of alcohol with respect to HIV risk. The WHO Eight Country Study on alcohol and HIV (2000) included a chapter on alcohol and HIV in India, followed by an historical review of secondary data sources on the history of alcohol and its association with HIV risk in India [3]. These first publications were followed by a WHO funded qualitative investigation of alcohol consumption and sexual behavior in Delhi conducted by AIIMS, a WHO alcohol center, under the direction of the now-deceased Dr. B.M. Tripathi.

Since 2000, much more has been written specifically on the intersection of alcohol and HIV, primarily by Indian authors. Articles published in peer reviewed journals fall into several main categories: (1) epidemiologic studies based on large surveys that include alcohol use as a predictor of HIV or other sexually transmitted infections; (2) studies addressing co-morbidities and HIV risk; (3) studies of alcohol use and sexual risk in special populations including tea estate workers, migrants, injection drug users and commercial sex workers; (4) studies that examine gender, violence, alcohol use and sexual risk and (5) studies that address the role of alcohol in treatment adherence.

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Epidemiologic Studies

Most published research in India has focused on the epidemiology of HIV; some of the articles included alcohol as a contributing factor. The study populations have been female sex workers and their clients, patients at rural and urban STI or HIV testing and counseling sites, mobile workers, migrants and others. These studies, varying in scope, and conducted in different rural and urban geographic areas of India tend to show the same results. Predictors of HIV and STI included MSM, blood transfusions, visits to sex workers, multiple partners including FSW, drug use and alcohol use prior to sex, and non-circumcision [4–6]. In all of these correlational studies, consumption of alcohol before sex was a key dimension of sexual risk including unprotected sex and anal sex. Studies also pointed to differences in the way alcohol affected married versus unmarried men. A study of predictors of seropositivity in men and women seeking HIV testing and counseling in a rural clinic Central India showed that alcohol used before sex was a significant predictor of HIV seropositivity in married men 30–39, but not in single men who were probably younger [7]. On the other hand, in a study of HIV risk among clients of wine shops in Chennai, Sivaram et al. [8] reported that 89% of respondents interviewed drank before having sex and that non-protection was significantly more common among unmarried men who drank before having sex. These studies have led scholars such as Madhivanan, Dandona and Sivaram to conclude that one viable option for HIV prevention in the Indian context is reducing alcohol consumption prior to sex in both married and unmarried men [5].

Special Populations

There is a small but growing literature on alcohol use and HIV risk among special populations including vulnerable workers such as female sex workers and migrant workers. For the most part, these studies also are epidemiologic and correlational. Like the others they point to the importance of alcohol consumption in general or prior to sex in increasing sexual risk among Nepalese migrants to Mumbai and commercial sex workers [9–11]. Among Nepalese migrants, factors contributing to HIV infection in India included peer norms, cheaper sex, lack of family restraint, and use of alcohol, while in Nepal they included increased status and participation in frequent festivals where alcohol was available. In both settings alcohol was involved in sexual opportunities contributing to HIV though these opportunities varied across locations. However immigrants did not perceive themselves to be at risk of HIV [12] in either location. This study highlights the importance of

local context in HIV prevention. Saggurti's work emphasizes degree of mobility **among** "migrants" showing that contracted mobile workers are at higher risk than non-contract workers for both alcohol consumption and a variety of sexual risk behaviors that place them at risk for HIV including sex with female work group members [13]. He explains this by suggesting that local workers may be more subject to the normative constraints of family and peers in relation to sexual decision making while mobile workers are not. All of these papers have implications for intervention, pointing to the need to focus on contextual factors triggering risk behavior that may differ from location to location, and to the importance of working with employers to introduce HIV prevention programs into work settings.

Several papers in the current collection contribute new epidemiologic perspectives relevant to predictors of high risk behavior and HIV. Kamla Gupta's paper differentiates between migrants (those who shift from one part of the country to another) and mobile workers (those who leave their homes at least one night a month for work), and between temporary and longer term mobile workers. Her analyses, based on National Family Health III survey data show that consumption of alcohol prior to sex, and risky sex behaviors are associated with employment mobility but not with migration, thus supporting Saggurti's earlier findings in a national data set. The paper by Verma et al. also examines sexual risk among mobile female sex workers and male mobile workers who are clients of these FSW in 14 districts of India. They find that alcohol consumption is common in both groups prior to sex, and is linked to inconsistent condom use. This coincides with Singh et al., and Schensul et al.'s findings that men who pay for sex with women outside of brothels are much more likely to avoid condom use or to use condoms inconsistently. These results suggest the importance of focusing interventions on reducing risks associated with paid sex and informal sexual transactions that take place outside of the brothel environment. Samet and colleagues address alcohol use among HIV positive FSW and male clients, making it clear that alcohol use both exacerbates gaps in medication adherence, and acts as a facilitator of sexual risk behavior. This population is highly understudied in the India context and as more people become seropositive, reducing alcohol risk and unprotected sex among PLWA is increasingly important, both to reduce transmission and improve health and related outcomes.

