" Linkage study on Alcohol Consumption and High Risk Behavior in India"

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Abstract: This paper is an attempt to understand relationship between alcohol consumption and high risk behavior among married male age group (15-34) years in India by analyzing multidimensional indicators of alcohol consumption (every day or once in a week) , current age, occupation (skilled & un-skilled worker), highest level of education and region. The analysis uses NFHS-3 (National Family Health Survey-3) data of India. The result depicts a fair picture of association between alcohol consumption and high risk behavior. Around 27 percent of the respondents who were frequently consuming alcohol had likelihood of having sex other than regular partners without using condoms. The binary logistic regression model shows that there is a statistically significant relation of alcohol consumption and high risk behavior. The other socio- economic and cultural factors like current age, occupation, highest level of education and region plays a pivotal role to determine high risk pattern in India.

1. Introduction

In India young people (aged 10-24) represented 31% of the Indian Population (2001, Census). This cohort, not only represent India's future in the socio-economic and political realms, but its experiences will largely determine India's achievement of its goal of population stabilization and the extent to which the nation will be able to harness its demographic dividend. While today's youth are healthier, more urbanized and better educated than earlier generations, social and economic vulnerabilities persist. In the course of the transition to adulthood, moreover, young people face significant risks related to sexual and reproductive health, and many the knowledge and power to make sexual and reproductive choices.

Alcohol is known to have dis-inhibiting effects on behavior leading to act as an arousal agent. Similarly, it has a focusing effect, narrowing drinker's attention to immediate needs, such as sex, and reducing responsiveness to outside stimulation.

In addition to increase stimulate for sexual risk through unprotected sex with unsafe partners, alcohol use also affects the HIV infection and can slow down intermediate treatment/ medications. Available evidences showed that alcohol or drug use may impair sexual decisions leading to unwanted/unprotected sexual intercourse *(MacDonald, Fong, Zanna, & Martineau, 2000; Castilla et al., 1999; Sikkema et al., 1996)*. Some of recent studies have established a direct relationship between alcohol use and lower use of condoms during sex with non-regular sex partners, revealing that high levels of alcohol use may bring down the self efficacy of condom use across diverse populations, including among adolescents (*Thompson, Kao and Thomas, 2005; Greenwood et al., 2001; Morrison, Di Clemente, Wingood, & Collins, 1998)*.

2. Literature review

A study conducted in Harare, revealed that prevalence of HIV infection was a high of 30%; and the prevalence of recent sero-conversion was 3.4%. As high as 31 % men among them reported having sex while intoxicated in the previous 6 months, showing a strong association with recent HIV sero-conversion as well as unprotected sex with casual partners and those paying for sex (*Fritz et al, 2002*). A cross-sectional population-based study of 1,268 adults in Botswana also showed that alcohol use is associated with multiple risks for HIV transmission among both men and women *(Weiser et al, 2006)*. Some other studies showed that in some societies, *alcohol* is commonly consumed as a symbol of masculinity, and used as a facilitator in approaching the opposite sex. "Masculinity" is often linked to the ability to have sex with multiple partners, imbibe alcohol and engage in promiscuous behavior (*Ivchenkova et al, 2001; Gumede, 1995)*.

In India, alcohol consumption has been rising, and alcohol is widely and cheaply available almost everywhere. However, very few studies have been conducted to find the linkage between alcohol use and high risk behavior in the country. A study conducted in two public STI clinics in Mumbai revealed that 68% of men suffering from STD had unprotected sex in the last 3 months; and a very high percentage (62%) of them had unprotected sex with FSWs, while under the influence of alcohol (*Lindan et al, 2002)*. A survey of 1196 male patrons of wine shops/ bars in Chennai showed that unprotected sex with non-regular partners was significantly higher among those who used alcohol before sex; as compared to non-alcoholics seeking sex with non-regular partners (*Sivaram et al, 2003)*. Research on injecting drug users in Madras (Chennai) has also shown a significant association with daily use of alcohol and indulgence in risky sex with commercial sex workers *(Kumar et al, 2000)*. Studies among men taking treatment for alcohol in a de-addiction centre in South India also showed that high-risk sexual behavior was associated with heavier drinking, the presence of co-occurring psychiatric disorder and use of substances other than alcohol *(Srivastava et al, 2004*; *Carey, 2003; Chandra et al, 2003, 1999)*.

