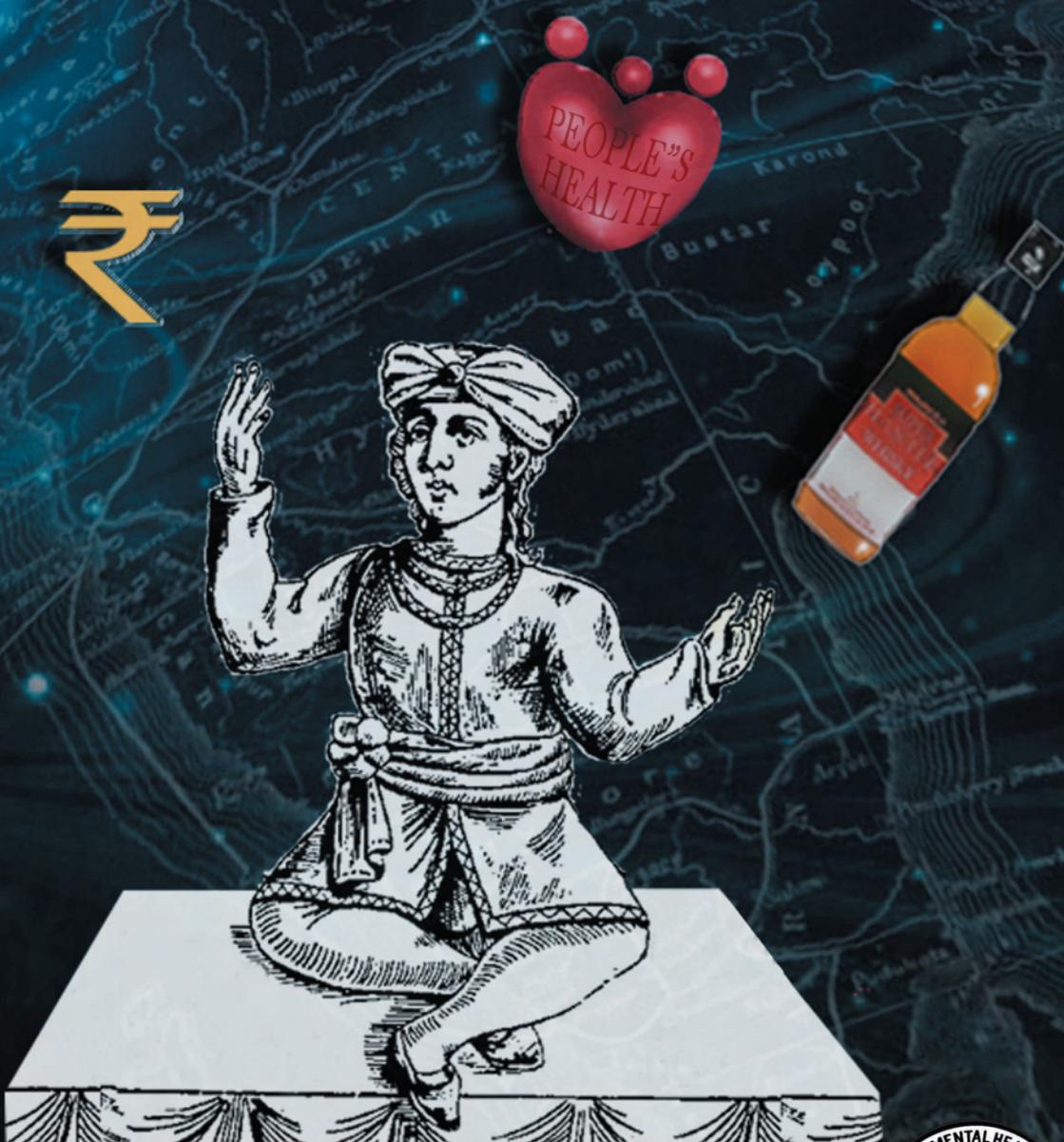


ALCOHOL RELATED HARM

Implications for Public Health and Policy in India



ALCOHOL RELATED HARM:

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Gururaj G
Professor and Head
Department of
Epidemiology

Pratima Murthy
Professor of Psychiatry
Chief, Centre for
Addiction Medicine

Girish N Rao
Associate Professor
Department of
Epidemiology

Vivek Benegal
Additional Professor
of Psychiatry
Centre for Addiction Medicine



**NATIONAL INSTITUTE OF
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(DEEMED UNIVERSITY)
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Address for correspondence:

Dr. Gururaj G

Professor and Head
Department of Epidemiology
WHO Collaborating Centre for
Injury Prevention and Safety Promotion
NIMHANS, Bangalore - 560 029
Email: guru@nimhans.kar.nic.in
epiguru@yahoo.com

OR

Dr. Pratima Murthy

Professor of Psychiatry
Chief, Centre for Addiction Medicine
NIMHANS, Bangalore - 560 029
Email: pmurthy@nimhans.kar.nic.in
pratimamurthy@gmail.com

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In 2010, the study team decided to update the earlier version of this report with new information from different sources. The focus of this update is to support policy makers and all interested professionals to develop a rational alcohol control policy for India. Parts of the earlier report and format has been retained and updated information has been provided in many sections. We thank all professionals who readily shared their research studies and papers to update the earlier version of the report.

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FOREWORD

 lcohol and its relationship to ill health have been recognized as an important public health challenge even though alcohol use has been part of the cultural traditions in different societies. In India, the earliest public health oriented report on alcohol can be traced to a chapter in the Bhore Committee Report of 1946, which showed great foresight by separating out two groups of people who might have been subjected to the ill effects of alcohol: (i) those driven to drinking by misery, poor living conditions and lack of educational and of recreational facilities and (ii) those that may result by the excesses of folk customs and group habits. The Committee suggestions included a rise in the standard of living accompanied by the provision of education and recreation facility, balanced by health education to bring home to the people the harmful effects of convivial drinking.

The NIMHANS team led by Dr. Gururaj have brought together a significant, evidence-based pre-policy document, probably the most comprehensive one after the chapter in the Bhore Committee Report. The evidence they have gathered is particularly strong on the biomedical, legal, social, and economic determinants of the problem with some mention of the cultural determinants and the complex political economy of the problem.

While bringing together a wide body of evidence from a range of sources, they have quite rightly emphasized the paucity of good data and evidence-based, policy-oriented research, making an emphatic demand for more policy research as well as its translation into policy. The division of the document into sections such as introduction, objectives and methodologies of the review, production type and sales of alcoholic beverages, prevalence and pattern of alcohol consumption, biological influences and health consequences, social implications, responses to the problem, key policy issues, and conclusion and recommendations, makes this document a very comprehensive one. It particularly emphasizes the multidisciplinary nature of the problem and the multisectoral nature of the response required to meet this challenge.

The document very effectively underlines the 'public health framework' within which this policy should evolve so that it supports the 'Health for All' commitment of the government and its efforts towards the Millennium Development Goals (MDGs). The challenge will be to ensure

that the market and trade policies and other vested interests do not distort the efforts towards a rational policy. As the authors have rightly emphasized, only 'scientific evidence' and a 'public health focus' can be a bulwark against such policy distortions.

Almost sixty years ago, the Bhore committee had showed great prophetic oversight by suggesting that "**little economic merit can be claimed for a system of taxation which raises any considerable part of the public revenue from the sale of alcohol, unless, as a part of the plan of government, this tax money is used to reduce the extent of facilities for the sale of alcoholic beverages; to promote the observance of restrictive laws; to meet the cost of prevention, care and treatment of alcoholism among the considerable number of persons whose health will be injured and whose earning capacity will be reduced by the use of alcohol**". The Bhore committee suggested a plan of action that included: instructions in schools on the effects of alcohol and narcotics; strict control of existing liquor shops; treatment facilities for acute and chronic alcoholism; health promotion; legal sanction for detention of those who need segregation and treatment; active role for NGO's and voluntary effort; and restriction of alcohol consumption during working hours.

This comprehensive report from NIMHANS makes a similar case for a multidimensional response to the problem in today's context backed by substantial evidence. It is sincerely hoped that this report will be a major instrument of advocacy and policy development.

Dr. Ravi Narayan

Community Health Advisor, Centre for Public Health and Equity,
Society for Community Health Awareness, Research and Action,
Bangalore, India.

FOREWORD

 Alcohol has now become a common word in the Indian society. With the impact of globalization, urbanization, industrialization, media influence and changing life styles, alcohol has entered into the lives of Indians in a big and unrestricted manner. From times when alcohol sale was restricted to a few bars and pubs, today, alcohol is available in plenty and in several local outlets, and is within the easy reach of today's young generation. As always, when any product is not adequately controlled and regulated, its ill effects begin to take an upper hand resulting in a huge negative impact on people's health. The response to this epidemic and to the host of deleterious consequences has been rather slow and without direction.

Research in the past few years has conclusively demonstrated that nearly one in 3 male adults consume alcohol, and 5% of Indian women are already regular users. Interestingly, the age of initiation of drinking is progressively coming down. Majority of young Indians after experimenting with alcohol for pleasure seeking and peer influence, end up as habitual users. A significant amount of the public health burden comes from intoxicated behavior, resulting in accidents, violence and other Behavioral consequences. With Indian patterns of drinking being different from the west and more than 500 million adults using a variety of licit and illicit liquor, the negative impact for the country is huge.

Over years, our attempts to address the growing problem has been limited, fragmented and piecemeal. While revenue departments have worked relentlessly on filling coffers, health professionals are preoccupied in providing care for the ever-increasing number of alcohol users; police are battling to curb the menace of alcohol on roads, at home and in work places, NGOs are busy in increasing awareness; social welfare officials are waging a losing battle to rehabilitate alcohol addicts and courts are regularly hearing cases of alcohol impact and awarding compensations and verdicts. Ironically, health professionals and media colleagues have only fuelled this debate with confusing messages regarding alcohol use. What is apparent amidst the controversies of how much of alcohol use is right or wrong, is the absence of a unified vision, a public health approach and the common goal of a healthy society.

It is true that alcohol use is a problem in every country. One look around the globe, especially the High Income Countries (HIC), reveals that the impact of alcohol use is on the downslide: seen as decreased production, reduced consumption and increased efforts to minimizing harm from alcohol use. Integrated and coordinated policies, sustainable action plans, public health perspective vis-à-vis revenue perspective of alcohol, a better informed society, and strict governmental control of alcohol have paved the way for emergence of societies with less harmful effects of alcohol. The Indian experience of prohibition, education, timings of sale, sales to minors, drink drive laws and others have all remained on paper, with no tangible effects seen on the ground.

It is time the Indian society wakes up to this epidemic, before many more lives are destroyed and families wiped out. The need of the hour is to have a public health approach with sustainable policies and comprehensive programs which are based on evidence and research and on an intersectoral platform. The Indian Government and the Ministry of Health are in the process of formulating a rational alcohol control policy. To facilitate this process and foster a scientific decision making process, NIMHANS has brought together all available evidence from India and lessons from around the globe, highlighted issues of concern and provided an overview of the past efforts in this area. We need to now address alcohol problems through a variety of measures including strict control measures as well as reduction of demand and early intervention. I hope this effort of NIMHANS team will help, support and facilitate the national effort towards making our present and future generations safe and healthy.

Prof. P Satish Chandra

Director/Vice-Chancellor
NIMHANS, Bangalore, India.

PREFACE

 Although alcohol use existed in India for a long time, of late, it has invaded life in India in a big way. Nearly 30% of Indian men and 5% of Indian women are regular users of alcohol. Recent trends include easy availability of alcohol, massive direct and indirect advertisement of alcohol, increasing number of alcohol sales outlets in both urban and rural areas, earlier age of starting drinking and greater extent of drinking amongst women. Consequent to these changes, the use of alcohol has increased. As a fall out, the harmful hazardous effects of alcohol have also increased.

Ethanol in alcohol is a chemical and after consumption has a multitude of effects. These effects influence physical, social, emotional, behavioral, and financial spheres of an individual, family and the society. Alcohol is linked to more than 60 health conditions and a variety of harmful effects ranging from brawls and accidents on road to its effects on poverty and indebtedness in society. Due to lack of scientific research in India on the effects of alcohol, the harmful and hazardous effects are still not documented clearly.

Globally, it is well acknowledged that both short and long-term impact of alcohol need to be understood and addressed for a healthy society. Individuals and families incur huge amounts of out of pocket expenditure for managing acute and chronic effects of alcohol, while governments spend enormous resources on hospitals, courts, police stations, rehabilitation centers and others to help families manage alcohol related problems. For the state governments, alcohol has been a major revenue earner. Apart from competing economic interests, individual freedom and media promotion, there has been a growing debate and an evolving consensus that alcohol control and reducing its harmful effects need to be addressed on a priority in Indian society. Recently, the Government of India and the Ministry of Health and Family Welfare (MOHFW) have expressed concern and initiated dialogue to develop relevant activities.

To facilitate this process of policy dialogue, we undertook the challenge of compiling available information from the Indian region and, global as well as local experiences in addressing the problem. In the accompanying report, we have examined alcohol availability, prevalence and patterns of use, health, psychological, social and economic impact of alcohol and various

initiatives to address the problem. Measures undertaken by health and other ministries have also been analyzed for their impact. The report strongly emphasizes the inadequate efforts and the systemic failures in addressing the problem.

There is a need to develop comprehensive, integrated and people-centered alcohol control policies and programs. This requires moving beyond the immediate focus of economic returns to the government and industry towards committing for a healthy and a safe society. Developing a society that cares for its citizens, particularly children and adolescents requires a strong political commitment for setting up mechanisms to curb the growing menace of alcohol use. Given the recent commitments of the Government of India for a people centered healthy society, we feel that the time is appropriate to address the problem to seek positive solutions. Our efforts will be worthwhile, if policy makers, professionals, public, media and other opinion makers in the civil society make a determined effort to nurture a society that is free from the harmful and hazardous effects of alcohol.

Gururaj G, Pratima Murthy, Girish N Rao and Vivek Benegal

Departments of Epidemiology and Psychiatry
NIMHANS, Bangalore, India.

Executive Summary

 Alcohol has been in use for centuries in the Indian region. Although traditional use of alcohol in certain populations has been well known, it is now widely used. While the overall effects of alcohol are well documented in western literature, this has been poor in India. Its increasing availability and use in the last decade has also brought in myriad problems affecting both the individual and society. A question emerging across the country is - how do we control this problem? It is only in recent years that harm from alcohol is beginning to be methodically documented in India. Efforts to tackle the problem have been piecemeal and fragmented, resulting in lack of direction and focus.

The word alcohol has different meanings to people in different settings. For the government, it is the principal source of revenue; for economists, it is just another product; to a public health specialist, it is a major cause of death and injuries; to the common man, it is a pleasurable commodity and for the media, everything about alcohol is yet another story. A comprehensive examination of all issues related to alcohol is crucial to formulate a rational alcohol control policy and implement appropriate interventions in India. This review focuses on multidimensional aspects of alcohol ranging from its production, distribution, availability and sale; consumption

patterns; health consequences; socioeconomic impact and efforts towards control and prevention of harm.

The present report, based on secondary sources of information from recent years has attempted to assemble available data for a comprehensive examination of the problem by policy makers, professionals, international organizations, industry, media and the Indian society. Limitations do exist in this attempt as it is based on available reports, some of which are not in the public domain or remain as classified (especially those from industry and governments). The diversity of studies on different populations of varied sizes makes it difficult to extrapolate information to the entire nation.

Production, distribution and taxation policies

- India is one of the largest producers of alcohol in the world and contributes to 65% of production and nearly 7% of imports within the region. The precise estimate of unrecorded alcohol production is not clearly known, and is 'guesstimated' to be nearly 50% of recorded consumption.
- It is estimated that the amount of alcohol produced in India during 2006 - 07 was

approximately 2300 million liters. The bulk of alcohol produced in India is mainly from sugarcane molasses. Roughly 52% of alcohol produced in India is for potable purposes.

- Among the potable forms of alcohol, Indian made foreign liquor (IMFL) and country liquor account for nearly 60 to 70% of the total amount consumed. The traditional home brewed beverages account for a large extent of unrecorded consumption.
- Alcohol production, distribution and sales are primarily a state subject in India. The sale, production and distribution follow a complex duty structure varying from state to state. The taxation on imported alcohol also varies from state to state and also between different types of alcohol.
- In the total spectrum of alcohol consumption in the country, only about 50% is documented and the rest is undocumented. Variations in taxation policies have led to a grey market where spurious and smuggled liquor is easily available to the population.
- During 2008-09 the excise revenue was nearly 400 billion rupees. Nearly 90% of this was contributed by the alcohol beverage industry. This is one of the important sources of revenue for the governments.
- The higher taxation on alcohol by successive governments has only been able to generate more revenues for the government and has neither affected the drinking patterns nor reduced adverse health impact.
- The policies promoted till date have been primarily with a view to increase taxes

and garner more revenues and not from a public health point of view. In fact, the public health importance of alcohol control has been totally neglected in formulating policies and programs.

Consumption patterns

- The collective review reveals that nearly 30-35% of adult men and approximately 5% of adult women consume alcohol (Male to Female ratio being 6:1)
- Alcohol use is relatively high in north-eastern and southern states of India and Goa as compared to other parts of country.
- It has been identified that India has nearly 70 million alcohol users which include 12 million users who are dependent on alcohol, but does not include millions of social drinkers.
- Commonly IMFL and beer are the preferred drinks in younger age groups, while country - made liquor and rum are common in rural India. Home-made or local brews continue to be popular in select communities especially in north eastern parts of India, Goa, etc.
- The use of alcohol is increasing disproportionately in peri - urban / transitional areas. Interestingly, these are areas with growing income levels and are thus, entering the spiraling loop of alcohol use and its harm.
- Alcohol use is directly associated with education, social class and occupation. Alcohol use among the poor communities contribute to increasing expenditure on alcohol on one hand and increasing resources spent for managing alcohol related problems on the other.

- The average age of starting alcohol use has reduced from 28 years during the 1980s to 17 years in 2007. Once begun, the average duration generally lasts for more than 10 years. What starts as experimentation and pleasure-seeking, often becomes an addictive process.
- The amount of drinking increases with age and duration. Social drinkers generally graduate to become hazardous and pathological drinkers over time. More than 50% of regular alcohol users also fall into the category of hazardous drinking.
- The location of drinking has been changing over time. In urban areas, the commonest place of drinking is pubs / bars and retail outlets (nearly 60 to 70%), while, in rural areas, local outlets (arrack shop and wine stores) are the commonest places.
- Drinking usually starts in social circles for pleasure seeking, companionship, peer pressure or for relief from stress and fatigue, progressing later to isolated and regular drinking. The social constructs of alcohol use have largely been linked to masculinity, domination, power equations, corporate culture and others.
- The emerging trends include initiation of drinking at an early age, greater consumption among women, greater permeation in rural and peri-urban areas, increasing preference for drinks with high alcohol content, and hazardous and harmful drinking.
- Despite the use of alcohol and its increasing consumption over centuries, the health consequences of alcohol have not been comprehensively documented in India due to absence of reporting, surveillance system and research.
- Both hospital-based studies and population-based studies reflect increasing use of alcohol in the country in recent decades. The available evidence is from individual studies and in isolated areas based on the specific interests of the researchers.
- Based on the available data, it can be estimated that alcohol contributes to a substantial proportion of mortality, the precise estimates of which are not clearly known. Approximately 20% of premature mortality in adult men can be attributed to alcohol use.
- Recent studies have shown that alcohol users experience more negative health events, more injuries and increasing psychosocial problems during their life course.
- Alcohol users have a higher incidence of mortality, hospitalization and disabilities due to injuries. Nearly one-third of night time road traffic injuries and deaths can be attributed to alcohol use. Alcohol users also experience greater severity of injuries, longer lengths of hospitalization and higher extent of disabilities. Suicides have been linked to alcohol consumption (through indirect and direct effects) and contributes to nearly one-fourth of total events. About one-fourth of violence and other forms of abuse against women and children has been linked to chronic alcohol use.

Health consequences

- It is known that alcohol contributes to more than 60 different health conditions.

- Limited studies conducted on Stroke in India have established the role of alcohol in its causation. Among hospitalized stroke subjects, long-term alcohol use has been recorded in 25% of cases.
- The linkages of alcohol use to specific types of cancer in the Indian region have been well-established. Combined with various forms of tobacco consumption, alcohol use has been linked to cancer of the respiratory system, gastrointestinal system and other systems.
- A significant relationship has been established between alcohol use, risky sexual behavior and increased risk of HIV-AIDS and other sexually transmitted diseases in the Indian region; alcohol use is more often associated with lack of protection and having multiple sex partners.
- Hospital-based studies suggest that nearly half of the deaths due to liver cirrhosis are linked to chronic alcohol use.
- Alcohol use has an intimate relationship with nutrition related disorders at both ends of the spectrum (both under nutrition and obesity).
- Apart from the linkage of alcohol to certain neuropsychiatric conditions such as delirium tremens and alcoholic hallucinosis, it is also a co-morbid condition with several other psychiatric illnesses including schizophrenia.
- Alcohol dependents constitute a major burden in the majority of health care settings at secondary and tertiary levels (and definitely at primary care levels).
- The health effects of alcohol on women are gradually beginning to emerge with

growing alcohol consumption among women.

Social and psychological consequences

- The psychosocial consequences of alcohol use has been inadequately documented in the Indian region. The social consequences of alcohol use at individual, family and societal level are largely anecdotal, media reported events with limited scientific evidence.
- The social consequences at the individual level significantly impacts personal life, work-related areas and family relationships. A higher incidence of negative social consequences ranging from poor self-esteem, low status, disturbed family relations, social and recreational problems have been reported among alcohol users. Absenteeism, work-related injuries, decreased productivity, unemployment has been noticed at workplaces.
- Alcoholism has been considered a family disease and not just affecting an individual. Alcohol use is a major cause for family disruption and marital disharmony in Indian society.
- The short, medium and long-term impact of alcohol use on children has not been examined closely in the Indian region. Several psychosocial problems, cognitive disabilities, behavioral problems and scholastic disadvantages have been observed among children of alcoholics.
- At the family level, alcohol has numerous effects which range from domestic violence, spousal and child abuse,

economic deprivation, suicidal attempts and other problems.

- Unemployment or underemployment of the alcohol user and limited resources available to the family for day-to-day activities restricts the socio-economic growth of families, especially in the poor and middle-income groups.
- Increasing crime rates in Indian society has been interlinked with the growing consumption of alcohol in recent years. The enhanced cost associated with enforcement, adjudication, property disputes, and others has been acknowledged, but not clearly documented.
- Methanol commonly found in adulterated drinks is a major cause for mass tragedies in India and many such tragedies continue to occur.

Societal costs

- An attempt to measure the impact of alcohol consumption on Indian society has been undertaken only in recent years. Systematic data required for such costing has not been available in India. The direct and indirect impact of alcohol on the economic situation of society as a whole, has been difficult to gauge with the available data.
- The costs linked to alcohol use can be broadly categorized as direct and indirect, tangible and intangible. Direct costs are the medical costs linked to treatment (outpatient or inpatient), hospitalisation, long-term medication, transport costs, rehabilitation costs and in the event of

death, funeral costs. Indirect costs include property damage, litigation costs, loss of insurance, and others. Intangible costs are those due to absence from work, decreased productivity, absenteeism, sickness leave, loss of school for children and many others. The value of lost life (in death), poor quality of life, lost time with family, pain and suffering are difficult to quantify.

- Governments incur huge expenditure for managing harmful effects of alcohol use. Substantial budgets of health ministry, law and order departments, crime divisions, traffic and law divisions, rehabilitation programs and welfare services are used to meet the increasing consequences of alcohol use. The collective costs of all these is unclear and difficult to estimate.
- From a small study in the state of Karnataka, it was observed that the social costs of alcoholism far exceeded the revenues generated from alcohol. Based on a small sample of alcohol dependents, it was estimated that the losses were to the tune of ₹18.39 billion when compared to a revenue of ₹8.46 billion.
- One study estimated that Indian society might have lost an estimated ₹244 billion due to the different consequences of alcohol use, while the revenue generated by the government was approximately ₹216 billion for the year 2004, raising the question "are we losing more than what we are gaining?"
- If all costs are comprehensively examined and calculated for all events linked to alcohol use in the Indian society, the total economic impact would be much higher than the available conservative estimates.

The response

Efforts to address the growing problem of alcohol have been extremely limited in the Indian region. Greater attention to the revenues generated from alcohol, increasing promotion favoring higher consumption of alcohol, penetration of alcohol into peri-urban, rural and transitional towns and cities, changing lifestyles, liberalized values among youth have dominated the discussions. Non-availability of good-quality data, lack of a central coordinating agency, non recognition of health, social and economic consequences, incorrect interpretation of health benefits (for example, the J shaped association of alcohol and cardiovascular health) and the impact of globalization have all contributed to the problem. Consequently, initiatives, including policies required for addressing alcohol control have been relegated to the periphery and even those implemented have not been systematically evaluated.

Initiatives that have been undertaken to address the complex problem include:

- ❑ Establishment of Deaddiction Centers under the Ministry of Health and, Counseling and Rehabilitation centers under the Ministry of Social Justice and Empowerment.
- ❑ Greater emphasis on management and rehabilitation of alcohol dependents.
- ❑ Increasing resources towards management of crime and stepped up judicial efforts.
- ❑ Health education programs across the country especially for drinking and driving.
- ❑ Outreach demand reduction activities by nongovernmental organizations.

On the policy front, a few attempts have been made in the past to reduce availability and demand. However, no systematic evaluation has been done to identify the efficacy and effectiveness of the efforts made which include:

- ❑ Prohibition
- ❑ Increasing taxes on almost all types of alcoholic beverages.
- ❑ Controlling illicit production of alcohol.
- ❑ Programs to check drinking and driving to reduce road traffic injuries.
- ❑ Prescribing legal age for drinking (this varies across different states within the country).
- ❑ Fixing timing of sales in alcohol selling outlets.
- ❑ Changes in packaging (smaller units, specified labeling, etc.)
- ❑ Ban on advertising.
- ❑ Encouraging manufacture of drinks with low alcohol content.

The experience of Prohibition across states of India reveals that while prohibition had a marginal impact in reducing availability, it promoted smuggling and was difficult to sustain. The policy of increasing taxes on alcohol by successive governments has only been generating more revenues and has not had any desired impact on consumption patterns. Efforts to control illicit production of alcohol have been limited; smuggling and illicit production continue. The policy with regard to legal age of drinking, alcohol selling outlets, timings of sale, etc, have been more on paper: poor implementation, along with the absence of a specific, spelt out policy direction are glaring. Media related activities have only

favored greater availability and consumption; surrogate advertising continues in a major way. Programs to check drinking and driving have been a recent phenomenon across selected cities. The existing programs have been poorly visible, infrequent and patchy. The intended impact has been further limited due to non-availability of trained personnel and lack of simple equipment like breathalyzers. In summary, it would be appropriate to conclude that none of the above listed policies and interventions have had any major impact in decreasing consumption or decreasing impact of alcohol (usually reflected by a reduction in deaths, injuries, disabilities, hospitalizations and reduced socioeconomic burden).

Barriers to effective alcohol control policies

Apart from the influences of rapid globalization, industrialization, urbanization and media influences at the macro and micro levels, several other barriers that have contributed to the failure of policy and program initiatives are:

- ❑ Absence of a rational and scientific alcohol control policy based on a public health approach.
- ❑ Conflicts between the Centre and the State on issues regarding production, distribution, taxation and sales.
- ❑ Greater emphasis on the revenue generation and marketing / promotion of alcohol use and non-recognition of health and economic impact of alcohol related problems.
- ❑ Absence of an inter-sectoral approach to guide and implement policies and programs.
- ❑ Non-recognition of the effects of alcohol

on major public health problems, including non-communicable diseases and injuries.

- ❑ Greater importance given to tertiary prevention as compared to primary and secondary prevention efforts.
- ❑ Inadequate training of health professionals in recognition of early alcohol related health problems and timely and effective interventions for cessation of use.
- ❑ Stigma associated with chronic alcohol use.
- ❑ Selective attention by professionals and the media to marginal and doubtful health benefits particularly for cardiovascular diseases.
- ❑ Non-availability of good-quality population based data through well-designed studies at national and local level.
- ❑ Emergence and acceptance of social drinking across the country.

Lessons from global research

High-income countries in the world have invested heavily in order to understand and implement initiatives that are required to control alcohol related problems in their contexts. Some of the learnings are that:

- ❑ Government control on retail or wholesale alcohol vending can be an effective mechanism to reduce availability.
- ❑ Measures that restrict direct sales and consumption of alcohol can be effective.
- ❑ Limits on licensing and number of outlets and their timings can be helpful.
- ❑ Uniform, random and visible enforcement of laws for drunken driving combined with stiff penalties and education show results.
- ❑ Strict and uniform code of ethics for advertising and promotion is required.

- Provision of treatment services will help only a selective segment of users.
- Community empowerment programs based on health promotion aspects can be helpful.
- Alcohol education per se will not help in decreasing consumption nor reducing the burden of alcohol related problems.
- An investment in research will pave the way for developing interventions.
- An alcohol policy with clearly defined goals and objectives along with implementation mechanisms is critical for reducing harm.
- Populist measures of scratching the surface are unlikely to be effective.

Towards solutions for India

Considering the multi-dimensional nature and magnitude of alcohol burden and impact on Indian society, it is important to jointly address the growing problem through a collaborative mechanism between governments (both central and state), professionals from health and related sectors, civil society, alcohol industry and the media. In order to guide all sectors and partners within and outside each sector and implement agreed programs, it is essential to have a rational, scientific, evidence-based, sustainable policy focusing on both supply and demand reduction.

- India should develop a rational and scientific alcohol control policy for the coming years specifying clearly what needs to be done and by whom.
- A public health approach of identifying the problem, understanding the determinants, implementing interventions and evaluating what works should be the focus of future programs at all levels.

- Human resources development and capacity strengthening across the sectors of health, police, law, welfare, excise, transport and other sectors should be undertaken for program development and implementation along with evaluation.
- The taxation policies need to take into account alcoholic content of the beverages and consumption patterns of individuals. A rational taxation policy has to be evolved without compromising the public health aspects of alcohol control.
- Uniform excise policies which discourage smuggling, adulteration and undocumented consumption need to be promoted across the states.
- Appropriate media related policies with regard to promotion and advertisement should be developed in a systematic way.
- The legal age for drinking should be specified in a uniform manner across all the states of India. This should not be less than 21 years.
- Permission to establish alcohol selling outlets near educational and health care institutions, in residential areas, on national and state highways and near religious institutions should not be granted.
- Bars and alcohol selling outlets should not be kept open beyond 12 midnight; last round of servings should be one hour before closure.
- Prevention of drinking and driving should be given high priority. Necessary capacity strengthening of police and legal functionaries along with support for implementing “DO NOT DRINK and DRIVE” programs should be provided.
- Screening for alcohol should be introduced in all emergency room departments of

government hospitals, medical colleges and apex institutions. Every fatal road crash must be investigated for alcohol presence in all those involved in the crash.

- Early detection of alcohol related problems should be given high importance at peripheral levels and necessary capacity strengthening of health care professionals and NGOs should be undertaken.
- Universal, high-risk and selective interventions with a clear focus should be developed and implemented in both population - based and select settings.
- Early interventions for vulnerable populations like children, women and disadvantaged communities should be encouraged.
- Health promotion efforts (not health education alone) should be given importance in control of alcohol problems, thus indicating the need for a systems approach.
- Life skills training in all educational institutions, especially among 8-12 grades should be introduced in a systematic manner. It should include alcohol and other risk factors for emerging non-communicable diseases and injuries.
- Prior to intervention programs at the local level, targeted and focused education programs with clear information on reducing consumption of alcohol along with dangers of increasing use should be undertaken.
- Community empowerment programs to understand, identify and recognize alcohol-related problems through local,

civil society agencies should be encouraged and supported.

- Research and surveillance should be strengthened across medical colleges and apex institutions apart from developing a research agenda, and,
- A national resource center to guide activities for prevention and control of alcohol related problems should be set up in India.

In conclusion, the burden and impact of alcohol related problems is beginning to be recognized in Indian society. Previous attempts towards control of the problem have been unsatisfactory due to unscientific interventions, primarily focusing on revenue generation. As always, if a problem is not addressed in the early stages, it will only grow to become a huge problem in the days to come. In this context and in the emerging scenario of increasing harm from alcohol, it is crucial to evolve policies and programs which would improve health of the people. This requires a greater political commitment, professional involvement, cooperation of the media and an empowered society. Policy makers and stakeholders from different sectors and departments need to come together, examine the evidence, arrive at consensus, formulate policies and implement programs. In this entire process, health, safety and security of people and society should occupy the center stage; it is time to move forward with a public health agenda and a coherent and rational approach. In the end, improving health of our society is the collective responsibility of one and all.

1 INTRODUCTION

 Alcoholic beverages have been in India for several centuries. The production, availability, consumption and drinking patterns have all been undergoing phenomenal changes and has been influenced by the combined effects of globalization, market forces, vacillating government policies, media promotion and changing values of Indian society. The hazards associated with drinking are also known since ancient times, but only in recent years, it has been acknowledged as a human and a public health problem. Undoubtedly, the increasing body of knowledge from both global and Indian studies, as well as anecdotal reports from both print and visual media has brought the harmful and hazardous effects of alcohol to the forefront. However, this has still not made intended impact on our health and related systems. Emerging debates in various fora highlight the necessity for reducing and minimizing the harmful effects of alcohol on all aspects of our lives. These issues are beginning to make inroads into a better understanding of the seriousness of the problem.

The word 'alcohol' means different things to different people in our society. In both the past and present, alcohol has been used for a number of reasons and has become a common source of pleasure seeking. For the common man, it has different meanings. The effects of alcohol vary with age and socio-cultural context of use. Midnaik and Room (1992) have identified different meanings attributed to alcohol use in the community:

- to governments - alcoholic beverages are a source of revenue,
- to a market economist - alcoholic beverage is one more category of consumer product,
- to a cultural anthropologist - a widely used medium of sociability with diverse symbolic meanings, and
- to a public health specialist - an agent of morbidity and mortality.

Recent data from India (NFHS 2 & 3, Ray 2004a) and data from international health repositories (WHO 2004a) indicate increasing consumption of alcohol and its accompanying harmful effects across all sections of Indian society. These effects have been more noticeable among youth. Other changes include emerging use among women, spread to more transitional, periurban and rural areas, early age of starting consumption and importantly a greater acceptance of drinking by Indian families. Alcohol consumption is also seen as an enhancement of social status among people of different socioeconomic backgrounds. The current scenario in India has been a cumulative effect of several factors. These include easy availability of alcohol, liberalized values of society, aggressive marketing strategies by the alcohol industry through print and visual media, shortsighted economic benefit perspective of Governments, the health researcher's failure to give directions and the absence of a rational alcohol control policy. This is compounded by a lack of coordination between several concerned

ministries. All these factors together have buried the social, health and economic impact of alcohol under the immediately tangible benefits of revenue earning and pleasure seeking. However, it is important to consider the overall impact of alcohol use on individuals and families and the larger public health harm vis-à-vis benefits; the focus must not be on just the momentary pleasures or monetary benefits of today. Amidst these conflicting and confused views, there is a need for recognizing "societal good" and this process has just begun.

Today, there are raging debates on what is good and bad, healthy and unhealthy, hazardous and beneficial, and whether alcohol should be freely available or restricted, etc. Understandably, all these are questions of interest to the different stakeholders concerned.

The Constitution of India states that "the State shall endeavor to bring about prohibition of the

consumption of intoxicating drinks" (Government of India, 2004). Nearly six decades since this was enunciated, the task appears near impossible and no remedy seems to be in immediate sight. Several policy changes and media reports reflect the growing awareness of the problem, but it has had very limited impact. In addition, it needs to be noted that alcohol is a state subject and individual states have near total independence in production, distribution, taxation, legislation and promotion.

In the context of global trade negotiations and its impact, many questions need to be considered and addressed by policy makers and researchers in India. The seeming paradox of the constitutional mandate against alcohol vis-à-vis the fact that alcohol is generally one of the largest revenue grossers for many state governments, needs to be resolved from a public health point of view. While defining the public health policy for alcohol use both

BOX 1 The changing face of India

India, located in South Asia is the 7th largest country and the 14th largest geography. It is the second most populous country (1.2 billion people in 2010). Administratively, India is divided into 28 states and 7 Union territories which are further subdivided into 626 districts. India's economy is the 5th largest economy in the world (GDP purchasing power parity in 2008 was estimated to be USD 3.3 trillion) with a GDP growth rate of 8.8% during 2010.

The declining death rates (12.5 / 1000 population in 1981, 8.4 / 1000 in 2001 and 6.3 / 1000 in 2008), birth rates (34 / 1000 in 1981, 25 / 1000 in 2001 and 22/1000 in 2008) and increases in expectation of life at birth (64 years in 2001) signify India's growth and development. The average life expectancy for a female newborn in the new millennium is an impressive 66 years. The pace and face of urbanization with their far reaching consequences are making quick inroads even to smaller towns. The vigorous media expansion and speedy penetration of technology is bringing in changes to the traditional lifestyles.

'Incredible India' is in the midst of transition with extreme polarities coexisting in day to day lives of people. The largest 63-year-old, democracy in the world is witnessing transition of all types: demographic (from a predominantly child population to a predominantly adult population with an increasing elderly population), social (from earlier joint families to increasing number of nuclear families), epidemiological (from scabies to suicides - with rising non-communicable diseases and injuries along with the continued burden of communicable diseases) and economic (rising income levels with decreasing poverty ratios where slums coexist next to pent houses).