Men in the general population are the subject of several papers in the supplement. Saggurti et al.'s paper on alcohol and sexual risk among men in resource poor communities in Mumbai shows conclusively that daily drinking is associated with extramarital sex, current diagnosis of gonorrhea and Chlamydia infection and past history of

exposure to herpes simplex virus-2 and/or syphilis. Thus he concludes that it is not men in general who should be targeted for specific alcohol reduction intervention but those involved in chronic daily drinking. Singh et al., working in similar communities in the Mumbai area, come to the same conclusion, finding that higher level drinkers have more non spousal sexual partners and use protection less with them. Their paper suggests that moderate level drinkers also may be at risk of exposure to STI and HIV and that interventions should be tailored, with cessation the goal in the case of regular daily drinkers and reduction of frequency and amount of consumption among moderate and lower level drinkers to reduce sexual risk. Both require norms change.

Local Context

A number of papers mention the location of alcohol and/or sex activities as important in exacerbating peer influence with respect to drinking and sexuality, or serving as a recruitment and potential intervention site. In one of the few venue based HIV intervention studies conducted in India, researchers in Chennai have repeatedly shown that those who frequent wine shops are much more likely to engage in HIV risk behaviors than others [8, 14–16]. This has led them to argue in favor of wine shops and related venues as a place for HIV intervention although they do not argue equally for the importance of controlling alcohol consumption or frequency of visiting such places. Cromley's paper in this issue utilizes spatial analysis to identify groupings of men by the higher risk activities they undertake with friends. She notes that men who drink and share other activities with friends in bars outside community of residence are more likely to be involved in higher risk behaviors. Both Cromley's paper and the Chennai work however, are missing important details that would help us to unpack the relative influence of peers and other dimensions of the environment on drinking and sexual persuasion. Schensul's paper uses another type of configurational analysis, showing that specific combinations of location of sex, type of partner and use of alcohol lead to unprotected sex. This qualitative study provides a fine grained approach to understanding exactly how and why men make decisions to drink, seek partners, choose or find places to have sex and use or fail to use protection. Finally, the Tripathi et al. paper expands methods commonly used to map high risk sites associated with HIV risk by showing how ethnographic mapping moves from external observations to in-depth and historical understanding of locations where opportunities to drink and engage in sexual risk take place, and risk behavior can be understood in its cultural and historical context. This deeper level of understanding,

the authors argue, can be useful in tailoring both recruitment and intervention efforts.

Alcohol, Mental Illness and HIV

In India there is research on the relationship between mental illness and HIV and between alcohol use and sexual risk, but the association between de-addiction services and HIV screening testing and counseling is nascent. In a 2006 study, researchers Carey and colleagues sought for associations between alcohol use and STIs in a de-addiction clinic but found that most patients used alcohol. Despite this limitation, they argued that STI/HIV prevention programs should be included in de-addiction clinics, and conversely, addressing alcohol use in particular, in AIDS prevention programs [17]. Others have argued that alcohol is linked to serious mental disorders but have not made the connection with HIV [18]. Nayak et al.'s and Cottler et al.'s papers in this issue show conclusively that poor mental health and hazardous drinking is associated with both violence and HIV risk among men. Overall however, research on the links among serious mental illness, alcohol use, and sexual risk needs more attention in the India context.

Most of the papers in this supplement reflect the first phase of research on alcohol and HIV in India. The topics are consistent with the early high priority studies that were funded and they also reflect analyses of national and statewide secondary data sets related to HIV that included alcohol variables. During this first phase, few intervention studies were mounted that addressed alcohol cessation or harm reduction as a way of reducing exposure to HIV risk. In part this is because there is little information about how providers view the role of alcohol in HIV prevention, how consumers behaviorally and/or cognitively connect alcohol with sexual risk related activities, and whether there is an effect of indirect marketing or film/video media that connects alcohol and sex with actual behaviors on actual behavior.

