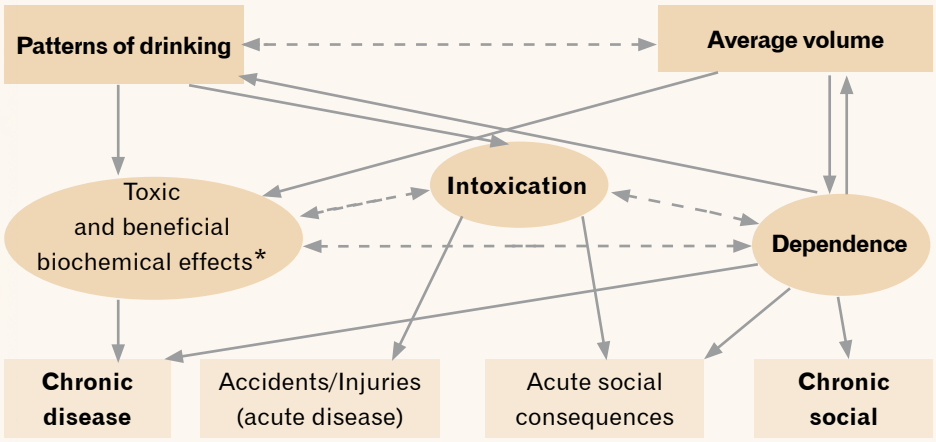
5 ALCOHOL USAGE: IMPACT AND CONSEQUENCES

WHO estimates that there are about 2 billion people worldwide who consume alcoholic beverages and 76.3 million with diagnosable alcohol use disorders. Globally, alcohol causes 3.2% of all deaths (1.8 million deaths) and 4% of Disability-Adjusted Life Years (58.3 million DALYs). This proportion is much higher in males (5.6% deaths and 6.5% of DALYs) than females (0.6% deaths and 1.3% DALYs) (WHO, 2002).

Model of alcohol consumption, mediating variables, and short-term and long-term consequences



* *Independent of intoxication or dependence*

Source: Rehm et al. (2003b)

The effects of alcohol consumption by an individual are noticeable in all spheres (physical, psychological, social, and economical) of an individual's life. Alcohol consumption has health and social consequences via intoxication (drunkenness), alcohol dependence and other biochemical effects of alcohol. In addition to chronic diseases that may affect drinkers after many years of heavy use, alcohol contributes to traumatic outcomes that kill or disable at a relatively young age, resulting in the loss of many years of life due to death or disability. There is increasing evidence that besides the volume of alcohol consumed, the pattern of drinking is relevant for the health outcomes.

The problems related to alcohol consumption can be broadly looked at from three dimensions:

- problem and impact on the individual who consumes alcohol
- the impact on family members (comprising of spouse, children and women in the community) and
- the societal consequence of this consumption

This distinction (though it is important to identify the effects at different levels) is difficult to demarcate as one overlaps with the other and the combined effects are felt by society at large. For example, even though an individual is hospitalized due to a road crash, his family suffers equally on all aspects like social (taking care, absence from routine social interactions, change in social status, etc.), economic (loss of pay, increased expenses – direct and indirect, costs of cancelled/postponed events, etc.) and psychological (low confidence, increased distress levels, etc.) aspects.

The immediate effect of consuming an alcoholic drink varies from individual to individual and includes flushed appearance, a false sense of relaxation, loss of inhibitions (and thereby more confidence), lack of co-ordination and slower reflexes, blurred vision and slurred speech. Some consumers may even experience headache, nausea and vomiting, mood changes (e.g. aggression, elation, and depression) and sleepiness. At significantly high doses it can result even in coma and death (National Drug and Alcohol Research Centre, Australia Fact Sheet on Alcohol). Some of the manifestations at different levels of blood alcohol are given in the box.

Overall, there is a causal relationship between alcohol consumption and more than 60 types of diseases and injury. Alcohol is estimated to cause about 20–30% of oesophageal cancer, liver cancer and cirrhosis of the

Overall, there is a causal relationship between alcohol consumption and more than 60 types of diseases and injury.

The effects of increasing blood alcohol concentration on the central nervous system

20 to 30 mg / dl	Slow motor responses and decreased thinking ability
30 to 80 mg /dl	Increase in motor and cognitive problems
80 to 200 mg / dl	Definite impairment of motor co-ordination and judgment, fluctuations in mood and increased risk taking behaviour
200 to 300 mg /dl	Marked slurring of speech, inability to carry out simple tasks
> 300 mg /dl	Loss of consciousness, convulsions and possible death

Source: WHO (2003)

liver, homicide, epileptic seizures, and motor vehicle crashes worldwide. Unintentional injuries alone account for about one third of the deaths due to alcohol (WHO, 2004).

Effect of alcohol on day-to-day functioning

School	Family	Social	Legal
• Inefficiency • Poor performance • Frequent absence • Accidents in school • Suspension from school	• Frequent fights • Neglect of family duties • Physical violence with family members • Long absence and running away • Rejection	• Distance from friends • Misbehaviour with others • Decreased social reputation • Loss of position • Social isolation • Constant borrowing • Inability to return borrowed money • Fights, quarrels, theft	• Disobeying rules • Drunken driving • Thefts and petty crimes • Involvement with criminal gangs • Arrests and court cases • Conviction • Imprisonment

Source: Adapted from WHO (2003)

The adverse effects of alcohol use go far beyond the individual user.

The adverse effects of alcohol use go far beyond the individual user. Since every person is part of a family, it impacts other family members as well. Further, the collective and long-term effects are felt in the society in which we live. The impact of alcohol use in society is felt by all sectors of the society, especially by the health sector. Several other sectors like law, judiciary, police, welfare, transport etc., also experience the impact in a significant way.