The young have survived the earlier childhood killer diseases but are today more prone to behavior and life-style disorders. Coupled with sedentary life-style, increasing use of tobacco and greater stress are contributing significantly to the triple burden of diseases. The mortality, morbidity and resultant disability due to non-communicable diseases and injuries continue to increase and currently contribute to nearly three fourths of the total disease burden. The investment in health for building public health systems and developing the required work force are not commensurate to manage the new and emerging threats and challenges. The sum total of changes outside the health sector has made an effect on the health of people. It is continuing to make an impact on the health of the population. *Alcohol is definitely in this list of contributing factors.*

Source: Government of India, 2010 and Wikipedia, 2006

immediate and long term consequences of alcohol use in the society should be deliberated. The individual and social consequences of alcohol use needs to be modeled on the lines of 'disability status of an individual in the social sphere' incorporating both the direct and indirect costs to the society (Pal et al, 2000).

This leads us to the question: Do we need a rational, scientific and sustainable alcohol control policy/policies in India? There is unanimity across

India and even at the global level on the need for such a policy. It is thus crucial to examine the various issues related directly and indirectly to alcohol use in a comprehensive manner based on scientific data. While formulating such policies, it is also important to consider and review past experiences of control measures in India. In this context, the present report is an attempt to comprehensively examine the multidimensionality of alcohol from production to lessons learnt in minimizing harm from alcohol.

2 OBJECTIVES

The present review was undertaken to bring together available information on the different dimensions of alcohol use (production, consumption) and its consequences (health related and others) in India, along with previous policy responses, in order to guide and support future rational and scientific policies. The specific objectives were to:

1. review current status of alcohol production, distribution, sales and marketing which influence alcohol availability and accessibility,
2. collate recent information on drinking patterns, trends, practices and socio demographic correlates of alcohol use,
3. assemble the available evidence with regard to the wide variety of health consequences of alcohol use,
4. highlight the social and economic impact of alcohol use on individuals, families and overall society,
5. examine the responses including interventions by various sectors and examine their possible impact on alcohol use in India, and
6. develop a road map for future activities to reduce harm from alcohol.

3 METHODOLOGY

The report is based on secondary sources of data and no primary data collection was undertaken from any specified populations for this review. Published Indian literature was gathered by a team of trained research officers. Literature was collected from different Indian and international journals and also unpublished grey literature. Literature search was undertaken with the following keywords (in isolation and combination): alcohol, production, distribution, taxation, consumption, socio-economic status, regional distribution, drinking patterns, consequences, health effects (individual key words for various disorders were used), social effects, policy, intervention, program and India. Various databases like PubMed, Embase, Indmed, Cochrane, Google Scholar and others were searched using these key words.

Published material was also obtained from various libraries in India. Several national and local bodies like Indian Council of Medical Research, Centre for Alcohol Policy and Research, Indian Alliance for Alcohol Initiative, active NGOs and industry sources were contacted to obtain both published and unpublished literature.

The existing policies of the various state governments were reviewed and information classified under different headings. For each state, the policies on alcohol as revised from time to time were reviewed to obtain most recent information. Expert opinions of a few policymakers and government representatives was sought to understand current policy initiatives with regard to alcohol

production and policy. Government organizations (excise, revenue, law, health and others) in Bangalore and other state capitals were contacted to obtain data related to alcohol production, distribution, promotion and sales. Newspaper articles and electronic media reports were accessed using the general Google search engine.

Special efforts were made to obtain literature from the year 2000 onwards to examine current policies, programs and interventions. The available information was classified under the different sections outlined in the report with the help of locally developed software. The data has been analyzed from both quantitative and qualitative perspectives.

3.1. Methodological issues

There have been very few studies examining macro-level impact of alcohol production and distribution and linking the same to health and well being of people. There is no single centralized agency in India that collects, compiles and disseminates information on multidimensional aspects of alcohol. With regard to production and sales, individual state excise departments are the major source of information. Data on supply-side issues of alcohol, generally available with different government and industry sources are not in the public domain. In some areas, access to recent information, though crucial, was not available, as it was classified. Hence, some issues highlighted in this report include media-presented information. Some industry related

documents are no more available on the internet, but have been utilized with their earlier dates. Despite the fact that these issues have a direct impact on health, health professionals have not noticed this information and have generally left it to economists and researchers of alcohol use.

Studies with regard to the prevalence and patterns of drinking have been undertaken at different levels in India and have varied in terms of populations surveyed, focus of enquiry, location and screening instruments used (Murthy et al 2010). While there are very few studies on nationally representative populations, majority of the studies are limited to focused issues of researcher's interest and restricted to small populations. Studies have been undertaken in Madhya Pradesh (Ghulam et al, 1996), Maharashtra (Narwane et al 1998, Gupta et al, 2003), Rajasthan(Gupta et al, 1995), Karnataka (Benegal et al, 2003, Murthy et al 2004, Gururaj et al 2006a), Delhi (Mohan et al, 2002a and 2002b), Goa (Silva et al, 2003), Tamil Nadu (Ponnudorai et al, 2001), the North East - Arunachal Pradesh (Chaturvedi and Mahanta, 2004, Hazarika et al, 2000) and a few other places, including Haryana (Meena et al, 2002) and Punjab (Singh et al, 2000). Any extrapolations made from such studies in both national and international fora are to be viewed with caution.

There is a great diversity of studies on alcohol use in India. The studies have been predominantly urban based (Mohan et al, 2001a, 2001b, 2002a, 2002b, Gupta et al, 2003), while a few are both urban and rural in nature (Benegal et al, 2005, Gururaj et al, 2006a) . While some of the studies are community-based (Hazarika et al, 2000, Mohan et al, 2002b, Ghulam et al, 1996, Gururaj et al, 2006a, Meena et al, 2002), some of them have been hospital-based (Selvaraj et al, 1997, Bhoumick et al, 2001, Prasad et al, 2000). There are no longitudinal studies examining alcohol issues in

totality across Indian centres (NFHS has looked at alcohol and behavior issues, gender and age segregated and statewise). Almost all the studies are cross-sectional in nature, except one by Mohan et al (2002a), which was an incidence study. Mohan et al (2002a) selected 72 colonies in Delhi and followed up the same community after a gap of 12 months by developing a cohort of 2937 households and surveying all individuals above 10 years. One study has examined the use of alcohol among women in India in detail (Benegal et al, 2005), while some have merely documented its presence (Gupta et al, 1995, Ghulam et al, 1996, Hazarika et al, 2000). All others have focused only on men (Singh et al, 2000, Gupta et al, 2003).

The National Household Survey on Drug Abuse was the first major effort to examine drug abuse in India and included alcohol (Ray, 2004a). Information on life-style behaviors has been included in the National Family Health Survey (NFHS 2 and NFHS 3) and Bangalore study on health behaviors (Gururaj et al, 2004a). Data on expenditure on intoxicants is available from different rounds of National Sample Survey Organization (NSSO). To examine the prevalence and correlates of alcohol use in India, some researchers have also used the available data from the NSSO (Neufield et al, 2005, Bonu et al, 2005) and NFHS (Subramanian et al, 2004). The WHO has set up global infobase to provide information on chronic diseases and risk factors for all its members states and alcohol use is one of them (<https://apps.who.int/infobase/Indicators.aspx>). Regional NCD infobase is a part of this larger initiative (<http://www.searo.who.int/ncd/index1.asp>)

The sample size has varied over time across studies. Different methodologies from purposive and convenient sampling methods to representative sampling have been used. While Meena et al (2002) selected a population of 4691 males above 14 years

from a population of 142,000 (chosen from 124 anganwadi centres in Rohtak city), Singh et al(1998a) examined an equal number of men and women (900) from Moradabad city from one defined area. Gupta et al (2003) covered a geographical area of 70 sq. m and used the voters list as the sampling frame to examine the association of alcohol in upper, middle-class and lower segments of the society. In Arunachal Pradesh, Hazarika et al (2000) sampled 1092 households and included 5135 respondents. In a special study examining the association of alcohol with cardiovascular diseases, Gupta et al (1995) surveyed three villages in Rajasthan using a physician administered questionnaire, undertook detailed physical examination and an electrocardiogram. Further, special populations ranging from urban industrial workers (Silva et al, 2003, Reddy et al, 2006), tribal populations (Chaturvedi and Mahanta, 2004), medical students (Kumar and Basu, 2000, Rai et al, 2008) to general populations (Premarajan et al, 1993) have been chosen in different studies.

Majority of the studies have only examined the history of presence or absence of drinking along with broad patterns of drinking. Very few have examined its association with other aspects like drinking situations, amount, types, duration, age of initiation, health and socio-economic consequences (Benegal et al, 2000, Gururaj et al, 2006a). Even methods of classifying income, age, education, occupation and social status have differed across studies (Gururaj et al, 2005a). The study instruments have also been diverse and have included household

schedules (Hazarika et al, 2000, Gupta et al, 1995), specifically designed proforma (Singh et al, 1998a, Gururaj et al, 2006a), WHO recommended substance abuse screener (Ghulam et al, 1996, Meena et al, 2002) apart from alcohol-specific instruments like AUDIT (Silva et al, 2003). Some have even used a combination: for example, in Goa, Silva et al (2003) used a semi-structured interview along with AUDIT to survey 1013 men selected by systematic random sampling methods from four industries. The AUDIT was also used to assess hazardous alcohol consumption in a rural population in southern India more recently (John et al, 2009). DSM III operational criteria for defining alcohol abuse have been used in a few studies (Mohan et al, 2002a). Clinical evaluation has been minimal in population-based studies.

Information on social consequences, policy formulation and impact are also extremely limited. There has been no systematic review of supply-demand-impact issues in India. The demerits of uncontrolled supply and merits of public health benefits have not been hand-in-hand and are often disjointed (Das et al, 2006).

Thus, in the absence of well-designed, population-based and nationally representative studies, good quality data on the multidimensional impact of alcohol is lacking in India. Our review, aiming to bring together all available information on a common platform is the first attempt in the country. Although it is bound to have limitations, it nevertheless represents the most comprehensive analysis till date.

TYPES, PRODUCTION AND SALES OF ALCOHOLIC BEVERAGES

One of the important determinants of effects of alcohol on health of people is its availability, which in turn, is linked to production and sales. Any product (ranging from motorcars to food items) is produced and manufactured with an intention that people would use (or should use) it, and marketed aggressively in an environment favouring its use. This results in an increased consumption of that product. The story of alcohol is similar to such a commodity and this is discussed in successive sections. In simple terms, as more alcohol is produced and sold in an unrestricted environment, people who get influenced consume more alcohol with the end result being an increasing number of alcohol users in society.

4.1. Types of alcoholic beverages

The consumable (potable) alcoholic beverages in India are usually divided into six major segments: (1) Indian made foreign liquor-spirits, (2) beers, (3) wines, (4) country liquor, (5) illicit and/or home brewed beverages and (6) a small but growing foreign-made foreign liquor segment. Some important observations with regard to alcoholic beverage production are discussed below.

- Indian Made Foreign Liquor (IMFL): Spirits predominantly includes whisky, rum, brandy, gin and vodka (IWSR, 2010). While most of the matured international markets have seen stagnant to very moderate growth, the Indian Made Foreign Liquor market (estimated at

175–200 million cases annually), is increasing annually at 10 to 15%. (Kurien, 2006b and IWSR, 2010).

- Indian whiskies have seen an unprecedented growth (65-70%) in the past decade and the projected domestic market is 180 million cases in 2015 (http://www.scotchwhisky.net/news/archive_2006.php accessed on 8th April, 2010).
- The Northern and Western parts of India generally consume more of whisky, while brandy and rum predominate in the South and North-East.
- A critical sub-trend seen of late is the shift towards white spirits (an annual compounded growth rate of 35-40%). According to estimates, 50% of vodka drinkers are first-time drinkers and are equal among both males and females (Razdan, 2006, IWSR, 2010).
- Lower taxes and falling prices of beer have contributed to the increased consumption of beer in India which is considered a potentially big beer market of the world (Kurien, 2006b, TNN, 2006). Beer sales in India are estimated to double by 2012 and several parts of India are showing much higher increases with the four South Indian States / Union Territories (i.e., Kerala, Andhra, Tamil Nadu, Pondicherry) accounting for about 45% of beer consumption.
- Wine is mainly consumed in urban India with Mumbai and Delhi accounting for approximately half the country's wine sales (ASSOCHAM 2008). The Ministry of Food

- Processing Industry (MOFPI, 2009) has started an autonomous Indian Grape Processing Board, at Pune, Maharashtra with an objective of "fostering sustainable development of Indian wine industry" and provide a platform for advocacy of Indian wine sector. Recognizing the 'strong growth' in wine consumption, the Karnataka wine board promoted by the Karnataka state government conducts "Wine Fests" and has a stated wine policy (Indian wine, 2009). The Maharashtra state government considers wine separately from other Liquor for purposes of taxation and the taxes are lower (Government of Maharashtra, 2009). Though nascent, the growth trend in wine consumption is estimated to be 30% (Indian wine, 2009).
- Extra Neutral Alcohol (ENA) based cheap IMFL is replacing Rectified Spirit (RS) based country liquor. Several states, especially the South Indian states (Andhra Pradesh, Tamil Nadu, Karnataka and Kerala) have banned the sales of country liquor. Thus, IMFL has replaced country liquor (KSBCL, 2009).
 - Country liquor/Arrack was intended to provide cheaper liquor, particularly to counter the menace of cheap illicit liquor. However, over

the years, being a major source of revenue, the excise duty rates on country liquor reached such levels that the difference between prices of country liquor and illicit / non-duty-paid-liquor widened and the illicit trade not only continued but also flourished (Sinha, 2005a).

- Low alcoholic home-made beverages have been customarily consumed by many Indian communities, although most of them are deemed illicit today. Toddy tapping and selling has been the traditional occupation of a large number of people in many States.
- Illegal, small scale manufacture of alcoholic beverages still continues in India even though it is an offence.

4.2. Production of alcohol

The bulk of alcohol produced in India is from sugarcane molasses and is used for both potable and industrial purposes. The basic ingredient in the manufacture of non-premium IMFL and arrack is rectified spirit manufactured from molasses (Singh, 2006). Over the decades, consequent to a huge increase in irrigation potential, commercial crop sugarcane production saw a dramatic increase, resulting in huge

Table 1: Alcohol production and import (metric tonnes)

	Production	Import
World	231035679	17876448
Asia	55981448 (24%)	1445338 (8.1%)
South East Asia	6411451 (11%)	105116 (7%)
Bangladesh		3004 (3%)
Myanmar	22062 (0.3%)	10350 (10%)
India	4186853 (65%)	6876 (7%)
Indonesia	252756 (4.0%)	3594 (3%)
Korea, Dem People's Rep	332400 (5%)	7300 (7%)
Maldives		2487 (2%)
Nepal	18600 (0.3%)	820 (1%)
Sri Lanka	21600 (0.4%)	10296 (10%)
Timor-Leste	0	3810 (4%)
Thailand	1577180 (25%)	56579 (53%)

Source: FAO, 2001

quantities of molasses and hence increased alcohol production. The Indian alcohol industry used this cheaply available molasses for manufacture of both industrial and beverage alcohol. For manufacture of alcoholic beverages, the alcohol is matured and blended with malt alcohol (for manufacture of whisky) and diluted to requisite strength to obtain the desired type of liquor (Indian Made Foreign Liquor, IMFL).

India is generally traditionally regarded as a 'dry' or 'abstaining' culture (Bennet et al, 1993). Yet, it has one of the largest beverage alcohol industries in the world. India is the dominant producer of alcohol in South Asia (65%) and contributes to about 7% of total alcohol beverage imports into the region (FAO, 2001). More than two thirds of the total beverage consumption within the region is from India (Table 1), thus making it one of the alcohol hotspots in the global market.

Between 1982 and 1992, the production of absolute alcohol increased approximately by 250% (Saxena, 1999). The Planning Commission of India (2003) noted in the 10th 5 year plan, that there had been a steady increase in the production of alcohol, with the production doubling from 887.2 million liters in 1992-93 to 1,654 million liters in 1999-2000 and expected to treble to 2300 million liters in 2006-07 (Figure 1).

While precise estimates of production are not available, recent data from FAO reveal a 175% increase over a 15 year (1990-92 to 2005-07) period. In the same period, the production increased from

3 kg/person/year (1990-92) to 4 kg/person/year (2005-07). In the post liberalization period (1990-92 to 1995-97), the increase in production was remarkable (nearly increased by 150%). Exports increased by 18% during the decade 1995-97 and 2005-07. The imports during the 1990's were limited and in 2005-07 it was found to be nearly 12 million kg/year (FAO, 2010).

Production for the year 2007-08 were estimated to be 2544 million litres (Planning Commission of India, 2003). There has been a steady demand for production of potable alcohol for the manufacture of IMFL and country liquor. About one third to half of the alcohol produced is utilized for potable purposes and the balance for industrial use.
[\(<http://www.ethanolindia.net/sugarind.html>\)](http://www.ethanolindia.net/sugarind.html)
accessed on 28th Aug 09)

Apart from states which have opted for prohibition (like Gujarat), most states in India control the macro-availability of liquor both by limiting the number of production points (reviewed below) and by reducing the number of sale outlets (later sections).

There are about 310 working distilleries throughout the country. Against the total installed capacity for production, the general requirement is about 40- 50% for potable alcohol. With an aim to prevent greater illegal beverage alcohol production, Government of India, in 1975 issued a moratorium on the creation of additional capacity for distillation or brewing of alcoholic drinks and also banned the expansion of the existing capacity for production of ethanol (quoted in AIDA, 2009).

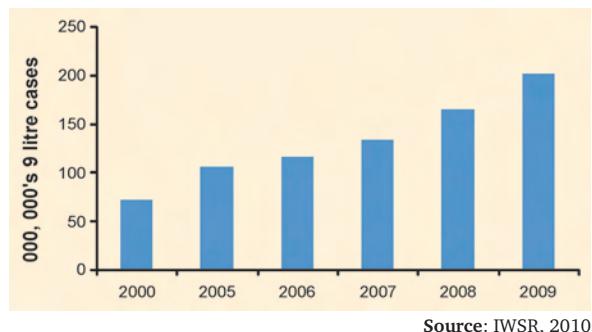
However, this moratorium of the Central Government was reversed by the Supreme Court of India in 1997, and gave the individual states the total and exclusive control of the industries manufacturing potable alcohol [Bihar Distillery and others versus Union of India] [Bihar Distillery v.



Union of India, AIR 1997 SC 1208 : 1997 AIR SCW 1240 : (1997) 2 SCC 727 22, 23]. In addition, although rule books of different states prevented the manufacturers from increasing production, in reality, it turned a blind eye to the increased production, excess capacity development and its resultant flooding of the market with alcohol products. Firms either bought the idle capacity of other distillers or used the small units' route to increase production. In the latter case, units with less than 50 workers had been generally exempted from stringent license conditions applicable to large companies. This led to more number of small units coming up and going against the principle of scale of economies (Sinha, 2005).

Under the stipulations of the WTO and GATT, many of the existing rules have been reviewed. As part of the large scale Foreign Direct Investment (FDI) policy review for different sectors of the manufacturing industry being undertaken by the Central government, it was proposed to drop the capacity constraint clause and permit foreign-direct-investment in a liquor company, thus allowing domestic liquor companies to expand. This move to change the rules is said to be based on the contention that the domestic industry would be fighting an unequal battle with foreign imported brands which are eyeing the local market (Bhattacharjee, 2005).

Figure 2: Changing pattern of alcohol sales in India, 2000-2009



4.3. Sales of alcohol

Consequent to increased production and distribution, the sales of alcohol has increased significantly in Indian society (Figures 2 – 4). Data available from the International Wine and Spirits Record (IWSR, 2010), reveal that the sales of alcohol increased by nearly 3 times from 72,000 liter cases in 2000 to 200 million liter cases by 2009. Two distinct patterns can be seen within this increase: while sales of beer and spirits increased (a compounded growth rate of 12.1% during 2000 – 2009), the growth of white spirits like vodka, has increased four-fold in nearly 10 years. Alcohol import increased three-fold (557,000 litre cases to 1646,000 litre cases). The ratio of imported to locally produced alcohol varied with the individual category of alcohol (predominantly spirits, mostly

Figure 3: Changing pattern of sales of beer and spirits, 2000-2009

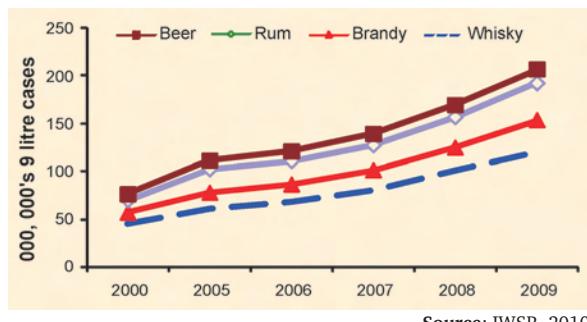


Figure 4: Changing sales pattern of white spirits, 2000-2009



whisky and wine), witnessed a peak in 2005, dipped later and is currently on the rise (Figure 5).

Figure 5: Ratio of imported to locally manufactured alcohol



4.3.1. Wholesale and Retail sale

There were more than 2,800 wholesale and 67,000 retail outlets in the country (of which 27,000 are for country liquor) (Sinha, 2005; latest figures were not available). Figure 6 shows the state-wise distribution of these outlets per one hundred thousand population. States like Karnataka and Uttar Pradesh

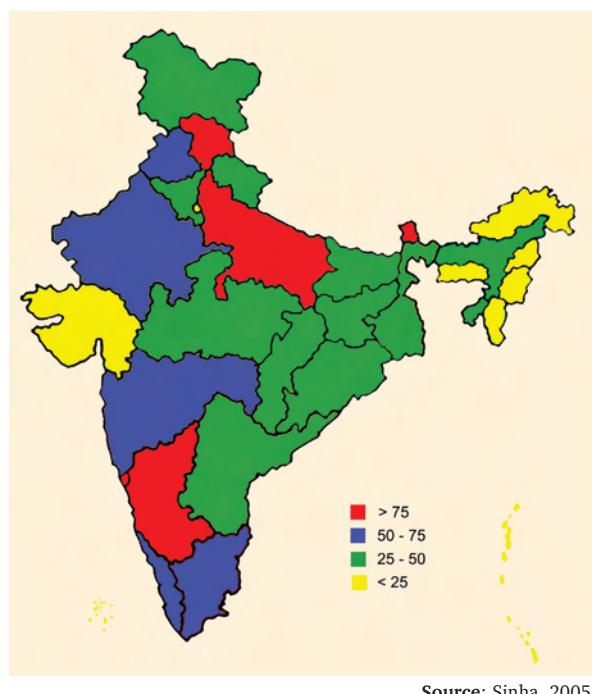
top the list in the number of retail outlets in the country with 5 of the other states closely competing with the top 2 states. The presence of large number of outlets in many states and absence of restrictions on sales makes alcohol easily available.

The distribution and sales of beverage alcohol could be classified into three models i.e. open model, auction model and Government corporation-controlled model. From a public health stand-point, the open model is not desirable, as not having a cap on the number of outlets or any control over the amounts sold in individual premises promotes increased consumption. The auction model is often associated with a high degree of cartelization with pressure on distributors and the entire supply chain to recover the auction prices leading to push-sales. This would be a driving force for increasing consumption.

Alternatively, the Government Corporation model, in theory, serves the purpose by preventing competition, regulating entry of new brands and restricting consumption by taxation. While one would be led to believe that such a system would prove to be a check on consumption. On the contrary, the excise departments of the governments, pursuing ever increasing tax targets, themselves issue sales quotas with penalties for non-performance. This increases consumption and would continue as long as the revenue arm of government works independently from the health and welfare arms (Sinha, 2005). Recent media reports point to the nature and extent of pressure on state governments for revenue from alcohol sales when the state government itself takes on the extra burden of running retail sales outlets when earlier licenses either lapse or there are no takers due to increased license fee (Deccan Herald, 2009).

Review of all these models reveals that even though the Governments have made some efforts to control alcohol consumption through their sale

Figure 6: Retail vend (No. of alcohol selling outlets) per 100,000 population (2004)



patterns, it is the manufacturers – distributors – vendors who decide on availability of alcohol to the local consumers. In the end, all models favour consumption through their own interconnected ways.

4.3.2. Packaging and labeling

Adulteration is also sought to be controlled by close regulation of the packaging sizes and designs of seals used for liquor containers. Spirits are packed in 5 sizes viz. 180 ml, 375 ml, 500 ml, 750 ml and 1 litre bottles both in plastic as well as glass containers. Smaller pack sizes (60 and 90 ml) reportedly wean consumers away from country liquor (Sinha, 2005). However, packaging differs for various types of alcohol and in different parts of the country, with the latest trend being in the form of tetra packs. Though appropriate labeling is desirable, there are a host of problems in its enforcement.

4.3.3. Marketing and promotion

India is currently considered a lucrative market for the beverage alcohol industry (Box 2). Keeping with the trend of globalization, several global leaders are actively entering the Indian markets through mergers and acquisitions and this has impacted the growth of several allied industries. The Indian beverage alcohol industry is said to be a 600 billion rupee industry (Deccan Herald, 2004). The exact numbers directly or indirectly employed by the industry are unknown. Data from the European Union indicates that the spirits industry employs about 50,000 people directly and 250,000 indirectly. Additionally, industry sources have estimated that for every job in the European Union brewing sector, 1 job is generated in the retail, 2 in the supply sector and 12 in the hospitality sector (ICAP, 2006c).

Once a product is manufactured and distributed, it has to be sold to the public and

BOX 2

Industry finds alcohol markets in India

India is the industry's number one trade priority', ... with the potential to sell 65-70 million cases a year' - Scotch Whisky Association, The Observer, Sunday April 16, 2006

Source: <http://www.guardian.co.uk/india/story/0,,1754724,00.html> accessed on 26th June, 2008

...the investment marks (our) first footprint in India. In the last 16 years, our focus was mainly on South East Asia, Australia and China. As our breweries in these markets have shown good growth, it is timely that we look beyond our current markets and set our sights on South Asia for our next wave of regionalisation. the investment is a continuation of the company's growth strategy to venture into emerging markets to capitalise on the inherent growth potential of emerging economies. "The obvious attraction of the India market is its size and growth. The beer market has been growing at a compounded rate of over 7 per cent annually and growth is expected to accelerate as deregulation gains momentum across the Indian States. The beer market is also anticipated to grow strongly on the back of a growing young and affluent middle class. Our investment places us in a good position to ride on the economic growth of India and the accompanying growth of the Indian beer market."

Source: <http://www.blonnet.com/2006/05/04/stories/2006050403630200.htm> accessed on 24th June, 2010.

The real challenge for winemakers in India is to develop a domestic market. Consumption of wine when we compare it with the other alcoholic beverages, is very small. The younger segments are not drinking nearly as much wine - those aged 18-24 represent only 6% of wine consumed. They are spoilt for choice - a proliferation in alternative purchase decision. There has been an explosion in the RTD (Ready to Drink) market especially Breezers and the options available for many varied markets. . . .the young customers are very focused on 'brand' - they are 'brand' savvy. They are open to brand promises, indeed look for brands as a way of making the choices they make all the time. Focusing on brand strengthening within these key markets of tomorrow will be vital. While it is likely that young people of today will gradually grow their wine consumption, it is by no means assured. Ensuring that a smooth transition into wine consumption is possible will involve making wine easily accessible to the average alcohol consumer, who may generally find making alternative selections such as beer or RTDs easier.

Source: http://indianwine.com/cs/blogs/indian_wine/archive/2010/06.aspx accessed on 24th June, 2010.

alcohol is no exception. In fact, advertisements directly or indirectly influence the consumption habits of nearly 500 million adults in India and such promotion is likely to have an effect on nearly 300 million people living in the lower socio-economic strata of society where alcohol is a major public health problem (Mehta, 2003). In India, there is an official ban on direct promotion of alcohol in any form. **However, surrogate and umbrella advertising efforts in both print and electronic media are in plenty.**

It is common to see alcohol being advertised in many ways, both in print and visual media, ranging from mineral water to walkathons for special events. It is estimated that the ad revenue from alcohol promotion is about ₹900 million. This pales into insignificance while considering the advertisement and sales promotion budgets of alcohol manufacturing companies. While the exact amount is difficult to ascertain, the balance sheet of the companies throw light on the expenditures incurred. The balance sheet of an Indian company vying for a global presence, reports a total advertisement and sales promotion expenditure of ₹8298 million on beers and spirits (UBL, 2010 and USL, 2010) and ₹14347 million, if the surrogate brand advertisement and sales promotion is also included (UBHL, 2010). Interestingly, the expenditure on advertisement and sales promotion on surrogate brands has more than doubled between year ending 2008 and 2009 (UBHL, 2010). The surrogate advertisement has in recent times reached epidemic proportions in both print and electronic media and comes in various forms – like the ‘good boy’, ‘cool guy’ approach, happy hours etc. With frequent violations of the self-proclaimed media code of conduct by the industry itself along with a token expression of control by governments, the alcohol industry is now targeting the growing Indian youth, middle class segments and women.

With reducing revenues from already established markets and increasing competition from beer and wine, the global hard liquor brands are re-positioning their brand to woo these new segment in the society (Rediff, 2005).

4.4. Revenues from beverage alcohol

Taxes on alcoholic beverages constitute the second largest revenue-earner for most state governments after sales tax (Box 3) and is 90% of the state excise duties (Abraham, 1995; Sengupta, 2005). It contributed to an estimated ₹216 billion in the year 2003-04 and leading liquor-consuming states like Maharashtra, Uttar Pradesh, Andhra Pradesh and Tamil Nadu each collected between ₹25 billion and ₹40 billion annually from liquor companies in the form of taxes (Damodar, 2004). For the year 2006 – 07, liquor and lotteries generated ₹40,274 crore revenue for all the states contributing for 13% of their own total tax and non-tax revenue up from 11.5% in the previous fiscal. Individual states exhibited variations in both the proportions of revenue collection and the total amount collected (Damodar, 2007). The top 5 revenue earning states for the year 2006-07 were Karnataka (₹4,060 crores), Uttar Pradesh (₹3,650 crores), Tamil Nadu (₹3673 crores), Andhra Pradesh (₹3250 crores)

BOX 3

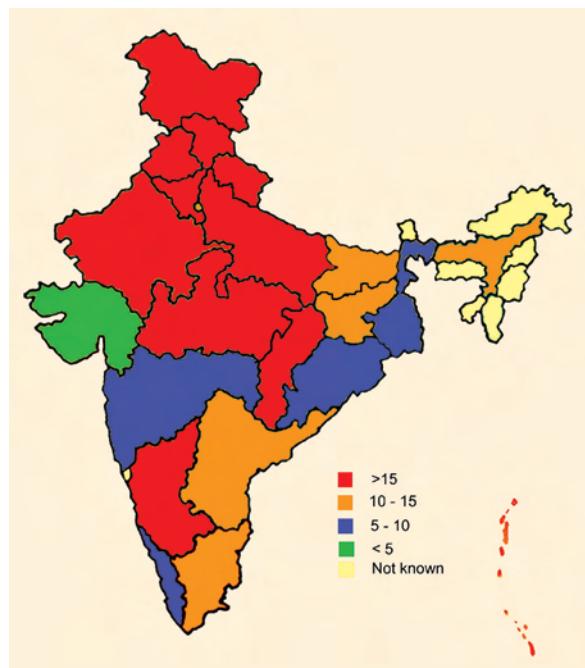
State revenue sources

Taxes on motor spirits (petrol and diesel) and lubricants contributed around Rs 69 billion and taxes on vehicles contributed Rs. 85 billion. Even taxes on property and capital transactions, including stamp fees and registration charges (Rs. 15 billion), do not match up to liquor collections. Entertainment tax, which is stated to be a big source of revenue for some states in the future, contributed only Rs. 9 billion. Among non-tax revenues, revenues from lotteries come under revenues from general services and this too, contributed Rs. 64 billion in the financial year 2003.

Source: Sengupta, 2005

and Maharashtra (3,100 crores) accounting for nearly two-thirds of the total revenue excise collections of the country. In terms of the excise revenue as proportion to their own tax revenues, the top 5 slots were occupied by Uttarakhand (19.4%), Karnataka (18.0%), Punjab (16.6%), Uttar Pradesh (15.5%) and Rajasthan (14.6%) (Table 2). The states of Karnataka, Orissa and Tamil Nadu had witnessed nearly two-thirds to three fourth increases in revenue collections between the period 2003-04 and 2006-07. Not surprisingly, Gujarat (officially under prohibition) was at the bottom of the list with revenue from alcohol beverages contributing to less than 1% of total tax revenues. Nearly 10 of the 28 Indian states earn more than 15%, while 5 states obtain 5 – 10 % of total revenues from alcohol (Figure 7). The continued and greater reliance of the South Indian states on alcohol revenues

Figure 7: Proportional revenues from excise (% of total revenue)



Source: Damodar, 2007

Table 2: Excise revenues and proportion to total tax revenue of individual states
(in crores, 10 million = 1 crore;)

Sl No	State	2005-06*	% of total Revenue	2006-07**	% of total Revenue
1	Uttarakhand	357.97	19.4	400.94	19.4
2	Punjab	1,499.00	17.4	1,682.44	16.6
3	Karnataka	3,347.72	17.2	4,060.34	18.0
4	Uttar Pradesh	3,223.40	16.3	3,650.00	15.5
5	Rajasthan	1,508.00	15.5	1,600.00	14.6
6	Chhattisgarh	600.01	14.6	660.01	13.8
7	Madhya Pradesh	1,300.00	14.6	1,430.00	14.3
8	Andhra Pradesh	2,851.18	14.4	3,250.00	13.7
9	Tamil Nadu	3,012.14	13.6	3,637.26	13.6
10	Haryana	1,135.00	13.3	1,200.00	12.5
11	Delhi	925.00	11.6	975.00	11.0
12	Orissa	400.00	8.7	490.00	9.6
13	Bihar	335.00	8.5	400.00	8.8
14	Kerala	839.76	8.2	944.73	8.1
15	Maharashtra	2,850.00	7.6	3,100.00	7.5
16	West Bengal	755.51	6.8	869.95	6.8
	Total	26,052.19	11.6	29,533.48	11.5

Source: Damodar, 2007

Table 3: Proportional increase in state excise revenue for the period 03-04 and 06-07

State	Difference (03-04 & 06-07)
Karnataka	76.2
Orissa	74.7
Tamilnadu	60.7
Andhra Pradesh	46.9
Maharashtra	37.8
West Bengal	37.5
Madhya Pradesh (Includes Chattisgarh)	36.7
Uttar Pradesh (Includes Uttaranchal)	29.2
Rajasthan	29.0
Kerala	18.1
Haryana	17.9
Delhi	14.7
Punjab	12.2
Bihar (Includes Jharkhand)	-30.7
All States	36.9

Source: Damodar, 2007 and 2004

is indeed a matter (Abraham 1995) of great concern (Table 3).

Across the country, while the revenues from alcohol sales have increased over the years, they almost match the budgetary outlay / expenditure related to medical and public health, family welfare and water supply and sanitation. For the year 2008-09, state excise duties put together was ₹ 392 billion as against ₹ 439 billion expenditure on health and related budgets (RBI, 2010). In contrast, the amount

spent on the management of alcohol related problems is albeit a very small proportion of total state health expenditure.

Tracing the developments in production, types, standards, availability, sales and revenue, it can be concluded that:

- *The industry has been growing at a phenomenal pace (Computed Annual Growth Rate for whisky, brandy, rum is about 12%, while that for beer and wine is around 10% and a massive 36% for vodka) with new strategies being evolved and incorporated for earning more revenues.*
- *With states gaining control over alcohol (rather Central government has passed this into states), each state has been increasing availability through ingenious methods.*
- *The revenue earnings have been growing by leaps and bounds and has helped cash strapped governments to fill their coffers to the extent of 7-30% of total revenue.*
- *Media has been playing an active role in promoting alcohol sales and influencing consumption despite claims of voluntary control*

In summary, more alcohol is easily available to many more today than in the past.

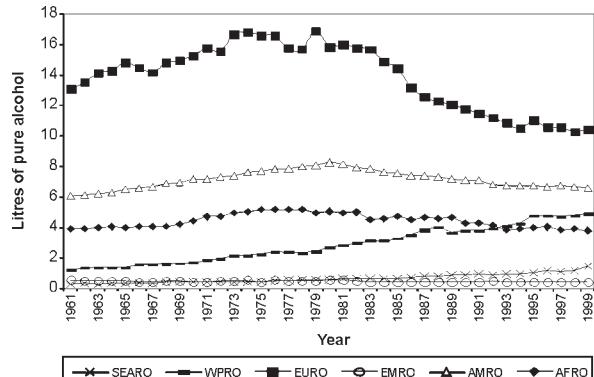
5 ALCOHOL CONSUMPTION PATTERNS

The recorded alcohol consumption per capita has fallen in most developed countries since 1980, but has risen steadily in the South East Asia region, especially India (Figure 8). The per capita consumption levels have been increasing in the Asia Pacific region while there has been a significant decline in Europe and the Americas. While recent trends need to be examined with up to date data, it is obvious that India is a dominant alcohol producer in the South East Asia Region (FAO, 2001), and this is not surprising.

5.1. Per capita consumption

It is extremely difficult to estimate the actual consumption of alcoholic beverages in India since a large part of the consumption also comprises of undocumented alcoholic beverages. The real per capita consumption is likely to be twice the officially acknowledged estimate. Benegal et al (2003) estimated the recorded per capita consumption in India to be about 2 litres absolute alcohol equivalent/adult/year (calculated from official 2003 sales and population figures). Adjusting for undocumented consumption (illicit beverages as well as tax evaded products), the real per capita adult consumption is estimated to be nearly 3 litres absolute alcohol equivalent/adult /year (Box 4). Other estimates of the adult per capita consumption of absolute alcohol in India have varied from 0.2 to 9 litres (Benegal, 2005a).