Interventions

Several papers in this issue summarize interventions or components of interventions. Peltó and Singh's paper provides detailed information on the way in which one component of a community level intervention involving sex risk prevention among men and households in Mumbai designed to change gender and HIV related norms through street drama developed a strong alcohol component. The paper is set in the context of street drama and art as HIV intervention approaches widely used in South and South

East Asia. Schensul et al. illustrates how a locally developed, theoretically driven comprehensive community level intervention in three resource limited communities in Mumbai that was designed to address HIV risk reduction norms came to include a significant component on avoidance of alcohol use. The paper shows that aiming alcohol harm reduction at non-daily drinkers can have a significant effect both in terms of reducing alcohol use among non-daily or irregular drinkers, and sexual risk behavior. The results support the importance of multilevel interventions that change community norms and address individual behaviors at the same time. They also reinforce the importance of including alcohol as a focus of all HIV risk reduction programs for men in the general population as well as other vulnerable populations.

There are a handful of published theoretically driven school based interventions that address alcohol, though HIV prevention interventions that involve discussion of sex are not very widely supported in India. Chhabra's paper is an exception. She describes an intervention for teens developed in the U.S. and adapted for use in India, which was successfully implemented among rural and tribal youth in Himachal Pradesh and sustained in the communities in which it was implemented. This intervention is currently being disseminated in other locations in India and is a model for other much needed translational educational and workplace approaches to prevention.

Violence associated with alcohol use has been shown to have an effect on HIV and STI risk exposure, primarily through forced, "rough" or painful sex between men and vulnerable or unwilling women including spouses. The evidence is accumulating to suggest that alcohol, when linked with gender norms, disinhibits men, and focuses them on meeting their perceived sexual and other needs in marriage through the use of violence or abuse [19–22]. Several papers, including the Berg et al., paper address the connections and pathways that link stresses in men's lives and alcohol use with domestic violence and risk of HIV. Berg's paper also includes a qualitative component that outlines women's experiences of abuse including sexual abuse related to alcohol use of their spouses. Women interviewed were spouses of daily drinkers. The paper suggests the importance of multiple strategies to reduce risk of violence and forced sex in couples, including safe "houses" for women, community gender norms programs, couples' counseling, improvements in negotiation skills, and organizing women against alcohol and alcohol related abuse.

Measurement

Measurement of alcohol consumption remains a problem in India as elsewhere. Most national or other studies use a

handful of gross measures such as "use of alcohol ever", "frequency of 30 day use", and "number of drinks at one time" or some combination of the same. Enhancement of measures of alcohol use should be based on a closer count of the types of alcohol consumed, how often they are consumed, and how much liquid and estimated pure alcohol is consumed in one "unit". Both the ASHRA study (Singh, Schensul, Berg and Cromley papers) and the Goa study have developed more refined measures of alcohol consumption based on these indicators. The Greenfield et al. paper takes the argument an additional step by offering a method of refining alcohol consumption that is validated for local Indian environment and a methodology that allows for adaptation to other settings and populations. Further development of context appropriate measures is much needed in South Asia and elsewhere.

Directions for Future Research on Alcohol and HIV in India

The articles in this collection leave no doubt that alcohol plays a direct and indirect role in promoting situations and decisions leading to unprotected sex with multiple partners in unsafe situations both in the general population and in vulnerable populations including mobile workers, and female sex workers, and those infected with HIV. Venues where alcohol is sold and consumed including wine shops, *addas* and bars and restaurants clearly influence, endorse, support and enable risky sexual behavior. More socio-spatial research is called for to understand how such sites function and in what ways they may constitute intervention sites to promote risk reduction. Mental health and substance use comorbidity compromises both HIV protective behavior, and adherence to treatment protocols among those already infected with HIV and intervention studies focused on these populations are clearly needed. The papers illustrate, sometimes in considerable detail, the stressful life circumstances that underlie both alcohol consumption and its consequences for HIV and other health problems providing reasons for why all must be addressed to have a long term effect on HIV prevalence. In the end, these papers support theoretically driven ecologically oriented, multilevel gender based studies and interventions to reduce alcohol related harms. They show that such approaches can be, and are feasible and acceptable, that they have antecedents in India and are required to constrain and control the AIDS epidemic wherever vulnerable individuals and groups are at risk [23].