As a public health risk factor, alcohol use results in numerous problems to the individual, family and the society. In the unique context of the SEAR, with recent increases in alcohol consumption, the problems from alcohol use multiply. The rapidly changing socio-economic status accompanied by liberalized values of the society has affected not just the numbers but also the pattern of drinking, making it universal and more acceptable. In addition, those who do not consume alcohol are also at risk. There is limited empirical data on problems associated with alcohol consumption and the need for better quality data across the Region cannot be overemphasized.

Notwithstanding the fact that alcohol consumption results in numerous problems and is a key public health risk factor, there is great difficulty in arriving at one single composite indicator of alcohol consumption patterns and its effect on a particular society. The real and complete socio-economic burden and costs due to alcohol consumption in the community must be examined from different perspectives and multiple sources and by both quantitative and qualitative methods. Despite many

shortcomings, various approaches have been tried in order to document the quantum of alcohol-related problems in a community and also the costs due to these problems (For a fuller understanding of the issues concerned please refer to the document by Single et al., 1996).

5.1 Alcohol Use and Attributable Events

In the Bangalore study, the overall impact of alcohol consumption has been measured by comparing users and non-users with respect to the 8 components of health, injury and its effects (both unintentional and intentional including abuse of spouse, children, siblings), social, occupational, economic, emotional and psychological, legal and help-seeking areas. In addition for every event that was reported, the event was qualified by further enquiries to link its occurrence to alcohol use in self or in others. Thus the study focused on not just obtaining the frequency of occurrence of alcohol-related events, but also the proportion in which this particular event was attributable to alcohol use. It can be observed from Table 9 that numerous facets of an individual's life are affected by the use of alcohol, although the proportions of each facet varied. Despite their frequency of occurrence, nearly 40% of health problems and unintentional injuries have been reported to be linked to alcohol use. With respect to intentional injuries and violence-related incidents it

Table 9: Frequency of health or related events among users and reported proportion attributed to alcohol

Event	Occurrence of the event among users (%)	Event attributable to alcohol use in self (%)
Health problems	33	40
Unintentional injury	8	38
Intentional injury		
Suicidal thoughts	21	8
Suicide attempts	0.3	33
Shoving, grabbing, pushing	**42**	**93**
Hit / threaten injury	1	48
	100	100
Abuse		
Mild–moderate spouse abuse	**76**	**82**
Moderate–severe spouse abuse	**23**	**96**
Abuse spouse severely	**2**	**92**
Abuse Parents	**3**	**83**
Abuse siblings / family members	**8**	**66**
Abuse friends / neighbours	21	41

(continued...)

Table 9: Frequency of health or related events among users and reported proportion attributed to alcohol (...continued)		
Event	Occurrence of the event among users (%)	Event attributable to alcohol use in self (%)
Abuse children	27	44
Got abused	23	39
Got beaten	**0.3**	**55**
Social issues		
Stayed away from home	**21**	**77**
Run away from home	**1**	**83**
Family members felt bad	**52**	**99**
Others felt bad	**15**	**60**
Occupational		
Not being able to be on time	**25**	**84**
Missed going to school or work	**34**	**72**
Deceasing ability to work	**9**	**60**
Disciplinary action taken	**1**	**94**
Losing pay	**17**	**74**
Borrow money	37	34
Currently unemployed and earlier employed	1	28
General household economy		
Always difficult	6	34
Sometimes difficult	**79**	**53**
Psychological		
Not at all happy	8	48
Not enjoy normal day to day	3	20
Constantly under stress / strain	10	40
Lost sleep	**30**	**53**
Sad for unnecessary things	**14**	**59**
Not able to take day to day decision	**12**	**67**
Difficulty in sex	**23**	**89**
Legal		
Police complaint	1	47
Paid penalty	**0.4**	**71**
Stayed in police station	**0.3**	**82**

Note: The highlighted events are reported to be linked to alcohol use by more than 50% of users. Due to multiple positive events in the same individual, event specific responses have to be analysed.

ranges between 8–96%. However, it can be observed that incidents like milder forms of abuse, forms of spouse abuse, abuse of parents or family

members are very high; so also are social issues of running away from home, family members feeling let-down or humiliated, etc. It is in the area of occupational issues that the findings are strikingly clear; more than two third users report their alcohol use to have influenced their work pattern in a very negative way by not being on time, being away from work, facing disciplinary action, etc. Unemployment as a consequence of alcohol use is reported by nearly one third of the respondents. Alcohol negatively influences nearly one third to two thirds of individuals in their general household economic issues and their personal psychological state. Despite a lower proportion, the link between legal issues and alcohol use is seen in nearly half to three fourths of the respondents.

In the unique context of India, with the recent increase in alcohol consumption, the problems from alcohol use would in all probability multiply. Those who do not consume alcohol are also at risk. Use of alcohol in others also results in substantial consequences; in the cases of 'abuse' it ranges from 2–100%, while with respect to occupational, social and legal issues it ranges between 2–11% (Table 10).

5.1.1 Alcohol and health

Table 11 shows the reported perceived health status of both users and non-users. It was observed that nearly twice the number of users report that their health status is just satisfactory or bad. The odds of users reporting a bad health status was 2.5 when compared to non-users (95% CI: 1.5 to 3.8). This difference in proportions between users and non-users was found to be statistically highly significant.

In another study conducted by NIMHANS, alcohol-users experienced a higher incidence of negative life events, more injuries and increasing psychosocial problems. Their status of health was poor to less than satisfactory, compared to the non-users. They sought health care services more often, both emergency services and routine services (Gururaj, 2004d).

5.1.2 Health problems

In the study population, 1058 users and 549 non-users (total 1607: 23%) out of 3258 users and 3745 non-users reported to have had a health problem, with the greater proportion being among the alcohol-users (Table 12). The difference was found to be statistically highly significant. The alcohol-users were found to be at approximately three times the risk (OR=2.8) of suffering from a health problem as compared to non-users.