Figure 8: Adult per capita alcohol consumption in WHO regions



Source: WHO, 2004a

5.2. Undocumented Consumption

Estimates of official per-capita consumption, which also figure in most international databases, are actually based upon the documented sales and production figures and do not include undocumented consumption. The latter which includes a wide variety of home-brewed alcoholic beverages, duty-evaded IMFL spirits and country liquor, smuggled beverages and illicitly distilled spirits. While there is no official estimate of undocumented consumption, two prevalence studies from the north and the south of the country, almost twenty years apart, have consistently estimated it around 45%-50% of the total consumption (Singh, 1986, Benegal et al, 2003). Three factors are generally responsible for the undocumented consumption:

- The unaccounted escape of beverage alcohol, chiefly IMFL and to a lesser extent country liquor, from the legal production and supply

BOX 4

Per capita consumption figures: what do they mean

Population based alcohol surveys are an important method of collecting per capita alcohol consumption data which are also specific to socio-demographic groups within populations. They can be used to gather data on drinking patterns, quantity intake and also document acute adverse consequences. But cost and time constraints preclude such a frequently exercise. Routinely, per capita estimates are derived from alcohol sales or production and from import and export data which are usually collected for taxation purposes. This obviously represents the total amount of taxable alcohol available within a country or region. They do not include home-made and illicit commercial alcohol, duty free and smuggled alcohol and consumption on travel when not in their region or country. The per capita numbers in international databases are obtained by dividing taxable alcohol volumes by population of that region or country. It is expressed as the average volume of alcohol consumed for all individuals aged 15 years and older. In the context of temperant cultures like India, such a method of calculation is bound to yield erroneously lower estimates of individual consumption.

Population-based alcohol survey estimates of consumption and that of taxable alcohol available for consumption are sometimes compared. However, there are discrepancies between these two measures. Majority of population based alcohol surveys substantially under-estimate taxable alcohol available for consumption. This is attributed to under-reporting of consumption by survey respondents. However, where a high level of untaxed alcohol is consumed, it is possible for surveys to produce estimates higher than those derived from estimates of taxable alcohol availability.

Benegal et al (2003) collected alcohol consumption data from a large representative sample from the state of Karnataka in South India. Projecting the total beverage alcohol consumed by the sample population to the presumed 5.11 million consumers in the state yielded an estimated annual consumption of 101 million liters absolute alcohol equivalent (Excise paid beverage (57 million liters) + Undocumented beverage - 44 million liters). This amounted to a surprisingly high per capita consumption of 3 liters absolute alcohol equivalent per adult person per year.

Source: Benegal et al, 2003

chain for the purpose of evading excise duties. These are later sold in the market. In popular parlance, these are known as “seconds” and are usually indistinguishable from the licit beverages on sale, except that they are sold at cheaper prices.

- There is also a considerable volume of smuggling of alcoholic beverages, especially Scotch whisky into the country. With liberalization of imports, this sector is becoming less important although it still accounts for a sizeable proportion of unrecorded consumption especially in the larger cities. Another problem is the smuggling within the country and between the states. As alcohol production, sales and its taxation are state subjects, each state has different laws. Import and export duties result in high cost for inter-state movements. This has resulted in each state behaving like a separate market, which has proved to be an incentive for large scale smuggling of alcoholic beverages across the borders. Smuggled alcohol ('seconds') from one state into another with higher taxation, are

popularly called ‘thirds’. Since more than 5.3 million cases of liquor sold is estimated to be either spurious, Non-Duty Paid Liquor (NDPL) or illicit liquor, the state governments find this grey market a cause of concern. About 0.75 million cases of foreign liquor also find its way to this grey market.

- Illicit liquor, produced without a license, has been available in India, ever since licensing was introduced during the British colonial period. But the process by which most of it is produced has changed in relatively recent times. At least until the 1950's, most of this illicit liquor, often termed “hooch” by English language commentators, appears to have been manufactured in small distilleries, often run by traditional manufacturers and hereditary toddy tappers, generally located in villages within easy reach of the cities. But as demand rose in the middle decades of the last century, rivals from a number of other social groups also took up small-scale production alongside. These producers, especially in the bigger cities,

marketed their output through large networks of vendors often constructed by hidden market elements.

- changing role of women and increasing consumption and,
- increase in the use of beer, white spirits and wine (Gururaj et al, 2006a).

5.3. Changing trends

Alcohol use in India has registered a steady growth rate of 10 to 15% during the past decade with greater expansion seen in southern parts of India (Benegal, 2005a). Several changes with regard to alcohol consumption have been noticed in recent years. These include

- age of beginning alcohol consumption decreasing from 28 years to about 18 years during the period 1980-2010,
- high consumption in areas where there has been an increased economic growth,
- increase in quantity of alcohol consumed,
- an upward shift in rates of drinking among urban middle and upper social economic groups,

5.4. National scenario and estimates

- The National Household Survey of Drug Use (Ray, 2004a) recorded alcohol use in the past year in 21.4% of adult males. This is the only systematic effort to document the nation-wide prevalence of drug use undertaken on a nationally representative sample of 40,697 non-institutionalized adult males in the age group of 12 to 60 years across 24 states by a two stage probability proportional to size sampling method. The survey reported an estimated 62 million adult male alcohol users in the country for the year 2001. A high level of alcohol use was seen in the north eastern and northern parts of India. The prevalence of

BOX 5 Measures of alcohol consumption

Alcohol dependence

A pattern of alcohol use characterized by:

- ◆ compulsion to use
- ◆ loss of control (of use, onset, termination or level of use)
- ◆ withdrawal symptoms on reduction or cessation
- ◆ tolerance
- ◆ neglect of alternative pleasures or interests
- ◆ persistent use despite the knowledge of physical or psychological harm

Withdrawal state (with and without delirium)

A group of symptoms of variable clustering and severity occurring on absolute or relative withdrawal of a psychoactive substance after persistent use of that substance. The onset and course of the withdrawal state are time-limited and are related to the type of psychoactive substance and dose being used immediately before cessation or reduction of use. The withdrawal state may be complicated by convulsions.

Harmful use

A pattern of psychoactive substance use that is causing damage to health. The damage may be physical (as in cases of hepatitis from the self-administration of injected psychoactive substances) or mental (e.g. episodes of depressive disorder secondary to heavy consumption of alcohol).

Source: WHO, 1994

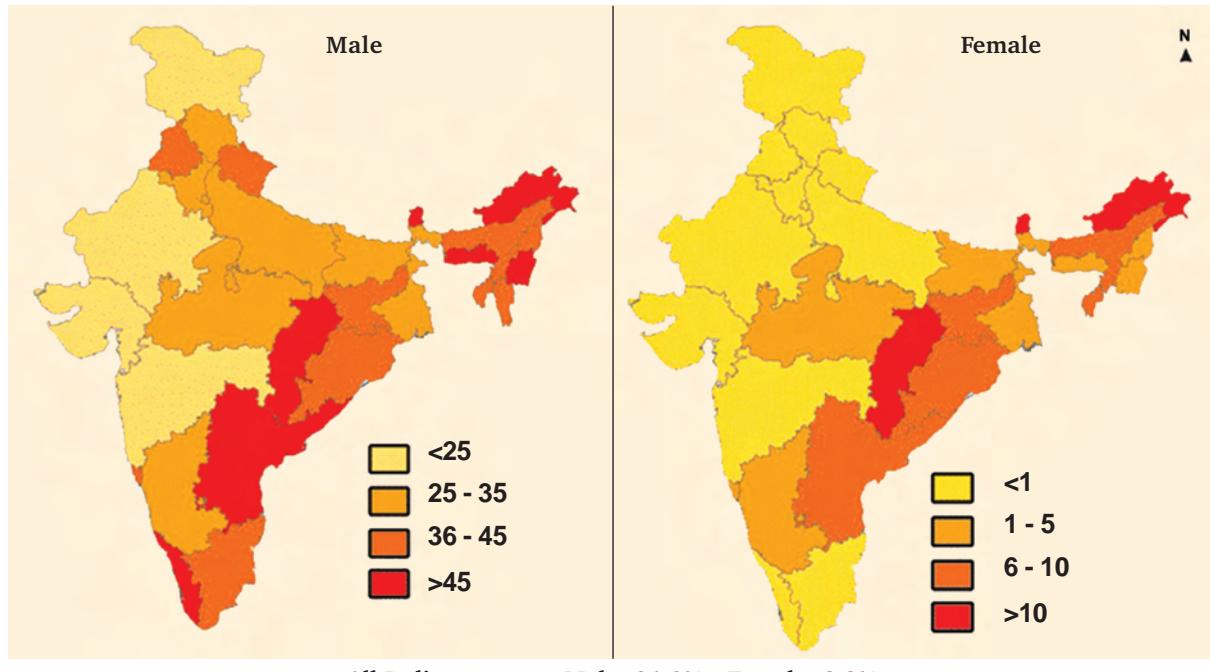
Hazardous use

Hazardous use is a pattern of alcohol consumption carrying with it a risk of harmful consequences to the drinker. This damage may be to health (physical or mental) or may include social consequences to the drinker or others. In assessing the extent of that risk, the pattern of use, as well as other factors such as family history, should be taken into account.

Source: Babor and Higgins-Biddle, 2001

- current use of alcohol ranged from as low as 7% in the western state of Gujarat (officially under Prohibition) to 75% in the Northeastern state of Arunachal Pradesh. Data from treatment centers revealed that alcohol represented the primary drug of abuse accounting for 44% of help-seeking in different treatment centers. Alcohol abuse was high among adolescents and youth and increasing among rural population across all centers.
- According to the World Health Survey covering a total population of 9540 individuals aged 18 years and above, the rate of heavy and hazardous drinking was 1.4% varying between 2.4% to 0.4% among men and women, respectively. In the study, heavy and hazardous drinking was defined as average consumption of 40 grams or more of pure alcohol per day for men and 20 grams or more per day for women. The rate of heavy episodic drinking,
- defined as consumption of five standard drinks in one sitting was 1.4% (IIPS and WHO, 2006). The National Family Health Survey 2 (NFHS-2) of 1998-99 reported that 17% of men 2% women above 15 years consumed alcohol, which increased with increasing age (Figure 9). The proportion of men who drank alcohol was nearly 1.5 times more in rural areas. Literacy and income were negatively associated with alcohol use. Alcohol consumption was highest in states of Arunachal Pradesh (64.5%), Sikkim (32%), Assam (25%), Goa (29%) and Punjab (29%). It was lowest in Gujarat (6.6% - State ban on alcohol existed at the time of survey).
- The National Family Survey 3 (NFHS 3) observed that among individuals aged between 15 and 54 years, 2.2% of women and 32.0% of men drink alcohol. Among both men and women, the proportions of alcohol users

Figure 9: State and gender wise alcohol use prevalence rate - 2005-06



Source: NFHS 3

increased with increasing age. While a majority of men and women consumed alcohol less than once a week (63.0% and 43.4%, respectively), 15% of female users and 10% of male users consumed alcohol almost every day. Among men, the proportions of users in urban and rural areas were almost similar but amongst women it was nearly 5-fold greater in rural areas compared with urban areas. In the North East, nearly one-third to half of men consumed alcohol and greater proportions of women consumed alcohol in Arunachal Pradesh (33.6%) and Sikkim (19.1%). In the entire country, only three states had less than one fifth of men consuming alcohol (Rajasthan 19%, Gujarat 16% and Jammu and Kashmir 12.5%) and the highest proportion of male alcohol users were from Arunachal Pradesh (61.1%) followed by Chattisgarh (52.3%). Interestingly, the NFHS 3 observed a decreasing proportion of users with increasing education. Greater wealth status and religion were found to have an influence on the proportions consuming alcohol.

- The National Sample Survey Organization (NSSO) has all along been examining alcohol expenditures (either separately or as part of household expenditure item) in a representative population of India. In a limited and crude way alcohol expenditure indirectly represents consumption patterns. Surprisingly, the 60th round results of 2005 indicate an average expenditure per person per 30 days on alcohol to be ₹.7.24 in rural areas and ₹.6.26 in urban areas, which appears to be extremely low, probably influenced by reporting patterns. On the contrary, it is widely acknowledged that average per capita expenditures on alcohol ranges at a minimum level of ₹. 30–100.

Despite its limitations, NSSO data shows there has been a slight and marginal change in expenditure on alcohol over a period of time (NSSO, 2005). The prevalence of regular alcohol use was found to be 4.5% (CI 4.5–4.6) as per the National Sample Survey of 95–96 (Neufield et al, 2005). Bonu et al (2005) examining the National Sample Survey data from 629,888 individuals from 120,942 households reported that 47% of the study sample used both tobacco and alcohol.

Anand (2000), in his estimates, highlights the all India burden from alcohol use to be ‘numero uno’. Similar findings are reflected in a rural study in Kaniyambadi in Tamil Nadu carried out by CMC Vellore. The prevalence of life-time use, use in the past year and hazardous use of alcohol was 46.7%, 34.8% and 14.2%, respectively. Using Indian-made foreign liquor (OR 20.51; 95% CI 8.81–47.75) and living in a village which brewed illicit alcohol (OR 2.82; 95% CI 1.39–5.72) were risk factors for hazardous use, while education (OR 0.39; 95% CI 0.21–0.72) was protective. These factors remained significantly associated with hazardous use after adjusting for age and education using logistic regression (John et al, 2009).

In the report to the Commission on Macroeconomics and Health, Government of India, Gururaj et al (2005a), projected (based on prevailing rates) that there would be 69.7 million, 74.8 million alcohol users during the years 2010 and 2015, respectively. The data is based on estimates made from the figures of Ray (2004a) in the nationally representative study. Greater burden would fall more squarely on states with large populations, growing economy and liberalized policies. With an accelerating rate of consumption, this number would obviously increase.

5.5. Incidence

The only incidence study on alcohol use in India has been reported by Mohan et al (2002a) from Delhi. In the total cohort of 2,937 households, the annual incidence of nondependent alcohol use and dependent alcohol use among men was found to be 3 and 2 per 1000 persons. The incidence of alcohol use was significantly higher among men, in the age group of 41–50 years, among those with lower levels of education and who were self-employed. The consumption of alcohol was also in direct relation to the consumption of tobacco in both phases of the study.

5.6. Prevalence in population-based studies

Nationally representative and well-designed multi-center population surveys are lacking in India. Several researchers have examined the prevalence of alcohol use in different parts of the country over time. Caution has to be exercised in interpreting findings and extrapolations from these individual studies as findings are likely to be influenced by sample size, techniques of sampling, survey areas (urban / rural) screening instruments, definition of alcohol use, case ascertainment and statistical analysis. While well-designed studies are few, small sample studies have limitations, as local consumption patterns cannot be generalized to the larger national level. Reporting fallacies of survey respondents and methodological issues among individual studies also limit their usefulness. These factors need to be considered in estimating per capita consumption levels.

Different studies have used different terminologies to classify alcohol users. Examples include:

- never users,
- recovered users,

- current users and dependent users,
- hazardous and harmful users,
- past and current drinkers,
- users and nonusers

The prevalence has varied in different parts of the country and is influenced by macro and micro level factors. At the macro level, the influencing factors include a) availability factors like production and affordability influenced by taxation policies of local state governments; b) promotion and advertising by the media; c) the extent of local brewing practices, distribution and availability of alcohol; d) the density and timing of outlets; e) enforcement by local excise and police, and several others. At the micro level, influencing factors include a) population characteristics; b) availability of alcohol; c) urban rural characteristics; d) socio-economic status; e) local values and cultures; and f) the extent of restraint imposed by the society on permissible levels of drinking. Many studies have been undertaken in India (Table 4a - 4d), few of which are highlighted below.

- Examining alcohol use in a rural community in Vellore, John et al observed that 35% reported alcohol use in the past year with 14% drinking regularly (John et al, 2009).
- Reporting from urban slums of Sambalpur, Orissa, Sarang et al (2008) observed that 15% of survey respondents ($n = 502$ adolescents) consumed alcohol, and was commonly influenced by family status and peer pressure.
- Anand et al (2007), in a survey of 2564 persons from urban slums of Faridabad district, observed that 26% of men consumed alcohol in the past year and the number of cases increased with age.
- The overall prevalence in Arunachal Pradesh was 30% as reported by Chaturvedi et al (2003). Studies from the northern part of India during a one-year period have revealed the prevalence

- of alcohol use to be between 25 and 40%.
- Gupta et al (2003) from Mumbai noticed that the current alcohol use was 19% and history of past use was reported by 5% of respondents, while 76% of the individuals had never used alcohol.
 - In Goa, based on AUDIT Scores, nearly 60% were users of alcohol, broadly influenced by the local

Table 4a: Studies of Alcohol use in India (nationally representative)

Author	Year of survey	Place Urban/Rural	Sample Size	Screening instrument	Crude Rate (%)	Remarks
NFHS 3	2005-06	All India	1,98,754	Household survey questionnaire	M: 32.0; F: 2.2	Alcohol use as part of morbidity and health
NHSDA (Ray 2004a)	2000-01	All India	40,697	Household survey questionnaire	21.4	Substance use including alcohol in males
NFHS 2	1998-99	All India	4,86,011	Household survey questionnaire	M: 17 F: 2	Alcohol as life style indicator
IIPS and WHO, 2006	2003	In Assam, Karnataka, Maharashtra, Rajasthan, Uttar Pradesh and West Bengal	9,994	Study specific Questionnaire	Total 9.1M: 16.6; F:1.2	Multi stage stratified random sample to assess health systems performace

Table 4b: Studies of Alcohol use in India - States / Region representative

Author	Year	Place	Urban/ Rural	Sample Size	Screening instrument	Crude Rate (%)	Remarks
Benegal et al	2008	Andaman and Nicobar	Island population	18,018	AUDIT	M: 34.7; F: 6.3	Substance use
Chavan et al,	2007	Chandigarh	Union Territory	2,992	ICD 10 criteria	6.7	Alcohol dependence
Bengal et al	2005	Karnataka	5 districts	2,979	Study specific questionnaire + AUDIT	M: 33.2; F: 5.8	Alcohol and gender specific issues
Chaturvedi et al	2003	North east India	3 States	1,831	NK	12.5	Pilot study in NE regions
Benegal et al	2003	Karnataka	3 districts	21,276	Study specific questionnaire	15.3	Unrecorded alcohol consumption

Table 4c: Studies of Alcohol use in India - Combined populations (urban, rural, etc.,)

Author	Year	Place	Urban/ Rural	Sample Size	Screening instrument	Crude Rate (%)	Remarks
Gururaj et al	2006a	Bangalore	Combined population	28507	Study specific questionnaire	13	Alcohol users in Urban, Rural, Town and Slum population
Gururaj, et al	2004a	Bangalore	Combined population	10168	Structured questionnaire	9	Alcohol users in Urban, Rural, Town and Slum population
Varma et al	1980	Punjab	Combined population	1,031	Structured questionnaire	23.7	Urban and rural
Dube and Handa	1971	Uttar Pradesh	Rural	16,275	2 Stage interview	2.3	Alcohol and drug abuse
Thacore et al	1975	Lucknow	Combined population	2,696	prepared schedule	19	Urban and rural habitual excessive drinking

Table 4d: Studies of Alcohol use in India-(geographically defined populations)

Author	Year	Place	Urban/ Rural	Sample Size	Screening instrument	Crude Rate (%)	Remarks
Anand et al	2008	Haryana	Urban	2,589	WHO steps approach	M: 28.9	Alcohol and tobacco users
Chaturvedi and Mahantha	2004	Arunachal Pradesh	Urban	5,135	Pretested questionnaire	30.0	Substance abuse
Gupta et al	2003	Mumbai	Urban	50,220	Structured questionnaire	18.8	Alcohol users
Meena et.al	2002	Rohtak	Urban	1,42,000	WHO questionnaire	19.8	Alcohol users
Mohan et al	2002b	Delhi	Urban	10,312	Structured questionnaire	5.9	Alcohol users
Sharma and Singh	2001	Goa	Urban	4,022	RPES	1.0	Alcohol dependence
Mohan et al	2001a	Delhi	Urban	6,004	DSM III R	12.6	Dependent drug users
Hazarika et al	2000	Bandarwana, Assam	Urban	312	NA	36.5	Alcohol Users
Murthy et al	1998	Bangalore	Urban	5,633	–	–	Alcohol use in slum
Ghulam et al	1996	Madhya Pradesh	Urban	–	–	37.0	Alcohol users
Zulfikarali and Vankar	1994	–	Urban	254	SAQA	16.7	Alcohol users
Premarajan et al	1993	Pondicherry	Urban	1,115	IPSS	34.5	Alcohol dependence
Ponnudurai et al	1991	Madras	Urban	2,334	MAST	16.7	Suffering from alcoholism
Singh et al	1988a	Uttar Pradesh	Urban questionnaire	1,806	Structured	10.4	Alcohol users
Lal and Singh	1978	Punjab	Urban	6,699	QFI	29.3	Adult alcohol users
Verghese et al	1973	Vellore	Urban	2,904	Mental health item sheet	4.8	Chronic alcoholism
John et al	2009	Vellore	Rural	345	AUDIT	46.7	Hazardous alcohol drinkers
Sethi and Trivedi	1979	Lucknow	Rural	2,415	Semi structured interview	21.4	Drug abusers
Nandi et al	1975	West Bengal	Rural	1,060	3 schedules	0.94	
Elnagar et al	1971	West Bengal	Rural	1,383	3 stage survey	13.0	Alcohol and drug Addiction
Gopinath	1968	Bangalore	Rural	423	Survey questionnaire	2.36	Alcoholism

Note: NA = Not applicable; NK = Not known

culture and easy availability of alcohol. Only 31% were abstinent in the past year. The prevalence of hazardous drinking using a cut-off of 8 on the AUDIT in the total population was 20.1% and among users, which increased to 31% in individuals aged ≥15 years (Silva et al, 2003).

- In Rohtak city, Meena et al (2002) observed the prevalence to be 20%.
- In southern India, the prevalence of current alcohol use has varied between 33 and 50% with a higher prevalence among those with lower levels of education and income levels (Chakravarthy, 1990).
- Hazarika et al (2000) from Bandar Dewa in Assam observed the current prevalence of alcohol use to be 36.5%.
- Singh et al (1998a) from Moradabad city reported prevalence of alcohol use to be 10% in a sample of 1806 respondents.
- Ghulam et al (1996) in Raipur, Madhya Pradesh observed never users of alcohol to be 71% and current users to be 26.5%. The overall prevalence of alcohol use was 37% for current users and 39% for ever users, with 20% being dependent users.

A series of population-based studies undertaken by NIMHANS in recent years have documented the prevalence of alcohol in different settings.

- In the study of health behaviors among 10,168 individuals from four different strata of Bangalore City, it was observed that though the reported prevalence of alcohol use was 9% in the age group of 15–60 years, the focused group discussion at the community level revealed the problem to be 2–3 times higher (Gururaj et al, 2004a)
- In a recent survey of 28,507 individuals regarding socio-economic impact of alcohol in 4 different populations (urban, slum, periurban (town) and rural areas), 32% of

males in 15–60 years were alcohol abusers, varying between 29% in rural areas and 39% in urban areas (Gururaj et al, 2006a).

- In the GENACIS study, covering a total of 2,981 respondents (1,517 males and 1,464 females) across 5 districts of Karnataka including eight urban and rural sampling areas, 5.9% of all female respondents (n=87) reported drinking alcohol at least once in the last 12 months compared to alcohol use in 32.7% of all male respondents (n=496) (Benegal et al, 2005)
- In a survey covering 5,200 families comprising 21,276 individuals (14,364 adults with 7,445 males and 6919 females) from 5 districts of Karnataka, the prevalence of alcohol use in the past 12 months was 15.3% (28.4% in males and 1.2% in females). The overall prevalence varied between 20 and 30%, among men in ≥10 years in different centers (Benegal et al, 2003).

In summary, it can be concluded that nearly one third (30 - 35%) of adult males and 5% of adult females are regular users of alcohol.

5.7. Hospital-based studies

Alcohol consumption and use has been examined in hospital settings, both with reference to hospital emergencies and specific health problems (examined in greater detail under the section on health consequences and drinking of this report). The use of alcohol among hospitalized subjects has been examined in 3 ways: (i) among general hospital registrations, (ii) in emergency care settings and (iii) among those with specific health problems like cardiovascular diseases, road traffic injuries, suicides, cerebrovascular accidents and other conditions. In emergency care settings, alcohol involvement has been observed for acute health care problems, mainly for injuries, violence and stroke

apart from other conditions like psychiatric problems. Studies among hospitalized subjects have included a smaller sample but the involvement of alcohol has been examined in greater detail. Generally, hospital-based studies on consumption patterns are not true reflections; either of the use and abuse nor prevalence, as they only measure consequences of alcohol use. Viewed indirectly, the hospitalization rates among alcohol users reflect the seriousness of the problem in communities.

- Studies on road traffic injuries have estimated the involvement of alcohol to vary from 20–30% (Gururaj, 2004a), while studies on suicide indicate the involvement to be 30–40%; detailed psychological autopsy studies have supported the involvement of alcohol in 45% of cases in one of the studies (Gururaj and Isaac, 2001a and 2001b).
- Among a series of hospitalized subjects for injuries in a public health care setting, the association with alcohol was 16 % (Gururaj, 2004a and 2004b), further indicating the greater association with violence.
- Two of the recent studies on stroke at NIMHANS have revealed the association of alcohol to be 20–25% (Nagaraja et al, 2000 and Nagaraja et al, 2005).
- Narwane et al (1998) in Mumbai reported that 317 of the 327 men admitted for liver diseases admitted to regular alcohol intake and 239 men had evidence of liver disease.
- Among 127 cases of an autopsy study in Delhi, nearly 18% had evidence of alcohol in the viscera (Sahadev et al, 1994).
- Problem drinking among male inpatients has varied from 14–24% among Indian population. Sampath et al, from a study in a general hospital in Kolar, observed that 28% of hospital admissions had life-time use of alcohol and 26% were current alcohol users, with 18%

scoring >8 on AUDIT scores. A total of 37% fulfilled criteria for alcohol dependence as per DSM IV criteria (Sampath et al, 2007).

- Nearly 1 out of 3 patients above 25 years entering the emergency room has been due to acute or chronic effects of alcohol (Poulose and Srinivasan, 2009).
- The Emergency Management Research Institute (108 ambulance service), during August 1st 2007-July 31st 2008 in Gujarat and Andhra Pradesh recorded 40,541 behavioral emergencies of which alcohol intoxication (3%) was the third commonest emergency (Saddichha et al, 2009).

5.8. Use in specific populations

Studies of alcohol use among focused populations in India have revealed increasing use. As an example, we have discussed the problem among 2 major categories of workers and students in this section.

- Reddy et al (2006), in a surveillance of industrial workers report that one among ten workers was a regular user of alcohol. Among workers in tea industries, every alternate worker was found to be an alcohol user. Similarly, among those employed as blue collar workers and mostly on daily wages and in quarries, every second person was a regular user.
- Schools and colleges are the commonest places where alcohol use begins, either as a solitary or as a group activity. A combination of factors like migration, independence, curiosity, peer group influences, academic stress, process of socialization, easy access and media influences drive youngsters to experiment with alcohol and to later become regular users. Many of the studies have reported higher use of alcohol in

Table 5: Burden of alcohol use in workplaces in India (2003-08)

Authors	Year	Place of study	Industry/Workplace	Key findings
Kunar et al	2008		Case control study amongst coal miners with and without injury	OR of alcohol consumption high
Kaur et al	2007	Chennai	Two industrial units	34.8% (Current users)
Medhi et al	2006a	Assam	Youth of agricultural tea estates	32.2% (M: 43.9% F:24.6%); 27.4% used both alcohol and tobacco; greater among manual workers
Medhi et al	2006b	Assam	Tea industry workers	59.2% age adjusted prevalence (M: 69.3%; F:54%)
Medhi et al	2006c	Assam	Dibrugarh tea estates	59.9%; prevalence of hypertension significantly higher amongst users
Mehan et al	2006	Gujarat	A chemical industry	5%
Reddy et al	2006	All India	10 companies across India	12% regular users; 12.5 occasional users
Gaunekar et al	2005	Goa	Male industrial workers	Significant impact from hazardous drinking
Gurav et al	2005	Maharashtra	Daily wage laborers	42.7% (M: 71/.5%)
Madhivanan et al	2005	Mumbai	Sex workers	Riskier behavior; more STI / HIV
Mathur	2005	Jodhpur Rajasthan	Sand quarry workers	61%; 3.5% ex-users; 20.3% >15days/month
Rautji et al	2005	New Delhi	Autopsy study of construction workers	16%

this age group, with > 25% of students being regular users.

- Alcohol use among medical students and practicing physicians is a growing concern in India. Kumar and Basu (2000), report that even among medical students, the usage is high with prevalence rates varying from 32.5% to as high as 81.2% (Kumar and Basu 2000). An opportunistic, cross-sectional survey (self-

reported questionnaire) of 2,135 medical students from 76 medical schools attending an inter-medical school festival in India revealed current alcohol and tobacco (chewable or smoked) use in 7.1% and 6.1% of the respondents respectively (Rai et al, 2008). However, a prospective study among three medical colleges in North India found very high rates of alcohol use among medical students

Table 6: Prevalence and patterns of alcohol use among students

Authors	Year	Place of study	Population	Key findings
Ramachandra et al	2008	Chennai	Comparative study between young medical practitioners and general population	Alcohol use was more common among doctors (16.4%) vs 9% in general population
Rai et al	2008	Delhi	Medical students from all over the country	n=2135 25% reported lifetime use of alcohol and 7.1% were current users of alcohol
Kumar and Basu	2000		Review article	Higher use of alcohol, tranquilizers and psychedelics among medical students, and dependence rates were 5% for medical students and 3% for doctors.
Sethi and Manchanda	1980		240 Resident doctors	Alcohol was abused by 17.9%
Singh and Jindal	1980	Patiala	Faculty of Medical College	Lifetime prevalence of drug use was 78.9% and the commonest drugs used were alcohol and tranquilizers.

in various stages of their careers, with 57% ($n=168$) reporting ever use and 42% showing patterns of problem drinking and 6% meeting criteria for dependence (Garg et al, 2009). Young physicians in India also have a higher prevalence of cardiometabolic risk factors, and higher use of alcohol compared to the general population is an identified risk factor (Ramachandran et al, 2008).

5.9. Age and gender specific differentials

Age has a positive and linear association with consumption patterns of alcohol. With the initiation of alcohol beginning at an early age, it gradually increases thereafter. The highest number of alcohol users have been noticed in the age group of 20–35 years across several studies. Findings from the National Family Health Survey reveal that nearly 10% of the users were less than 25 years, 15% in 25–29 years, 23% in 30–39 years, 26% in 40–49 years and 40% above 50 years (NFHS 2). NFHS 3 reports higher alcohol use rates in both males and females; amongst 15 to 19 year old males and females, it was 11.0% and 1.0% respectively in NFHS 3, as against 2.4% and 0.6% respectively in NFHS 2.

Gupta et al (2003) in Rajasthan noticed that light drinkers were more in the younger age groups, while moderate drinkers were more in the middle age groups. Among all the users, 42% were 25–34 years, while 28% were 35–44 years. Consistently, about 5% of the population across all age groups were heavy users. In Arunachal Pradesh, 18% of the current users were 45–49 years, while 21%, 18%, and 15% were 50–54 years, 60–64 years and 65–69 years, respectively (Hazarika et al, 2000). Nearly one third of regular users were in the 40–49 years and 50–59 years age group each in Punjab (Singh et al, 2000). Conversely, Mohan et al (2001b) observed that the lowest rates of drinking are found among

those less than 30 years (7%), gradually increasing thereafter and reaching the peak at 30–39 years (50%), and gradually declining thereafter.

There is also an extreme gender difference. Almost all Indian studies conclusively point to the fact that alcohol use among men is significantly higher compared to women. Across Indian studies, prevalence of alcohol use amongst women has consistently been estimated at <5 % (Isaac, 1998, Sundaram et al, 1984, Benegal et al, 2005) but is much higher in the Northeastern states. Using data of NFHS II, Mini (2007), reported that 2.8% of Indian women drink alcohol. A recent regional assessment undertaken in the state of Karnataka in Southern India, as part of a collaborative WHO multi-center study (GENACIS) estimated alcohol use in the past year among 5.9% of adult females as against 32.7% of adult males (Benegal et al, 2005). A previous WHO study from the same region had estimated the prevalence of alcohol use (in the last 12 months) to be 1.2% in women and 28.4% in men (Benegal et al, 2003). It needs to be realized that figures pertaining to female use are liable to be under-reported. Alcohol use especially among women, is socially stigmatized in parts of rural India and there is a reluctance to report such use. There is some support for this view, as a significant number of male and female users in both the WHO studies (Benegal et al, 2003, Benegal et al, 2005) expressed the view that womens' drinking is viewed as more shameful and therefore, is kept hidden. A focused thematic study on drug abuse among women and information from key informants revealed that alcohol was a common drug of abuse (Ray, 2004a).

5.10. Urban - Rural differences

The place of residence and nature of population movement, in turn linked to availability issues, has a significant association with alcohol use. Despite

the lack of good studies, it is clear that the problem of alcohol use is significantly higher in rural areas, transitional towns and tribal areas.

The National Household Survey revealed that rural individuals were 1.5 times more likely to use alcohol compared with urban users (Ray, 2004a). This would probably be attributed to education, income, occupation and other social factors. Subramanian et al (2005) reanalyzed the data from the NFHS - 2 and observed that the prevalence of alcohol use among both men and women was significantly higher in towns and villages as compared to large and small cities. Nearly 22% and 17% of users were in towns and villages compared with 14.8% of users in larger cities. Analyzing the NSSO data, Neufield et al (2005), report that men were 10 times more likely to report regular alcohol use. They also observed a greater preponderance amongst rural populace, those without formal education, with low incomes especially those below the poverty line and belonging to disadvantaged groups (Neufield et al, 2005).

There are a few studies comparing alcohol use across different populations using standardized methodologies. As early as 1980, alcohol use rates were reported to be higher in rural India in a comparative survey of urban and rural areas. Some of the earlier studies have shown it to vary from 20 –50% in rural areas (Isaac, 1998). In the largest survey in rural Maharashtra as early as 1991, Bang and Bang (1991) report that nearly 100,000 men in a population of 400,000 used alcohol, of whom 20% were addicted. In a survey of 32,400 people in rural areas near Bangalore by NIMHANS, the prevalence was observed to be 1% in the rural population (Benegal et al, 2003).

Significantly higher use has been recorded among tribal, rural and lower socioeconomic urban sections (Ray and Sharma, 1994, Thimmiah, 1979). The WHO study of undocumented consumption recorded significantly higher prevalence of drinking

in rural areas compared to urban areas: with (61% vs. 39%) or without (52% vs. 48%) the inclusion of the tribal sample in the rural sector. Tribal areas had the highest prevalence of alcohol use in both men and women (Benegal et al, 2003).

In the GENACIS study undertaken in the state of Karnataka, the prevalence of drinking among men was 23% in rural areas and 41% in urban areas among men, while similar rates among women was 4.4% and 7% respectively (Benegal et al, 2005). The health behavior study undertaken by NIMHANS has reported the prevalence of alcohol use (in the previous 12 months) in urban, rural, slum and town population as 8%, 9.5%, 19.0% and 6%, respectively. Quite contrary to reported numbers, qualitative, focused group discussions revealed far higher numbers (*every other male over 25 years drinks*) (Gururaj et al, 2004a). In the study on socioeconomic impact of alcohol across 4 communities, the alcohol prevalence rates were 24%, 21% and 28% among adult men in urban, rural, slum and town population, respectively, while it was <3% among women (Gururaj et al, 2006a).

Residing in villages and brewing alcohol is significantly linked to alcohol use (John et al, 2009). In a rural sample of Vellore, one third used alcohol during the previous year, one fifth drank regularly and one sixth were hazardous alcohol users. Similarly, high rates of alcohol use have been observed in urban slums of India in several studies (Anand et al, 2007). NFHS-3 revealed that for either sex, proportions consuming alcohol were greater amongst those from rural than urban areas. Among females the ratio between urban to rural was 1:5 (0.6%: 3.0%).

5.11. Education, occupation and income

The exact association of several socio-demographic correlates like education, occupation, income, marital status and others variables with

alcohol use in India has not been clearly delineated and interlinked. The findings from the NSSO reveal that respondents with no formal education were more likely to be regular users of alcohol (NSSO, 2005). The data from NFHS 3 revealed that a majority (78% females and 26% males) of the alcohol users were illiterate and belonged to the poorer sections of society. Several studies have revealed higher rates of alcohol use in urban slums and rural areas, where educational levels are correspondingly low (Anand et al, 2007, John et al, 2009).

Analyzing the data from the NFHS, Subramanian et al (2005) observed that the proportion of alcohol users was more than twice in the educationally deprived populations. Among women, those with secondary schooling levels and beyond were less likely to use alcohol; having no education was associated with a greater risk of alcohol consumption. Ghulam et al (1996), in Madhya Pradesh, noticed that drinking rates increased with education up to higher secondary levels and gradually decreased thereafter. Gupta et al (1995), in Rajasthan, observed that among those who consumed alcohol, 27% were illiterate and 17% were literate; graduates and above constituted 10% of the drinking population. Increased alcohol use to the extent of 47% was reported among illiterates in a community-based study in Arunachal Pradesh (Hazarika et al, 2000). Gupta et al (2003) from Mumbai observed that the current users and ever users of alcohol were higher by 20% among the illiterate population and those who had studied up to primary levels. Mohan et al (2002a) from Delhi observed that poor educational achievement was associated with the increased risk of alcohol disorders. Frequent drinking was more among the less educated (<8 years of formal education), with lower levels of income, in those who were married and in non-muslim categories (Benegal et al, 2005). Silva et al (2003) in Goa reported that hazardous

drinkers were more likely not to have completed school and were most likely to have an earlier age of onset of drinking.

Relationship with occupation has been examined in a very few studies. Ghulam et al (1996) in Rajasthan observed that upto 45% of the labor classes was involved in heavy drinking while Hazarika et al (2000) in an urban community noted that 51% of those employed in service and in business categories consumed alcohol. Chaturvedi et al (2003) from Arunachal Pradesh reported that a majority of self-employed men engaged in agriculture and other day-to-day activities were consuming more alcohol, possibly as a source of constant energy and relaxation. Recent studies indicate an upsurge of alcohol use among younger men and also in student communities (Kumar and Basu, 2000).