The editors express their heartfelt appreciation to the National Institute on Alcohol Abuse and Alcoholism for supporting this publication and making possible its distribution at the Second International Conference on Alcohol

and HIV in India, Delhi, 2010. We also wish to thank all of the authors for committing to the time and dedication required to produce an integrated set of papers on a new topic of policy and practical importance to India. Dr. Seth Kalichman, editor of *AIDS and Behavior* could not have been more helpful in smoothing the way for rapid reviews and production of finished papers. We would like to thank all of the reviewers who went beyond the call of duty in their critiques and suggestions for improving each of the papers. Though they shall remain unknown, their influence is notable. Finally, we wish to dedicate this supplement to Dr. B.M. Tripathi, recently deceased, whose contribution to our studies in Mumbai, to working meetings in Mumbai and Goa, and to the emerging field of alcohol and HIV studies will always be remembered.

Comments from Kendall J. Bryant, Ph.D., Coordinator, Alcohol and HIV/AIDS Research, National Institute on Alcohol Abuse and Alcoholism, National Institutes of Health, MD, USA

Alcohol and HIV have an overwhelming impact on morbidity and mortality in the world's populations both separately and together. They rank among the top 10 leading causes of death. Their dynamic interaction increases the risk for HIV infection and complicates their treatment. How this combined epidemic is expressed for individuals, their families, and their cultural contexts and the wider institutions that serve them is explored in this publication. This collection of 17 invited papers reflects the work of researchers interested in the complex relationship between alcohol consumption and risk for HIV infection. While the papers explore these relationships from many angles the ultimate goal of this collection is to move readers to ask the next questions: "how can this convincing evidence of the direct and indirect relationship between alcohol use and HIV risk be used to develop effective prevention programs in India targeted to its rich diversity of cultures and sub-populations and how can these interventions be targeted to the most vulnerable individuals, families, and groups?"

This collection grew from presentations at several meetings in India, placed in motion by a broader need for collaboration between the United States and India to understand and act upon the growing HIV epidemic in India. The papers presented here represent the first steps in what we hope will be a long-term collaboration between the two countries to arrive at a more complete understanding of the role that drinking plays in the lives of individuals and communities. Where does drinking take place? What types of alcohol are drunk? Are youth who begin drinking at an earlier age at greater risk, and if so, of what? What are the variations in HIV and other risks

related to alcohol use? Are there gender differences in men and women's perception and use of alcohol? How this repertoire of individual and group behaviors is linked to HIV risk, particularly sexual risk under the influence of alcohol is the focus of many of these papers. Findings begin to suggest how prevention strategies need to be developed and targeted to specific groups in culturally appropriate ways.

The selections in this special journal edition focus on the consequences of drinking for particularly vulnerable groups for increased HIV infection which include women, minorities, and rural populations within India. The writers represent a wide variety of individuals at academic institutions, government agencies, and other research collaborations concerned with health. Some of the papers provide detailed qualitative methodological approaches to assessing both what people drink and the context in which they drink such as bars while others focus on statistical associations between alcohol use and HIV risk behaviors such as quantity of alcohol consumed and unprotected sex with a partner of unknown HIV status. Many of these quantitative and qualitative issues have been explored in the literature in other countries and the goal of the current research is to see if key findings can be replicated and extended in different populations in India and to demonstrate how these complementary approaches provide a better "ecologically valid" framework for future research and prevention activities.

We think that the diverse mixture of papers offers an instructional advantage to readers who wish to explore these ideas further. This research can create a dialog between researchers from diverse communities and cultures and across national boundaries with respect to how to best advance current knowledge and understandings and take preventive action. It may also inform individuals beyond the research community such as students and decision makers and broaden the understanding of the effects of alcohol use on many diseases in diverse cultural and social groupings, since the consequences of drinking are known to be associated with increases in the prevalence of infectious diseases such as other STDs including HIV, TB, and Hepatitis, and impact prevention and treatment efforts. These papers also reinforce the ability of U.S. institutions to carry out research in international settings in a collaborative and culturally competent framework. Such collaborations provide a basis for future cross national research and a sustained investment among colleagues to understand and intervene appropriately in epidemics that extend beyond the borders of any one nation and have global consequences. While the research presented here presents only a beginning, it is hoped that these findings will spark greater interest within key stakeholders who make critical decisions that can impact upon health status and stimulate future discussions, more research, better

intervention approaches and improved alcohol related policies.