Alcohol-related problems made up 17.6% of the case load of psychiatric emergencies in an Indian general hospital (Adityanjee, 1989) and

Table 10: Frequency of health or related event among non-users and reported proportions attributed to alcohol use in others		
Event	Occurrence of the event among non-users (%)	Occurrence of the event due to alcohol use in others (%)
Unintentional injury	**2**	**18**
Intentional injury		
Suicidal thoughts	13	6
Abuse		
Shoving, grabbing, pushing	18	7
Hit / threaten injury	**0.1**	**100**
Mild–moderate spouse abuse	52	6
Moderate–severe spouse abuse	**6**	**11**
Abuse Parents	2	4
Abuse siblings / family members	7	2
Abuse friends / neighbours	**12**	**18**
Abuse children	21	5
Got abused	**3**	**17**
Got beaten	**0.1**	**50**
Social		
Stayed away from home	16	6
Family members felt bad	10	2
Others felt bad	4	6
Occupational		
Not being able to be on time	8	9
General Household economy		
Always difficult	**4**	**11**
Sometimes difficult	75	2
Police complaint	**0.2**	**11**

Note: The highlighted events are reported to be linked to alcohol use in others by more than 10% of those not using alcohol.

Due to multiple positive events in the same individual, event specific responses have been analysed.

Table 11: Perceived health status of users and non-users		
Health status	Users (%)	Non-users (%)
Excellent / good	82.4	92.8
Satisfactory	15.9	6.5
Bad	1.6	0.7
Total	100.0	100.0
X^2= 2143, df=2 p<0.001		

Table 12: Reported health problems in the last 12 months				
Health problems	Users (n = 3258)	Non-users (n = 3745)	Odds Ratio (95% CI)	Fisher's Exact Test
Health problem in the last 12 months	1058 (32.5%)	549 (14.7%)	2.8 (2.5–3.1)	$p < 0.0001$

accounted for over a fifth of hospital admissions (Sri, 1997; Benegal, 2001). Alcohol abuse has been implicated in over 20% of traumatic brain injuries (Gururaj, 2002a) and 60% of all injuries reporting to emergency rooms (Benegal, 2002). It has a disproportionately high association with deliberate self-harm (Gururaj, 2001a, 2001b and 2004e), high-risk sexual behaviour, HIV infection (Chandra, 2003), tuberculosis (Rajeshwari, 2002), oesophageal cancer (Chitra, 2004), liver disease and duodenal ulcer (Sarin, 1988, Jain, 1999). Gururaj et al., (2004a) observe that "in accordance with the growing consumption of alcohol all over the country, the hospital admission rates due to the adverse effect of alcohol consumption are also increasing. Several studies indicate that nearly 20–30% of hospital admissions are due to alcohol-related problems (direct or indirect) in health care settings". Despite these growing numbers, health problems due to alcohol use are under-recognized by primary care physicians.

5.1.3 Injuries

Alcohol consumption has been identified as a major risk factor for occurrence of both intentional and unintentional injuries. Alcohol not only influences occurrence, but also poses problems in diagnosis and management of injured persons.

A disproportionately greater proportion of alcohol-users suffered from one or the other type of injury, including either intentional or unintentional injuries, during the last 12 months (7.8% v/s 1.6%) (Table 13).

Table 13: Injuries in the last 12 months				
Unintentional injuries	Users (n = 3258)	Non-users (n = 3745)	Odds Ratio (95% CI)	Fisher's Exact Test
Suffered injury in last 12 months	255 (7.8%)	61 (1.6%)	5.1 (3.9–6.8)	$p < 0.0001$

In the NIMHANS study on Traumatic Brain Injuries, nearly 24% of subjects accepted being regular alcohol-users. Nearly 884 (18.4%) were found to be under the influence of alcohol at the time of injury as revealed by self-reports and medical certification by the attending physicians. Among them, nearly two thirds sustained a road traffic injury, one fourth

sustained a fall and about 12% were injured in a violent act (Gururaj G, 2005b). It has also been demonstrated that alcoholics have a higher severity of injury and poor outcomes following injury with a higher proportion of deaths and disabilities (Gururaj, 2004g).

5.1.3.1 Road traffic injury

A clear association between alcohol and road traffic injury, within six hours of alcohol consumption has been proven beyond doubt.

Sindelar (2004) in a recent review of available literature from high-income countries observed that nearly 5–50% of patients registering at the emergency department for trauma had consumed alcohol. A clear association between alcohol and injury, specially road traffic injury, within six hours of alcohol consumption has been proven beyond doubt (Cheriptel 1993 and 2003).

Precise information on the involvement of alcohol in Road Traffic Injury (RTIs) and deaths is not available from all SEAR Member States. Odero, in a recent review of epidemiological studies of RTIs in developing countries noted that nearly one third to one fifth of RTIs occur during night time and the majority of these were attributed to alcohol consumption, in combination with poor visibility, greater traffic density and limited health care facilities (Odero, 1997). Studies in the Region indicate that nearly 30–40% of RTIs occur during night time and a significant number of these are attributed to alcohol consumption (Gururaj, 2004b and 2004g).

Studies from India in recent years have shown the increasing link of alcohol with RTIs, specially night-time crashes.

- In a study on "Drinking and Driving" undertaken to establish baseline information on the magnitude of alcohol consumption by drivers of all kinds of motorized vehicles in Bangalore, Gururaj and Benegal (2002) reported from a 12 centre hospital-based study of 296 persons injured in road crashes that 28% of patients were under the influence of alcohol. Among them, 29% had consumed whisky, 22% rum, 14% beer, 8% brandy and in 20% of persons, the type of alcohol consumed was not known. Further, among those consuming hard liquor, 40% had consumed three large drinks, while 20% had had more than six drinks. In those consuming *arrack*, more than 62% had consumed three packets. The commonest place for drinking was in bars (64%).