Income is one of the determining factors of alcohol use and consumption patterns. Due to difficulties in the definition and measurement of poverty and income levels in Indian society, establishing the association of alcohol use across different social economic groups is challenging. Despite the difficulties, NFHS 2 revealed that 24% of men in low income groups, 15% in the middle income and 10% in the higher income groups were alcohol users. The percentage of women across the same three groups were 4%, 2% and 0.3% respectively.

The NSSO revealed that 3.9% of those above the poverty line and 5.9% of those below the poverty line were regular alcohol users with an increased odds ratio of 1.5. The lowest quintiles had increased consumption of alcohol (NSSO, 2005). Bonu et al (2005) observe that there is a higher risk of borrowing or distress selling during hospitalization for individuals who use alcohol even after controlling for socio-demographic and economic factors. Using the data from the NSSO, it was observed that among people hospitalized, and using alcohol in

combination with tobacco, 47% resorted to borrowing or distress selling and this constituted 28% of the total expenditure.

Anecdotal evidence suggests that caste is significantly associated with consumption of alcohol. The NSSO data revealed that men from recognized disadvantaged groups like scheduled caste and scheduled tribes were significantly more likely to use alcohol by 1.4 times (NSSO, 2005). The data from NFHS revealed similar findings with higher use of alcohol among individuals belonging to these groups (NFHS 2).

The study on burden and impact of alcohol by Gururaj et al (2006a) showed the greater use of alcohol among those who had less than the 8 grade of education (85%), lower and medium levels of income (<₹.6000 in 84%), among skilled and unskilled workers (74%) and in married individuals (89%). Benegal et al (2003) reported that the prevalence of alcohol consumption appeared to be related to education and income levels. Abstainers were significantly likely to be better educated and have higher family incomes than alcohol users except in the tribal population. Previous studies have also documented similar findings that alcohol use is more common among lower socio-economic groups.

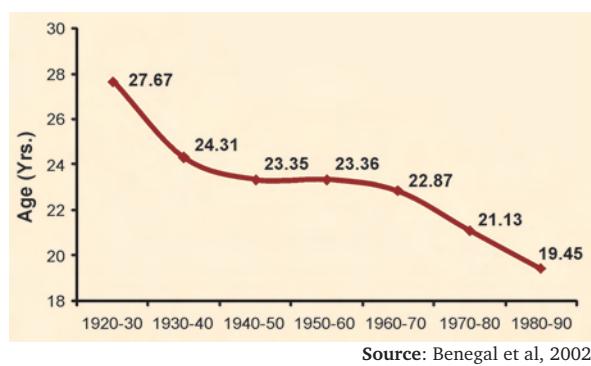
Marriage and alcohol also seems to be intricately related when consumption patterns are examined. Hazarika et al (2000) from Arunachal Pradesh noticed that alcohol use was generally higher in the unmarried population. On the contrary, Meena et al (2002) showed more alcohol use among married men similar to the findings reported by Ghulam et al (1996) and Singh et al (2000). The higher use among married people may simply reflect the age distribution of the population who are likely to be married. This distribution could change with increasing alcohol consumption among adolescents.

5.12. Age of starting drinking

There has been a significant shift in the pattern and age of drinking initiation in recent times, closely linked to availability, affordability, peer pressure and media influence. Currently, there is evidence for a significant secular trend affecting the age at initiation of alcohol consumption. This is attributed to a cohort effect. This finding points towards a progressive lowering of the age at which consumers have their first drink of alcohol. Data indicate that a majority begin experimenting with alcohol by 15–17 years, a significant lowering from 25–29 years a decade back ago.

Benegal et al (2002) reported the age at onset of alcohol use to be 22 years with an average duration of drinking of 10–12 years. In the WHO-Undocumented Alcohol Consumption study (Benegal et al, 2003), it was observed that the mean age at starting to drink among both males and females had dropped from 28 years in the birth cohort of 1920-1930 to 20 in the birth cohort of 1980-1990 (Fig. 10). Similarly, the GENACIS study (Benegal et al, 2005), reports that although there were no statistical differences with respect to the age of onset of alcohol use and gender, there was a perceptible lowering of age of first alcohol use in later birth cohorts. This is again consistent with data from a previous study from the same region that found very

Figure 10: Age of starting drinking



strong cohort effects, with an accelerated onset of regular use of alcohol in younger birth cohorts (Benegal et al, 2003). The average age at which males start regular drinking dropped to 23 years from 25 years in the ten year period (1988 – 1998). The mean age by which they developed significant alcohol dependence dropped to 29 years from 35 years in the same time period (Benegal et al, 2003). From a public health perspective, this means that with lowering of age, more number of people would fall into the larger pool of alcohol users from year to year.

Studies from other parts of India reveal similar findings. Hazarika et al (2000) observed that more than 50 percent started drinking below the age of 21 years and the mean age of starting drinking was 21.6 yrs. In Rohtak city, it was observed that nearly 95% of respondents reported that their first drink was between 15 and 25 years, probably linked to peer group influences (Meena et al, 2002). Interestingly, Tripathi et al (1999) revealed that the extent of alcohol use among children <15 years varies from 0.2 to 0.3% in Delhi. However, this figure rises to 2.5–3.6% in the age group of 15–20 years. Among school going children, alcohol use was commonly accompanied with use of tobacco and mild tranquilizers. This increases disproportionately among selected group of street children and child laborers where along with alcohol, inhalants, drugs, cough syrups and smokeless tobacco are also mixed. The extent of substance abuse especially among college students has increased to 19–20% in different populations, commonly linked to peer-group influences, personality factors and prevalent attitudes of younger individuals (Khosla et al, 2008, Rai et al, 2008). Unni (2009) studying adolescent attitudes and its relevance to family education programs incidentally observes that in the 7 co-educational English medium

schools in Cochin, 6.5% boys took alcohol with peers or at family functions and age of initiation was 15 to 17 yrs.

5.13. Patterns of Drinking

Patterns of drinking have always varied in every society, and are influenced by the type and amount of alcohol consumed on different occasions. Examination of drinking patterns should include duration, frequency, type of alcohol, amount consumed and drinking situations. The quantity of alcohol consumed by both men and women, on typical drinking occasions, has been found to be very high (Saxena, 1999, Isaac, 1998). In fact, what is surprising is that there are no major differences between the quantities consumed by men and women. An average of five standard drinks consumed on each drinking occasion technically qualifies for a ‘heavy drinking situation’ (Benegal et al, 2005).

The frequency of use varies between men and women, with men drinking more frequently than women and also consuming larger quantities. While almost 70% of the men drank daily or almost daily, 55% of the women consumers also drank regularly (Benegal et al, 2005) and this user frequency can hardly be termed “infrequent” drinking. This is contrary to earlier reports that assert that the prevalent pattern in India is infrequent use of large quantities (Saxena, 1999; Isaac, 1998) and similar to what has been observed in Anglo-American cultures (Room, 2002).

Repeated observations have documented that more than 50% of all drinkers in India satisfy criteria for hazardous drinking. The signature pattern is one of heavy solitary drinking, predominantly spirits, and typically around 5 standard drinks per occasion (Mohan et al, 2001a and 2001b, Gaunekar et al, 2004). The dominant drinking expectancies favor

drinking to intoxication and alcohol use is strongly associated with expectations of disinhibition and violence, especially among men, which 'legitimizes' male drunkenness and violence (Benegal 2005a; Gupta et al, 2003, Saxena, 1999). Patterns of alcohol consumption are probably more important than per capita levels of alcohol use in predicting whether people will experience problems with their drinking, making them better indices of the likelihood of harm in the population. The pattern of Indian drinking has also been to get drunk, rather than limit consumption.

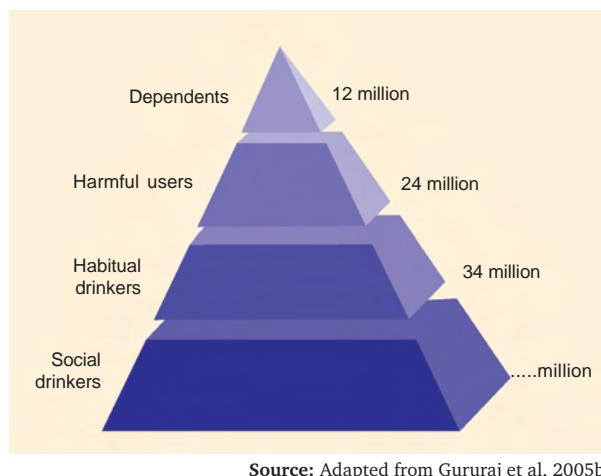
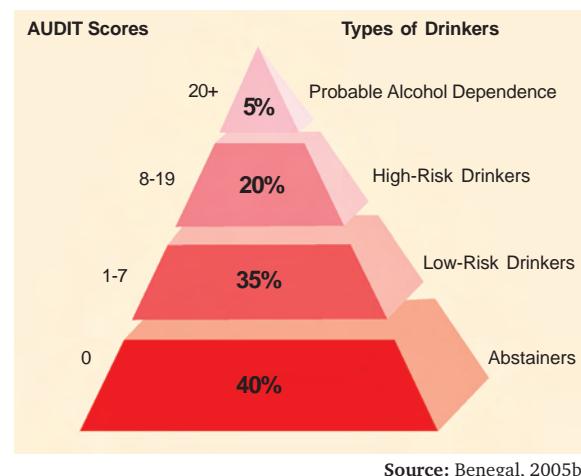
It can be observed from Fig. 11 that the proportion dependent (~12 million) on alcohol is a small portion amongst those consuming alcohol. From an intervention point of view, long term care and rehabilitation needs to be provided to these dependent users who usually do not reach even the dedicated deaddiction centers and other tertiary care centers. Early detection and prompt treatment measures need to be instituted for nearly 24 million harmful users in different health care settings. This is the group at greater risk of developing long term complications of alcohol use. Innovative methods

need to be adopted to reach out to the 34 million regular users and the uncounted social drinkers.

5.13.1. Frequency and duration of drinking

Alcohol use usually progresses from an experimental stage to regular use and later to addiction or dependence. In a survey of 3 different populations in Bangalore, it has noticed that a majority (72%) had been drinking for more than 5 years and the pattern was similar across rural, urban and slum populations (Gururaj et al, 2006a). Gupta et al (2003) noticed that 12% consumed alcohol less than once in a month, while 16%, 21%, 18% and 32% consumed alcohol for five days a month, less than three days a week, 4–5 days a week and all six days a week, respectively. In Rohtak, 36% of alcohol users were using alcohol less than once in a month, while 17% consumed 2–3 times a month and 16%, once a week. The average duration varied and once begun, lasted for >1 year (Meena et al, 2002). Patients with normal liver conditions consumed alcohol for shorter duration while those with liver disease had a longer duration of drinking (Narwane et al, 1998). Sivaram et al (2008a) studying the

Figure 11: Alcohol use patterns in Indian society



clients at a wine shop observed that a majority (>85%) consumed alcohol at least 10 days a month and 17% reported daily alcohol use.

5.13.2. Amount of drinking

Alcohol consumers have been classified in a number of ways and this varies from study to study. Some studies have classified them as light, moderate and heavy drinkers, while others have classified them as harmful and chronic users. Some others have also classified the drinking population depending on the number of drinks consumed per episode. The amount of drinking also increases with age and duration: social drinkers generally graduate to hazardous and pathological drinkers over a period of time.

In Rohtak city, nearly 46% had 1–2 pegs (not classified as large or small) at a time, while 30% had 3–4 pegs per day, 13% had 5–6 pegs per day and surprisingly, 12% had 7–8 pegs in a single sitting (Meena et al, 2002). Singh et al (1998a) from Moradabad noticed that among those drinking, light users were 2%, while moderate users were 7% and heavy users were 3%, respectively. Gupta et al (1995) noted that 43% and 32% of drinkers could be respectively classified as light and moderate drinkers while heavy drinkers constituted 5% of the total study population. It was also observed that a majority were light drinkers at a younger age; moderate drinkers in middle age and light drinkers again in older age. Gupta et al (2003) also noticed that nearly 10% reported drinking <100 ml in a day, whereas 90% reported drinking >100 ml; 50% of consumers of country liquor drank more than 53 grams of ethanol on a drinking day. Most of the individuals (93%) reporting drinking over 500 ml of country liquor would drink almost everyday.

Hazarika et al (2000) noticed that about a third of all drinkers reported drinking almost everyday for six or more days a week and over half for four or more days a week. Country liquor and IMFL were

the preferred drinks. Those consuming country liquor drank almost everyday compared with those drinking beer. With regard to quantity of drinking there was no significant difference in quantity drunk per drinking occasion. Women drank significantly less number of days in a year (36 days per year), while men drank on an average for 52 days in a year (Benegal et al, 2005). The frequency of drinking reported in the Bangalore study on burden and impact of alcohol was once or twice a week (32%); everyday (21%), 3–4 times a week (15%) and 1–3 times per month (17%). Nearly 40% of the alcohol-user population in the study had engaged in binge drinking (>4 drinks in one occasion). Nearly one quarter reported themselves to be pathological users indicating that they were unable to stop drinking once begun (Gururaj et al, 2006a, Girish et al, 2010). Singh et al (2000) from Punjab observed that more than three-fourths of regular users in rural areas were consuming alcohol on a daily basis and nearly 9% for three to four times in a week. The GENACIS study in Bangalore reported that 16% of men and 2% women reported frequent (weekly or more) heavy (5+drinks) drinking (47% of men drinkers and 28% of female drinkers). Twenty eight percent of female users and 52% male users had hazardous drinking patterns based on AUDIT scores of more than 8 (Benegal et al, 2005).

The studies exploring co-variates of alcohol use and sexual risk amongst those patronizing wine shops reported that while 85% consumed alcohol at least 10 days a month, nearly half were heavy users (> 4 drinks on a typical drinking day); majority (89%) took alcohol before sex and the odds of having unprotected sex with non-regular partners were nearly double (Sivaram et al, 2004, Sivaram et al, 2008a).

5.13.3. Type of alcohol

India has a variety of alcoholic drinks to choose from as outlined in section 4. Beer, whisky and

brandy have been the preferred drinks, while wine has been gaining popularity. Country liquor is still in use in rural areas. The type of drink varies between urban and rural areas, among sexes and is influenced by age groups. Commonly IMFL and beer are preferred drinks in urban areas and in younger age groups, while arrack and rum are common in rural India.

Singh et al (1998a) from Moradabad observed that whisky and country liquor were commonly consumed alcohol beverages. The latter was the preferred type in Rohtak city (Meena et al, 2002). Gupta et al (2003) noticed that the type of drinks consumed was closely associated with duration of drinking, thus indicating affinity to certain types of alcohol. It was noted in the study that IMFL (whisky and others) was consumed by nearly 40% of drinkers among those with a shorter duration of drinking. Country liquor was the favored drink in those with a longer duration of drinking. Stratified analysis of the data revealed that nearly three-fourths of the study population was consuming more than 30 grams of alcohol in a day, irrespective of the type of drink consumed. Patterns also varied with availability and affordability.

Silva et al (2003) in Goa noted that in their drinking population, 25% had rice beer, while 5% were regular wine drinkers. In a study of patients suffering from liver disorders it was observed that 80% were regular consumers of country liquor and illicit liquor. The most common beverage used was spirits (IMFL) among 70% of men (Narwane et al, 1998). In the Bangalore study, whisky and brandy (52%) was the commonest alcoholic beverage while 33% consumed arrack (frequency of arrack use was higher in rural areas, town and slums) (Gururaj et al, 2006a, Girish et al, 2010). Benegal et al (2003) observed that 35% were using illicit alcoholic beverages, 38% used IMFL, 23% country arrack, beer <4% and imported liquor <1%.

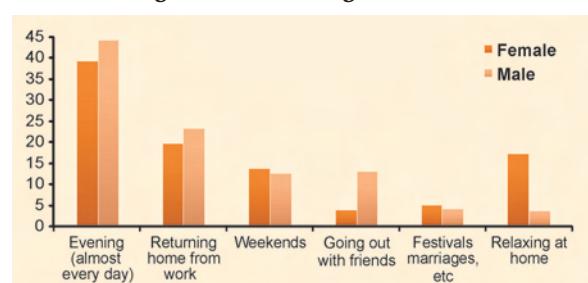
5.13.4. Context of drinking

Understanding the context of drinking provides insights into cultural aspects, thus helping in planning interventions. The GENACIS study for the first time documented in detail the pattern of drinking in a community based representative sample (Benegal et al 2005). The key findings from this study are generally applicable to the pattern of drinking prevalent in many of the communities in India.

The setting in which most drinking occurs is essentially under-socialized, solitary and often hazardous. The place of drinking has changed over time, especially during the last decade: pubs have become an important place of alcohol consumption in urban areas. In the countryside, alcohol is mainly consumed in local outlets which sell country liquor or even adulterated liquor. Particularly among heavy users, drinking is a hasty, furtive pursuit with gulping of large amounts of undiluted cheap alcohol (drinking the maximum possible in the shortest possible time).

The above factors add up to a predominant pattern of hazardous use. To reiterate, more than one out of two people who drink, do so at hazardous levels and heavy drinkers are more likely to drink multiple beverages. Those who drink multiple beverages are generally less educated, have a significantly lower income and spend a larger proportion of their income to buy alcohol. Overwhelming clinical experiences point to the slide

Figure 12: Drinking situations



Source: Benegal, 2005

down from IMFL to arrack and later to illicit brew during the course of their drinking careers.

Psychosocial distress is one of the triggering factors for greater alcohol use. For example, following disasters that have hit India with innumerable and phenomenal consequences. One of the major problems faced by administrators and medical relief personnel is the increase in alcohol consumption following disasters. During the recent tsunami in southern India, anecdotal reports observed that the alcohol consumption almost doubled and the associated brawls and other social disturbances hampered relief and rehabilitation work. Manickam and Basil (2006) report that, though there was decreased alcohol consumption immediately after the tsunami; it increased when the relief money was disbursed. In all, one-third (34.3%) of the study population were said to be abusing alcohol to cope with trauma consequent to disaster. Interestingly, 50% of the men reported that they were abusing alcohol to cope with the trauma of the tsunami and this was also corroborated by 38% of the women within the family.

5.14. Reasons for drinking

A person consumes alcohol for a variety of self-proclaimed reasons. An alarming trend over the past decade is the process of normalization of drinking activities in Indian society. Drinking usually starts in social circles, progressing later to compulsive individual drinking in urban areas, while solitary drinking leads to habitual and addictive drinking in rural areas.

Ghulam et al (1996) from Madhya Pradesh observed that while introduction to alcohol was predominantly through friends in 93% of users (families 3%), 62% started using alcohol for being sociable, 6% for curiosity, 8% to relieve psychological stress and 24% for overcoming fatigue. Similarly, Meena et al (2002) noticed that 26% consumed alcohol to overcome

worries, 15% to think and work better, 14% for cheering up and 8% to relax. Singh et al (2000) from Amritsar observed that three-fourths of the men consumed alcohol more to be in the social company of their friends. Gururaj et al (2005a) observed that the attributions for drinking are several, but primarily include social reasons, overcoming fatigue and to relieve stress, aches and pains.

5.15. Perceptions of alcohol use

In the present day, drinking is fast becoming a social event seen as ‘normal’, while ‘drinking to intoxication’ is culturally mitigated. In a corporate culture of the emerging cosmopolis India, alcohol consumption is getting defined as part of routine work culture, life style, family life and recreation (The Hindu, 2006a). Hence, individual perceptions of alcohol use provide critical insight towards determining the consequences of alcohol use. At the societal level, as a specific cause-effect relationship between alcohol use and certain consequences are difficult to delineate, perceptions of alcohol use and their societal meaning provide guidance to plan for intervention.

Nimmagadda (1993) attempted to construct social meanings of alcohol use in India and found 5 broad themes and listed them to be (a) a symbol of economic status, (b) caste, (c) a person’s karma, (d) a period of turmoil and (e) gender privilege (for the male). The men, masculinity and domestic violence report from Tamil Nadu (Anandhi and Jayarajan, 2006) brings out the perceived masculinity definition associated with alcohol use (Box 6). Supporting the symbol of masculinity, alcohol provides for exaggerated domination response in the already male dominated Indian society. The existing gender gap thus widens further and is a major cause of domestic violence.

Weber (1996) finds that increased levels of acculturation were associated with increased life time

BOX 6

Underprivileged communities, cultural changes, and drinking patterns

Dalit youth have also redefined their male identity by smoking tobacco and drinking liquor. While the dalit elders did drink liquor and also smoked, these habits were not assimilated to display manliness. This is evident from the fact that the older dalit men always chose a discreet/secluded place for drinking. In addition, the elderly dalit women enjoyed the same space as men in consumption of liquor. As a 65 year old dalit man stated, in the earlier times drinking had to be a discreet activity and not to be displayed as valor, particularly in front of the upper caste men, as it could be construed as disrespect shown to upper caste male power. Some of them do feel that an ideal man is someone who should not have any 'bad habits', (e.g., smoking and drinking) but at the same time they feel that the men in their village are respected and feared only if they are identified with those 'bad habits'. Drinking liquor and smoking in front of the superiors and the elders are also considered by the dalit youth as symbols of boldness and violation of social norms. It is pertinent to note here that 41% of dalit men agreed that breaking social norms is a marker of displaying boldness.

Source: Anandhi and Jayarajan, 2006

use of alcohol amongst the Punjabi community in Toronto. Acculturations was associated with liberal attitudes regarding alcohol use and more alcohol-use related problems. These processes of acculturation are not restricted to between countries. This is borne out by the evidence of increasing and differential patterns of alcohol and other substance abuse in transitional towns. Gururaj et al (2006a) found that the proportion of adults consuming alcohol and patterns of use in transitional rural areas was intermediary between rural areas on one hand and slum and urban areas on the other.

5.16. Alcohol abstinence

Information on alcohol abstinence is also equally important in every society. A recent trend observed in scientific literature is reporting of the proportion of people who are alcohol abstainers (WHO, 2004a, Das et al, 2006, Silva et al, 2003). This change in perspective becomes important when

monitoring the influence of media and advertising on alcohol use. The extent of abstinent individuals has varied across studies and ranged from 87 percent to 65 percent among men. Corresponding abstinence rates among women have been higher at 90 - 95%. The GENACIS study indicated that 56% of men and 84% of women were lifetime abstainers and 11% each of men and women among life time users were current abstainers (Benegal et al, 2005).

In summary,

- (i) *The rates of alcohol consumption have been influenced by measurement and methods of enquiry*
- (ii) *Nearly 30–35 % of adult men and around 5% of women are found to be regular users of alcohol in India; these figures may vary from region to region.*
- (iii) *Available data show that the age trend of drinking alcohol is shifting downward. Today, adolescents begin to experiment with alcohol around 15 years and a substantial number progress to higher levels of drinking both in terms of frequency and quantity of alcohol consumed.*
- (iv) *Drinking among women is also on an upward trend.*
- (v) *Emerging evidence reveal that the transitional towns and cities of India are witnessing rapid changes in patterns of alcohol use.*
- (vi) *Alcohol consumption is directly associated with education, social class, occupation and income; higher levels have been recorded among those at the lower end of the spectrum.*
- (vii) *Hazardous drinking patterns are observed in a majority of alcohol users.*
- (viii) *Under-socialized and solitary drinking of mainly spirits is the hallmark pattern of drinking; drinking to intoxication is the signature pattern.*

BIOLOGICAL INFLUENCES FOR ALCOHOL USE DISORDERS

*T*here is accruing evidence that some sections of the population may be more susceptible to developing early and severe problems due to alcohol misuse, which are also relatively less responsive to treatment. This vulnerability to develop alcohol-related problems has been explained on the basis of differences in brain functioning.

6.1. Vulnerability to alcohol use disorders

Recent evidence suggests that younger onset drinkers have more intense and longer lasting neuro-adaptation and cognitive deficits than adult onset drinkers. There is a high risk of developing alcoholism (specifically of the early-onset type, developing before 25 years of age) for individuals with a significant family history of alcoholism. These individuals display a cluster of disinhibited behavioral traits that are usually evident in childhood and persisting into later adulthood (Sringeri et al, 2008, McGue et al, 2006). This vulnerability is also found to be linked to early childhood influences in stressful environments that might include poverty, violence, family conflict and poor parenting (Baumrind, 1991, Chassin et al, 1996, Wills et al, 2001, Zhou et al, 2006).

Recent research has demonstrated that this risk may be modulated by the additional interaction of genetic and environmental influences on brain development, which result in a delay in brain maturation. This is manifested as smaller (or slower

maturing) brain volumes in key brain areas responsible for attention, motivation, judgment and learning (Benegal et al, 2006; Venkatasubramanian et al, 2007). Delayed myelination (insulation of brain pathways), a critical function of brain maturation is said to be contributory for this lag. Functionally, this is thought to result in a state of central nervous system hyperexcitability or disinhibition, the outcome of a homeostatic imbalance between the excitatory and inhibitory brain neurons, which represents a central vulnerability factor for developing alcohol use disorders (Muralidharan et al, 2008). This state of brain dis-inhibition is manifested outwardly in a characteristic temperament / personality noticed by a spectrum of behaviors like inattention (low boredom thresholds), hyperactivity, impulsivity, oppositional behaviors and conduct problems, apparent from childhood and persisting into adulthood. These often translate into difficult engagement with their environments; poorer social, educational and emotional developmental trajectories as well as impoverished repertoires of adaptive coping skills.

These brain processes not only promote impulsive risk-taking behaviors like early experimentation with alcohol and other substances, they also increase the reinforcement from alcohol while reducing the subjective appreciation of the level of intoxication. It is more likely that these individuals not only start experimenting with alcohol at an early age but are also more prone to repeated episodes of bingeing (Jagadeesh et al, 1999). The

inability to stop drinking despite knowledge of harm is a key component of addiction.

6.2. Vulnerability in the young

Studies have shown that alcohol is more toxic to the immature brain (Clark and Tapert, 2008; Brown et al, 2008; Squeglia et al, 2009). The most vulnerable group are persons who initiate alcohol use during-adolescence and young adulthood. There is ample evidence that the early initiation of alcohol use is a risk factor for the development of later alcohol-related problems. The age at which an adolescent begins using alcohol, commonly operationalized as the age at which they take their first drink, is thought to be an important predictor of later alcohol-use behaviors.

Epidemiological studies from India, across different geographical regions and ethnic groups (Benegal et al, 2005, Benegal et al, 2009) have demonstrated that the highest alcohol consumption in the population occurred in people who began regular drinking (at least once a month) in adolescence, irrespective of gender. In the population of the Andaman and Nicobar islands, male and female drinkers who started regular use of alcohol in late childhood and early adolescence, had the

highest rates of consumption in adult life (Benegal et al, 2008). This is consistent with empirical research from other countries, which has consistently demonstrated the association of early onset of alcohol use with heightened risk for alcohol problems and dependence (DeWit et al, 2000, McGue et al, 2006).

Grant and Dawson (1997) using retrospective data from the National Longitudinal Alcohol Epidemiological Survey in the United States showed that the risk for alcohol dependence decreased by 14% for every year that drinking was delayed, even after controlling for gender and familial alcohol problems. This research suggests that delaying the onset of alcohol use reduces the risk for alcohol-use disorders.

The increasing trend of alcohol use among women, particularly, those in the reproductive age group, has led to the emergence of another vulnerable group: children exposed to alcohol effects in utero. Maternal alcohol abuse during pregnancy leads to the condition of Fetal Alcohol Spectrum Disorder (Nayak and Murthy, 2008). A recent study from NIMHANS has shown that children of mothers who consumed alcohol during pregnancy had distinct clinical features, lower intellectual functioning and more behavioral problems compared to controls (Naik, 2008).

7 HEALTH CONSEQUENCES OF DRINKING

*I*ndia is presently facing the triple epidemic of communicable diseases, noncommunicable diseases and injuries amidst the backdrop of socio-demographic and epidemiological transition. While deaths from communicable diseases reduced from 51–22%, those from non-communicable diseases and injuries have proportionately increased from 49–78% (Reddy, 2000). With steadily increasing per capita alcohol consumption and changing patterns, the public health burden is likely to be much higher than what meets the eye. Even though research on alcohol-related harm to health is significantly low in the Indian region, some progress has occurred despite resource constraints in recent years. Now there is a growing body of evidence emerging from India, which demonstrates that alcohol consumption has an association, either directly or indirectly with all 3 components of communicable and non-communicable diseases, as well as injuries as detailed in this section of the report.

7.1. Alcohol and Health

Alcohol consumption is estimated to cause 1.8 million deaths per year (3.2% of all deaths) and to be responsible for 4.0% of the disability-adjusted life years lost per year worldwide (WHO 2004b, Rodgers et al, 2004). The impact of alcohol on disease and mortality may be more strongly felt in countries like India with greater poverty and nutritional deficiencies and is influenced by availability and

consumption patterns. The low disease burden attributable to alcohol in the South Asian Region (WHO, 2002, Rehm et al 2006a) could probably be an artefact due to lack of reporting and systematic research. Alcohol is causally related to more than 60 different medical conditions (Rehm et al 2003). Considering the common pattern of frequent heavy drinking that is noticed in the Indian context (outlined in section 5), the health burden is likely to be much higher than what is clearly visible. Room et al (2005) summarize the major disease and injury categories that are linked to alcohol use (Table 7).

7.2. Mortality

The crude death rate in India in 2008 was 7.4/1000 (SRS, 2009). The recording of causes of death is far from satisfactory: only one-third of the deaths are registered. Among these, in only one-third is the cause of death provided (Jha et al, 2006). Among the rather alcohol association is infrequently mentioned with the exception of alcoholic cirrhosis and a few related conditions. Autopsy studies indicate that documentation of alcohol consumption is far from satisfactory in medical records (Sahadev et al, 1994). However, international experience shows that increased alcohol consumption is related to increased risk of mortality and morbidity due to physical illnesses (Thun et al, 1997). Data from other parts of the world indicate that heavy drinking is an important correlate of alcohol-related mortality (Rehm et al, 2001a and 2001b). As per Rehm et al

Table 7: Major disease and injury conditions related to alcohol (proportions attributable to alcohol use worldwide)

	Men	Women	Both
Malignant neoplasms			
Mouth and oropharynx cancers	22%	9%	19%
Oesophageal cancer	37%	15%	29%
Liver cancer	30%	13%	25%
Breast cancer	n/a	7%	7%
Neuropsychiatric disorders			
Unipolar depressive disorders	3%	1%	2%
Epilepsy	23%	12%	18%
Alcohol use disorders: alcohol dependence and harmful use	100%	100%	100%
Diabetes mellitus	-1%	-1%	-1%
Cardiovascular disorders			
Ischaemic heart disease	4%	-1%	2%
Haemorrhagic stroke	18%	1%	10%
Ischaemic stroke	3%	-6%	-1%
Gastrointestinal diseases			
Cirrhosis of the liver	39%	18%	32%
Unintentional injury			
Motor vehicle accidents	25%	8%	20%
Drownings	12%	6%	10%
Falls	9%	3%	7%
Poisonings	23%	9%	18%
Intentional Injury			
Self-inflicted injuries	15%	5%	11%
Homicide	26%	16%	24%

Source: Room et al, 2005

(2006b), main causes of alcohol-attributable deaths in Canada in 2001 were unintentional injuries, malignant neoplasms and digestive diseases.

A pilot study assessing causes of death in a community found that heavy alcohol use was reported in 30% of the sample (Benegal et al, 2001). In a follow-up study of 48 males diagnosed as alcohol dependence with no evidence of any serious medical illness at baseline evaluation, Kena (2002) found that 52.5% of those available for follow-up after 12 years had died, at an average age of 46 years, well

below the male life expectancy in the country. Those who had died at follow-up were more likely to have been using alcohol in a dependent fashion and more likely to have had high 24 hour alcohol consumption patterns compared to their living counterparts. Seven percent of the deaths of employees in a public sector road traffic corporation were directly attributed to alcohol and appeared to be connected to addiction-related complications. However, many deaths were categorized as due to 'ill health' or 'natural', though there was underlying alcohol misuse (Murthy et al, 2004). In a retrospective study of deaths in Chennai (Gajalakshmi et al, 2003) 14% of those using tobacco had died due to an alcohol-related complication (OR 3.0), indicating coexistence of alcohol with tobacco usage and increased risk of mortality.

The total number or exact proportions of deaths attributable to alcohol use in India is not clear. Such estimates should ideally take into account the attributable mortality across several health outcomes and need to be pooled into one single measure. However, the alcohol-attributable fraction is not available for many of the outcomes, except for cancers and injury related mortality. Four to six percent of cancer deaths (WHO, 2000, Bofetta et al, 2006) and 5–10% of injury deaths (Gururaj, 2005) are definitely attributable to alcohol. Extrapolating to all other conditions, it could be broadly summarized that alcohol contributes to 15–20% of all deaths and to about 25% of premature mortality in younger age groups of 15–44 years every year.

7.3. Health problems

Alcohol-related admissions accounted for over a fifth of hospital admissions (Sri et al, 1997; Benegal et al, 2001). Alcohol users generally report a greater frequency of ill-health. In a community survey, common problems reported by current alcohol users included generalised weakness (33%), in addition

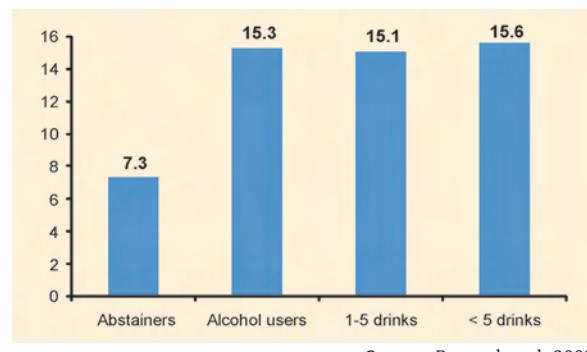
to impaired roles within the family and impaired social relationships. Additionally, about 20% complained of depression, anxiety and irritability. Between 2–10% complained of memory loss, cough and difficulty in breathing and poor sexual performance (Ray, 2004b). A study from North India (Jain et al, 1999) found alcohol consumption to be a risk factor for duodenal ulcer. Alcohol and tobacco have been found to be the commonest risk factors for non-communicable diseases in studies carried out in Haryana (Krishnan et al, 2008).

The Bangalore study (Gururaj et al, 2006a) observed a significantly higher proportion of alcohol users (32.5% of the 3,258 alcohol users) reporting a health problem than nonusers (14.5% of the 3,745). A greater proportion of users reported their health status as “bad” in comparison to non-users (1.6% vs. 0.7%), and this observation was statistically significant. Alcohol users were three times at risk of suffering from a health problem (OR=2.8). Chronic alcohol users were more likely to perceive their health status as poor and the probability of reporting a bad health status was 2.5 (95% CI: 1.5–3.8) times higher in comparison to non-users (Gururaj et al, 2006a). Alcohol users also reported a higher incidence of negative life events, more injuries and increasing psycho-social problems and had sought more emergency as well as routine health care services.

In the study by Benegal et al (2003), heavy drinkers (those who drank more than 5 standard drinks per representative drinking occasion) were significantly more likely to suffer emotional problems like depression and anxiety, pain abdomen presumably indicative of alcohol-related erosive gastritis, and other somatic problems like headache and generalized aches and pains. This population also reported more frequent heart ailments, diabetes and increased blood pressure (Figure 13). Alcohol users, both male (78%) and female (75%) were also

more likely to use various forms of tobacco than non-users (22% and 8% respectively), thus increasing the risk of overall health damage.

Figure 13: Alcohol use and health problems



Source: Benegal et al, 2003

In a recent study of the health status of young Indian doctors, data from 2,499 doctors and 3,278 subjects from the general population were examined for the prevalence of diabetes, hypertension, obesity, dyslipidemia, metabolic syndrome, smoking and alcohol consumption (Ramachandran et al, 2008). Doctors had significantly higher ($p<0.001$) prevalence of all abnormalities compared to the general population, except diabetes. Alcohol use was more common among doctors, indicating that doctors need to be more motivated to practice good health care habits, which can be advocated to their clients.

7.4. Injuries

Alcohol use has been identified as a major risk factor for injury occurrence. Consumption of alcohol leads to a variety of effects resulting in several physiological changes. Prominent among them are changes in respiration and circulation, difficulties in making judgement and decisions, poor vision, delayed reflexes, improper coordination, problems in risk perception and recognition (like difficulties in identifying dangers on road), sense of pseudo-confidence, loss of self-control and increased risk taking (BISP, 2008b). The pseudoeuphoric effect of

alcohol results in loss of inhibitions and enhances risk-taking behaviors (like not wearing helmets and driving at a high speed). Under the influence of alcohol, vulnerable individuals with a suicidal intent are more likely to consume drugs and organophosphorus compounds. Because of loss of self control and the intoxicating effects of alcohol, individuals get involved in crime and fights and cause injury to others and to property. The physiological effects of alcohol at different levels of consumption are shown in the table below. These factors are in the pathway of injury occurrence for both unintentional (RTI's, falls, burns, poisoning, drowning, workplace injuries and disasters) and intentional (suicides, homicides, domestic violence, violence against children and elderly, community violence and crime) among alcohol users.

Data on the extent of alcohol involvement in injury occurrence from the Indian region is insufficient and lacks clarity. Both police and hospital records do not record alcohol presence for medicolegal and insurance reasons (BISP, 2008a, Gururaj et al, 2010). Both fatally and nonfatally injured persons are not subjected to either breath or blood alcohol examination. Hence, doctors and police are unable to produce evidence in courts of law and physician certification is not accepted. Because of this, information is not available in this area. Sometimes, to help families of the deceased to get compensation, involvement of alcohol is not documented in official records. The situation is improving somewhat with testing for alcohol consumption using breathalyzers among drivers in major metros. However, proper data is still not available in the public domain and an

Table 8: Effects of Blood Alcohol Content on body and performance

BAC (g/100ml)	Effects on the body
0.01 - 0.05	Increase in heart and respiration rates
	Decrease in various brain center functions
	Inconsistent effects on behavioral task performances
	Decrease in judgment and inhibitions
	Mild sense of elation, relaxation and pleasure
0.6 - 0.10	Physiological sedation of nearly all systems
	Decreased attention and alertness, slowed reactions, impaired coordination, and reduced muscle strength
	Reduced ability to make rational decisions or exercise good judgment
	Increase in anxiety and depression
	Decrease in patience
0.10 - 0.15	Dramatic slowing of reactions
	Impairment of balance and movement
	Impairment of some visual functions
	Slurred speech
	Vomiting, especially if this BAC is reached rapidly
0.16 - 0.29	Severe sensory impairment, including reduced awareness of external stimulation
	Severe motor impairment, e.g. frequently staggering or falling
0.30 - 0.39	Non-responsive stupor
	Loss of consciousness
	Anaesthesia comparable to that for surgery
	Death (for many)
0.40 & greater	Unconsciousness
	Cessation of breathing
	Death, usually due to respiratory failure

Source: GRSP, 2007

occasional mention is made about revenues collected from these events.