3. Data and Methods

The National Family Health Surveys (NFHS) are nationwide surveys conducted with a representative sample of households throughout the country. The Ministry of Health and Family Welfare (MOHFW), Government of India (GOI), initiated the NFHS surveys to provide high quality data on population and health indicators. The MOHFW designated the International Institute for Population Sciences (IIPS), Mumbai, as the nodal agency for each of the three rounds of NFHS.

The third National Family Health Survey (NFHS-3) was conducted in 2005-06. There were four types of respondents covered in NFHS-3 ie. 15-49 age groups ever married women & never married women, 15-54 age groups male married and never married.

In addition to that, blood testing for HIV prevalence and behavior-related information among adult men and women were also collected. In NFHS-3, total interviews were conducted with 124,385 women age groups 15-49 and 74,369 men age groups 15-54 from all 29 states.

The urban and rural samples within each state were drawn separately and, to the extent possible, unless oversampling was required to permit separate estimates for urban slum and non-slum areas, the sample within each state was allocated proportionally to the size of the state's urban and rural populations. A uniform sample design was adopted in all states. In each state, the rural sample was selected in two stages, with the selection of Primary Sampling Units (PSUs), which are villages, with probability proportional to population size (PPS) at the first stage, followed by the random selection of households within each PSU in the second stage. In urban areas, a three-stage procedure was followed. In the first stage, wards were selected with PPS sampling. In the next stage, one census enumeration block (CEB) was randomly selected from each sample ward. In the final stage, households were randomly selected within each selected CEB.
This study uses the data of NFHS-3 of men who were asked about the questions on alcohol consumption and sexual behavior. National Family Health Survey (2005-2006) shows that in India about 30 percent of male population between age-group (15-34) years consumed alcohol.

The married male age groups between (15-34) years have chosen, considering the facts that both behaviors alcohol use and sexual activity are greatly influenced during adolescent and young age group.

Literature review shows that only few studies have shown positive relation between alcohol consumption and high risk. However, this paper examines the relationship of high risky behavior and alcohol consumption. In this paper, first we analyzed exposure of high risk behavior[1] through cross tabulation of married male who are frequently consuming alcohol & involving in sexual activity without condom. Then we examine association of high risk with alcohol consumption, current age, highest level of education and occupation with Chi-Square test.

As there is a strong association of alcohol consumption and high risk behavior, we further decided to analyze data using binary logistic regression model. In this model, first all the variables except age and education were converted in to Binary variables (0, 1). We have considered married male between age group of (15-34) years, who have not used condom during last intercourse and had sex with other than wife as outcome variable. The independent variable taken in this model is alcohol consumed every day or about once a week while controlling socio economic & cultural variables such as current age, region, highest level of education and occupation (skilled & unskilled manual worker).

[1] High Risk Behavior: Married male between age group (15-34) years, who have not used condom during last intercourse and had sex with other than wife. *(Srivastava et al, 2004*; *Carey, 2003; Chandra et al, 2003, 1999)*

5 Results & Discussion

It is evident from the cross tabulation Table 1 that those married male consumed alcohol were involved in un- protected sexual activity with other than wife is quite high. Those married male who had un- protected sex with second to last partner other than wife were around 83 percent. Similarly, a high proportion of married male had un-protected sex with third to last sexual partner other than wife were 96.5 percent.

Table1 Percentage distribution of those married male who consuming alcohol frequently and having sex without condom

	Last Sexual Partner	Second to Last	Third to last Sexual
Spouse	96.35	17.9	3.45
Girlfriend/fiancee	1.66	23.46	41.38
Other friend	0.83	24.69	20.69
Casual acquaintance	0.19	8.02	0.00
Relative	0.44	9.26	13.79
Commercial sex worker	0.23	12.96	20.69
Live-in partner	0.27	1.85	0.00
Other	0.01	1.85	0.00
Total	**7,704**	**162**	**29**

The table 2 depicts, there is a strong association of high risk behaviour with age group, highest level of education, occupation and alcohol consumption. The p value of all the variables is less than 0.0001, showing association of high risk behaviour with these variables which is statistically significant at 1% level. Further examination of the table shows that high proportion about 84 percent of married male age group between 15-34 years were involved in high risk behavior, in terms of education those respondents who have achieved secondary level education (57%) were more likely to be involved in sex other than regular partner without condom.