  In the same study, roadside surveys showed that the commonest drink was beer (52%), while whisky and rum was reported among 29% and 11% respectively. Among beer drinkers more than 75% had more than a bottle while 68% had more than three pegs of

hard liquor. The place of drinking was commonly bars (67%), while party-goers were represented to the extent of 16%. Drinking at home was becoming common as reported by 12% of the respondents (Gururaj, 2002b).

As a part of the same study, police checks on drivers were also conducted. It was observed that nearly 80% of suspicious drivers checked by the police and 35% of randomly checked drivers were under the influence of alcohol. A majority of those detected by the police reported the consumption of spirits with high alcohol content 3–4 hours prior to being checked and drinking at parties or with friends. The amount alcohol consumed based on breath analyzer tests revealed that 40%, 27% and 10% were in moderate, severe and very severe levels of intoxication as specified by WHO Y90 codes. In Bangalore city alone, the number of cases booked by the police between 2001and 2005 increased from 9900 to 33 000 (State Crime Records Bureau, Bangalore, India).

In addition to the above findings, 98% of individuals in roadside surveys reported themselves to be confident to drive after drinking, indicating lack of awareness of the dangerous consequences; 97% of the surveyed population revealed that the existing laws prohibited drinking and driving; 99% were aware of the fact that drinking and driving is dangerous, but 99% of them were not aware of health or legal consequences. All of them reported that they would not sustain a crash even after drinking.

98% of individuals in roadside surveys reported themselves to be confident about driving after drinking.

- Other studies undertaken in India have revealed the growing association of alcohol and RTIs. A series of studies undertaken at the WHO Collaborating Centre for Injury Prevention and Safety Promotion, NIMHANS, Bangalore, during the last 10 years, have revealed that night-time crashes contribute to nearly 30–40% of total RTIs. Among them, alcohol consumption (based on reports by a certified physician) has been documented in 15–30% of injuries (Gururaj, 2004b). The risk of mortality increased by 2.2 times among those under the influence of alcohol (Gururaj, 2004g). In a recent study undertaken on RTIs and traumatic brain injuries, it has been observed that severe brain injuries, extent of body injuries, mortality rates, disabilities and duration of hospital stay has been higher in the alcohol-user group as compared to the non-user group (Gururaj, 2004b and 2004g).
- Mohan and Bawa in an analysis of police records, found that 32% of pedestrian fatalities, 40% of motorized two wheeler occupant

deaths and 30% of bicyclist deaths occurred between 6 PM to 6 AM, and alcohol intoxication was a major factor in a majority of these crashes (Mohan, 1985). A study in the casualty department of a hospital in New Delhi, revealed that 7% of RTI patients were under the influence of alcohol (Adityanjee, 1989). Mishra (1984) noticed that 29% of two wheeler victims were under the influence of alcohol. Similarly, Sahdev et al., (1994), in an autopsy study of RTIs noticed that alcohol intoxication was a major factor but was not documented clearly in medical records. Batra and Bedi (2003) have reported that 40% of truck and matador drivers, 60% of car drivers and 65% of two wheeler drivers were under the influence of alcohol during night time.

- In all the Indian studies, two wheeler drivers (20–40%), pedestrians (5–10%), bicyclists (5–10%) and motor vehicle drivers (15–20%) were involved in greater numbers and were under the influence of alcohol.

Driving under the influence of alcohol and danger on the road (India)

A study conducted by NIMHANS, Bangalore, India, revealed that it is the young male (25 to 39 years), literate, with heavy drinking in bars or at parties, either alone or with friends, knowledgeable about the hazards of drinking but ignorant of dangers or legal consequences, who is posing the greatest danger on the road.

Source: Gururaj and Benegal (2002)

5.1.3.2 Suicidal thoughts/attempts

Alcohol has been linked as a major risk factor leading to suicides in many ways, more often indirectly than directly. In the study population, 16.3% report that they have entertained suicidal intentions with nearly twice the proportion being among alcohol-users (20.6% v/s 12.5%). About 2 per 1000 study population report having attempted suicide with a greater proportion being among alcohol-users The probability of harbouring suicidal ideations was nearly 2 times more among users, while attempting suicides was four times higher among users. The numbers should be interpreted with caution due to the small sample size in the study.

Table 14: Reported intentional injury (deliberate self-harm) in the last 12 months

Deliberate self-harm	Users (%)	Non-users (%)	Odds Ratio (95% CI)	Fisher's Exact Test
Suicidal intentions	672 (20.6)	468 (12.5)	1.8 (1.6–2.1)	$p < 0.0001$
Suicidal attempts	12 (0.4)	3 (0.1)	4.6 (1.3–16.3)	$p < 0.01$

The association between alcohol and suicide can be seen at different levels and through different mechanisms. Some prominent patterns include:

(i) an alcoholic person is susceptible to many chronic illnesses

(ii) alcohol deprives the person and his family of funds in a major way leading to difficulties in day-to-day living. The problem becomes compounded in situations of already existing poverty and economic losses

(iii) alcoholics are known to suffer from co-existing morbidity of depression. The combined effect of alcohol use and depression is a major risk factor for suicides

(iv) availability of alcohol at the time of the last leg of a frustrated journey in life, often makes the person less inhibited about committing the act by hanging, poison, burns or by self-inflicted injuries

(v) mixing of alcohol with organo-phosphorous compounds, drugs or other toxic chemicals makes the mixture more poisonous

(vi) alcoholic parents and spouses exhibit intolerable aggressive and violent behaviour on spouses and children, which in turn drives them to suicide (Gururaj, 2001a and b).

In a study looking at the epidemiology and risk factors for suicide in Bangalore city, alcohol-related problems featured among the top three causes for both men and women, contributing to a reported 8% of all causes of completing suicides; while it ranked among the top five among those attempting suicides (Gururaj, 2001a). In a recent case–control study of completed suicides in Bangalore, alcohol consumption was a major risk factor with chances of increasing suicides by nearly 25 times among users. Spousal alcohol abuse accounted for an increase by nearly six times among women (Gururaj, 2004c).