There is enough evidence at the global level that alcohol consumption is closely linked to the occurrence of both unintentional and intentional injuries (WHO, 2009). It is estimated that 20–30% of all motor vehicle accidents, homicides and intentional injuries are alcohol-related (WHO, 2002). A recent WHO report, based on data from 12 countries revealed that 6–45% of injuries brought to emergency rooms were related to involvement of alcohol. Up to 45% of patients reported consuming alcohol prior to injury. Intercountry variations were mainly due to patterns of alcohol consumption, cultural differences, variations in alcohol policies as well as service provision for injured patients (WHO, 2009). Data from India revealed that 22% of injured patients brought to ER in Bangalore had alcohol prior to injury.

In India, it is estimated that nearly 1 million deaths, 20 million hospitalizations and 50 million minor injuries occur due to injury (all causes) every year (Gururaj 2005). Alcohol has been associated with all types of injuries in the Indian region. Alcoholics have a higher severity of injury and poorer outcomes with higher proportion of deaths and disabilities following an injury (Gururaj et al, 2004b, 2004c, 2005b). In the Bangalore study, alcohol users suffered from higher incidence (7.8% vs. 1.6%) of one or more injuries of both intentional and

unintentional nature during the previous 12 months (Gururaj et al, 2006a). An examination of all injuries reporting to the emergency room found that alcohol was implicated in 60% of such injuries, with the victim himself being under the influence of alcohol, or the injury having been caused by an inebriated perpetrator (Benegal et al, 2002). The Traumatic Brain Injury Registry in Bangalore observed alcohol involvement (as certified by physicians) in 18% of brain injured subjects (Gururaj et al, 2005b). Alcohol use is also associated with a disproportionately higher occurrence of deliberate self harm (Gururaj and Isaac, 2001a and 2001b, Gururaj et al, 2004c). Alcohol not only influences occurrence, but also poses problems in diagnosis and management of injured persons (Kraus, 1992).

7.4.1. Road traffic injuries

Most of the newspapers and television channels frequently report instances of road deaths due to drunken driving. The issue of drunken driving becomes headline news only when inebriated celebrities are involved in crashes. Such anecdotal evidence needs to be bolstered by more systematic studies examining the relationship between alcohol and road crashes. A survey in Delhi suggested that more than 45% of vehicles were being driven by drivers who had consumed alcohol. The pub capital of India, Bangalore city, reports the highest number of road accident deaths on weekends between 6.00 p.m. and

BOX 7 Injury burden due to alcohol use

Road Traffic Injuries	20-25% of night time crashes (30-40% of total road traffic injuries occur during night time) are associated with acute and heavy alcohol consumption. One third of brain injuries are after drinking alcohol.
Suicides	20-25% of completed suicides and 30-35% attempted suicides among men are linked to long-term use of alcohol
Violence	Nearly one third to one half of domestic violence, spousal abuse, crime and violence against children and elderly are committed under alcohol influence
Falls	Nearly 15-20% of falls are due to alcohol consumption

Source: Gururaj, 2005

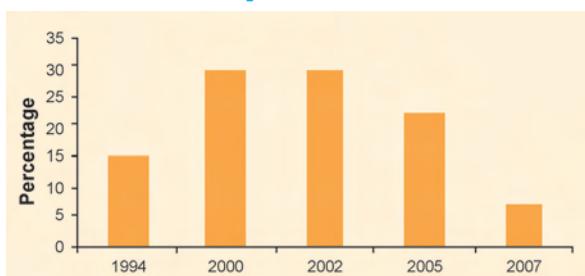
10.00 p.m. and the police attributed it mainly to drunken driving (Agarwal, 2003). In roadside surveys carried out in Bangalore, 89% of drivers stopped on suspicion of drunken driving by the police and 37% of drivers checked randomly were breathalyzer positive for alcohol (Gururaj and Benegal, 2002).

Previous studies from emergency rooms in New Delhi estimated that 7–29% of accident victims were under the influence of alcohol (Mishra et al, 1984, Adityanjee and Wig, 1989). But the problem of drunken driving is one of serious proportions as indicated by the study of Bathra and Bedi (2003) who found that 40% of truck and matador drivers, 60% of car drivers and 65% of two-wheeler drivers were under the influence of alcohol while driving at night. Mohan and Bawa (1985) in an analysis of police records noticed 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. Sahadev et al (1994) reported that one-third of the RTI deaths were linked to alcohol consumption, but are improperly documented in medical records. A cross-sectional study of 423 victims of road traffic accidents during 1999-2000 from Nagpur (Tiwari and Ganveer, 2008) reported that 64.5% of subjects consumed alcohol regularly. In Delhi, nearly 20% of the 550 students reported pillion-riding with a driver who had consumed alcohol, indicating the low-risk perception of consequences due to drunken driving among adolescents (Sharma et al, 2007). Patil from Maharashtra reported that nearly 30% of accident victims were ‘under the influence’ at the time of reaching hospital (Patil et al, 2008).

A series of studies undertaken by the WHO Collaborating Center for Injury Prevention and Safety Promotion at the NIMHANS in Bangalore during the last decade revealed the following:

- The extent of alcohol use varied between 10–30 % in all fatal road crashes, based on 5 studies undertaken during 1994–2007. Selective examination of night-time crashes indicated that nearly one-third of crashes were directly attributable to alcohol consumption.
- One out of four nonfatally injured road crash patients brought to casualty departments of hospitals was alcohol-positive as per physician certification (Gururaj et al, 2010).
- Night time crashes account for nearly 30–40% of total RTIs. Alcohol consumption (based on self reports and certified medical diagnosis) was documented in 15–25% of these injuries (Gururaj 2004a, 2004b). In the rural areas, alcohol use among those fatally injured was nearly 2%, but alcohol use in the driver of the colliding vehicle was 17%.
- The amount of alcohol consumption based on breathalyzer analysis revealed that 40%, 27% and 10% had moderate, severe and very severe levels of intoxication as specified by WHO ICD Y90 codes (Gururaj and Benegal, 2002).
- Risk of mortality increased by 2.2 times among those under the influence of alcohol (Gururaj and Benegal, 2002).
- In Bangalore city alone, the number of cases booked by the police during 2001–2005 for drunken driving increased from 27,000 to 33,000 (Gururaj et al, 2010).

Figure 14: Alcohol presence in road deaths (hospital studies)



Source: BISP, 2008b

BOX 8
Alcohol consumption and road traffic injuries

The Bangalore study on "Reducing drinking and driving" from NIMHANS, aimed at identifying alcohol-related road traffic injuries in 12 major hospitals of Bangalore city.

The hospital surveys revealed that the victim was under the influence of alcohol in 28% of hospitalized traffic injuries, The roadside survey revealed that the extent of drivers under the influence of alcohol varied from 11% as detected by the older methodology of suspicious police checks to 40% as detected by random checking of all drivers. Among those tested positive, 35% were above the legally permissible limits of 30 mg/100 ml when checked on breath analyzer.

The classical typical profile of the drink-driver who posed a serious threat to road safety was:

- the young literate male (25-39 years)
- heavy drinking in bars or at parties - either alone or with friends
- knowledgeable about hazards of drinking but ignorant of dangers or legal consequences
- Belief that he would not sustain a crash even if he drove in an inebriated state.

Source: Gururaj and Benegal, 2002

7.4.2. Traumatic brain injuries

Hazardous drinking is well-known to be associated with head injury and hospitalization (Poulose and Srinivasan, 2009). In a study of both RTIs and TBIs, it was observed that severe brain injuries, extent of brain injuries, mortality rates, disabilities and duration of hospital stay were higher among victims with alcohol use than those without (Gururaj, 2004b). In the NIMHANS study on Traumatic Brain Injuries, nearly 24% of subjects accepted being regular alcohol users. Self-reports and medical certification by the attending physicians revealed that nearly one-fifth (18.4%) were under the influence of alcohol at the time of injury. 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 et al, 2005b, 2005a). There is paucity of data in this area from the Indian region. Presence of alcohol in the presence of injury to brain also presents difficulties for diagnosis and management (Kraus, 1992).

7.4.3. Falls

Falls are a leading cause of injuries and result in a significant number of hospitalizations, deaths and disabilities. Two large-scale epidemiological studies on TBIs at NIMHANS have reported that

nearly one-fourth of acquired brain injuries were due to falls. Among fall injuries, alcohol consumption was directly responsible for 19–22 % of falls as per the study in 2004 and 19% during 1994 (Gururaj, 1995; Gururaj et al, 2004a and 2004b). Other epidemiological studies have reported similar observations.

7.4.4. Suicides

Alcohol consumption along with easy access to toxic substances are positively correlated, as reflected by the suicide rates in India and other countries (WHO, 2001). Alcohol acts in multiple ways, leading to suicides. Common interlinked pathways are: (1) chronic physical illnesses are more common among long-term alcohol users who attempt suicide; (2) alcohol consumption leads to major economic hardships for the person and his/her family. This compounds situations of already existing indebtedness, more so among poor and middle income leading to hopelessness and despair; (3) the violence and aggression perpetrated by alcohol users often drives other family members including children to states of despair, helplessness and frustration, leading to suicidal attempts (Gururaj and Isac, 2001a and 2001b). (4) greater co-morbidity of depression among alcohol users as the combined

effect of alcohol use and depression is a major risk factor for suicides; (5) episodes of intoxication lead to impulsive suicidal attempts by hanging, poisoning, burns or by self-inflicted injuries, and (6) alcohol is commonly mixed with organophosphorus compounds and consumed by people, an observable pattern in suicidal attempts.

In a large-scale epidemiological study in Bangalore, analysis of police records of 2,652 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 et al, 2004c). 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 act (Gururaj and Issac 2001a). An in-depth psychological autopsy showed that these figures increased to 45%, thus indicating a close association of suicide with alcohol (Gururaj and Isaac 2001a). A case-control study from Chennai revealed that suicides were high among cases as compared with controls (Vijayakumar and Rajkumar, 1999). In a recent case-control study of completed and attempted suicides in Bangalore, alcohol consumption was a major risk factor with chances of increasing completed suicides by nearly 25 times (Gururaj et al, 2004c) and attempted suicides by 15 times among users.

In the Bangalore study which attempted to estimate the burden and socio-economic impact of

alcohol use in four different populations, 16.3% of the entire study population reported having suicidal ideations. While the probability of harboring suicidal ideations was nearly double among users ($OR=1.8$), suicidal attempts were 4.5 times higher among users ($OR=4.6$) (Gururaj et al, 2006a).

7.4.5. Violence

The fact that alcohol is closely linked to routine acts of violence has been established beyond doubt as alcohol users are frequently involved in fights, brawls, rape, spousal and child abuse, thefts, running away from home and other illegal acts. No clear data is available from India through scientific studies, but anecdotal media evidence confirms this beyond doubt. Data from Bangalore reveal that nearly 15 persons are brought every night by police for certification purposes to one large public sector hospital alone (Gururaj et al, 2010). Bhatt (1998) observed that the incidence of family violence is significantly higher in families who use alcohol. The risk of spousal abuse increases significantly with an alcoholic husband (Rao, 2004) even during pregnancy (Khosla et al, 2005). Panchanadeswaran et al (2008), studying intimate partner violence among street-based female sex workers in the context of their vulnerability to HIV, found that alcohol use, sexual coercion and forced group sex were inextricably linked and posed 'formidable barriers' for condom use negotiation among the already vulnerable women.

7.5. Cardiovascular disorders

Coronary heart disease (CHD) ranks first as the leading cause of premature death in industrialized countries and the primary cause of death among 15-44 year olds even in low and middle income countries (Mathers and Loncar, 2005). It is increasingly evident that with higher levels of

Table 9: 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 ideations	672 (20.6%)	468 (12.5%)	1.8 (1.6-2.1)	< 0.0001
Suicidal attempts	12 (0.4%)	3 (0.1%)	4.6 (1.3-16.3)	<0.01

Reference: Gururaj et al, 2006a

alcohol consumption, as well as with binge drinking, that there are greater risks for coronary heart disease and other cardiovascular events such as sudden cardiac death and stroke (Gill et al, 1991; Hart et al, 1999; Prospective Studies Collaboration, 2002; Room et al, 2005; Rehm et al, 2006a). The J-shaped relationship between alcohol consumption, cardiovascular disorders and mortality among the middle-aged and elderly has been supportive of average light-to-moderate drinking (Corrao et al, 2000) in developed countries. However, in terms of years of life lost, the adverse effects of drinking outweigh any protection against coronary artery disease, even amongst the most vulnerable populations (Jernigan et al, 2000).

In a cross-sectional study of behavioral risk factors for cardiovascular and other chronic diseases, 6,579 individuals from Kerala were evaluated for chronic diseases, behavioral risk factors and family history (Sugathan et al, 2008). Smoking and alcohol consumption were two major risk factors associated with chronic disease conditions. Supporting evidence for the adverse impact of drinking on coronary disease in developing countries like India comes from a recent study of 4,465 present or past alcohol users. Alcohol users had significantly higher systolic and diastolic blood pressures, higher fasting blood sugars, higher rates of tobacco use and lower BMIs compared to lifetime abstainers. The probability of having coronary heart disease was 1.4 times higher (95% CI 1.0–1.9) in alcohol users as compared to controls after adjusting for tobacco use, body mass index and education (Roy et al, 2010).

It is increasingly evident that the J-shaped curve is not applicable, especially in low and middle income countries like India, where the patterns of drinking and mortality and morbidity due to alcohol consumption outweigh any possible benefits. Moreover, the Framingham Heart Study proponents themselves caution “We just don’t have evidence

demonstrating unequivocally that the intentional use of alcohol can reduce the risk for coronary disease in a cause and effect manner. The observational studies aren’t enough to make a prescription” (Daniel Levy in Wilson JF, 2003 page 711). Goldberg (2003) emphasizes that alcohol is a pharmacological agent and that the resultant risk-benefit ratio would be unlikely to allow the approval of moderate alcohol consumption. Lifestyle changes including reduced dietary fat, exercise, smoking cessation might have a stronger effect on heart health than alcohol.

BOX 9 Alcohol related findings from the INTERHEART Study

Promotion of the consumption of moderate alcohol to prevent myocardial infarction might also not be acceptable to many populations, for cultural or religious reasons, and might increase the proportion of heavy drinkers and thereby enhance the risk of other diseases such as strokes, some cancers, cirrhosis of the liver, or injuries. The overall Population Attributable Risk (PAR) without alcohol included in the model is 89.7%; adding alcohol increases it by less than 1% because of the substantial overlap in contributions of other risk factors. Therefore, advice about alcohol use could be best customized to individuals depending on their social, cultural and religious backgrounds and the overall effect on their health.

Source: Yusuf et al, 2004

The INTERHEART study finds alcohol consumption as one of the nine preventable factors which account for 90% of the risk factors for myocardial infarction (Yusuf et al, 2004). Ajay and Prabhakaran (2010) reporting on the implications of the INTERHEART study for coronary heart disease in Indians find that regular alcohol consumption is not protective for acute myocardial infarction in south Asians (OR 1.06; 95% CI: 0.85 to 1.20).

7.6. Hypertension

Alcohol use, along with smoking, illiteracy, high dietary fat intake, physical inactivity, obesity and absent prayer habit have been associated as

coronary risk factors in both urban and rural male populations (Gupta, 1996). Similar findings associating alcohol along with other lifestyle changes have been reported in both urban (Nirmala, 2001, Chockalingam et al, 2005, Maroof et al, 2007, Anand et al, 2008) and rural (Joshi et al, 1993, Malhotra et al, 1999, Agrawal et al, 2006) settings. A community-based, cross-sectional survey of an elderly population in a resettlement colony in Delhi also found a significant association between alcohol consumption, high body mass index and high blood pressure (Yadav et al, 2008). Recent rural studies on hypertension in Aurangabad, Maharashtra, (Todkar et al, 2009), Andhra Pradesh (Kokiwar et al, 2009) Assam (Mahanta et al, 2008) and on two indigenous communities in Sikkim (Mishra et al, 2010) identified alcohol consumption as a risk factor for hypertension and coronary heart disease along with other well-established risk factors, including smoking. However, in a cross-sectional sample of 1,316 adult men and women of six low socioeconomic groups belonging to four different ethnic groups from Visakhapatnam district of Andhra Pradesh, there was no uniform association between alcohol consumption and hypertension prevalence. The combined data, however, revealed a higher prevalence of hypertension among men who did not consume alcohol and women who did (Kusuma et al, 2009).

The co-existing habits of smoking and alcohol are associated with a high prevalence of hypertension and Q waves in the ECG. Smoking and alcohol intake, both individually and collectively are related to a higher prevalence of hypertension as well as CHD (Gupta et al, 1995). A study examining the association of socioeconomic status and prevalence of hypertension and its risk factors in the rural Moradabad district of North India showed a weak but significant association between hypertension, smoking and alcohol use (Singh et al, 1997 and 1998a). A more recent study found high rates of

hypertension among bank employees and a positive association of hypertension with alcohol use, body mass index and diabetes (Maroof et al, 2007). A physiological assessment of male alcohol dependents in two base hospitals revealed significantly more cardiac abnormalities in the form of sinus tachycardia, intraventricular conduction defects, T wave abnormalities and QTc prolongation compared to controls (Chaudhury et al, 2002).

In a 3-year follow-up of hypertensive subjects in Delhi, regular alcohol consumption and diabetes were significant factors for the development of hypertension (Gopinath et al, 1994). Alcohol consumption was a determinant in the development of hypertension among the elderly in Assam (Hazarika et al, 2003). In a study of three ethnic groups of northeastern India, alcohol intake was independently associated with increase in systolic blood pressure among the Mizos. Among rural Assamese and the tea garden community, alcohol intake was an important correlate of diastolic blood pressure (Hazarika et al, 2000). One of the few studies examining the effect of alcohol consumption and HDL cholesterol (Gupta et al, 1994) in healthy middle aged men found a weak positive linear correlation between ethanol and HDLC. Chronic alcohol dependents showed defective lipid changes with some correlation to liver dysfunction (Vaswani et al, 1997). The relationship between alcohol consumption and hypertension has not been elucidated among women (Singh et al, 1998b).

A recent review observed that there was a 'direct, dose dependent relationship between alcohol and blood pressure' and the association was independent of potential confounders including age, obesity and salt intake. Reducing alcohol use resulted in lowering of both systolic and diastolic blood pressure. The review concluded emphasizing non-pharmacological strategy of life style measures for initial management of hypertension which included restriction of alcohol use (Gupta and Guptha, 2010).

7.7. Stroke

Alcohol intake is considered a significant risk factor for the development of haemorrhagic stroke (Zodpey and Tiwari, 2005) and has been considered as a modifiable risk factor for its occurrence (Bannerjee et al, 2005). Alcohol use has also been found to be an infrequent risk factor for stroke in the young (Mehndiratta et al, 2004).

The largest population based neuro-epidemiological survey in Bangalore reported the prevalence of strokes to be 150/100000 population. Among 154 subjects with cerebrovascular accidents at the time of survey, 48 (32%) were longstanding and regular alcohol users. The use of alcohol in urban stroke subjects (40%) was higher compared with rural subjects (32%)(Gourie-Devi et al, 1996).

In a study of 2310 stroke patients registered at NIMHANS under a stroke registry program during 1995–96, 28% of patients had long standing history of alcohol use and 90% were regular, heavy and chronic users. Among the 667 patients admitting to regular use of alcohol, 76% were current drinkers and 24% were past drinkers (Nagaraja et al, 2000).

A recent WHO supported study on assessing the feasibility of establishing a population based stroke registry in Bangalore revealed that 25% of the 1174 stroke subjects admitted to long standing use of alcohol for more than 10 years. The population based component of this study revealed that a majority of the stroke deaths could have been associated with alcohol consumption, but precise information was not available in mortality records (Nagaraja et al, 2009).

7.8. Diabetes mellitus

There has been a rapid increase in the prevalence of diabetes and cardiovascular disease in India consequent to the rapid changes in diet and

lifestyle. Studies in the last decade have shown that alcohol consumption is significantly associated with the metabolic syndrome and type II diabetes mellitus (Mohan et al, 2009). Alcohol supplies only calories which compromises nutrition and increases blood sugar. Apart from this, it also contributes to fatty liver which in turn predisposes to type II diabetes. Independently, alcohol consumption leads to both acute and chronic pancreatitis which is often associated with and aggravates diabetes. A recent study found a higher prevalence of metabolic syndrome among police personnel in Chennai and observed a strong association with alcohol consumption along with other factors like age, body mass index, and smoking (Tharkar et al, 2008). In addition to appropriate dietary intake, stopping tobacco and alcohol consumption is recommended for the prevention of diabetes and its vascular complications in Indians (Singh et al, 1997).

7.9. Cancer

A series of recent metaanalyses have shown that consuming an average 25 g of pure alcohol per day was associated with a significant risk of cancer of the oral cavity, pharynx, oesophagus, stomach, colon, rectum, liver, larynx and female breast (Bagnardi et al, 2001). An epidemiological study on cancer in a rural agricultural community of Punjab (Thakur et al, 2008) revealed that alcohol consumption, in addition to pesticide use and smoking was a common risk for a variety of cancers.

Studies from India, primarily from Kerala, have found a consistent association of alcohol consumption with oral cancer, independent of bidi and cigarette smoking, smokeless tobacco and areca nut chewing. The relationship between alcohol intake and oral cavity cancer risk was examined in the Trivandrum Oral Cancer Screening Study (Cancela et al, 2009). Of the prospective cohort of

32,347 men followed up to evaluate cancer incidence and mortality, 134 men eventually developed oral cancer. Even after adjusting for age, religion, education, occupation, body mass index, standard of living, chewing and smoking habits and diet, current and past drinkers had a significantly increased risk of developing oral cancer; the hazard ratio increased significantly by 49% (95% CI=1-121%) among current drinkers and 90% (95% CI=13-218%) among past drinkers. There was a significant dose-response relationship between frequency of intake, duration and oral cancer risk. An independent association of alcohol use with cancers of the larynx (Sankaranarayanan et al, 1990), oesophagus (Sankaranarayanan et al, 1991, Chitra et al, 2004), and gingiva has been proven. For cancer of tongue and floor of mouth, association was found with pan/ tobacco chewing, bidi and cigarette smoking and alcohol drinking. However, alcohol consumption was no longer significant when adjusted for the other significant predisposing factors (Sankaranarayanan et al, 1989a and 1989b).

In a hospital based sample of psychoactive substance users (primarily alcohol users with concomitant tobacco use), 91% had oral lesions, primarily dental caries, gingivitis and staining. Alcohol users also using areca nut had twice the risk of developing submucosal fibrosis. Combined use of areca nut and smoking along with alcohol use increased the risk by three times, and those who used alcohol, tobacco, areca nut and drugs had a 21 times higher risk of developing leukoplakia (Thavarajah et al, 2006). While the association of tobacco chewing and oral subucous fibrosis is robust, there is evidence to suggest that alcohol use may also be associated with a greater risk (Hashibe et al, 2002).

Gastric cancer is common in India and is the third most common cancer in southern India. A hospital-based case-control study of matched pairs

of gastric cancer patients and controls was carried out in a large tertiary care center in Chennai (Sumathi et al, 2009). Multivariate logistic regression indicated that alcohol consumption [OR 2.3, CI 95% (1-1.4), p=0.04], and consumption of pickled food were independent risk factors for gastric cancer.

7.10. HIV and high risk sexual behavior

A significant relationship has been established between sexual behavior, HIV risk and alcohol use (Chandra et al, 1999, Pai et al, 2009). A high proportion (66%) of men had sex with commercial sex workers under influence of alcohol (Madhivanan et al, 2005). In South India, although HIV prevalence among men is relatively low, men who frequently visit alcohol venues have been found to practice high-risk behaviors and have high rates of STDs, including HIV (Go et al, 2007). Sex under the influence of alcohol is more often associated with no protection, multiple sex partners, anal sex and a greater likelihood of having a sexually transmitted infection or HIV. In a survey of 1196 male patrons of wine shops and bars conducted in Chennai, nearly half the respondents reported having unprotected sex with non-regular partners and 24% reported having had four or more recent sexual partners. Over 85% reported using alcohol at least 10 times in the previous month, and 89% reported alcohol use prior to sex (Sivaram et al, 2008b). Consuming alcohol before sex also emerged as a risk factor for HIV positivity among men along with several other factors in a population based study of risk factors in Andhra Pradesh (Dandona et al, 2008). Abuse of alcohol has been linked to high risk lifestyles among heavy transport vehicle drivers (Rao et al, 1999), commercial sex workers (Raut et al, 2003) and among psychiatric inpatients (Chandra et al, 2003). Among HIV infected individuals with liver disease, 45% were chronic alcoholics (Rathi et al, 1997).

Consecutive inpatients (n=361; 98% male; mean age=36.7 years) admitted to the De-addiction Unit at NIMHANS, participated in a structured interview conducted to obtain demographic, psychiatric, sexual behavior, and substance use data; each patient also provided a blood sample for serologic testing for HIV, chlamydia, syphilis, and hepatitis B. One-quarter of all patients tested positive for at least one STI. Lifetime sero-prevalence rates were 12.9% for syphilis, 10.3% for chlamydia, 3.1% for hepatitis B, and 1.1% for HIV. Analyses did not reveal any consistent pattern of associations between STI status and sociodemographic, psychiatric, and sexual behavioral characteristics (Carey et al, 2006). Among 352 men with alcohol dependence , high risk sexual behaviors (screened using a structured interview, of whom 72% were sexually active and 13% engaged in high risk sexual behavior) like having multiple sexual partners (7%), paying for sex (5%) and having unprotected anal sex (4%) were more frequent (Carey et al, 2003a and 2003b).

Alcohol consumption as a risk factor for HIV has been clearly demonstrated through a study at alcohol venues in South India (Go et al, 2007). "Wine shop" samples (men interviewed in alcohol venues) had higher rates of HIV and prevalent STD's compared to a household sample of men. High risk behavior in the form of multiple partners, unprotected sex with a casual partner and exchanging sex for money was also significantly higher among the wine shop sample (Sivaraman et al, 2008).

Women's sexual health can be seriously compromised by their infected partners, particularly alcohol using partners. In a cross-sectional study of the prevalence and correlates of bacterial vaginosis among 898 young women of reproductive age seen at two reproductive health clinics in Mysore (Madhivanan et al, 2008), an independent association was found between bacterial vaginosis and partner's alcohol consumption.

7.11. Sexual dysfunction disorders

Chronic and persistent alcohol use is known to induce sexual dysfunction, which in turn can lead to marked distress and interpersonal difficulty. Among 100 males with alcohol dependence admitted to a de-addiction center, 72% had one or more sexual dysfunction, most commonly premature ejaculation, low sexual desire and erectile dysfunction (Arackal and Benegal 2007). A semen analysis of 100 samples showed that heavy alcohol use and smoking was associated with asthenozoospermia, teratozoospermia as well as oligozoospermia. Based on these findings, the authors concluded that alcohol targets sperm morphology and sperm production (Gaur et al, 2010).

7.12. Alcohol abuse and psychiatric illness

There is a dual relationship between alcohol use and psychiatric illness. Alcohol use is associated with neuropsychiatric conditions such as delirium tremens and alcoholic hallucinosis. Persons with psychiatric illness tend to have higher rates of alcohol abuse. The rate of alcohol use disorder is high (65%) among patients attending mental health services (Rashliesel et al, 1999) and alcohol use disorders are common (12-50%) among persons with schizophrenia. However, in India, it has been suggested that one of the reasons for better outcome of schizophrenia may be the lower rates of substance misuse in comparison to western populations (Isaac et al, 2007). Alcohol use has been found to be an independent risk factor for suicide risk among Indian youth (Pillai et al, 2009).

Alcohol-related problems contributed to 17.6% of psychiatric emergencies in an Indian general hospital (Adityanjee and Wig, 1989). Ten percent of psychiatric inpatients exceeded the cutoff score (≥ 8) on the AUDIT indicating harmful use of alcohol

(Carey et al, 2003b). Among psychiatric inpatients, engaging in risky sexual behavior was associated with being male, using tobacco and screening positive for either drug use or alcohol problems (Chandra et al, 2003).

Co-morbid use of alcohol with tobacco is relatively common (Anwar et al, 2005). For most drug users of cannabis and opiates, the first 'drug' of initiation is always alcohol (Murthy et al, 2003).

7.13. Common mental health problems

Continued alcohol use, particularly harmful patterns of use, is closely associated with psychological distress, depression, anxiety and other common mental disorders. Alcohol and some common mental health problems are also found to co-exist. However, apart from clinical conjectures, there are no specific studies from India which explores this relationship. Indirect inferences can be drawn from reasons ascribed for alcohol use (to overcome stress, sadness, to be happy, to forget worries, etc.,) or circumstances of use (death of a kin). In the multi-factorial web of causation of several conditions, alcohol is an intermediary factor as in the case of suicidal behavior, depression and increased alcohol use (Vijaya Kumar, 2006).

7.14. Alcohol dependence

At the tip of the iceberg of alcohol users, there is a section of users with alcohol dependence syndrome. This number has varied from 5 to 15% across studies. In a sample of 5326 users, Ghulam et al (1996) noticed that 20.5% were dependent users. In the national survey on alcohol and drug use, about 17–26% of the approximately 62.5 million alcohol users were estimated to be dependent (Ray 2004a), imposing a huge burden on treatment intervention. Alcohol dependence constitutes nearly 20% of

admissions to psychiatric centers (Chandrashekaran et al, 2001). A significant amount of physical morbidity has already set in when patients present for treatment of alcohol dependence. A morbidity analysis at revealed that 68.7% of patients presenting with alcohol dependence had co-existing medical morbidity, notably gastritis (50%), hepatitis (15%), seizures and a history of road traffic accidents (12.5%). Hepatic and cardiovascular abnormalities are often picked up on investigations even in the absence of clinical disease (Choudhury et al, 2002). There is a high rate of psychiatric co-morbidity among patients with alcohol dependence (76% with co-morbid axis I diagnosis and 40% with axis II diagnosis), higher diagnosis of depressive disorder and Cluster B personality disorder among alcohol dependence (Vohra et al, 2003). Forty two percent reported to be depressed during the episode of drinking that led to hospitalization and among them a majority of the symptoms resolved following detoxification (Khalid et al, 2000).

All kinds of high risk behavior, including accidents, violence, self-injuries and risky sexual behavior, have been reported in persons with alcohol dependence. In a study of 300 patients with alcohol dependence, subjects with high risk behaviors had higher scores on sensation seeking scale and the addiction severity index, compared to those without high risk behaviors (Paulose and Srinivasan, 2009).

7.15. Seizures

An exploratory study on seizures among alcohol dependents at NIMHANS (Murthy et al, 2007) revealed that 15.7% of 361 patients had a history of seizures. While 43% of patients with a history of seizures could provide accurate history of seizures along with alcohol use, only in 19.2% of cases, seizures could be explicitly attributed to alcohol

withdrawal. Matoo et al (2009) observed that 9.2% of alcohol abusers had seizures and two - thirds were related to substance use. Systematic reviews suggest multiple alternative mechanisms for occurrence of seizures in alcohol dependent subjects (Samkhvalov et al, 2010).

7.16. Other neurological sequelae

Alcohol is associated with protean derangements of the central and peripheral nervous system (Charness et al, 1989). Chronic neurological problems in the form of persistent cerebellar signs, peripheral nerve involvement and tremors have been commonly noted in asymptomatic alcohol dependents even when withdrawal symptoms subside (Haridas et al, 1997). There is a growing recognition of the increasing burden of dementia, in India and globally (ADI, 2009) and alcohol is implicated in worsening outcomes and also contributing to causation: ethanol is a neurotoxin, which in sufficient doses results in dementia (Burst, 2010, Ikeda and Yamada, 2010, ARDSI, 2010). The apparent benefit of light to moderate wine / alcohol consumption to prevent dementia can in reality be a confounder (Arntzen, 2010) or due to problems in respondent selection (Lobo, 2010). On the contrary, alcohol use is associated with excess risk for stroke, predisposing to development of multi infarct dementia.

7.17. Musculoskeletal disorders

The effect of alcohol consumption on bone mineral density and hormonal parameters was examined in 400 physically fit males with well-defined lifestyle conditions from the armed forces (Venkat et al, 2009). Persons with alcohol intake of >24 g/week had significantly higher femur bone mineral density compared to non-alcoholics ($p=0.0001$). Avascular necrosis of the femoral head

has a known association with chronic alcoholism. Among 16 males admitted to two tertiary care military hospitals, seven reported chronic alcohol use (Kakaria et al, 2005).

7.18. Liver disorders

Alcohol is associated with a spectrum of liver disorders, especially liver cirrhosis (Skog, 1984, Norstrom, 1987). Over a third of patients (39%) with chronic liver disease were alcoholic (Amarapurkar et al, 1992). No difference was noticed with respect to liver injury between country liquor and 'good quality foreign varieties' of liquor (Sarin et al, 1988a). However, a subsequent study from a public hospital in Mumbai found that liver disease was more common among those who consumed illicit brew as compared to licit liquor, despite lower alcohol content in the illicit liquor. Daily drinking, volume of consumption greater than 200 ml per day, duration of drinking for >14 years were significantly more common in those with liver disease (Narawane et al, 1998).

Hepatitis B and C are underreported problems in alcohol users (Saigal et al, 2002). However, in patients with Hepatitis B chronic liver disease (Ray et al, 2000) and Hepatitis C infection (Sarin et al, 2001, 1988a and 1988b), no association with alcohol use was established.

Mortality from alcohol-related liver disease and hepatocellular cancer are concerns worldwide. An examination of mortality from alcohol related deaths in the UK between 2001 and 2003 (Bhala et al, 2009) showed that standardised mortality ratios for alcohol-related deaths and hepatocellular carcinoma were high for men born in India, Ireland and Scotland compared to those born in several other countries. Similar mortality patterns were observed by country of birth for alcoholic liver disease and other liver diseases.

A recent study examined consequent functional and morphological changes in the small intestine in chronic alcohol users (Bhongal et al, 2008). Duodenal biopsies of chronic alcohol users with alcoholic liver disease showed morphological alterations in the form of partial villous atrophy, increase in the lamina propria infiltrate and intraepithelial lymphocytes.

Alcohol is a well known risk factor for chronic pancreatitis. A recent, prospective nationwide study of risk factors and clinical profiles of chronic pancreatitis examined data on 1086 patients across 32 major centers in the country (Balakrishnan et al, 2008). Alcoholic chronic pancreatitis accounted for about a third of the cases, second only to idiopathic pancreatitis. Among alcohol consumers, alcoholism and female gender were independent risk factors for diabetes in subjects with chronic pancreatitis.

7.19. Tuberculosis

Tuberculosis continues to be an area of concern especially in chronic alcohol users from the lower socio-economic strata (Harish et al, 1999). In a community-based cross-sectional survey of 93,945 individuals in South India for prevalence of pulmonary tuberculosis, alcoholism and smoking were independently associated with risk of pulmonary tuberculosis (Kolappan et al, 2007). Alcoholism was an important factor in delaying the diagnosis of tuberculosis in south India (Rajeswari et al, 2002). It was a significant risk factor in treatment default among patients treated under the Revised National Tuberculosis Program (RNTCP) in Tiruvallur District in Tamil Nadu (Jaggarajamma et al, 2007). Gajalakshmi and Peto (2009) investigating the influence of smoking and / or drinking found that after adjusting for age and education, RR of alcohol use was double between

ever and never users (RR: 2.2) and was greater even after adjusting for smoking (RR:1.5).

7.20. Nutritional deficiencies

Alcohol is a source of empty calories and the association of alcohol abuse with poor nutrition is well known, but inadequately researched in India. Even among alcohol dependents showing no clinical evidence of malnutrition, a 24 hour dietary intake revealed a diet deficient in proteins and other nutrients. Biochemical investigations in this group showed evidence of thiamine deficiency (Shanmugaiah, 2001). There is an urgent need to define the role of alcohol in the context of an obesity epidemic enveloping India, especially in urban areas. The current pattern of alcohol consumption (increasing frequency of party drinking, younger ages, women drinkers) associated with a sedentary life style is a definite catalyst in such an epidemic.

7.21. Health effects among women

There is very little research on health effects of alcohol on women in India, as all earlier studies have focused primarily on men, but the problem of alcohol abuse among women and its consequences is only gradually emerging (Murthy, 2003). Earlier epidemiologic surveys were restricted to men as alcohol use among women was only sporadic or not reported. As there is evidence of growing alcohol consumption among women (nearly 19% in socio-economic classes A and B) (Benegal et al, 2006), this is an area that needs greater attention. In neuro-psychiatric settings, the presentation of women with alcohol abuse is predominantly with neuropsychiatric complications or suicidal attempts (Murthy et al, 1995, Prasad et al, 1998, Murthy et al, 2000). Women alcohol dependents are significantly more

likely to have physical and psychiatric complications compared to men (Selvaraj et al, 1997). Until now there is no published data on foetal alcohol effects owing to maternal drinking and this warrants further studies. (Mendekar et al, 2005, Nayak and Murthy, 2008).