As far as, association of occupation with high risk behavior is concerned, those respondents who were involved in skilled or unskilled manual work (36.6%) had more chances of high risk behavior than other occupations. For the purpose of analysis, two categories in the questionnaire related to alcohol consumption i.e., everyday and once in a week were taken as one category (frequent consumption of alcohol). The analysis shows that 27 percent of the respondents who were frequently consuming alcohol had likelihood of having sex other than regular partners without using condoms.

Table 2 Association between High risk behaviour and other key variables

	High Risk Behaviour		Total (%)	
	No (%)	Yes (%)		Chi-Square
Age-Group				
15-19	17.5	23.1	**17.6**	518.939***
20-24	16.4	31.8	**16.7**	
25-29	14.7	20.6	**14.9**	
30-34	13.2	8.9	**13.1**	
>34	38.2	15.6	**37.7**	
Total (N)	**72731**	**1595**	**74326**	
Highest Level of Education				
No Education	14.4	14.0	14.4	32.152***
Primary	15.4	18.3	15.4	
Secondary	54.8	57.0	54.8	
Higher	15.5	10.8	15.4	
Total (N)	**72701**	**1594**	**74295**	
Occupation				
Not Working	14.8	13.0	14.7	34.936***
Prof./ Tech/ Manager/Clerical/Sales/Service	30.8	25.3	30.7	
Skilled & Unskilled Manual	31.2	36.6	31.3	
Agri-Employee & Household Domestic	23.3	25.0	23.3	
Total (N)	**72599**	**1594**	**74193**	
Alcohol Usage				
Yes (Everyday/Once in a week)	13.7	27.1	14.0	236.464***
No	86.3	72.9	86.0	
Total (N)	**72731**	**1595**	**74326**	
*** : P< 0.0001 **: P<0.01 *P<0.05				

The table 3 indicates positive relationship with high risk behaviour and alcohol consumption. It can be seen, as age increases, probability of high risk is invariably decreases. Education did not have positive impact on high risk behaviour, but those respondents who were completed higher education had less chance to engage in high risk behaviour. In term of Occupation, those respondents who were involved in skilled & unskilled manual work, had more chances to get involved in high risk behaviour as compared to other categories (Not Working, Prof./ Tech/ Manager/ Clerical/ Sales/ Service and Agri-Employee & Household Domestic). The region was used as a control variable in this model. Except education, p value of all the variables is less than 0.0001, showing association of high risk behaviour with these variables which is statistically significant at 1% level.

Table 3 Binary logistic regression model showing linkage of alcohol consumption and high risk behaviour

High Risk Behavior	Coef.	Std. Err.	[95% Conf. Interval]	
Current Age	-0.0471063***	0.0053563	-0.0576	-0.03661
Highest Education Level	-0.0625792	0.0344431	-0.13009	0.004928
Occupation	0.2410905***	0.0605311	0.122452	0.359729
Alcohol usage	1.253355***	0.0705118	1.115155	1.391556
Region	-0.0357941***	0.0030586	-0.04179	-0.0298
Constant	-1.955799***	0.1416716	-2.23347	-1.67813
Pseudo R2	0.0371***			
*** : P< 0.0001 **: P<0.01 *P<0.05				

Conclusion:

From the NFHS-3 data, we find that about 84 percent of married male age group between 15-34 years were reported to having sex with non – regular partner without using condom. The result also shows that 27 percent of married male consumed alcohol while having un- protected sex with partner other than wife. Thus, this study find strong relation of alcohol consumption and high risk behaviour among married male age group between (15-34) years, which was also corroborated by the regression analysis.

It was also observed that other variables such as current age and occupation were strongly related to high risk behaviour, as age increased the likelihood of involvement in high risk behaviour decreased. While on the other hand, those married male reported that their occupation as skilled & un-skilled manual worker were more prone to engage in high risk behaviour. Thus, this study helps to understand high risk behaviour patterns in India.

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