In another large epidemiological study in Bangalore, analysis of police records among 2652 completed suicides revealed that 15% of men and 1.5% of women were regular and chronic alcohol-users with 56% being under the influence of alcohol at the time of the act (Gururaj, 2001a). A prospective study of attempted suicides revealed that 27% men and 1.5% women were regular alcohol-users with 8 out of 10 being under the influence of alcohol at the time of the act. An in-depth psychological autopsy showed these figures to increase to 45%, thus indicating the close association of alcohol with suicides (Gururaj, 2004e). Similarly a study from Chennai revealed that suicides were high among alcohol-users as compared to non-users (Vijayakumar, 1999).

5.1.4 Emotional and psychological aspects

The feeling and expression of happiness in life is an indicator of the emotional and psychological status of an individual. A greater proportion of alcohol-users report that they are not at all happy (Table 15) in comparison to non-users (9.0% v/s 3.1%); simultaneously those reporting to be very happy in life are greater among non-users (3.7% v/s 0.7%).

Table 15: Reported happiness in life among the study population in the last 12 months

Happiness in life	User (n = 3160) %	Non-user (n = 3708) %	Total %
Very happy	0.7	3.7	2.4
Happy	90.3	93.1	91.8
Not at all happy	9.0	3.1	5.8
Total	100.0	100.0	100.0

$X^2 = 167.2$; df = 2, $p<0.001$

Note: Non-response and not-applicable ones have been excluded from analyses.

5.1.5 Alcohol, high-risk sexual behaviours and HIV/AIDS

Maintaining a healthy sexual relationship with the spouse is one of the indicators of emotional and psychological well-being. In the Bangalore study, about one fourth (26.8%) of alcohol-users report that they do have problems in maintaining a healthy sexual relationship with their spouse (Table 16). This proportion is far less among non-users (2.1%). An additional observation was that nearly 0.6% of the alcohol-users admitted that they abuse their wife sexually.

Table 16: Problems / difficulties in maintaining sexual relationships in the last 12 months

Difficult / problematic sexual relationships	User (n = 2803) %	Non-user (n = 2939) %	Total %
Always / many times	6.2	0.1	3.1
Some times	20.6	2.0	11.1
Never	73.2	97.9	85.9
Total	100.0	100.0	100.0

$X^2 = 721$ df=2 $p<0.001$

Note: Non-response and not-applicable ones have been excluded from analyses.

There is substantial evidence that alcohol use and HIV are closely linked. The uninhibited behaviour as an immediate effect of alcohol use resulting in risky sexual behaviour is contributing to the spread of the HIV virus.

Going beyond the bio-medical analyses to understand this phenomenon, Fordham, G finds in his study on Thai men that alcohol drinking and sex with prostitutes are closely linked and both are crucial to the construction of the male identity.

Alcohol and high-risk sexual behaviours

"...Sexual encounters with a commercial sex worker generally followed a period of preparatory drinking. It is common practice for labourers to celebrate their monthly receipt of wages by going out in large groups to feast and visit brothels. Solitary drinking is highly unusual given the connection of alcohol use and the manipulation of social relations. The marital and extramarital spheres are conceptualized, within this culture, as distinct arenas of sexual experience. Drinking and drunkenness serve as framing devices for men to make the transition from the structured, non-eroticized domestic sphere to the transgressive world of commercial sex and the affirmation of stereotypical masculinity it confers. Because of the link between alcohol consumption and commercial sex, as well as the high likelihood that drinkers either will refuse to use condoms or will use them incorrectly, the social drinking context must be considered as a major risk factor for Acquired Immune Deficiency Syndrome".

Source: Fordham G. (1995)

5.1.6 Social deviancy

Table 17 depicts the aspects of socially deviant behaviour of the study population. It gives the numbers and the increased risk of staying away from home and running away from home.

In the last 12 months, 18% of the study population reported staying away from home at least once. The difference between users and non-users is observed to be small (20.6% v/s 15.6%). In the study population, 6 per 1000 population reported that they have run away from home and almost all of them report to being alcohol-users.

Table 17: Reported characteristics of social deviancy among the study population in the last 12 months

Social Deviancy	Users (%)	Non-users (%)	Odds Ratio (95% CI)	Fisher's Exact Test
Stayed away from home	671 (20.6)	586 (15.6)	1.4 (1.3–1.6)	$p < 0.0001$
Ran away from home	36 (1.1)	1 (0.02)	46.0 (6.3–335.6)	$p < 0.0001$

5.1.7 Gambling and engaging in lottery

Table 18 depicts the reported desire of the study population to indulge in gambling and /or in lottery. More than one third of the total study population report that they have gambled at least once in the last one year. 76.2% of users report engaging in gambling and such activities either every month or every week, while 23.5% users report it to be rarely. Data from our qualitative interviews revealed that individuals were indulging in more gambling and spending on lottery under the influence of alcohol. The participants of the focus group interviews reported that this was common and frequently seen in their localities.

Table 18: Habit of gambling and lottery among the study population in the last 12 months

Gambling and lottery	Users (%)	Non-users (%)	Total (%)
Rarely	23.5	73.6	35.1
Every month	66.7	20.1	56.0
Every week	9.5	6.3	8.7
Total	100.0	100.0	100.0

5.1.8 Occupation-related issues

Alcohol abuse affects employees at the workplace. Many people with alcohol and drug-related problems are in full time employment. The workplace itself, at times, can contribute to or exacerbate drug and alcohol-related problems. Excess alcohol consumption results in a high degree of absenteeism, poor punctuality, poor work efficiency, loss of dexterity in skilled jobs, accidents while working with heavy machines, which can permanently cripple a worker, increased medical and compensation claims, disturbed employer and employee relations and compromised well-being of the workforce. People with alcohol abuse are known to engage in quarrels or fights and maintain strained relationships with peers and superiors, which further affects their performance at work. Select workplace-related issues found in this study are given in Table 19.