The earlier review provides evidence of the association of alcohol with specific, diagnosable disease / syndromes particularly affecting an individual's health in India. The present report provides and summarizes evidence of alcohol consumption and its association with nearly 20 major health disorders. There are several areas where alcohol use has been implicated. Among the host of factors in the intermediary pathways of disease causation that result in adverse consequences for the individual, alcohol occupies a prominent position. Yet, many conditions like pancreatitis, liver disease, sexual dysfunction, psychosocial distress, etc., have not been adequately researched in relation to alcohol use in the Indian context. Methanol poisoning (dealt in later sections) is a major and serious consequence that has not been researched, possibly for the peculiar circumstances under which it occurs. Although alcohol use has been considered as a life style issue and concern, there is paucity of research implicating alcohol use to subclinical manifestations of illness.

In summary,

- Evidence for the public health burden from alcohol is gradually emerging from India in recent years.
- Previous estimates of mortality and disability attributable to alcohol are probably

underestimates and a function of inadequate reporting and lack of research.

- *Alcohol contributes to 15-20% of all deaths and to about 25% of premature mortality in younger age groups of 15-44 years.*
- *Acute and often high level of alcohol consumption is associated with both fatal and nonfatal injuries as well as deliberate self harm.*
- *Despite strict laws on drink driving and low permissible blood alcohol levels while driving, there is a high prevalence of drink driving and road traffic injuries.*
- *Alcohol is a known risk factor for even communicable disorders like tuberculosis and conditions like HIV.*
- *Changing life styles including alcohol consumption and smoking, accompanied by dietary changes and sedentary work styles have greatly enhanced the risk for several non communicable disorders, notably cardiovascular disorders and cancer.*
- *Malnutrition and obesity are both serious challenges faced in India and both have a close link with alcohol consumption.*
- *Other health problems due to chronic alcohol use including gastrointestinal disorders, neuropsychiatric disorders and the neurocognitive impact of alcohol need to be further studied.*
- *The health effects among women are beginning to emerge, with evidence of growing alcohol consumption among women.*
- *There is a need for longitudinal population based cohort studies to examine the relationship between alcohol and health in a more meaningful manner.*

SOCIAL CONSEQUENCES OF DRINKING

The consequences of alcohol use are myriad. Alcohol has been implicated not only in 60 health problems, but also in a number of social, economic, legal, psychological and emotional problems affecting day-to-day life of individuals, their families and the whole society. These adverse health effects, in turn, can lead to serious psycho-social and economic consequences in both acute and long-term outcome of the affected individual. For eg., an individual who goes into a persistent vegetative state following a traumatic brain injury consequent to a drinking binge would require life-long rehabilitation. The death of an earning family member in an alcohol-related accident can cause untold suffering to the innocent family members. An alcoholic husband can deprive his wife and children of much needed, immediate and long term resources. Suicides consequent to alcohol use by the husband or suicidal attempts by parents as a result of alcohol use in the family member can result in emotional stunting of the child. An alcoholic father is definitely not a good role model for the child, as he also deprives the child of emotional and social security.

‘Dry’ cultures are known to predispose to deviant, unacceptable and asocial behaviors consequent to alcohol use as well as chronic disabling alcoholism (Blum and Blum, 1969). While the adverse health consequences of alcohol abuse have been marginally documented in India, the plethora of adverse social and societal consequences of alcohol use generally has not been

researched and documented in the larger societal context. Only in recent years, the adverse psycho-social and public health consequence of alcohol abuse in India is gradually emerging. The available evidence needs to be placed within the context of public sentiments against alcohol use and heavy reliance of the governments on the revenues generated from alcohol use for their maintenance and sustenance.

Historically, in India, and everywhere else in the world, the social consequences of alcohol abuse have prompted different societies and communities to limit use of alcohol to varying extents. Current ongoing research, along with progressive refinements in measuring the consequences of alcohol use has resulted in identifying and quantifying the hitherto hidden health, social and economic burden of alcohol use (WHO, 2000). Room et al (2003) noted that “by design, estimates of the burden of alcohol do not include most social harms to people other than the drinker; the burden of social problems from drinking can be at least as heavy as the health burden”. Amidst the changing epidemiological, socio-economic paradigms, there is an urgent need to re-look at this “neglected and untouched dimension” of social consequences of alcohol use.

The social consequence of alcohol use has been defined as “*changes subjectively or objectively attributed to or attributable to alcohol occurring in individual social behavior, in social interaction or in social environment*” (Klingeman, 2001). Alcohol as an agent can thus either cause or be

BOX 10
Social consequences related to alcohol use: areas of enquiry

- Personal and Family Life
 - ◊ Domestic violence
 - ◊ Emotional and health impact on spouse, parents and children
 - ◊ Psychological problems
 - ◊ Stigma
 - ◊ Economic problems
 - ◊ Impoverishment and poverty related issues
- Social problems
 - ◊ Homelessness
 - ◊ Crime and other offences
- Occupational problems
 - ◊ Unemployment
 - ◊ Absenteeism
 - ◊ Reduced production
- Risky behavior
 - ◊ High risk sexual behavior
 - ◊ Drinking and driving

associated with or contribute to outcomes, adverse or otherwise.

Alcohol use in an individual has been linked to several negative outcomes in the social sphere (Choudary et al, 2006, Gururaj et al, 2004b and 2006b). Several facets of an individual's life are affected by alcohol use. Box 10 lists the alcohol related negative social outcomes studied in the currently available Indian literature. It is further evident that the adverse events are not limited to the life event of a user but also affects other family members and other non-users too.

The manifestation of the social consequences of alcohol abuse can be witnessed at three different levels: individual, family and society. At the individual level, the alcohol user as a result of the habit find themselves unable to fully participate and contribute; at the family level, alcohol use is a social nuisance and at the societal level, the consequence of alcohol use is grave and is related to a host of issues which include road traffic injuries, violence and crime, productivity losses and are generally a drain on social welfare.

8.1. Individual level effect

8.1.1. Personal life

Gururaj et al (2004b), observed that an alcohol user, in comparison to a non-user, experienced higher

incidence of negative life events: poor health status, getting injured, involvement in different types of abuse (physical, emotional and sexual; against spouse, children, family members and friends), greater problems in workplace, psychological problems, economic problems, etc. Shah et al (1996) in their study of 100 alcohol dependents report that almost two-thirds had social and recreational problems. There were significant changes in the nature of socializing, with social life being restricted to procuring and drinking alcohol.

The National Household Survey reports that 27% of the alcohol user population complained of inability to visit friends/relatives and inability to perform as husband/father (Ray, 2004a). The Bangalore study (2006) observed that of the 18% of the total study population stayed away from home at least once in the last 12 months, and more than half of them reported it to be due to a drinking problem (highly significant statistically). Greater proportions of alcohol users ran away from home when compared to non-users (110/10,000 vs. 2/10,000). Among men, alcohol use was significantly associated with pre marital sex (Kumar et al, 2010), unprotected sex (Sarkar, 2008a) or extra marital sex (Schensal et al, 2006)

8.1.2. Work related

Alcohol consumption affects work by absenteeism, decreased productivity and

unemployment (Green facts, 2006), and work place injuries and accidents (Murthy et al, 2004). In the Indian context, although alcohol use in employed individuals is described, the consequence on the process of work is inadequately documented. Depending on the skill, nature of work or employment status of the individual the cost calculated would vary. An acute event (major or even minor one) leading to an absence from work in IT industry could result in loss of productivity equivalent to several thousands of rupees as against the loss in productivity and lower cost of a semi-skilled daily wage laborer.

In the Bangalore study, 7% of the respondents reported that they were under the influence of alcohol while at work (Gururaj et al, 2006a). In a very large transport corporation in south India, 2% of employees came drunk to work and there were several instances of violence at work (Murthy et al, 2004). In a study of occupational injuries, Vasu et al (2001) found that the injured were predominantly young males, not wearing protective eyewear and working under the influence of alcohol. Chitra (2000), in a study on City sanitary workers in Bangalore, observed that nearly 90% of this group were regular and chronic alcohol users. Though women drinkers were fewer, their proportion in comparison to the general population was more by a factor of 10. These numbers are an underestimate, as anecdotal reports reveal the numbers to be higher depending on the nature of work. A recent case-control study in India of 245 male underground coal miners showed that lack of formal education, alcohol consumption, origin from big families and risk taking behavior were significantly associated work related injuries (Kunar, et al 2008).

The general attitudes in India regarding drinking at the workplace or being under the influence of alcohol at work is a major drawback in drawing inferences. Events related to alcohol consumption in the individual and adverse impact

on the work process are not documented routinely as it invites strictures; what gets reported are grave events, which constitute the tip of the ice berg. In the Bangalore study, Gururaj et al (2006a) observed that the proportion of users who missed going to work was twice more common among alcohol users (33.9% vs. 13.8%) and nearly 72% of the users reported it to be related to their habit of consuming alcohol. Not being able to be on time, missing college or work, and decreased ability to work were frequently reported and more than half of them were attributed to alcohol use. The ambivalent attitude noted earlier is evident from the low frequency of disciplinary action being taken.

A recent survey among high income earners in Bangalore city revealed that 70% of them consumed alcohol on a weekly or biweekly basis and 20% consumed alcohol daily. Interestingly, 68% suffered hangovers, which resulted in absenteeism: nearly 33% reported late to work, 6% took half a day off and 23% took the entire day off. Forty percent of the respondents admitted that hangovers affected their productivity. The loss in productivity due to such absenteeism is estimated to be ₹ 470 million every year for the corporate sector (The Hindu, 2006a).

8.2. Family level

Alcoholism has been considered a family disease. An individual's alcohol indulgence makes the family go through intense psychological suffering. In a community based study, Gururaj et al (2004b) observed that nearly 40% of the households surveyed had at least one alcohol consumer. Isaac (1998) reviewing Indian literature on contemporary trends of alcohol consumption in India noted the growing evidence of alcohol as a "major cause of family disruption and marital discord". The incidence of family violence was significantly higher in families who used alcohol (Bhatt, 2003) and the risk of spousal

abuse increased significantly when the husband was an alcoholic (Rao, 2004). The commonest stressors faced day to day by the wife includes her husband's drinking, financial problems, physical abuse of self and children and, social stigma (Shantala et al, 2000). Another facet of alcohol consumption is the loss of quality time spent with the family members as revealed by the high income group study in Bangalore; 60% consumed alcohol over the weekend, thereby missing quality time with family and friends (The Hindu, 2006a).

8.2.1. Co-dependence

Bhoumik et al (2001) defined co-dependence as the state of the wives of alcoholics who neglect their own personal needs and requirements, but concentrate their day-to-day efforts on managing the alcoholic husband or another male alcoholic member. Co-dependent wives had lower coping resources and social support with husband's duration of alcohol abuse being a key predictor of co-dependence. The study also reports that economic difficulties and legal issues were the major stressors. Unemployment of the husband increased the chance of the wife becoming co-dependent by a factor of 5.

8.2.2. Alcohol and family violence

Even though acute states of alcohol intoxication can lead to death or hospitalisation of self or other family problems, domestic violence due to alcohol

is a slow killer. Various dimensions of domestic violence like physical violence (hitting, kicking, shoving, etc.,), sexual abuse, emotional abuse, violence against children, elderly and youth are frequently associated with alcohol consumption. The association between domestic violence and alcohol consumption has been consistently replicated across Indian studies. Out of 9,938 women surveyed in rural, urban and urban slum areas across 7 cities in India, 26% reported experiencing spousal physical violence during their marital lifetime. Adjusted odds ratios calculated using multiple logistic regression analysis reveal that women whose husband's regularly consumed alcohol (OR 5.6; 95% CI 4.7–6.6) were six times more likely to suffer violence (Jeyaseelan et al, 2007). Similar findings are reported from women living in slums in Calcutta (Pandey et al, 2009) and other parts of East India (Babu and Kar 2010). In a cross-sectional study of women seeking services at a Voluntary Counseling and Testing (VCT) center in Bangalore, alcohol use by their spouse, financial difficulties and the woman's HIV status were significant predictors of domestic violence (Chandrasekaran et al, 2007). In a study from Goa, partner violence and alcohol-related problems partially mediated the association between partner's excessive alcohol use and common mental disorders among women (Nayak et al, 2010).

The report (Burton et al, 2000) on domestic violence in India found that the husband's drunkenness was a significant predictor of domestic violence (either physical or psychological violence), dowry harassment and gap in employment. The population attributable fraction related to harmful drinking and perpetration of violence was greater when compared to moderate drinking (D'Costa et al, 2007). Varma et al (2007) found that among pregnant women attending the antenatal clinic in a public hospital, 14% reported physical violence, 15% psychological abuse and 9% sexual coercion. Alcohol

BOX 11

Alcohol consumption of husband

Nearly one third of the women reported their husbands drank in excess over the past year and another 16% reported that their husbands drank occasionally. An association was found between husband's alcohol consumption and reporting of violence. More than half of the women who reported their husbands got drunk once a week reported their husbands hit, kicked, or beat them. In addition, 56% also reported being threatened by the husband.

Source: Burton et al, 2000

use by the husbands predicted not just abuse, but also severity of domestic violence. Reiterating the relationship between alcohol use and domestic violence, Pandey et al (2009) conclude that absent behaviors and violence is used as compensatory behaviors and hence interventions should also address partner and relationship issues.

The Bangalore Study (2006) on alcohol impact documented that 7.8% abused their siblings or other members of the family. Nearly one fourth (23.8%) of the study population reported that they abuse children with the proportions being greater among those using alcohol. The extent of emotional abuse and physical abuse was nearly 2 to 4 times higher among alcohol users. Go et al (2003) observed that community level stressors were likely to accelerate the domestic violence pattern especially with alcohol use. The 5 State Study for the Planning Commission of India (Yugantar, 2004) observed that alcohol consumption and not dowry was a major cause of domestic violence, especially in rural areas and in economically deprived families. Deaths attributable to alcohol related domestic violence ranged between 12 and 33%. Regular consumption of alcohol by the husband/partner was a significant risk factor for life time physical, interpersonal (Jeyseelan et al, 2004) and psychological violence against women (Ramiro et al, 2004). The social determinants of health study carried out amongst slum-dwellers of Bangalore highlighted the frequent emotional and physical abuse perpetuated by drunken husbands on the family members especially wife (Gururaj, 2006). The women's help line Vanitha Sahayavani of Bangalore recorded 13% of cases as those related to alcohol during a one year period (personal communication).

The feminization of the HIV-AIDS epidemic has brought to the fore the twin problems of sexual abuse and alcohol consumption. Forty two percent of the women attending the HIV clinic in a tertiary

care center reported domestic violence (29% physical abuse, 69% psychological abuse, 1% sexual abuse); Husband's alcohol use was the second most common (29%) reason for the adverse event (Chandrashekaran et al, 2007). Go et al (2007) revealed that while the rates for HIV and other STDs are relatively less in general population, the rates are relatively higher among those frequently visiting wine-shops and also indulging in high risk behaviors. Premarital relationships among the young positively correlated with alcohol use (Alexander et al, 2007).

Women, who are victims of domestic violence, report higher levels of depression and anxiety and often adapt alcohol use as a coping strategy (Sarkar 2008b, Sreedevi et al, 2000). Spousal alcohol abuse accounted for the increasing number of women ending their lives voluntarily by nearly 6 times (Gururaj et al, 2004c). Wives of substance users have a greater risk of attempting suicide and the risk can be attributed to spousal abuse, disturbed relationship with relatives, financial problems, and lack of emotional support and love (Ponnudorai et al, 2001).

8.2.3. Impact on children

As the vulnerable members of the family, the negative impact of alcohol use in the family is greater on children. Children within these families are at a higher risk of becoming alcohol users and dependents; develop a host of emotional and behavioral problems including difficulties in social adjustment.

Bonu et al (2004) observed from the National Sample Survey data that alcohol use in the family negatively impacts the overall health of the children. Children not being immunized, having acute respiratory tract infection or being malnourished with increased risk of infant mortality was significant even after controlling for other socio-economic and demographic characteristics.

BOX 12

Children and alcoholism

- Alcoholics are more likely to have an alcoholic father, mother, sibling or a distant relative indicating a genetic predisposition.
- Alcoholism in the parent is specifically associated with an increased risk to alcoholism in the off spring. The risk is 4 to 9 times when compared to general population.
- Higher levels of co-dependence, faulty and inconsistent child rearing practices.
- Fetal alcohol syndrome
- Psychiatric problems: high levels of stress, greater occurrence of depression, anxiety, conduct disorder, and attention deficit hyperactivity disorder.
- Cognitive problems: Lower IQ, lower performance and verbal scores, academic problems, lesser motivation, and below average school performance.
- Behavioral problems: Lying, stealing, fighting, truancy, being overactive, impulsive, and greater risk for delinquency with higher degree of deviant behavior.
- Psycho-social problems: decreased personal and social competence leading to lower success rates, lower social adjustment and peer acceptance, and decreased coping ability.
- Higher risk of abuse: Emotional, physical and sexual abuse.

Source: Nirmala et al, 2000

Other studies on alcoholism have proved that the habit runs in families and is also partly inherited. The genetic predisposition places the individual at high risk for alcohol abuse/dependence or conversely protects an individual from risk. Researchers have differentiated sons of alcoholics from sons of non-alcoholics on various measures of physiological activity that appear to be related to the former's increased vulnerability to developing alcohol problems. In several studies, children of alcoholics tend to show signs of physiological activity associated with anxiety states, such as increased heart rate in response to stressful stimuli. Prospective studies have shown that such children are more prone to anxiety disorders.

Considering the risk factors and protective variables, there is an intricate association between parental alcoholism and child vulnerability to various health problems subsequent to a stressful environment. Parental alcohol problems and high trait anxiety has been found to be significantly related to high occurrence of alcohol dependence later in life in both men and women.

In young males at high risk for alcoholism,

heart rate response is especially pronounced and manifests behaviorally as increased sensation seeking, approach behavior and dominance as well as conduct disorder and antisocial personality (Jayalakshmi et al, 2005).

8.2.4. Family finances

The family of an alcohol user is at a twin disadvantage: firstly, unemployment or underemployment of the productive member results in lesser financial resources; secondly, the already available meager resource needs to be either voluntarily or forcibly shared for buying alcohol. This impoverishment can push families downwards in the presence of a negative event in the family, for example, management of an injury after a violent episode at home. Benegal et al, (2003) observes that nearly one-fourth of the family income was spent on alcohol. Gururaj et al (2004b) found that 4.4% of the study group of 200 alcohol users spent greater money on alcohol as a head of expenditure with the only other head of expenditure being loan repayment (7%). This proportion was equivalent to that spent on rent (4%)

and greater than that spent on either education (2.5%) or other household expenses (2%). Saxena et al (2003) reported that those households in which an individual consumed alcohol very frequently spent 14 times more on alcohol per month and had significant financial debt. Further, these households reported more cases of major illnesses, but perceived significantly less severe health, social and economic effects of drinking.

BOX 13 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% lost their jobs in one year
- 59 % families were supported by income from other family members
- 10 % sent children under 15 to work to supplement family income

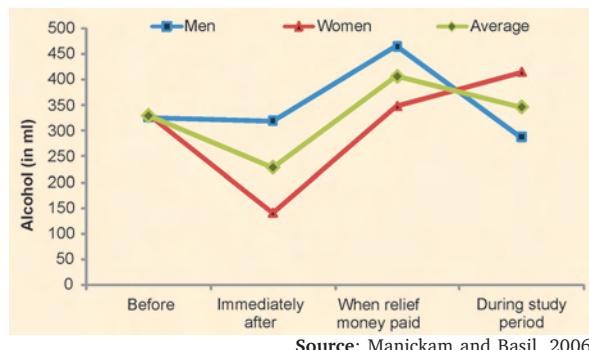
Source: Benegal et al, 2000

It has now been empirically proved that healthcare costs can result in catastrophic impoverishment, particularly among alcohol using households. These include severe adverse consequences like debt entrapment and distress selling of assets (Krishna, 2004, Bonu et al, 2005). Among individuals who resorted to distress sale of assets and borrowing during hospitalization, 16% could be attributed to alcohol/tobacco use at the population level and nearly 50% at the individual level. About 42% non-users who belonged to households that used both tobacco and alcohol had to resort to distress sale of assets (Bonu et al, 2005). Benegal et al (2003) report that 40% of the alcohol dependents did not contribute to the family finances, while nearly one-third of the individuals' salary was spent on alcohol.

Manickam and Basil (2006) reported that 7% spent the entire tsunami relief money on alcohol and nearly two-thirds (65%) spent varying proportions (1 to 100%). On an average, while ₹15 was being

spent by men on alcohol before tsunami it declined to ₹12 immediately after tsunami and increased to ₹21 during the disbursement of relief money (Manickam and Basil, 2006).

Figure: 15: Alcohol consumption and tsunami



Source: Manickam and Basil, 2006

Neufield et al (2005) observed that being disadvantaged, poor, residing in rural areas, or being illiterate was associated with greater alcohol use as compared to others. Hence the costs, consequences and implications of other category of users gets inadequately documented. In addition, not all costs are uniformly reported in community based studies (Gururaj et al, 2006a and 2006b).

BOX 14 Poverty and alcohol use

'Poverty is not an issue' says a parent himself, an illiterate agricultural laborer. 'Many men spend their children's earnings on alcohol. The village youth conducted a survey of daily consumption in the liquor shop and found this was no different from the amount working children earned in a day. We appealed to the fathers to stop drinking or reduce their alcohol consumption. We also found ways of helping families facing financial difficulties.'

Source: MV foundation UNDP series

8.3. Societal impact

8.3.1. Alcohol and crime

At the societal level, alcohol abuse or its ban (consequence of prohibition) results in several anti-social activities, ranging from petty thefts to homicides to organized crime. Alcohol use is

extensively associated with criminal activities and a large part of this evidence is either merely anecdotal or taken for granted without adequate documentation. Grann and Fazel (2004) found in their Swedish population study that 16% of all violent crimes during 1988–2000 were committed by people who had hospital discharge diagnoses of alcohol misuse with more than a tenth of all violent crimes by patients diagnosed as having misused drugs.

Incidental and anecdotal documentation has thrown light on emergence of organized crime as a consequence of prohibition in India. During 60's in Mumbai (then Bombay, the Vardarajan Mudaliar gang) and during 70's in the city of Ahmedabad (the Abdul Latif gang), alcohol smuggling increased as a response to prohibition by organized criminal gangs both across state and country borders (Kumar, 1999, Singh, 2002). Precise data from the Indian region is not available on this issue.

Law enforcement: The National Crime Records Bureau (Crime in India, 2008) documents alcohol related crime chiefly under either Prohibition Act or Excise Act. There are several other pieces of legislation which provides for punishment for alcohol use. These include Gambling Act, Drugs and Cosmetics Act, Motor Vehicles Act, Indian Railways Act, etc., Apart from these specific pieces of legislation, enforcement is also made under the provisions of the Indian Penal Code and the related Criminal Procedure Code and Narcotic Drugs and Psychotropic Substances Act (Gandhi, 2000). There have been several challenges

to meaningfully implement the existing provisions related to alcohol consumption under different legislations. A typical illustration is use of alcohol and claim of compensation under the Motor Vehicles Act. Because driving under the influence of alcohol does not satisfy the conditions of claim settlement, alcohol use is generally not recorded or even when recorded is down played (Gururaj, 2002, BISP, 2008a). Gururaj and Benegal (2002) reported that 40% of drunken drivers reportedly 'felt fine' and drove their vehicle uninhibitedly. Mahal (2000) notes the rarity of cases being filed in the courts of law. As reported by the key informants of the Social Determinants of Health Study in Bangalore, alcohol nuisance is generally not booked, despite available provisions under the law (Gururaj, 2006). This is reflected at the national level by a near flat rate of booking of cases under the cognizable crime heads (Table 10).

There are several challenges and barriers for strict enforcement of these laws in the Indian context. Inadequate resources, ambivalent attitude towards alcohol use, positions of victimization, considerable time lag in delivery of justice and lack or nonavailability of evidence are often some major stated reasons. Media reports indicate that there is a considerable time lag between booking and disposal of cases, more so when celebrities are involved. The huge pendency of the cases in the courts of law is said to be another major reason for cases not being booked. In this vicious chain of events, the economic costs of running these systems and the contribution

Table 10: Cognizable crimes (special & local laws) related to alcohol (%)

Sl No	Crime Head	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
1	Excise Act	3.4	3.5	3.3	3.3	3.6	3.5	4.7	4.6	3.8	4.2
2	Prohibition Act	17.4	15.8	14.2	13.0	12.4	9.0	10.2	9.8	9.2	9.4
3	Narcotic Drugs & Psychotropic Substances Act	0.6	0.7	0.7	0.7	0.7	0.7	0.9	1.0	0.8	0.8
4	Gambling Act	3.7	4.1	4.2	4.7	4.6	4.5	5.9	5.4	4.9	4.1

(Percentages are with respect to total crime in that year)

Reference: Crime in India, 2003 and 2008

of alcohol in the occurrence of these events are often overlooked and difficult to quantify.

8.3.2. Mass tragedies

Methanol, an industrial solvent is often an adulterant in illicit alcohol brews and has been responsible for the death of several people and a cause of the periodic ‘hooch tragedies’ across the country (Box 15). In July–August 2009, the country witnessed the greatest number of deaths (143 reported deaths) consequent to consumption of spurious liquor in the state of Gujarat (a state under prohibition). In 2002, in Tamilnadu, 100 people died in 3 separate incidents after consumption of illicit liquor containing methanol (Subramaniam, 2002). Most of them were poor farm workers addicted to alcohol. Over 280 deaths were reported in the state of Karnataka in the previous 4 years, 200 in Orissa in 1992, 50 in Bihar in 1994, 50 in Andhra in 1993, 34 in Kerala in 2000. Incidents with smaller numbers go totally unreported. Methanol, when it does not kill, leaves people with serious disability, especially blindness. As noted earlier, undocumented and illicit consumption contributes to around 50% of total alcohol consumption.

Being a state subject and having the distinction of being the second largest revenue grosser for many states, higher alcohol taxes have resulted in rise in illicit manufacture and trade of spurious liquor. This higher tax and higher costs of illicit liquor have resulted in several instances of mass casualties after consuming illicit liquor. Poor and socially backward community members are often the victims. The model excise policy (Sinha, 2005) observes that wrong policies and acts of commissions and omissions of the excise and police officials are responsible for such hooch tragedies. Further it observes that “commissions of inquiry have often attributed such tragedies to the lack of availability of cheap liquor to the poor”.

8.3.3. Community violence

Indicative of the growing recognition of adverse effect of alcohol use in the social sphere, Murthy (2007) observes greater mental morbidity after events of mass violence. Substance use disorders are acknowledged in these events, but are poorly documented. Media frequently report the growing involvement of communal violence often linked to alcohol. There is no specific data available in the country linking alcohol with violence. The huge amounts of alcohol seized during elections, time after time, is testimony of the penetration of alcohol in societies and its ‘democratic’ values.

8.3.4. Disasters and alcohol

Increased alcohol use during and subsequently after disaster is well known. Peculiar characteristics could be noted regarding alcohol use in disaster situations (personal communication by Dr Sekar, Professor of Psychiatric Social work, NIMHANS from various sources)

- a) Alcohol use during and after disasters, whether natural or manmade, is rampant.
- b) Apart from those affected, alcohol use among the first responders during a disaster situation is equally important. Chief reasons attributed for increased use among care-givers is burnout and monotonous nature of work.
- c) Greater use in border areas chiefly because of accessibility, affordability and local non availability.
- d) In man-made disasters, pockets of high risk areas have a greater availability and also higher use rates. Accompanying life style changes include tobacco use and risky sexual behavior.
- e) In the tsunami affected regions, greater alcohol use was seen in distant (mild or moderately) affected areas where livelihood was affected (handicrafts, seashells arti-crafts, coir industry,

BOX 15
Some media reported hooch tragedies in India

Place, Year	Deaths or cases	Remarks
1. Chikkaballapur, Karnataka, (May) 2010	12 dead 40 unwell	Spurious liquor distributed during the gram panchayat elections
2. Ahmedabad, 2009 (July)	143 dead	Second episode one month later leaving 3 dead and 4 admitted for treatment
3. Delhi, 2009	26 dead	
4. Bangalore and Krishnagiri, 2008	83 dead	In two states; same source; total deaths reportedly >180
5. Jharkhand, 2007	6 dead	No family member attributed the deaths to illicit alcohol
6. Bihar, 2007	3 dead	5 consumed liquor in an illegal liquor shop
7. Bangalore, 2006		
8. Dharmapuri, Tamilnadu, 2006	45 dead, 125 admitted for treatment	
9. Gujarat, 2006	5 dead	
10. Haryana, 2006	4 dead and 15 admitted for treatment	All bought liquor from 5 illegal sale points
11. Rambha, Golabandha and Ganjam, Orissa, Behrampur, 2006	61 deaths	Four incidents over the period March to August 2006
12. Srikakulam, Andhra Pradesh, 2006	12 deaths and 9 ill	Died or taken ill after drinking while attending the funeral of the person who died drinking hooch
13. Sonitpur, Assam, 2005	13 deaths and 70 ill	
14. Villupuram, Tamil Nadu, 2005	5 deaths	Unclear whether hooch or pesticide poisoning
15. Kaithal, Uttar Pradesh	4 deaths, 2 ill	
16. Nelamangala, Bangalore, 2005	22 deaths, 100 partially blind	Fake government emblems on the sachets
17. Hoskote, Bangalore, 2005	10 deaths	
18. Rewari, Uttar Pradesh, 2005	8 deaths	
19. Bikaner, Rajasthan, 2005	5 deaths	Nearly 36 suspected to have died
20. Kolayat, 2005	21 deaths	
21. Menambedu, Tamil Nadu, 2005	13 deaths	Intoxicants worth INR 170,000 and 15,175 litres illicit liquor seized
22. Lucknow, Uttar Pradesh, 2005	7 deaths, 15 ill	
23. Guddalore, Near Chennai, Tamil Nadu, 2004	46 deaths	120 being treated, 29 lost their vision; a total of 33 deaths in neighbouring villages in the previous month
24. Diwosas village, Bareilly district, 2004	14 deaths	
25. Thrissur, Kerala, 2004	3 deaths	
26. Unnao, Uttar Pradesh, 2004	9 deaths	
27. Mumbai, 2004	99 deaths and 100 cases	1110 litres illicit liquor seized, 20 deaths earlier in Mahalaxmi, Central Mumbai; 7 deaths and 40 ill in 2 separate incidents
28. Tangra, West Bengal, 2004	35 deaths,	Only 7 deaths alleged due to spurious liquor
29. Koopana, Kerala, 2004	7 deaths and 30 ill	
30. Hisar, Haryana, 2003	6 deaths, 12 ill	
31. Dharwad, Karnataka, 2003	6 deaths	
32. Tiruvallur, Tamil Nadu, 2003	13 deaths, 92 males ill	12 deaths in 1999, 97 in 2001 in three separate incidents

Source: Updated from Bangalore Study, 2006

tourism, agriculture, small and medium industries). While the affected fishermen played cards as leisure activity, individuals from "spectator" areas adopted alcohol as a coping strategy.

- f) Wife battering, family disharmony, mental health problems amongst children are higher.
- g) Increased alcohol use was reportedly associated with increased life events following the disaster.
- h) Despite religious and community sanctions, in protracted disaster situations, there was increased alcohol among all sections of the society.

8.4. Social costs of alcohol consumption

The fact that alcohol is imposing a high economic cost on Indian society is now well recognized. However, the accuracy of costing depends on the extent of monetizing the economic impact of alcohol use. It should include both direct and indirect costs and tangible and intangible costs (Table 11). The direct cost include medical costs (acute and long-term) and lost earnings due to death, and disability. The indirect costs include loss of work, loss of school, meeting the burden, loss of savings, extra loans made, assets sold, work replacement/

Table 11: Template for measuring economic impact of alcohol related problems in the community

Deaths	Loss of life and economic potential
	Loss of property
	Damage to property
	Funeral costs
Hospitalizations	Inpatient costs
	Costs of investigation
	Costs of treatment
	Transport expenses
	Food and related costs
	Time spent by family members
Rehabilitation	Travel costs
	Rehabilitation charges
	Appliances and others
Any alcohol related problem	Loss of work and wages
	Decreased productivity
	Loss of school for children
	Lost productivity for employer
	Sickness compensation
	Resources for crime prevention
Police costs	Resources for law and order maintainence
	Resources for drink drive programs including breathalyzer cost and maintainence
	Resources for trial of convicts
Legal costs	Resources for maintainence of systems
	Costs of rehabilitation programs
Family costs	Time and money spent on police station, legal, health and many others
Insurance costs	Compensation provided

Source: Adopted from Bernard et al, 1997 and Gururaj et al, 2006a

support, cost to the employer/society, low self esteem, social costs of postponed events and lost productivity. In addition, as in the case of road traffic injuries, vehicle and property damages need to be included. Legal costs can sometimes be huge and phenomenal as in the case of litigation. Understanding the monetary impact of these consequences depends on availability of nationally representative data from different sources like hospitals, transport department, police department and legal services. Repair costs, insurance costs and other costs include costs of loss of property. The intangible costs of alcohol use like death, pain, suffering and bereavement are difficult to estimate. In economic terms these intangible costs "cannot be bought or sold" and hence the cost of reduction in pain and suffering depends on the values attributed by the society. Reviewing the Canadian data, Bernard et al (1997), listed different cost categories that have been looked into to arrive at the cost of Alcohol-Tobacco-Drug abuse in Canada. It has to be noted that such detailed information is not readily available in India. The available data

for many countries indicate huge socio-economic burden in every society as shown in Table 12.

Lack of data in crucial aspects of healthcare calls for more systematic efforts and a revisit of the direction of our research priorities. Rajendram et al (2006) observed that the global commitment to alcohol-related research is only one-sixth of that warranted by the burden of disease due to alcohol and calls for more interest and investment in alcohol-related research in the developing world, proportionate to the regional burden of harm from alcohol.

A key question raised in economic circles is the cost of providing a range of services and the expenditure incurred by various departments to deliver these services. While calculating, the net costs is preferred to individual costs, all individual costs add up to total costs. Apart from costs to governments, the resources spent by a family for various expenses needs to be factored in as much of the health and related expenditure in India is borne by the family as out of pocket expenditure (MOHFW,

Table 12: Economic impact of alcohol in selected countries of the world

Country	Year	Total Cost Estimate
Australia	1998-1999	Aus \$ 7560.3 million
Canada	1992	\$7.52 billion
Finland	1990	\$3.351-5.738 billion
France	1997	FF 115 420.91
India	2004	₹ 244 billion
Ireland	N.A.	• 2.4 billion
Italy	2003	• 26-66 billion
Japan	1987	US\$ 5.7 billion
Netherlands (the)	N.A.	• 2.577 billion
New Zealand	1990	\$16.1 billion
Scotland	2001-2002	\$1.071 billion
South Africa	N.A.	\$1.7 billion
Switzerland	1998	6480 million Swiss francs
United Kingdom (the)	N.A.	£15.4 billion
United States (the)	1998	\$184.6 billion

Source: WHO, 2004a and Bangalore Study, 2006

2009). This needs to be seen in a scenario where private sector costs are raising and insurance coverage for Indian population is less than 5%. In addition, it is essential to realize that pain and suffering are difficult to measure even with advanced research techniques.

Economic impact has been attempted for all public health problems like cardiovascular diseases, cancers, road accidents, respiratory diseases and many others. Considering the high costs of service delivery after an event has occurred, many governments, especially in HICs, have put a greater emphasis on prevention and early management as it saves enormous resources to governments. No such activity has been undertaken for alcohol related problems in India. We have tried to develop a template on which such costing needs to be done and hope this would be undertaken in the coming days.

As noted earlier, the revenue generated from taxes on alcohol is the second important source of revenue to many state governments. What is generally not documented is the outflow from the exchequer to manage the health, social, legal, enforcement and non-health consequences of alcohol use. Social costs of alcoholism far exceed the revenues which get generated (Benegal et al, 2000). Working on a relatively small sample of alcohol dependents they estimated the total costs for an alcohol dependent as \approx ₹30,000 per month. The total outgo from the state exchequer towards alcohol dependents was estimated to be ₹18 billion as against the excise revenue of ₹8.46 billion. Even after including the direct payments to health services (₹180 million) the outgo continued to be much higher (Benegal et al, 2000).

The frequency of ill-health is greater for an alcohol user and in addition the consequences of acute intoxication and the resultant injuries or other health effects either for the self or the family members particularly the spouse falls on the health sector.

The average cost of caring for a traumatic brain injury patient was estimated to be ₹2,200 per hour. This cost needs to be seen in the context of nearly 30 to 40% of the RTIs occurring under the influence of alcohol. Those who had consumed alcohol had a worse prognosis (Gururaj 2005 and 2004b).

The Bangalore Study on burden and socio-economic impact of alcohol use attempted to document the socio-economic costs and burden of alcohol in four representative areas (Gururaj et al, 2006a). Expenditure in 8 dimensions of healthcare costs, costs due to injuries—both intentional and unintentional, occupation related, financial, psychological, social and legal were documented. The average or minimum and maximum expenses for a specified event which occurred during the last 12 months was recorded. An alcohol user was defined as any individual who reportedly consumed any alcoholic drink in the 12 months prior to the survey. This study revealed that annually a huge expenditure category for an alcohol user is with respect to pawned goods and articles (₹9,664), with the amount lost in gambling being substantial (₹3,663). Additionally, debts, work-related problems, health problems resulted in alcohol users spending/losing ₹1,508, ₹1,450 and ₹1,207, respectively. Fifty one percent reported to have had one or more consequences attributable to alcohol use and had spent on an average ₹3,900 per annum. Additionally, the expenditure due to alcohol and related drinking expenses (refreshments, transportation, etc) over a period of one year was ₹4,600.

These expenses are only a fraction of the total costs of alcohol use in the community and do not include the intangible costs of psychological suffering the family and the society would undergo. Nearly 80–90% of the users who run away from home or stay away from home report it to be due to alcohol use. In addition, as health sector spends enormous amounts on diagnosis and management/

rehabilitation, the costs would be huge, though unmeasured. The costs of premature mortality, the opportunity costs of sickness, costs of caring for chronic alcoholics or the dependent users either at the family level or within institutions (healthcare or others), the loss of resources to the family, the cost of decreased production or sickness absenteeism are some of the other costs that contribute significantly to the problem of alcohol use which has not been monetized in this study.