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Comments from Ravi Verma, Ph.D. Regional Director, International Center for Research on Women, Asia Office, India Coordinator of Second International Conference on Alcohol and HIV in India. Exploring Relationships through a Gender Perspective

On behalf of ICRW, India sponsoring organization for the second international conference on Alcohol and HIV, I wish to endorse the messages conveyed by the papers in this supplement regarding the intertwined prevalence of alcohol consumption and rates of sexually transmitted infections including HIV in India. Alcohol use, like risky sexual behavior, is deeply embedded in male identity, masculinity norms and gender relations, an area that requires further elucidation in the research to date. For example, a recent survey conducted across nine countries¹ on masculinity norms and its determinants and consequences provides empirical support to this assertion. In this report entitled ICRW/IMAGES, bi-variate analysis reveals a correlation between men's economic disempowerment and high rates of alcohol consumption such that men who are economically disempowered report higher rates of alcohol use than those who are not (49 vs. 23%). Under pressure from dominant patriarchal expectations to provide for the family and earn, disempowered men, or men who are perceived as failures often find comfort in the use of alcohol, which they may view as an avenue for stress relief. These same men also report much higher rates of intimate partner violence, multiple sexual partners and much lower

rates of condom use than those who are not marginalized or excluded from the economic processes. Thus the failure to fulfill male gender roles such as the ability to provide for one's family is clearly linked to both alcohol consumption and negative health-related behaviors.

Ongoing research on masculinity also suggests that men, and especially young men, are socialized into believing that male identity and masculinity are connected with alcohol consumption. Alcohol use, along with sexual intercourse, is seen as a coming of age for young men. Just as adolescents take advantage of sex workers or even sex with other boys to explore their sexuality, they also use alcohol to test social boundaries and build camaraderie with peers. Negative masculinity norms and desire to prove masculinity are key cultural components linking alcohol use and HIV risk.

For many years, alcohol use has been known to be associated with sexual risks, STDs and social harm, but very little effort has been expended to understand and explore the pathways between alcohol use and HIV risk. Thus this linkage, embedded as it is in the cultural of masculinity and in socialization practices, helps to understand the pathways connecting alcohol and HIV risk, especially in young men, and at the same time, to indicate that norms as well as individual practices must be changed in order to de-link these two risky behaviors.

Even less evidence exists to guide intervention development to reduce the impact of alcohol use on risky sexual practices and violence, both of which are associated with HIV. ICRW's past research on gender based violence reveals that alcohol abuse is frequently a precursor for violence. UNAID and many researchers have suggested that intimate partner violence is one of the major predictors of HIV infection and this area of investigation is significantly understudied and needs to be further expanded.

We believe it is critical that interventions to address alcohol abuse and/or unsafe sexual practices consider deconstruction of gendered norms that promote both behaviors. There is a need to produce greater gender equality and to shift norms that place aggression, violence and sexual exploitation within the masculine domain and are aggravated under the influence of alcohol.

In India, it is unlikely that "single sector" approaches alone will be effective in combating the gender based violence, risky sexual behaviors and other consequences of pervasive alcohol use. Sensitive community-based, community-controlled approaches to mediating alcohol use and its relationship to unprotected sex and violence should be undertaken with communities, including men, women, and families affected by alcohol, community organizations, distributors, media and providers.

Socially influenced behaviors such as sex and alcohol consumption require sound evidence before action can be

¹ ICRW 2010; International Men and gender Equality Survey (IMAGES).

taken. Within different cultures and contexts, norms and gendered expectations for behavior may change. Therefore, we recognize the importance of three critical steps to propel the agenda on HIV, gender, and alcohol forward.

1. *Conceptualization, identification and formation of definitive pathways linking alcohol use and sexual risk.* This will require establishing a clear work plan and agenda through a focused statement of problem and conceptualization of pathways between alcohol use and sexual risk. This should be developed through dialogue among key stake holders from gender focused groups, and alcohol prevention and treatment and HIV prevention groups. Existing policies and programs should be reviewed to identify the gaps and entry points required to build gender transformative messages in both programs. The Second International Conference on Alcohol and HIV that ICRW and ICR are organizing in collaboration with NIAAA and PHFI in New Delhi during 28–30 September 2010 is a step in that direction.
2. *Evidence building.* This calls for recognizing and exploring the overlap in these issues and behaviors, generating evidence around alcohol consumption, HIV, and gender through operations research and qualitative research programs which may be built into existing HIV prevention programs or alcohol addiction prevention and treatment programs or both.
3. *Program implementation, testing, evaluation and scale up.* Once evidence is documented, it must be integrated, tested and evaluated in existing HIV and/or alcohol addiction programming prior to scaling up.

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