Nearly one fourth (23.1%) of the study population reported occasions when they have missed going to college or work. The proportion among

Table 19: Aspects related to workplace in the last 12 months

Occupation-related	Users (%)	Non-users (%)	Odds Ratio (95% CI)	Fisher's Exact Test
Missed going to college or work	1104 (33.9)	516 (13.8)	3.2 (2.9–3.6)	$p < 0.0001$
Borrowed money from colleagues / friends	1209 (37.1)	342 (9.1)	5.8 (5.2–6.7)	$p < 0.0001$

users is more than twice that among the non-users (33.9% v/s 13.8%). 6.7% of the users report that they were under the influence of alcohol while at work. Nearly one fourth of the study population reported that they have borrowed money from colleagues or friends. Alcohol-users report that they very frequently borrow money as compared to non-users (37.1% v/s 9.1%). The problem is nearly three to six times higher among users as compared with non-users.

One of the common problems affecting persons and families of an alcohol-user is "pay-day" drinking. This involves a pattern of heavy drinking on the day that they receive their wages. Significant amounts of the ready cash available on the day is spent on purchasing alcohol, leading to scarcity of money for clothes, food, education of children, health and other essential family needs. Apart from borrowing money at high interest rates, these "binge drinking" episodes often lead to domestic violence, road traffic injuries and deaths, absenteeism and other such problems driving communities into a vicious spiral of poverty.

The International Labour Organization estimates that, globally, 3–5% of the average work force is alcohol-dependent, and up to 25% drink heavily enough to be at risk of dependence (ILO, 1995). A study looking at the prevalence of hazardous drinking in the male industrial worker population in India found that hazardous drinking was significantly associated with severe health problems, such as head injuries and hospitalizations. Often, these problems culminate in the loss of a job which further aggravates the family's financial situation.

Alcoholism among the work force adversely affects the output and income generated by the industrial sector. The annual loss due to alcohol-related problems in workplaces in India is estimated to be between Rs 70 000 to 80 000 million (WHO, 2004). Despite the enormous costs both to the individual and the family, workplace initiatives have not gained much stronghold either as an incentive (health promotion efforts, life skills, empowering individuals to say no to alcohol, etc.) or as a disincentive (disciplinary action).

5.1.9 Help seeking

Among the 3258 users, 1523 (46.7%) felt the need to cut down on their drinking. Within this group, only 13.2% thought about getting help and only 5.1% had actually approached a doctor. Nearly half (52.9%) of this population had approached a doctor for medical help for various health problems and 806 of them had been advised to cut down on their drinking. The remaining 439 (28.8%) of this group and 1735 (53.3%) of

the users neither made any efforts on their own nor were advised by any health care professional to reduce their drinking.

Table 20: Help seeking pattern among alcohol-users in the last 12 months (n = 3258)		
	Frequency	%
Did not feel the need for reducing drinking	1735	53.3
Felt the need for reducing drinking	1523	46.7
Thought about getting help regarding drinking	201	13.2
Approached a doctor for getting help	77	5.1
Doctor advised to cut down on drinking	806	52.9
Did not make any efforts on their own nor were advised by any health care professional to reduce their drinking	439	28.8

5.2 Alcohol and Family

5.2.1 Impact on the family

The relationship between an alcohol abuser and his/her family is complex. Family members report experiencing guilt, shame, anger, fear, grief and isolation due to the presence of an alcohol abuser in the family. They are often subjected to moderate to severe forms of harassment, conflict and tense atmosphere when they confront the drinking behaviour of their alcohol-abusing family member. Spouses in families where there is chronic, excessive use of alcohol are frequently separated.

Another complication seen in the families of alcohol abusers is that of co-dependence (a condition wherein the life of a partner or spouse of an alcohol abuser is affected and the spouse develops an unhealthy pattern of coping with life and often unconsciously maintains the abuser's condition despite being troubled about the condition at a conscious level). Other complications in the family include long absences from home, destruction of household objects in rage, lack of communication between the alcohol abuser and the remaining family members, domestic accidents, hostility and criticism that marginalize the alcohol abuser.

5.2.2 Impact on family finances

Managing family finances and related aspects is an important facet of day-to-day life. Table 21 shows the economic difficulties faced by the study population in terms of inability to buy daily supplies for the house, pay school fees, buy books, clothes and other sundry household expenditure. The difficulties reported are greater among the non-users as compared to users. The key reason for this reverse phenomenon could be due to the large sample of low socio-economic group. Other plausible reasons could

be that alcohol-users do not take (or are not entrusted with) responsibility of running the household (fear of money being channelised towards purchase of alcohol) or that non-users engage in other constructive activities of the household and are much more aware of the difficulties of running the household. This aspect of the problem needs to be explored further.

Table 21: Economic hardships among the study population in the last 12 months

Economic hardships	Users (%)	Non-users (%)	Total (%)
Always	89.2	93.1	91.3
Some times	10.2	1.7	5.6
Never	0.3	0.1	0.2
Not applicable	0.4	5.1	2.9
Total	100.0	100.0	100.0

Despite waves of modernization, major parts of India continue to be agrarian and a majority of the population is either middle class or poor as per economic assessments. Given the poor socio-economic status of many communities, especially in rural areas, disproportionate amounts of family income is spent on alcohol, leaving very little money for food, education, housing, health and other needs. The family of the alcohol-dependant person find themselves in total impoverishment with the entire money earned being sometimes spent by him on alcohol.