The out of pocket expenses to manage the consequences attributable to alcohol use when extrapolated to the entire country was an estimated ₹244 billion for the year 2003–04. A noteworthy aspect of these estimates is that they are about equivalent of the total revenues that are generated from alcohol manufacture and sales. The total excise revenue of the central and state governments in India for the year 2003–04 was about ₹216 billion (Damodar, 2004). Notwithstanding the employment potential of the beverage alcohol industry or the indirect revenues from media and advertising, *if all costs are comprehensively examined and calculated for all events, the economic impact would be much higher than these conservative estimates. In the final analysis, Indian society might be economically losing more than it is reportedly gaining.*

8.5. Help seeking patterns by affected individuals and families

Alcohol users give a variety of reasons (including historical and social reasons) for drinking. Notwithstanding this, majority of alcohol users feel themselves guilty about their drinking habit and this stigma is one of the contributors for not

seeking care. Silva et al (2003) reported that the hazardous users did not consider their alcohol use as a problem and hence, few sought help. A significant number of patients admitted to general hospitals have alcohol-related physical disease (Srinivasan and Kutty, 2000) and the underlying alcohol problem often goes unrecognized and untreated (Benegal et al, 2001), leading to treatment delays of almost 11 years (between the first alcohol related physical problem being manifest and help seeking). In the Bangalore study, every second alcohol user wanted to reduce the consumption. Among this group, while 1 in 7 thought about getting help, only 1 in 20 actually approached a doctor. (Table 13) Those seeking medical attention for a variety of health problems ranged between 0 to 30%. Health care was not sought for other family members, even when it was required. For example, of those abusing their parents under the influence of alcohol, less than 5% sought medical care (Gururaj et al, 2006a). Apart from lack of motivation to seeking care by affected persons, other factors like availability and affordability of health services also contribute in a significant way.

Table 13: Help seeking patterns 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

Source: Gururaj et al, 2006a

In conclusion,

- Evidence regarding social impact of alcohol use from India is still in its infancy.
- The social and economic consequences have largely been based on media reports and not on scientific research.
- Significant impact of alcohol on the social aspects of the individual, family and society is widely acknowledged.
- Violence (especially involving spouses), impoverishment, impact on children and occupation related problems are the key areas where impact of alcohol has been studied.
- Available evidence with regard to association and impact of alcohol on spouses and children is merely the tip of the iceberg.
- The family finances suffer as a consequence of alcohol use by the head of the family, compromising the substantive needs of the members. The evidence currently available directly implicates greater impoverishment of alcohol user families through hospitalization and other medical emergencies.
- The attitude of the Indian society in general and the employer in particular has resulted in not just loss of production to the country but has also contributed to the perpetuation of the psycho-social consequence of alcohol use.
- Alcohol has been cursorily documented in crime, either organized or unorganized. The relationship is poorly understood and conviction rates for alcohol related offences are low.
- Mass casualties as a result of illicit liquor tragically still occur.
- Preliminary crude estimates have put the total out of pocket expenses for managing consequences of alcohol in India for the year 2004 to be greater than the revenues earned from taxes on alcohol: ₹244 billion expenditure as against ₹216 billion revenue.

RESPONSES TO THE PROBLEM OF ALCOHOL USE

More than 20 years ago, Mohan and Sharma (1985) lamented that "there have been no mainstreams of ideas either in medical or sociological research on alcohol use and misuse in India, which can form the basis for a rational alcohol policy". Sadly, little has changed in the intervening period! This is not to deny the regulatory measures that exist in most states to reduce alcohol consumption. However, in the absence of a central and state coordinated coherent and transparent policy on alcohol, these remain at best inadequate and piecemeal efforts.

To a casual observer, the many legislations and regulations pertaining to alcohol production, retail

and consumption might convey the impression that India has a comprehensive alcohol policy and measures for control. The European Comparative Alcohol Study (ECAS) team constructed a quantitative scale to determine and measure the strictness and comprehensiveness of alcohol control policies in force in the European Union (Österberg and Karlsson, 2002). Applying the parameters of the ECAS scale, overall the strictness of Indian alcohol control policies would rate quite high (17 points over a maximum possible of 20 as shown in Table 14). Unfortunately most of the regulatory provisions are not implemented or when implemented are partial.

Table 14: ECAS scale: measure of strictness of alcohol control policies

	<i>Maximum possible score</i>	India
CONTROL OF PRODUCTION AND WHOLESALE		
◊ State monopoly for production or wholesale of: Spirits=1; Wine=1; Beer=1	3	3
CONTROL OF DISTRIBUTION		
◊ State monopoly for off- or on-premise retail sales of: Spirits = 1; Wine=1; Beer=1		
◊ No monopoly for retail sales of alcoholic beverages but an alcohol specific license is needed for off- or on-premise retail sales of alcohol=1		
◊ Special restrictions on sales days and hours in off-premise retail sales=1		
◊ Other restrictions on off-premise sales of alcoholic beverages=1		
◊ Other special restrictions on on-premise sales of alcohol=1	7	5
PERSONAL CONTROL		
◊ Legal age limit for off-premise sales >20 for some alcoholic beverages=1 .5		
◊ 18 for some alcoholic beverages 1		
◊ 16 for some alcoholic beverages=0.5	3	3
CONTROL OF MARKETING		
◊ Restrictions on advertising: Statutory control=2; Voluntary control=1	3	2
SOCIAL AND ENVIRONMENTAL CONTROLS		
◊ Drunk driving: BAC<0.05%=3; BAC<0.08%=2; BAC>0.08% =1	3	3
PUBLIC POLICY		
◊ National alcohol prevention program=1; National alcohol education program=1	2	1
	20	17

Source: Benegal, 2004

Alcohol revenues form a substantial part of individual state's income and as part of the federal structure, each state formulates its own guidelines. The responsibility for health policy similarly devolves to each state. Side-by-side with poor regulation, there has been an appalling lack of attention to the public health consequences of alcohol misuse in India. The aims of the revenue and excise arms of the government, despite the lip service paid to furthering public good, are unfavorable to the development of a rational public health policy on alcohol.

In this context, it is imperative to note that the Ministry of Food Processing Industries of the Government of India had commissioned a Joint Working Group to formulate a centralized alcohol policy. The draft policy document (Sinha, 2005) envisaged changes related more to rationalizing revenue collections from alcohol manufacture and sales and essentially finding pathways to adhere to WTO obligations. The much needed public health emphasis was lacking. This notwithstanding, the sections below critically review the existing policies/approaches/guidelines adopted and interventions attempted towards alcohol control in India. The official response to what is essentially a public health problem remains focused on the visible tip as reflected in the approach to alcohol control policies

both at central and state levels. The focus has remained exclusively on two important issues of supply reduction (prohibition-centric) and tertiary prevention (services for alcohol related and dependent problems).

9.1. Supply reduction approaches

9.1.1. Regulation by prohibition (Total or partial)

Prohibition is the most extreme form of supply reduction. There are three main types of prohibition policy: (1) complete prohibition of production and consumption; (2) partial prohibition where one or more type of liquor is prohibited (usually arrack); and (3) dry days where consumption is prohibited for certain days of the week or month.

The underpinning of alcohol policy in post-independent India has been the recommendation laid down in the Constitution of India, to attempt to bring about prohibition of consumption of intoxicating drinks and drugs which are injurious to health. This obviously encompasses all alcoholic beverages. However, this recommendation on the directive principles of state policy is more of a vision statement rather than a binding dictate.

Alcohol prohibition is a state subject and each state has full control on alcohol regulation, excise rates, as well as on production and sale of alcohol. There is thus significant variation in prohibition policies across states and even within a state over a period of time. Total, partial or limited prohibition has been in place in different states at different periods (Table 15). At present, there are two states with complete prohibition in force (Gujarat and Mizoram) and 5 with ban on production and consumption of arrack (Tamil Nadu, Kerala, Andhra Pradesh, Karnataka and Uttar Pradesh). It is interesting to note that partial prohibition (of arrack) has been the main policy choice of the Southern states

BOX 16

Part IV: Directive principles of state policy

Art.47. Duty of the State to raise the level of nutrition and the standard of living and to improve public health:

The State shall regard the raising of the level of nutrition and the standard of living of its people and the improvement of public health as among its primary duties and, in particular, the State shall endeavor to bring about prohibition of the consumption except for medicinal purposes of intoxicating drinks and of drugs which are injurious to health.

Source: Government of India, 2004

Table 15: Status of prohibition across Indian states (1991 to 2010)

State	'91	'92	'93	'94	'95	'96	'97	'98	'99	'00	'01	'02	'03	'04	'05	'06	'07	'08	'09	'10
Andhra Pradesh			P	P	C	C	C	P	P	P	P	P	P	P	P	P	P	P	P	P
Arunachal Pradesh																				
Assam																				
Bihar																				
Gujarat	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
Haryana					C	C	C	C												
Himachal Pradesh																				
Jammu & Kashmir																				
Karnataka																	P	P	P	P
Kerala					P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
Madhya Pradesh																				
Maharashtra																				
Manipur	C	C	C	C	C	C	C	C	C	C	C	C	C	C						
Meghalaya																				
Mizoram								C	C	C	C	C	C	C	C	C	C	C	C	C
Orissa					C	C														
Punjab																				
Rajasthan																				
Tamilnadu	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
Tripura																				
Uttar Pradesh			C	C	C	C	C				P	P	P	P	P	P	P	P	P	P
West Bengal																				

Complete Prohibition

Partial Prohibition

No Prohibition

Reference: Updated from Rahman, 2003

where much country liquor is distilled. Many state governments have attempted these measures in different ways only to hastily reverse due to difficulties in implementation.

The states of Andhra Pradesh, Manipur, Mizoram, Nagaland, Haryana, Delhi, Orissa, Rajasthan, Uttar Pradesh and Kerala have all attempted prohibition and subsequently changed their policy in the face of mounting revenue deficits, costs of policing, smuggling from neighboring states and force of underground alcohol economies, notwithstanding the evidence of decreased consumption (Benegal, 2005a). In fact, most state governments have publicly recanted the official commitment to prohibition, although it continues to remain enshrined in the Constitution. There are

periodic attempts to revive the prohibition debate. The latest being an admonishment by the Supreme Court of India, to the central government for failing to seriously pursue the policy of alcohol prohibition in the spirit of the constitutional mandate (Drug War Chronicle, 2006). Meanwhile, social taboo to consumption within particular socio-economic groups (the urban middleclass) is decreasing rapidly.

As a response to lobbying through women's movements, several states enacted prohibition orders during the early 1990s. These movements gained considerable popular support. Well known among these is the Anti-Arrack Movement in Andhra Pradesh spearheaded by women's groups in the Telengana area (Rao, 2004). Given that excise from potable alcohol was approximately 20–25% of state-revenue,

this inevitably led to a massive loss of revenue resulting in the prohibition orders being reversed in subsequent years. The experience of Haryana is the most striking example where, after two and a half years of complete prohibition between 1996 and 1998, the state treasury was practically bankrupt (Shah, 2003).

9.1.2. Impact of prohibition

9.1.2.1. Decrease in consumption

The available data shows that complete prohibition had a significant and positive effect on the prevalence of alcohol use (22% reduction), but only a limited effect on total quantity consumed. The effect of partial prohibition or total alcohol consumption significantly decreased both prevalence and the proportion of the family budget spent on alcohol, but paradoxically increased the quantity consumed. The decrease in prevalence of use appeared to be driven by the large decrease in arrack/country liquor consumed. On the other hand, prevalence of IMFL use rose significantly by approximately 11%. This suggests that alcohol consumers substituted IMFL instead of arrack/country liquor during period of partial prohibition but reduced consumption of both during complete prohibition (Rahman, 2003). Increased taxes and curtailed production have an additive role to the net effect on prohibition.

Theoretically, prohibition instead of decreasing can also result in increasing consumption. This is probably due to ‘glamorization’ of alcohol especially amongst certain groups. In addition, when there are high state excise rates on initial production which gets abolished during prohibition periods, it can push costs higher. From a public health perspective, consumer’s health is at a greater risk with illicit alcohol available in excessive amounts during prohibition period.

9.1.2.2. Improvement in indices of social well-being

During the period of total prohibition in Andhra Pradesh (1995–96), it was found that the small scale savings increased substantially to almost double the amount prior to prohibition. With relaxation of prohibition and release of IMFL into the market the amount of small scale savings not just decreased but also was seen to have decreased to levels lower than that prior to prohibition. Additionally during the period of prohibition, there was reported to be a decrease in road injuries, crimes and other violence (Figure 16).

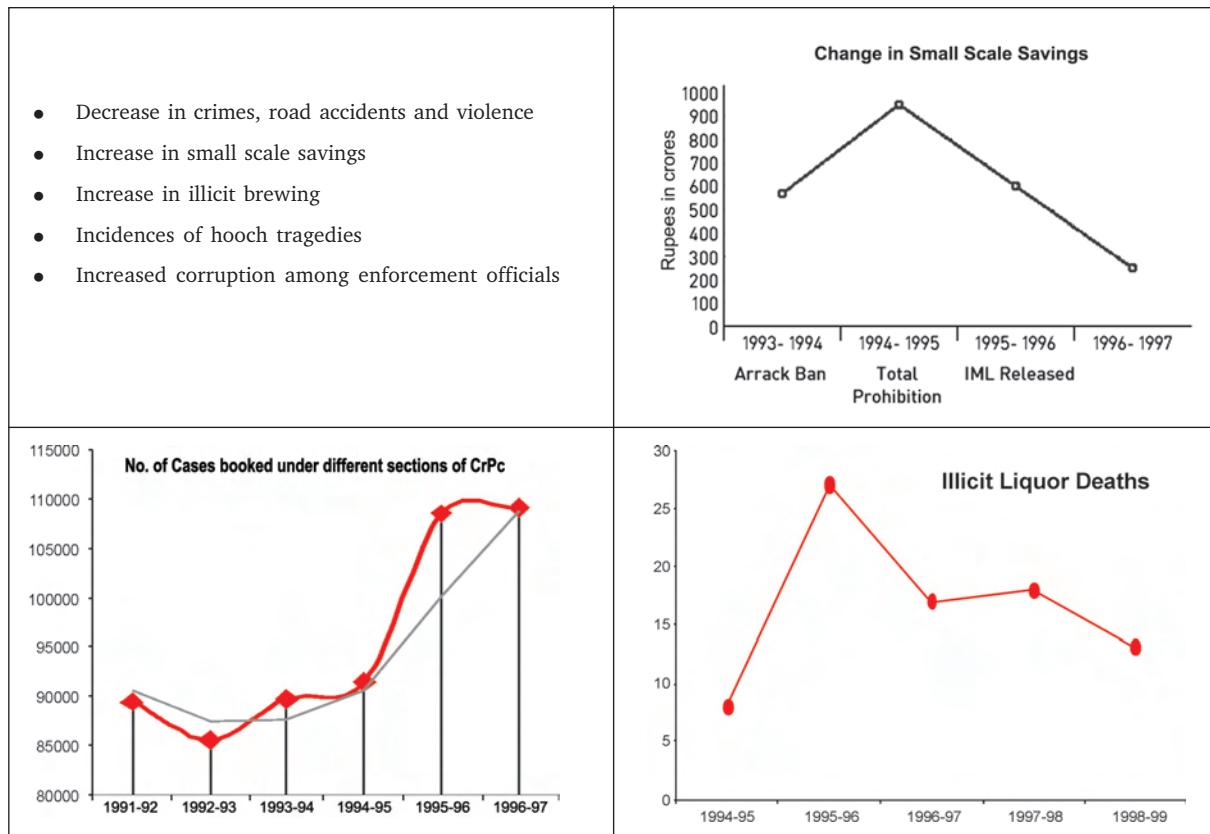
9.1.2.3. Undesirable effects

Two key undesirable effects needs to be factored in while discussing prohibition: Firstly, alcohol related organized crime and related activity and secondly the mass casualties resulting from illicit brew consumption.

Kumar (1999) traces the rise of criminal organizations in India to the prohibition against the sale of liquor introduced after Independence in several Indian cities. This led, as in the United States (when there was a ban on alcohol after the First World War), to the development of organized criminal groups in cities such as Bombay (Mumbai) and Ahmedabad. The organized criminal gangs not only manufactured and distributed illegal alcohol; they also made illegal payments to politicians and members of law enforcement agencies to buy protection from arrest and prosecution.

Secondly, any alcohol production during the period of prohibition would be of the illicit variety. Illicit brewing is often not just clandestine, but many times also a toxic cocktail (Benegal et al, 2003). The increase in illicit brewing and the resultant mass casualties that followed in the aftermath of the Andhra Pradesh prohibition experiment seemed to defeat the larger purposes of prohibition. With

Figure 16: Impact of prohibition in Andhra Pradesh



Source : Benegal, 2004

financial resource crunch, the state government took the decision of relaxing the absolute ban on alcohol. The state of Gujarat seems to be the sole exception in India, having had an unbroken policy of prohibition for over fifty years. With paucity of data, it is difficult to draw definitive conclusions whether prohibition has had the desirable impact of reducing alcohol related problems. On the contrary, alcohol related problems constitute a substantial burden (Bhatt et al, 2003). This is a pointer towards not just the availability of alcohol (sadly this is not documented) in the state but also that prohibition is merely an administrative statute. A key learning which emerges out of the Indian experience (as also previous attempts internationally) is the difficulty in sustaining a uniform policy of prohibition.

The strengths and weaknesses of prohibition are useful lessons in themselves even though more systematic evaluation of this has not been undertaken. It is important to understand the lessons learnt from prohibition exercises in order to formulate rational alcohol policies. An important question is how to realistically measure the impact of prohibition? The criteria for measuring the impact of prohibition should not be in terms of an administrative rule or statute, but in terms of reduction in alcohol related effects during and after prohibition.

9.1.3. Regulation by Taxation

Taxation has been one of the major instruments used to regulate use of alcoholic beverages throughout

the world. The implicit assumption and experience of some high income countries is that increasing the price of alcoholic beverages has a deterring effect on alcohol consumption.

9.1.3.1. Taxation structure

The lack of uniformity in the rules and regulations across Indian states with regard to taxation has given rise to a host of problems including promoting smuggling across state borders. The taxes on production, distribution and sale of alcoholic beverages are multiple and also vary from state to state. The Confederation of Indian Alcoholic Beverage Industry listed out 117 different types of levies on alcohol over all the states in India (Beena et al, 2004). Apart from excise duty and sales tax, import tax and export tax are also levied. Other levies as applicable to an alcoholic beverage include: Rental / License fees, excise duty, additional excise duty, sales tax, vend fee, gallonage fee, and countervailing duty etc. However, most of the excise revenues for a state are realized in the form of either rental / license fees or excise duty. Greater revenue is realized in the form of duty and taxes than in the form of licenses fees. To protect the domestic alcohol industry, the central government imposes customs duty (basic customs duty and additional customs duty) on alcoholic beverages imported into the country. It has been estimated that eventually the tax component of liquor is in the range of 40 to 60% for IMFL and 60 to 70% for country liquor (Sinha, 2005).

9.1.3.2. Differential taxation

To a large extent, most states follow the age-old practice wherein taxation is based on the bulk (in volume) of alcoholic beverages rather than on the alcohol content per unit volume. This obviously makes spirits (both IMFL and country liquor)

relatively cheaper. This has contributed to the predominance of spirits consumption among Indians especially among low-income groups. Coupled with the prevalent pattern of regular heavy alcohol use, this arguably contributes to a higher level of harm.

9.1.3.3. Taxation on imported alcohol (Bottled in Origin, BIO)

Although bound by its treaty obligations to the World Trade Organization, the domestic alcohol industry is still protected by taxation on imported alcohol, although different modalities are adopted. Under the earlier tax regime, Basic Customs Duty (BCD) on wine was 100% and Additional Customs Duty (ACD) ranged from 75 to 120% based on the cost. For spirits, both BCD and ACD was about 150% each. While this has been reduced to uniform levels, the range of taxes levied by each state has been either maintained or enhanced (Sinha, 2005, Shankaran 2009, The Hindu 2007).

However, European Commission (EC) and USA which have petitioned, continues to contend that India's current tariff regime at the state level is discriminatory, which goes against the 'national treatment' for imports as required under GATT and WTO (Ganapathy, 2006). A major worry for the domestic industry is that with reduced tariff, local spirit companies will have to compete with imported low-end foreign spirit products. Domestic companies generate margin from sale of low-end and middle-level products. Profits are generated on sale of large volumes of low-end products, not premium ones. So the domestic industry feels the need to check inflow of low-end products from abroad.

From the public health perspective it is instructive to remember that experience has shown that imported brands add to the local brands, more than it substitutes, thus increasing total consumption

and also providing drink choices and situations (McBride and Mosher, 1985).

9.1.3.4. Impact of tax on alcohol consumption

It is intriguing to see whether taxation policy has made any impact in the Indian region. During the last decade, there has been an increase in taxes from year to year both at Central level and at the state levels. At the same time and in the same periods, the number of alcohol users has also increased and alcohol related deaths and hospitalizations have also increased (based on individual studies). This points to the fact that the taxation increase has not had any significant impact in reducing alcohol consumption, but has only helped governments in raising their revenues. The differential tax structure across the states makes it a very challenging endeavor to decipher the real impact of taxes on either consumption or trend of alcohol use. Orissa with its lower rate of taxation and hence lower prices of beer was found to consume 30% more beer than West Bengal. Uttar Pradesh saw a doubling of beer consumption during the years 1999–2000 and 2000–2001 when market price of beer was reduced by 15–20% (Sinha, 2005).

From a public health point of view, the question that confronts the policy makers is to what extent price increase curbs alcohol consumption (or in economic terms, what is the price elasticity of demand?). Price elasticity of demand for alcohol is measured as the percentage change in quantity of alcohol demanded (and bought) in response to a percentage change in price of alcohol. Such econometric data from the Indian region is very scarce. Available data show that the price elasticity of demand for alcohol in the Indian region has been less than one (Mahal, 2000, Rahman, 2003). This means that for the percentage increase in alcohol price, the quantity of reduction in demand for alcohol is not same but lower. Further, it has been

observed, as elsewhere, that the response to increasing prices depends on the age group (Mahal, 2000), socio-demographic characteristics (rural or urban residence; high income or low income, etc.,) and type of alcohol consumed (arrack, toddy, IMFL, beer, etc.,) (Rahman, 2003).

Using effects of prohibition as a function of price and a deterrent factor which increases the cost of consumption, the dataset of household expenditures from 13 different rounds of National Sample Survey revealed that (i) rising income increased the number of people who consume alcohol (participation rates) especially the luxury types of alcohol (IMFL and Beer), but was in a lesser proportion compared to the rate of increase of income (ii) Rural households have a significant preference to arrack and toddy (iii) urban households were more responsive to price increases during periods of prohibition in comparison to rural households (iv) with head of household being literate there was a strong preference for IMFL and Beer (v) while prohibition deterred more people from taking to alcohol consumption, it had little effect on people who were already consuming alcohol; they simply shifted to drinking toddy (during complete prohibition) or to IMFL (during partial prohibition). A major conclusion from the analysis is the “dangers associated with undertaking isolated policy decisions for addictive substances like alcohol”. While rising taxes can have some impact, the reduction in consumption of alcohol is not strongly linked to taxation. Higher prices beyond a point (to be established for Indian region) are not a deterrent for use of alcohol, particularly for IMFL and beer and in urban areas and for those who are alcohol dependent, whereas it might have an impact in rural areas and amongst those who are less than 25 years of age (Rahman, 2003).

Doll (1997) observes that rather than aiming to reduce heavy drinking, a policy which aims at

reducing the average amount consumed by the population as a whole would be more effective and that this could be achieved by increasing taxation. The World Bank (2006) found that taxing alcohol reduces consumption and estimated that a 10% increase in price reduces consumption of beer by 3%, wine by 10% and distilled spirits by as much as 15%. Further, such measures in Europe and Central Asia, Latin America and the Caribbean and sub-Saharan Africa averted more than 500 DALYs per 1 million total population per year. In the other two regions of East Asia and Pacific and South Asia, the burden that is avertable via taxation could be in the range of 10-100 DALYs per 1 million population per year. The costs for enforcing a 25% increase on alcohol taxes is around USD 3,654 per DALY averted as compared to USD 531 through random breath testing.

Taxes on 'proscribed' 'luxury or undesirable goods' like alcohol, tobacco are referred to as 'Sin'

or regressive tax. Such taxes apart from bridging the resource gap are used to fund health promotion and disease prevention activities (DCCP II). 'Thaihealth', initiated in Thailand is a unique example with the stated objectives of providing funds that would influence societal values and lifestyle to promote and support health. The funding for activities of 'Thaihealth' comes from additional surcharge taxes on alcohol and tobacco (Vathesatogkit, 2005, Buasai et al, 2007).

9.1.3.5. Draft alcohol taxation policy

The Government of India had set up a Joint Working Group (JWG) of concerned central ministries and state excise commissioners under the chairmanship of the Joint Director of Ministry of Food Processing Industries "to update and consolidate the plethora of acts and rules so as to make them concise, easy to comprehend and apply, meet the needs of the modern globalised world and also ensure

BOX 17

Excerpts from the draft alcohol taxation policy

- 3. Some general observations:-** In the aforesaid ideological, socio-economic and reality back-drop and analysis in the subsequent chapters, the following general observations are made:
 - i. Prohibition is not a viable policy.
 - ii. Though the play of market forces in a free trade regime leads to optimization of resources, this may not be the best recipe for alcoholic products because of its very negative nature. Moreover, after reaching saturation level in consumption in the developed countries, there is a very real danger of surplus production in these countries being "marketed" and dumped into developing countries. The Union and the State Governments should, therefore, take necessary measures to protect citizens from this phenomenon.
 - iii. Scientific studies have proved the efficacy of the physical controls in controlling consumption, in spite of their known negative side effects (illicit distillation, trafficking etc). Further, to minimize such side effects, control regime should be reasonable and transparent and give least discretion to the operators.
 - iv. The tax element in the price structure will have to be high so long as the cost price of liquor continues to be low. In the long run, with the increase in the cost price, due to increased demand of alcohol for industrial and fuel use, the element of taxes can be brought down.
 - v. A model excise policy should ensure that the objectives of minimization of consumption and maximization of revenue are achieved without putting unreasonable restrictions on the individual's freedom of choice and unreasonably high taxation.
 - vi. Raising rates beyond the threshold, instead of generating higher revenue and discouraging consumption, would lead to evasion of taxes, smuggling and illicit distillation. Therefore, efforts should be to rationalize tax and policy regimes so as-to plug leakages and realize full revenue due to the State for legitimate and responsible drinking.

Source: Sinha, 2005

efficient systems, procedure and forms amenable to online transaction on a national network". The report of the JWG titled Model Policy/Taxation Act/Rules for alcoholic beverages and alcohol was available at www.mofpi.nic.in and the salient recommendations of the JWG is given as Box. 17. The model alcohol policy was, as intended, a alcohol taxation policy which aimed to rationalize revenue collections. One of the retrogressive measures suggested was the increase in the BAC to 0.6 mgm% under the Indian Motor Vehicles act.

9.1.4. Restricting access

9.1.4.1. Age limit for legal access to alcohol

A higher minimum age for legal access to alcohol is anticipated to reduce the overall public health consequences of consumption. It is well established that with each delayed year of initiation into alcohol drinking, there is a significant reduction in either the likelihood of developing alcoholism or

the lifetime risk of alcohol abuse (Grant et al, 2001). The legal drinking age in many of the developed countries varies between 18 years (United Kingdom and Australia), 20 years (Japan) and 21 years (USA). However, it should be noted that this applies to drinking in bars, pubs, restaurants, clubs and other establishments and does not apply at home. Surprisingly, in the United Kingdom, the minimum consumption age at home with parental consent starts from 5 years (Wikipedia, 2006). Almost all countries have had difficulty in enforcing these laws.

The excise policies of most Indian States apart from laws that ban the production and sale, define the minimum age at which one can purchase alcohol from outlets and the punitive actions for actions to the contrary. Individual states except for Gujarat, define legal drinking age to be 18 years, 21 years or 25 years (Table 16).

Simulations have demonstrated that implementing a nationwide legal drinking age of 21 years in India, can achieve about 50–60%

Table 16: Legal minimum age for alcohol consumption/purchase in India, by State

State	Legal Minimum Age for Purchase/ Consumption (in years)	Act under which Applicable
Andhra Pradesh	21	Andhra Excise Act 1968
Assam	18	Assam Excise Act, 1910
Bihar	21	Bihar and Orissa Excise Act 1915
Gujarat	Blanket Prohibition	Bombay Prohibition Act 1949
Haryana	25	Punjab Excise Act 1914
Himachal Pradesh	25	Punjab Excise Act 1914
Karnataka	18	Karnataka Excise Act 1967
Kerala	18	Abkari Act (year unknown)
Maharashtra	Minor	Bombay Prohibition Act 1949
Madhya Pradesh	21	Madhya Pradesh Excise Act 1915
Punjab	25	Punjab Excise Act 1914
Rajasthan	18	Rajasthan Excise Act 1950
Orissa	21	Bihar and Orissa Excise Act 1915
Tamil Nadu	21	Tamil Nadu Prohibition Act, 1937
Uttar Pradesh	21	Uttar Pradesh Excise Act 1910`
West Bengal	21	Bengal Excise Act 1909

Source: Mahal, 2000

BOX 18
General Conditions Rules (Excise Act), 1967

- 4] Commencement of business: Licenseeshall keep open on every day during such hours as may be fixed by the Excise Commissioner.
- 4A] Closure of shops on certain occasions: A licensee may after information to the concerned Sub-Inspector of Excise, close the shop on the following occasions, namely
a) On the day of a marriage in his family; or
b) On the day of the occurrence of a death or accident in his family.
- 5] Restriction in respect of location of shops:
- 5.1] No licence for sale of liquor shall be granted to a liquor shop or premises selected within a distance of 100 metres from any religious or educational institution or Hospital or any Office of the state Government or Central Government or Local Authorities or in a residential locality, where the inhabitants are predominantly belonging to Scheduled Castes or Scheduled Tribes or within a distance of 220 metres from the middle of the State Highways or National Highways.
- Explanation:**
For the purpose of this rule “National Highways” or “State Highway” as are situated within the limits of a Municipal Corporation, City or Municipal Council, or such other authority having a population of twenty thousand or more.)Provided that.....with the prior approvalpermit the location of any shop within a distance of 100 metres, but not less than 50 metres from the institutions, hospitals, office or locality
- 5.4]by orderdirect such licensee to shift the location of any shop, -a) With a view to secure the convenience, morality, tranquility, decency or safety of the public
- 10] Liquor not to be sold to certain persons, etc.:-
- (1) No liquor shall be sold or otherwise given to the following persons, namely, -
a) Insane persons;
b) Persons known or believed to be drunk;
c) Persons known or suspected to be about to take part in a riot or disturbance of public peace or any other crimes;
d) Excise Officials, Police Officers, Railway Servants and Motor Bus Chauffeur, on duty, or in uniforms;
e) Persons below the age of twenty-one years:
- [10-A. All shops shall remain closed on Gandhi Jayanthi Day:
[10-B. Prohibition of sale of liquor during election and counting Days etc.:
14] Sales only for cash: No liquor shall be sold except for cash.

Source: Singh, 2006

reduction in alcohol consumption mirroring the effects of prohibition (Mahal, 2000). However, some also argue that this leads to increased consumption among men who may not wish to wait. It must be acknowledged that the practical difficulties in enforcing such a law, in the absence of a national identification system makes it complicated to assess the impact of these different age cut-offs on consumption. The problems with regard to manpower and procedures on behalf of the monitoring agencies further compound the difficulties in implementation.

9.1.4.2. Density and location of outlets

There are specific guidelines within the Excise Acts in most of the states which stipulate the numbers

of outlets permissible in specific areas and restrictions regarding the location of such outlets (Box 19). Most states also place a cap on the number of permitted outlets. There is substantial confusion, and often deliberate misinterpretation of these clauses. Even though the law states that alcohol should not be sold in residential places, near schools, / hospitals and religious institutions, this is hardly enforced or practiced. There is a huge presence of alcohol vending outlets on all highways (even though the law stipulates that outlets should be 100 meters from highways).

9.1.4.3. Dry days

There is also the practice of mandatory “dry” days in most states (E.g. 2nd October, Gandhi

BOX 19
Alcohol and elections

Dated: 28.11.2008

LARGE QUANTITY OF ILLICIT LIQUOR TO BE USED FOR DISTRIBUTION DURING DELHI ASSEMBLY ELECTIONS SEIZED

With the arrest of three persons namely,South West District police has busted a interstate gang of illicit liquor suppliers of ... and huge quantity of illicit liquor to be used for distribution among voters of Delhi Assembly Elections 2008 has been recovered/ seized. In this connection two cases vide FIR No.808/08 and 809/08 u/s 61/78E Excise Act have been registered at P. S.....

As the Delhi Assembly Elections 2008 are scheduled to be held on 29-11-08 to keep a check on the transportation/distribution of illicit liquor, the staff of South West District police was briefed and various teams were deployed in the area.... While the team was present in the area of PP Sector 16B a secret information was received that large quantity of illicit liquor is stored in a plot at ... which will be distributed among the jhuggi dwellers in the near by areas during night. A raid was conducted immediately at the plot and it was found that some persons were unloading cartons of illicit liquor from a Dumper and putting the same in a Tata Sumo parked nearby. The liquor was found to be 'for sale in Haryana only'. A total 12,876 bottles of illicit liquor were seized and the present cases were registered.

Further, on sustained interrogation the accused persons disclosed that the liquor was supplied by ...

Further investigation is on.

Deputy Commissioner of Police
South-West District, New Delhi

<http://delhipolice.nic.in/home/backup/28-11-2008.doc>
accessed on 4th October 2010

Source: Deccan Herald, 31-12-2010

Poll officers seize sarees, liquor

BBBBBB DHNS: The poll officers on Thursday seized sarees, liquor and silver idols allegedly meant for distribution among voters, in view of elections to ZP and TP scheduled to be held on December 31.

Following a tip-off, a team of poll personnel led by Assistant Commissioner **BBBBBB** and Tahasildar **BBBBBB** raided the house of **BBBBBB** driver of **BBBBBB** candidate **BBBBBB** contesting elections



from **BBBBBB**, at **BBBBBB** about 1,000 sarees and liquor worth Rs 7,000 were seized during the raid. **BBBBBB** and his wife **BBB BBBB** have been arrested by

the **VBBBBBB** police.

In another case, seven silver idols that were allegedly being distributed among the voters were recovered in **BBBBBB** **BBBBBB** and **BBBBBB** had been distributing the idols on behalf of **BBBB** candidate **BBBBBB** contesting the polls from the **BBBB** seat. The police have arrested the two.

The magistrate has lodged the complaints at **VBBBBBB** police station.

Jayanthi, the birthday of Mahatma Gandhi). States have also initiated other dry days, usually one day in the week, but in some places (Andaman & Nicobar islands) there are innovations like a dry day on the payday at the month end. The Government of Delhi also introduced dry days (major religious festivals and national holidays) on 21 days in a year; alcohol is not available for general public on these days. The days immediately preceding elections are also declared dry days, in order to prevent problems of law and order and truth. Obviously, this has not worked as people can still buy and store alcohol on previous days (Box 19).

9.1.4.4. Timings of alcohol sales

The timing of access to alcohol is another instrument used to reduce harmful consumption. Each state has its own practice, with sales generally permitted between 11am and 12 pm. Some states e.g. Karnataka ban sales between 3 and 5 p.m.

The timings with respect to sale of alcohol are a matter of concern for police, hotel industry, alcohol

vendor outlets and few elite and poor people. While, consumers have been arguing that timings should be extended till 1 am, the police point out that restricted timings help in reducing nighttime crashes and crimes. Introducing happy hours (a concept which is new to India) for beer during school timings, in some of the larger cities is clearly indefensible. Opinion has been divided on whether these reduce the impact of alcohol misuse or are likely to be more dangerous due to effects of acute intoxication associated with rapid consumption of larger quantities of alcohol in a shorter time. The impact of these measures is not well studied and it is generally felt that these laws have not been made on a scientific basis, but rather in a arbitrary manner to suit the convenience of business establishments, focused lobbyists and commercial interests.

The high court directive upheld the order of the Bangalore City Police Commissioner to impose restriction on opening of restaurants beyond 11:00 pm. A close look at the arguments against the ban imposed since 2008 reflects the prevalent attitudes

and popular perception of not just alcohol consumption amongst the select influential sections of the city. It also brings into focus the issue of the larger freedom of individuals in a civil society. A TV program in Bangalore showed that many of the retail outlets located in residential areas of the city are open at 6 am and continue business through the day. Many citizens complained about unpleasant environments, unruly behavior of drunkards, endangering of women and children passing in front of these shops.

9.1.4.5. Restriction of advertising and promotion of alcohol

The Press Council of India strictly bars any advertisement that “promotes directly or indirectly production, sale or consumption of cigarettes, tobacco products, wine, alcohol, liquor and other intoxicants”. A similar code is prescribed under Cable TV networks Act of 1995 (Prasad, 2005).

The alcohol industry, however, clearly circumvents these regulations by surrogate advertisement by advertising other products like bottled water, soda, life style accessories, walkathons, etc., Umbrella branding is a new phenomenon (an umbrella brand is a brand that covers diverse kinds of products which are more or less related). For example, one company markets a beer and an airline under the same brand-name. Surrogate advertisements are not just misleading but may also be false (e.g. advertising an apple juice drink that is not freely available in the market, under the same name as an alcoholic drink) and dishonest in some cases (Mehta, 2003). The alcohol industry has been strongly asserting its demand for permitting advertising under certain conditions specified under a self-constructed (and self-imposed) “Code of Conduct” which specifies the timings, intended viewers and slots of advertising products. It is intriguing that the industry has been clamouring for

permission to advertise despite their claims that alcohol advertising does not significantly influence consumer behavior and does not have much impact on prevalence of use (ICAP, 2006a). While, more than 50% of the television viewers have access to cable television at home, analysts have estimated that advertising has a direct influence on 431 million Indians and an indirect impact on 275 million (Mehta, 2003).