In this study, 4.4% of the households reported spending on alcohol as a first head of account in the family expense. Bonu S et al., (2005) used the National Sample Survey data from India and empirically found an association between the use of alcohol and tobacco and impoverishment through borrowing and distress-selling of assets due to hospitalization. In India, household expenditure on alcohol varied between 3–45% of income (WHO, 2004). Benegal V et al., (2005) report from the state of Karnataka that the average monthly expenditure on alcohol [Rs 1938] of patients with alcohol dependence is more than the average monthly earning [Rs 1660]. Rahman, analysing the data set from different National Sample Survey rounds in India, observes that households that consume alcohol spend on an average 5.1% of the total earning on all alcohol–related items and 0.5% of the population spend more than 30% (Rahman, 2003).

5.2.3 Domestic violence: spousal abuse

One of the frequently occurring, but not adequately recognized, effects of alcohol abuse is domestic violence. Since it is closely linked to domestic violence, alcohol consumption constitutes the single most important problem for women. This is known to occur across all strata of the society,

The impact of alcoholism

Findings from a study of alcohol-dependent persons in Bangalore, India

- Individuals spent more than they earned
- Most people took loans to support their habit
- Average of 12.2 working days were lost
- 18.1% lost their jobs in one year
- 59.4% families were supported by income from other family members
- 9.7% sent children under 15 to work to supplement family income

Source: Benegal, Velayudan, Jain (2000)

but more commonly in the lower socio-economic strata. Table 22 provides aspects of spousal abuse.

Table 22: Reported spousal abuse in the last 12 months

Abuse	Users (%)	Non-users (%)	Odds Ratio (95% CI)	Fisher's Exact Test
Emotional abuse of spouse	2473 (75.9)	1947 (52.0)	2.4 (2.1–2.7)	$p < 0.0001$
Physical abuse of spouse	759 (23.3)	231 (6.2)	4.2 (3.6–4.9)	$p < 0.0001$
Physical abuse of spouse resulting in injuries	59 (7.8)	2 (0.9)	30.4 (7.4–124.7)	$p < 0.0001$
Sexual abuse of spouse	20 (0.6)	0 (0.0)	—	—

Abusing the spouse emotionally has been reported to be two and half times more common among alcohol-users; 75.9% of the users said yes in contrast with 52% of non-users. About one fourth of the study population (23.3%) report physically abusing the spouse (being four times higher) with 7.8% of those experiencing violence, sustaining injuries. Less than 1% of users (0.6%) admitted to sexually abusing their spouses. Both physical and sexual abuse needs to be considered in the context of under-reporting for such injuries and the real figure is likely to be several times higher. This was substantiated in focus group interviews where women admitted to such experiences when their husbands were under the influence of alcohol.

In a study of 180 women seeking pre-natal care in rural South India, it was found that 20% of the women reported domestic violence and 94.5% of

these women identified their husbands as the aggressors. The husband's alcohol consumption was identified as a significant risk factor for domestic violence (Markowitz, 2000). The role of alcohol in domestic violence is also cited in another Indian study which found that 33% of spouse-abusing husbands were consuming alcohol. Of these, 15% were occasional, 45% frequent and about 40% were daily users of alcohol. More than half of the spousal abuse took place during the period of intoxication (Gururaj, 2004d).

5.2.4 Domestic violence: child abuse and abuse of family members

In the study population 7.8% reported abusing their siblings or other members of the family, the difference between users and non-users of alcohol being very small (8.4 v/s 7.3). 23.8% of the study population reported that they abuse their children. The alcohol-users report a slightly greater proportion than non-users (26.6% v/s 21.3%). Children of alcohol abusing persons report a higher incidence of emotional and school-related problems. Comparison of users and non-users has revealed that the extent of emotional and physical abuse was nearly 2 to 4 times higher among alcohol-users. Similar observations were noticed in the abuse of children, siblings or other family members among users.

Table 23: Reported abuse of family members in the last 12 months

Abuse	Users (%)	Non-users (%)	Odds Ratio (95% CI)	Fisher's Exact Test
Abusing siblings or other family members	274 (8.4)	273 (7.3)	1.1 (1.0–1.4)	$p < 0.05$
Abusing children	867 (26.6)	799 (21.3)	1.3 (1.2–1.5)	$p < 0.0001$

5.3 Alcohol and Society

5.3.1 Legal aspects

Another area where frequent complications are seen due to alcohol abuse is legal problems. Frequent brawls following intoxication, encounter with the police and other law enforcement agencies following thefts (to obtain money to maintain a regular intake of alcohol) are common. Though a very small proportion (0.7%) of the total study population reported that someone had lodged a police complaint against them, the majority of these were alcohol-users (1.1% v/s 0.2%). Similarly, while 0.4% of the total study population reported to have paid fines / penalties, a greater proportion of alcohol-users had paid the fines or penalty (0.6% v/s 0.1) as shown in Table 24.

Crimes committed following inebriation include rape, sexual and/ or physical assault, exploitation of women in commercial sex work

Table 24: Legal problems faced by the study population in the last 12 months					
	Users %	Non-users %	Total %	Odds Ratio (95% CI)	Fisher's Exact Test
Police complaint lodged					
Yes	1.1	0.2	0.7	4.6 (2.2–9.6)	$p < 0.00001$
No	98.9	99.7	99.3		
Caught by police and made to pay fine					
Yes	0.6	0.1	0.4	4.1 (1.5–10.9)	$p < 0.01$
No	99.4	99.9	99.6		

and homicide. Such acts make societies with a high prevalence of alcohol abuse crime-laden and unsafe for living. Reports from different governmental and non-governmental treatment centres and from various studies report increasing drug-related crimes. It is noted that the younger generation, especially students, are most vulnerable to this problem. The National Crime Records Bureau of India (2003) reports that different crimes related to alcohol fall under four acts: Narcotics and Pscyhotropics Substance Act, Gambling Act, Prohibition Act and Excise Act. However, the public nuisance created as result of alcohol use is classified under petty crimes and thus goes largely unrecognized, or gets overlooked. Booking cases under drinking and driving under the Motor Vehicles Act is also subject to variable implementation: the number of cases booked by the police in Bangalore city with a population of nearly 65 lakhs over a five year period (2001 to 2005) increased from 9900 in 2001 to 30 000 by 2005 (State Crime Records Bureau, Bangalore, India – personal communication). The percentage of alcohol-related court cases in a police station in Kohima, Nagaland increased from 78% in 1995 to 88.8% in 1997 (Gururaj, 2004e).

5.3.2 Alcohol and women

Women consumers can have an equally explosive pattern of alcohol use as men.

Traditionally, women akin to men, have also been using alcohol although their numbers are lower. Various studies (Benegal, 2003; Saxena, 1999; Isaac, 1998; Benegal, 2005) have reported a significantly lower prevalence of alcohol use of around 5% among women. Contrary to popular perceptions, alcohol consumption is not confined to tribal women. Women of lower and also higher socio-economic status, as well as commercial sex workers consume alcohol (Ray, 1994; Benegal, 2005). The little information that exists about patterns of consumption in India, indicate that women consumers can have an equally explosive pattern of alcohol consumption as men. A study in the southern Indian state of Karnataka (Benegal, 2003) reported that there was no major difference

between the amounts of alcohol drunk by men and women on any typical drinking occasions. Kumar (1997) reported that "of the 500 youth (interviewed) going to pubs in Bangalore city during the weekends about 100 are girls (13 to 19 years).

Notions of virtue and a negative image of the person who consumes alcohol, seem to be key reasons for under-reporting and also low-consumption, but not exactly abstention. On the other hand, there is seen to be an increasing trend in alcohol consumption among young women, especially in urban areas. Among the high income group, the number of women, boys and girls who have taken to drinking alcohol is also quite high. Economic independence, changing roles in society (entry of women into traditionally male dominated areas), economic and social emancipation, greater acceptability of social drinking, easy availability of alcohol, peer pressure, glamour and disappearing stereotypes about feminity, are some of the factors which seem to contribute to the increasing trend of alcohol consumption among women. This trend is being closely watched by the alcohol industry but is of concern to health researchers and health policy-makers.

Two divergent patterns of drinking are noticed among women. These are the traditional pattern and an emerging pattern. The traditional pattern is seen among less educated women from rural settings and poorer sections of urban society where drinking is marked by "bingeing" and drinking to intoxication; use of cheaper, high alcohol containing beverages (spirits, illicit liquor and country liquor); generally at home; usually alone. Though they drink less frequently, their pattern is closer to the male drinking pattern. Drinking to enhance positive experiences appears to be less of a motivation. The emerging pattern seen among urban women – younger; educated; earning more; spending more; drink less on typical drinking occasions; less frequently and have a shorter duration of drinking; more likely to be unmarried and without children and drink in more socialized circumstances (at restaurants, parties, with spouses, family members, workmates and friends). Along with spirits there is frequent use of lower alcoholic beverages like wine and beer. Women in this group are motivated equally by the expectation of tension relief and the enhancement of positive experiences (Benegal, 2005).

Women experience different alcohol problems than men and physical problems are experienced earlier in female careers than males (Hommer, 2001; Holman, 1996; Benegal, 2005). In the GENACIS study from India, it was observed that women users suffered equivalent physical health consequences to males at lower quantities and frequencies and these occurred after a shorter duration of drinking than in men (Benegal, 2005).

Women alcohol-users suffer equivalent health consequences at lower quantities and shorter duration of drinking as compared to men.

There have been many instances of poisoning and mass deaths following consumption of illicit alcohol.

Studies across the globe have shown that women are more susceptible to liver damage from alcohol use due to biological differences (WHO, 2000a) and consumption of large amounts of alcohol among pregnant women is associated with adverse consequences commonly termed as Fetal Alcohol Syndrome characterized by the typical facial appearance with central nervous system involvement and growth retardation (WHO, 2000a, 2000b). Alcohol use, as in males, constitutes for females yet another node in a matrix of risk. Women alcohol-users are also likely to have other high-risk lifestyles. Tobacco use (smoking and smokeless) is significantly more common among women alcohol-users than abstainers, with more than a third of all drinking women using tobacco. Prescription drug abuse was also three times higher among women users than women abstainers (Benegal, 2005).

5.3.3 Illicit alcohol consumption and mass tragedies

There have been many instances of poisoning and mass deaths following the consumption of spurious liquor. People of the lower socio-economic status consume excessive amounts of illicit or home-brewed alcohol. Often the standards of brewing and preparation are poor in order to make country liquor inexpensive and affordable. Despite the known hazards, lower costs lead people to consume these drinks. Such tragedies devastate entire families that lose productive members of their family. Many such instances go unreported and only the major ones come to the public notice.

5.3.4 Alcohol and underprivileged communities

Marginalized communities are often victims of the harmful effects of alcohol.

Marginalized communities (geographically isolated, minorities, tribes, economically and socially deprived) are often victims of the harmful effects of alcohol. In these areas, alcohol is often introduced by unscrupulous businessmen for quick profits, exploiting the ignorance of the community regarding harm from alcohol. It is projected as an 'escape' from the deprivation that they are exposed to. Sometimes employers pay wages in alcohol rather than cash (WHO, 2004).

Also marginalized communities, especially tribal communities, brew alcohol at home. This leads to the diversion of food grains to alcohol production, thus aggravating hunger and poverty. In addition to this, accidents in an intoxicated state can lead to severe injury or death. Unfortunately, due to low levels of literacy and awareness, marginalized communities are very severely affected by harm from alcohol use. Bang et al., (1991) observed in tribal district of Gadchiroli, Maharashtra, India that in most of the meetings women regarded alcohol as a 'scourge' which had ruined their lives. In the 104 tribal villages they observed that a large proportion of men consumed alcohol, of which a significant proportion were addicts.