9.2. Demand reduction approaches

Consultations and coordination for measuring health impacts have been few and far between. Despite these lacunae, the health sector has been gearing up to meet the growing demand for alcohol related problems through a wide variety of measures and encouraged many NGOs and organizations to develop the required services. Following the recognition of the increasing public health demands from alcohol related problems, there has been an increase in the number of activities across the health sector.

9.2.1. Focus of alcohol related problems

Studies of alcohol treatment systems across countries show that the response in terms of size, extent, and character of the treatment systems each country adopts depends more on its view of the importance of alcohol problems on the one hand and reliance on alcohol excise on the other. These are the major influences rather than alcohol consumption, the need for treatment, resource availability, cost effective strategies and sustainability [Babor et al, 2008]. Most alcohol-related harm is attributable to hazardous/harmful drinkers rather than to people with alcohol dependence [Rehm et al, 2003, Gururaj et al, 2006a, Anderson, 1991]. However, this distinction is rarely considered, especially in lower and middle income countries

[LMICs] like India where politicians, planners, and the public discourse have focused primarily on alcohol dependence—the conventional central motif of alcohol misuse. Benegal et al (2009) in a recent review of treatment systems for alcohol in LMICs, assert that this focus on presentation of persons with dependence and the lack of awareness of the more commoner, but more burdensome problems of hazardous use (referred to as a “prevention-paradox”) has a two-fold effect. Firstly, it minimizes the problem (as being the problem of a few people who cannot control themselves or their drinking), and secondly, stigmatizes the condition by marginalizing the affected individuals. In turn, this approach also predicts the kind of treatment systems that are required and devised to contain them. The primary focus of treatment systems in India has been to create ‘rehabilitation’ centers which isolate the afflicted individuals for varying (usually long) periods of time. The aim is to wean people off their troublesome habits and help them learn more adaptive habits and skills. Strategies for this have included psychosocial interventions and survivor group techniques, as well as the use of aversive medications (like disulfiram which prevents people from drinking as they are wary of toxic alcohol-drug interactions).

In India, service systems for the treatment of Alcohol Use Disorders (AUD), where available, are mainly oriented to tertiary treatment of dependence. The emphasis is on long-term residential treatment in rehabilitation centers, specialised clinics, or psychiatric hospitals [Perngparn et al, 2008, Benegal 2005a and 2005b, Parry, 2005]. These facilities are mainly concentrated in urban areas and are often in private settings, with high fee structures. Where government-funded treatment/counseling centers are available, the overall efficacy of these programs is low [Ray, 2004b].

Consequently, many people with AUDs remain untreated (the treatment gap is over 75%) because

they first seek help for early alcohol-related problems from primary healthcare providers who are not trained to recognise the problem [Kohn et al, 2004; Peltzer et al, 2008; Lotrakul & Saipanish, 2006]. Those who finally decide to seek help would have spent nearly a decade before reaching treatment centers [Benegal et al, 2002]. Thus, at present, alcohol-related problems are first addressed when they are already severe and difficult to treat. Secondary prevention in earlier stages of drinking problems is virtually nonexistent, and many heavy drinkers who are at risk of developing AUD in the future are not targeted by health interventions .

9.2.2. Setting based approaches

9.2.2.1. Interventions in health settings

Ray (2004b) traces the policy formulation with respect to substance use and the growth of De-Addiction centers in the country. In 1977, the Ministry of Health and Family Welfare, Government of India, appointed an Expert Committee in the wake of reports suggesting growing substance use. This Committee recommended the setting up of treatment centers for the identification, treatment, aftercare and rehabilitation of substance users. A second expert committee in 1986 recommended:

- Development of a National Center under the Ministry of Health and equivalent centers in various states
 - Strengthening of existing general hospitals to provide de-addiction services
 - Making state health departments responsible for treatment of patients
 - Priority to be given to manpower development.
- Based on the expert committee and a subsequent cabinet subcommittee recommendation in 1988, de-addiction centers were set up in five central government institutes and two regional centers in two state capitals, Kolkata and Mumbai, under the Ministry of Health. A

National Master Plan to control drug abuse was formulated in 1994, largely subsequent to the enactment of the Narcotics and Psychotropic Substances Act (1985). The health sector's current response to manage the problem resulting from growing alcohol use in the society has been by providing tertiary treatment to individuals with serious addiction. This can be compared to that of "mopping the floor without closing the tap". The response has been weak, fragmented and has often lacked the necessary steam for directly tackling the problem. With the growing number of addicts and dependents along with persons experiencing the harmful effects of alcohol, the existing initiatives do not even touch the tip of ice berg. At the tip lies a section of dependent users (11 million), who represent but a small proportion of those consuming alcohol in a harmful pattern.

From an intervention point of view, long term care and rehabilitation services needs to be provided to these dependent users many of whom do not reach the dedicated deaddiction centers and other tertiary care centers. Further, early detection and prompt treatment measures across different categories of health settings needs to be instituted for nearly 55 million harmful and hazardous users, who are at greater risk of developing long term complications of alcohol use.

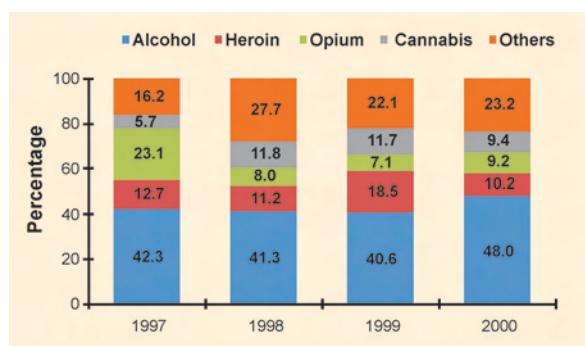
The Ministry of Health (through government organizations) and the Ministry of Social Justice (through non-government organizations) have established centers across the country in medical colleges or district hospitals or some community health centers in consultation with state health departments. However, many of the centers do not have adequately trained staff, medicines and supportive facilities. The Ministry of Social Justice has supported public awareness campaigns, media publicity and community based treatment and aims at mobilizing community resources and participation. One of the major focus of both ministries is to increase awareness on the problems

of alcohol in the society. However, if such educational activities are not accompanied with suitable changes in availability, timings, distribution and sales, these programs are not likely to be effective or have a major impact. Though the National Master Plan formulated in 1994 recommended specific activities for prevention, treatment and rehabilitation, the complete implementation of this plan is yet to occur.

The Government of India supports 401 detoxification and 41 counselling centers countrywide, under the auspices of the National Drug Deaddiction Program, to treat people with substance abuse disorders (MSJE, 2010). Nearly 45% of people seeking treatment in these centers are for alcohol dependence. Most of these are defunct as they received a one-time grant. Paradoxically, the rates of help seeking in these centers are the lowest in states with the highest prevalence of alcohol use and the overall efficacy of treatment programs provided is low (Ray, 2004a). Despite the fact that a majority of people seek treatment for alcohol related problem, policies are still lopsided and to date focused much more heavily on illicit drugs.

A national survey (Ray, 2004a) on patterns and trends of drug abuse suggests that alcohol use is about 4 times higher than all the illicit drugs put together and registration for alcohol problems in treatment centers has increased from 42% in 1997 to 48% in 2000 (Figure 17) and majority of the

Figure 17: Changing substance abuse patterns in NGO treatment centers



Source: Ray, 2004a

admissions are for alcohol related problems. Despite these findings, the thrust of governmental programs has been more on illicit drug treatment interventions, with a focus on tertiary institution-based, prolonged interventions rather than on community based interventions and/or brief early interventions.

Pharmacotherapy for detoxification and relapse prevention

Conventionally, pharmacotherapy involves the use of benzodiazepines for detoxification and disulfiram for relapse prevention. A systematic review from Higher-income Countries [HIC] showed that benzodiazepines remain the agents of choice for treating alcohol withdrawal during detoxification [Ntais et al, 2005]. A recent randomized-control-trial (RCT) from India that compared lorazepam and chlordiazepoxide found that these benzodiazepines had comparable attenuating effects on uncomplicated withdrawal [Kumar et al, 2009]. Thus, lorazepam can be used in LMIC settings where it is difficult to test liver function status, an essential preamble to using long-acting benzodiazepines in patients.

Large multisite RCTs from the HICs have concluded that the aversive agent disulfiram might help prevent relapse in compliant patients but is ineffective at promoting continuous abstinence [Fuller et al, 1986]. Outcomes improved, however, if a supportive family member was able to monitor compliance. RCTs undertaken in India where disulfiram is still the most commonly used medication for AUDs, because it is cheap and easily available, show that it continues to be a useful treatment particularly when compliance with the drug regimen is overseen by family members [Grover & Basu, 2004]. Disulfiram is still popularly used as a deterrent drug for abstinence support in many treatment centers. In an open randomized study, de Sousa and de Sousa (2005) found that disulfiram was found to be superior to the newer drug

acamprosate in preventing relapse and was associated with higher rates of abstinence at follow-up.

A recent systematic review of data from HICs provides substantial evidence that newer agents such as naltrexone, acamprosate, topiramate, and baclofen have modest effects on improving most outcome indicators (abstinent days, heavy drinking days, days to lapse/relapse, and work and social functioning) in alcohol-dependent individuals, although they do not guarantee abstinence. Furthermore, when accompanied by brief advice, these agents have been shown to improve overall outcome [Johnson, 2008]. Although these newer agents are relatively costly (which limits their use in India), they nevertheless offer a paradigm shift in the treatment of AUDs. The focus of outcome in many contexts has also shifted from an abstinence orientation to functional improvements in health, occupational and social functioning consequent to a reduction in drinking.

Treatment with these agents can be initiated while an individual is still drinking heavily and at the point of maximum crisis and help-seeking. They can also be safely delivered in general practice and many other healthcare settings (unlike the scheduled drug disulfiram, which, because of its toxicity and propensity to cause severe reactions with alcohol, has to be strictly monitored and can only be prescribed by addiction specialists), thus broadening access to treatment. Although abstinence remains the ultimate goal in treating alcohol-dependent individuals, reducing the frequency of heavy drinking has the major impact of decreasing alcohol-related consequences and improving quality of life. These agents may also support effective treatment of hazardous/harmful alcohol use in primary healthcare settings [Killeen et al, 2004].

There have been some RCTs on the effective use of these newer medications in India. A

retrospective file analysis comparing acamprosate and naltrexone suggested a modest effect of acamprosate combined with family and social support on short-term outcome (Basu et al, 2005). Particularly there has been recent interest in the efficacy of the GABA-B receptor agonist, Baclofen in reducing time to relapse and in reducing consumption (Benegal et al, In press)

Apart from the limited availability and their comparatively high prices in the open market, public-health systems do not supply or subsidize these medications. Furthermore health insurance is not accessible for persons with alcohol use disorders.

Psychosocial interventions to prevent/delay relapse

These interventions fall into two main categories: structured interventions and self-help groups. Two large US- and UK-based RCTs that compared psychosocial therapies differing widely in conceptual framework, intensity, duration, and location (Motivation Enhancement Therapy [MET], Cognitive Behavior Therapy [CBT], Twelve Step Facilitation [TSF] therapy, and Social Behavior and Network Therapy [SBNT]) found minimal long-term difference between inpatient/residential treatment and outpatient counseling approaches (Babor et al, 2003; UKATT 2005). These trials also found approximately equivalent (and reasonably good) outcomes with both brief, nonintensive treatments (MET) and intensive treatments (CBT, TSF, and SBNT) for moderately severe alcoholics. A systematic review that considered evidence collected in HICs concluded that manual-guided specific treatments with a theoretical base (e.g., MET, CBT) are better than nonspecific treatments (supportive therapy and social work interventions), but that among the specific therapies none was superior (Berglund et al, 2003). The same review found that marital therapy and family intervention yielded positive

results. A meta-analysis of behavioral self-control training found that this intervention reduced alcohol consumption and alcohol-related difficulties (Walters, 2000). Very few studies have examined psychosocial interventions in LMICs, but one RCT in dependent drinkers in Korea found that culturally modified cognitive behavioral therapy increased the drinkers' insight into their condition (Im et al, 2007). A Cochrane review of studies investigating the effectiveness of strategies adopted by Alcoholics Anonymous and other self-help groups to reduce alcohol dependence provided no definitive evidence that these approaches are effective in HICs; there are no data from LMICs about the effectiveness of self-help groups (Ferri et al, 2006).

Alternative treatments

Comparing the effect of yoga therapy and physical training exercise in alcohol dependence, Raina et al (2001) concluded that at 24 week follow-up, yoga therapy had positive effects in mild and moderate cases but did not prevent relapse in severe cases of alcohol dependence.

Another study (Vedamurtachar et al, 2006) documented the reduction in depression along with stress-hormone levels (cortisol and ACTH) in patients with alcohol dependence compared to controls. While the study did not examine whether this translated into better outcome (abstinence etc.), the finding is significant in that elevated stress hormones in recovering alcoholics are thought to be a major mediator of relapse.

Effectiveness of interventions

Even though some recent studies have shown marginally favorable outcomes for alcohol dependents, information on issues related to compliance and recovery from alcohol problems is still unclear. In the absence of long term population based follow up studies, the long term impact of

deaddiction services is unclear. A five year follow-up study of 150 patients treated for alcohol dependence using a primarily Alcoholics Anonymous approach reported a modest outcome with 16.5% remaining abstinent, and suggests that one year outcome is a good predictor of the 5 year outcome (Kuruvilla and Jacob, 2008). A study of cases treated at a de-addiction facility (Chandrashekhar et al, 2001) of 800 patients with alcohol dependence over a period of 5 years showed that 607 had not utilized the follow-up services beyond a month. In a six month clinic based prospective follow-up study of the 140 clients enrolled (Prasad et al, 2000) information was available on 71 patients; 81.7% maintained abstinence, and 15.5% had reduced their drinking. A majority (91.5%) reported improved physical, psychological and social functioning at the six months follow-up. Less severely dependent patients opted for out-patient follow-up, while more severely dependent patients opted for in-patient treatment. Outcomes were similar for both groups suggesting that inpatient treatment may be required only for severely dependent patients, while brief out-patient interventions may be suitable and cost-effective options for less severe forms of alcohol dependence. A longer one year naturalistic follow-up (Abraham et al, 1997) showed that 32.5% of patients were abstinent or non-problem drinking and 33% had reduced their drinking and had improved social and occupational functioning. Kar et al (2003) reported even better outcome rates with 55% of patients having positive outcomes at one year. What is unclear in all these studies is about the status of those who had opted out/dropped out of regular contact or treatment. Pharmacological detoxification is very important for patients who are alcohol dependent and have moderate or severe withdrawal. The comparative efficacy of lorazepam with chlordiazepoxide in successfully treating uncomplicated withdrawal, particularly in settings

where liver function monitoring is not possible has been demonstrated in a study from NIMHANS (Kumar et al, 2009). However, judicious use is recommended in view of the growing reports of lorazepam and other psychotropic drug misuse (Chand and Murthy, 2003).

Role of family

Family as the fundamental biological and sociological unit of society is hitherto a neglected setting for preventing harm from alcohol use. The positive role and contribution of families need to be incorporated into existing de-addiction and rehabilitation programs. Families can facilitate, support and play a catalytic role in rehabilitation of their affected family members, especially in preventing relapses. Family member involvement in relapse prevention improves alcohol dependence outcomes. A prospective study (Nattala et al 2010) comparing Dyadic Relapse Prevention or DRP (involving a family member) with Individual Relapse Prevention or IRP and treatment as usual (TAU) demonstrated the benefit of DRP over TAU on all of the outcomes (reduction in quantity of alcohol, drinking days, and number of days with dysfunction in family, occupational, and financial dimensions). DRP participants also reported a significant reduction in the quantity of alcohol, drinking days, and family problems, compared with IRP.

9.2.2.2. Community interventions

The WHO-NIMHANS study to evolve a district model for prevention of harm from alcohol use has shown that there were a lot of missed opportunities at the primary and secondary healthcare delivery level; the primary care physician most often do not offer treatment (Janakiramahiah, 1999). Surveys in a general hospital revealed that only 2.3% of patients were asked by the treating doctors about alcohol and drug use, and none were offered any interventions

(although 33.3% had current alcohol use and 16.6% had problem use when assessed independently on the AUDIT). In a survey among GPs, only 1.5% of patients were asked about alcohol use and 10.3% about tobacco use; very few of the users were advised to abstain or cut down. The detection rates got substantially improved after a brief capacity building session to the doctors. This included brief sessions for both detection and management of alcohol-related problems including emergencies. Interventions that were successfully instituted included those for a problem drinker, hazardous drinker and also a dependent drinker. Short-term successes have been demonstrated in the designated de-addiction centers with respect to those who have a hazardous and dependent drinking patterns. Multiple modes of therapy and appropriate rehabilitation have been found to be successful (Benegal et al, 2001).

Follow-up and aftercare is critical for longer term recovery and this was demonstrated in a project undertaken at NIMHANS (Murthy, 2002). Fifty clients with alcohol dependence from an underprivileged locality were admitted for inpatient treatment, and then followed up in a weekly community based setting or through home visits. They were offered supportive employment if they were unable to find a job. Whereas 49 clients with similar drinking histories were offered the same inpatient care, but were offered routine hospital follow-up. Both groups showed similar patterns of recovery at 3 months of follow-up. Alcohol dependent persons who received planned community based aftercare had significantly fewer drinking days (Figure 18), as well as significantly fewer problems at 6 months, 9 months and 1 year after inpatient treatment compared to alcohol dependents who were asked to come for routine hospital follow-up (Murthy et al, 2009).

Preliminary initiatives to address HIV transmission have included community based randomized controlled prevention trials to test the

Figure 18: Follow-up and outcome study on dependence



Source: Murthy et al, 2009

efficacy of HIV prevention messages by targeting patrons of bars or wine shops in Chennai in South India. In addition to providing HIV prevention messages and dispelling misconceptions about HIV transmission, this study focused on strategies and skills to adopt and sustain condom use and target the role of alcohol in sexual behavior (Sivaram et al, 2004).

Camp approaches for the treatment of alcohol dependence, particularly in rural areas have been popularized by the TTK hospital in Manjakkudi in Tamil Nadu (Ranganathan, 2005). Treatment of alcohol and drug abuse in a camp setting as a model of drug de-addiction in the community through a 10 day camp treatment was found to have good retention rates and favorable outcome at six months.

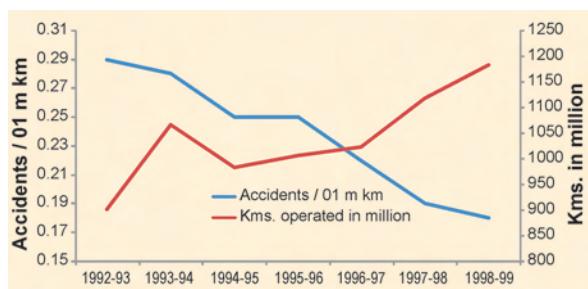
9.2.2.3. Workplace interventions

There have been no systematic interventions and evaluation in this area, except a few demonstration experiences, which have shown that the workplace is ideally suited for alcohol and other drug abuse prevention intervention (Murthy, 2002). A clinching evidence of the possible family financial resources that could be saved is from the workplace alcohol prevention program among the public sector Road Transport Corporation workers in Bangalore (Murthy et al, 2004).

Being one of the largest public sector transport companies, Karnataka Road Transport Organization (KSRTC), Bangalore, had been facing a severe loss in productivity, growing number of accidents, loss of image and serious health problems among its employees. One of the primary problems identified was a high level of alcohol consumption among its employees. The organization undertook a series of safety, welfare and disciplinary measures to address these problems. One such measure was the introduction of a program for preventing alcohol related problems at the workplace—the Workplace Alcohol Prevention Program and Activity (WAPPA). It demonstrated that an effective and early intervention for employees with alcohol related problems was profitable for the company as evidenced by a reduction in accident rates and a reduction in violent incidents (Figure 19).

Alcohol users reported 88% reduction in the monthly amount spent on alcohol. The total spending per employee per month on alcohol was ₹ 55, down from the earlier ₹ 1419. The audit of the effectiveness of addiction treatment of affected employees revealed that treatment for alcohol related problems had benefits not just in terms of alcohol reduction at follow-up, but reduced gambling, reduced fears of acquiring HIV, and improved sense of physical well-being.

Figure 19: Accident rates vis-à-vis operational parameters in KSRTC



Source: Murthy and Sankaran, 2009

In addition to benefit for the company, the treated employees and their families benefited considerably. The treated employees were followed up one to five years after treatment and showed remarkable recovery in terms of reduction of drinking, improved health, reduced loans and increase in personal assets, improved work performance and family satisfaction (Box 20).

The International Labour Organization suggests that rather than have separate prevention and treatment programs for alcohol and other drugs, since such use is linked to other health and psychosocial problems like stress, violence, and HIV, a program focusing on comprehensively dealing with all such problems is better than a stand alone one. Several organizations in Bangalore like MICO Bosch, KSRTC, Deccan Herald and academic institutions

BOX 20

Impact of workplace alcohol deaddiction program

Incidents of quarrels or violence at workplace reduced by 78% following treatment. Quarrels with family members reduced by 85% and physical violence by 86%. Improvement was reported in several family problems following treatment:

1. While 144 employees reported having had extramarital relationships before treatment, only 14 reported having such relationships after treatment
2. Separation was reported by 66 employees before treatment and by 16 after treatment
3. Divorce reduced from 13 to 5
4. Suicides in family members had reduced from 26 to 5. Suicide in children below the age of 18 was reported by 4 employees, but none were reported after treatment
5. Children having emotional or behavioral problems had halved (54 to 22)
6. School refusal in children reported by 63 employees had reduced to 35 after treatment
7. Similarly school dropout by children had reduced from 77 to 29

Source: Murthy and Sankaran, 2009

BOX 21
Community campaign to reduce alcohol use

Within months a mass movement against alcoholism emerged in the district. Young people and women formed groups in their villages and passed resolutions to ban liquor, and marches were organized. Area-level conferences against liquor were held in four places. In November 1988 a district level conference against alcohol was organized; 3000 delegates, half of them women, came from 150 villages.....(in this conference) men and women described alcohol-related suffering and how they tried to counter it by collective action. Women who had persuaded their addicted husbands to relinquish alcohol were publicly congratulated..... (also)...people described how certain police officers gave protection to liquor vendors and harassed members of the community who opposed illicit liquor. The police chief (who was an invitee) noted this and subsequently penalized the offending constables.

A district *Darumukti Sangatana* (Organization for liberation from liquor) was formed and more resolutions were passed. A ban on the illicit sale and consumption of alcohol was put into effect in 200 villages. Women in one village locked up drunk men overnight and publicly disgraced them the next morning. A delegation visited a village where the ban was being defied, and warned the villagers that a boycott would be imposed in the absence of compliance; a day later the village fell in to line..... The illicit liquor trade was thus stopped, but the sale of liquor in shops licensed by the government continued. These shops were invariably owned by local politicians and enjoyed official patronage. The state obtained substantial tax revenues from the sale of liquor and said that this was necessary for welfare programs. The people ridiculed this, saying that they would take better care of themselves if they retained more of their money, and that the government had no right to sell addiction....The three members of the state Legislative Assembly in the district jointly submitted a memorandum to the Chief Minister demanding the closure of licensed liquor shops and the transfer of authority over the use of alcohol to the village communities. The people no longer wished to depend solely on the administration for the control of alcoholism.....Although not completely abolished, alcohol consumption has been drastically reduced in about 200 villages.

Women and young people have gained confidence through collective action. A monthly wall poster magazine has sprung up which publishes news, views and experiences on health and alcoholism. A gathering of 6000 small farmers took an oath to abstain from alcohol. The attention of the public and the government has focused on alcoholism as a public health problem and on state policy which aggravates the situation.Bang and Bang, 1991

Source: Bang and Bang, 1991

have adopted workplace wellness programs, of which substance abuse prevention is a component (Murthy and Sankaran, 2009).

9.2.3. General approaches

9.2.3.1. Community empowerment programs

Community-based efforts have been few in number. The effort in the Gadchiroli district in Maharashtra, India, stands testimony to the possibilities. Bang and Bang (1991) report that alcohol consumption drastically reduced in the 200 villages; instead of alcohol, the money was available for food and clothing (Box 21). There was also a reduction in the frequency of brawls and beatings. Similar movements have also occurred in Andhra Pradesh. However, the long term sustenance of these movements has not been evaluated.

9.2.3.2. Health education efforts

Many sensitization programs and campaigns have been undertaken in the past, but there has not been a proper evaluation of the immediate or long-term benefits from either single or multiple programs pertaining to alcohol use.

The popular media favors and portrays lurid descriptions of alcohol related violence and heroic accounts of sporadic, short-lived anti-alcohol agitations by women's groups. It is common to see public education at periodical intervals informing public not to become 'slaves for alcohol'. Focused campaigns of "Do not drink and drive" also appear infrequently in the society. Education institutions are involved in some of these programs once in a while. Visual and print media are also actively involved in this process. In the absence of any systematic evaluation of these programs, no conclusions can be drawn about their efficacy and effectiveness.

Experience from high income countries clearly indicate that education alone in the absence of other regulatory measures fails to bring in the desired impact. Further, the impact of education is difficult to measure, takes longer time to change, is resource intensive and is often influenced by availability and accessibility to alcohol. In addition, the value for information and its application in daily efforts determine the potential impact of these programs.

9.2.3.3. Drinking and not-driving initiatives

With the recognition that alcohol consumption is a risk factor for road crashes, some efforts are underway to address the problem by police and transport departments in recent times. This has been mainly through public awareness and checking for alcohol presence among drivers of vehicles. The latter approach has got expanded to Indian cities with the availability of breathalysers and strict implementation of Indian Motor Vehicles act.

Blood Alcohol Content (BAC) is the concentration of alcohol in blood measured as a percentage by mass or by mass per volume. In many countries, the BAC is measured and reported as grams of alcohol per 100 ml of blood. The number of drinks consumed is a poor measure of intoxication due to physiological variations, individual alcohol tolerance, and a host of other factors like body weight, gender, body fat percentage, adaptation to chronic alcohol use, effect of certain illnesses and use of drugs. Despite the limitations, alcohol content in blood can be measured in hospitals or through breathalyzers. Due to non-availability of other simple technologies, breath-analyser remains the only possible technique in field level on roads.

In India, as per the Motor Vehicles Act of 1988 (Section 185), which came into effect on 14th November, 1994, the prescribed limit for blood alcohol levels is 30 mg/dl. On first offence the punishment is 6 months imprisonment and a fine of

₹2000 and if the second offence is committed within 3 years, the punishment is two years imprisonment and a fine of ₹3000 (MORTH). Currently, efforts are in progress to revise the law.

Despite the expansion of the program in recent times across Indian cities, the effectiveness of the law and its implementation has not been evaluated. Data from BRSIPP for 2008–2010 reveals that the number of challans issued for violators has been increasing and the fine amount has grown (BISP 2008a). It is widely acknowledged that enforcement agencies lack skills, personnel, equipment and the necessary support from the legal sector to effectively implement the provision of Motor Vehicle Act. At the same time, it is not mandatory to examine for blood alcohol in all healthcare institutions. At the global level, nearly 54 countries have prescribed permissible levels for BAC varying from 0.05–0.08 g%. Eight countries of the European region do not permit any alcohol during driving of vehicles (WHO, 2001). The draft excise policy of India, has in a retrogressive step proposed that the current limit of 0.03% be raised to 0.06% for the country (Sinha, 2005). However, it is essential to build all supportive facilities across police, transport, law and health sectors to implement meaningful programs for reducing drinking and driving.

9.2.4. Efforts by alcohol industry

The formal initiatives by the powerful Indian alcohol industry towards mitigating the harm from alcohol can be said to be patchy. With entry of multinationals, the industry response can be seen to be becoming more active which could be best described as an attempt to bring about “responsible drinking”, “safe drinking” and “building partnerships”. Without compromising the commercial interests of reducing consumption, the strategy has been towards bringing about harm reduction. The industry has developed the code of

conduct under the aegis of All India Distillers Association and Confederation of Indian Alcoholic Beverages Companies. While, the industry liberally promotes “surrogate advertising”, they are also routinely involved in sponsorship of “high flying events” (golf, horse racing, polo, etc.). Along with this, occasional media messages for responsible drinking, discouraging drinking and driving have been seen in both print and visual media without significant impact. Under the banner of Corporate Social Responsibility, few welfare activities have been undertaken by individual companies (ICAP 2006c, Indian wine, 2009b).

9.3. Impact and role of WTO and other trade agreements

The World Trade Organization (WTO) has, in the last decade, been influencing global trade and commerce in general and the alcohol industry in

particular. Under the General Agreement on Trade and Tariffs (GATT) and specifically under the Agreement on Agriculture (AoA), India is bound by commitment to reduce the total tax on imported alcoholic beverages to 150%. The Government of India’s move not to reduce further, ostensibly at the behest of the domestic alcohol industry, has attracted complaints particularly by the European Scotch Makers Association. Though there is little evidence pertaining to health from India regarding the impact of reduction of the taxation structure, the move would definitely benefit for making foreign liquor brands cheaper in India than the current levels. However, evidence from Europe in particular within the Commonwealth of Independent States (CIS=erstwhile USSR) is strikingly clear. Reduction of taxes resulted in increased affordability of alcohol and thereby even the adverse consequences (Nemtsov, 1998).

BOX 22 World Trade Organization, Globalization and Liberalization

World Trade Organization was created in 1994 to encourage free trade amongst the 142 member countries. From the perspective of free trade, alcohol is seen primarily as a commercial ‘good’ to be traded freely internationally like any other commodity, or as a ‘service’ or an ‘investment’ with the right to establish anywhere. Public health experts have expressed great concern about the risks such agreements pose to alcohol control initiatives.

Various countries have used a wide variety of strategies seeking to minimize the harm caused by the use of alcohol. These include regulating alcohol availability and access by maintaining state monopolies on production, distribution and sale of alcohol; maintaining high taxes on alcohol, public education campaigns or restriction on advertising. Many of these measures will be eliminated with the new rules imposed by the World Trade Organization.

Amongst the key elements in international agreements of the World Trade Organization, important aspects relevant to alcohol control policy include:

- equal treatment to foreign and domestic liquors
- removal of state monopoly on manufacture, distribution and retailing alcohol
- reduction or elimination of quotas on quantity of liquor which can be imported.

The protection of human health is a recognized legitimate objective under treaties of the World Trade Organization. However, to invoke this exception, a government must demonstrate that the measure is necessary to protect the health of the population and that no other alternative but barriers to free trade are needed. Appealing panels of the World Trade Organization have interpreted this exception very restrictively. Only one regulatory measure (the French Government’s ban on asbestos) has ever been upheld by the panel.

As long as negotiations over alcohol policy are dominated by the vested interests of free trade and industry-under the spurious banner of personal choice-governments will continue to shirk their moral obligations to protect their populations from the preventable risk of alcohol-related harm.

(Editorial in The Lancet, 2006)

9.4. Role of international bodies

World Health Organization has led the international community in not just describing the harm from alcohol but also supporting individual countries to address the public health consequences of alcohol use. In its resolution WHA 58.26, it calls for member states “to develop, implement and evaluate effective strategies and programs for reducing the negative health and social consequences of harmful use of alcohol and also encourage mobilization and active and appropriate engagement

of all concerned social and economic groups, including scientific, professional, nongovernmental and voluntary bodies, the private sector, civil society and industry associations, in reducing harmful use of alcohol”. WHO has focused on providing technical know how and policy directions to member countries, including India. Except a few small research or demonstration programs, no large scale programs have been undertaken in India. Recently, efforts are underway to develop the “Framework Convention for Alcohol Control”, on similar lines of tobacco, to strengthen efforts across countries.

BOX 23

Draft global strategy to reduce the harmful use of alcohol

25th March 2010 (A63/13)

The draft Global Strategy to reduce the harmful use of alcohol was adopted on 21st May 2010 at the World Health Assembly. The Global strategy identifies a number of challenges which include need for increasing global action and greater international cooperation to decrease the impact of alcohol use, while balancing economic and public health interests. The guiding principle is that public health interest must generate interventions to reduce the harmful use of alcohol and policies must encompass all alcoholic beverages and target users and their peers and simultaneously support those who abstain. The global strategy aims to give guidance for action at all levels, set priority areas for global action and recommend a portfolio of policy options and measures with emphasis on vulnerable groups such as adolescents and people with low socio-economic status.

Objectives:

- To raise global awareness of the magnitude and nature of the health, social and economic problems caused by harmful use of alcohol, and increased commitment by governments to act to address the harmful use of alcohol
- To strengthen knowledge base on the magnitude and determinants of alcohol-related harm and on effective interventions to reduce and prevent such harm
- To increase technical support to, and enhanced capacity of, Member States for preventing the harmful use of alcohol and managing alcohol-use disorders and associated health conditions;
- To strengthen partnerships and better coordination among stakeholders and increased mobilization of resources required for appropriate and concerted action to prevent the harmful use of alcohol
- To improve systems for monitoring and surveillance at different levels, and more effective dissemination and application of information for advocacy, policy development and evaluation purposes

Guiding principles:

The protection of the health of the population by preventing and reducing the harmful use of alcohol is a public health priority. The following principles will guide the development and implementation of policies at all levels; they reflect the multifaceted determinants of alcohol-related harm and the concerted multisectoral actions required to implement effective interventions.

- Public policies and interventions to prevent and reduce alcohol-related harm should be guided and formulated by public health interests and based on clear public health goals and the best available evidence.
- Policies should be equitable and sensitive to national, religious and cultural contexts.
- All involved parties have the responsibility to act in ways that do not undermine the implementation of public policies and interventions to prevent and reduce harmful use of alcohol.

Contd....

- (d) Public health should be given proper deference in relation to competing interests and approaches that support that direction should be promoted.
- (e) Protection of populations at high risk of alcohol-attributable harm and those exposed to the effects of harmful drinking by others should be an integral part of policies addressing the harmful use of alcohol.
- (f) Individuals and families affected by the harmful use of alcohol should have access to affordable and effective prevention and care services.
- (g) Children, teenagers and adults who choose not to drink alcohol beverages have the right to be supported in their non-drinking behavior and protected from pressures to drink.
- (h) Public policies and interventions to prevent and reduce alcohol-related harm should encompass all alcoholic beverages and surrogate alcohol.¹

The 10 areas for National policies and measures are

- 1) Leadership, awareness and commitment
- 2) Health services' response
- 3) Community action
- 4) Drink-driving policies and countermeasures
- 5) Availability of alcohol
- 6) Marketing of alcoholic beverages
- 7) Pricing policies
- 8) Reducing the negative consequences of drinking and alcohol intoxication
- 9) Reducing the public health impact of illicit alcohol and informally produced alcohol
- 10) Monitoring and surveillance.

POLICY OPTIONS AND INTERVENTIONS

Area	Policy options and interventions
1. Leadership, awareness and commitment	(a) developing or strengthening existing, comprehensive national and subnational strategies, plans of action and activities to reduce the harmful use of alcohol;
	(b) establishing or appointing a main institution or agency, as appropriate, to be responsible for following up national policies, strategies and plans;
	(c) coordinating alcohol strategies with work in other relevant sectors, including cooperation between different levels of governments, and with other relevant health-sector strategies and plans;
	(d) ensuring broad access to information and effective education and public awareness programs among all levels of society about the full range of alcohol-related harm experienced in the country and the need for, and existence of, effective preventive measures;
	(e) raising awareness of harm to others and among vulnerable groups caused by drinking, avoiding stigmatization and actively discouraging discrimination against affected groups and individuals.
2. Health service's response	(a) increasing capacity of health and social welfare systems to deliver prevention, treatment and care for alcohol-use and alcohol-induced disorders and co-morbid conditions, including support and treatment for affected families and support for mutual help or self-help activities and programs;
	(b) supporting initiatives for screening and brief interventions for hazardous and harmful drinking at primary healthcare and other settings; such initiatives should include early identification and management of harmful drinking among pregnant women and women of child-bearing age;
	(c) improving capacity for prevention of, identification of, and interventions for individuals and families living with fetal alcohol syndrome and a spectrum of associated disorders;

Contd....

Area	Policy options and interventions
3. Community action	<ul style="list-style-type: none"> (d) development and effective coordination of integrated and/or linked prevention, treatment and care strategies and services for alcohol-use disorders and co-morbid conditions, including drug-use disorders, depression, suicides, HIV/AIDS and tuberculosis; (e) securing universal access to health including through enhancing availability, accessibility and affordability of treatment services for groups of low socioeconomic status; (f) establishing and maintaining a system of registration and monitoring of alcohol-attributable morbidity and mortality, with regular reporting mechanisms; (g) provision of culturally sensitive health and social services as appropriate.
4. Drink-driving policies and countermeasures	<ul style="list-style-type: none"> (a) supporting rapid assessments in order to identify gaps and priority areas for interventions at the community level (b) facilitating increased recognition of alcohol-related harm at the local level and promoting appropriate effective and cost-effective responses to the local determinants of harmful use of alcohol and related problems; (c) strengthening capacity of local authorities to encourage and coordinate concerted community action by supporting and promoting the development of municipal policies to reduce harmful use of alcohol, as well as their capacity to enhance partnerships and networks of community institutions and nongovernmental organizations; (d) providing information about effective community-based interventions, and building capacity at community level for their implementation; (e) mobilizing communities to prevent the selling of alcohol to, and consumption of alcohol by, under-age drinkers, and to develop and support alcohol-free environments, especially for youth and other at-risk groups; (f) providing community care and support for affected individuals and their families; (g) developing or supporting community programs and policies for subpopulations at particular risk, such as young people, unemployed persons and indigenous populations, specific issues like the production and distribution of illicit or informal-alcohol beverages and events at community level such as sporting events and town festivals.
	<ul style="list-style-type: none"> (a) introducing and enforcing an upper limit for blood alcohol concentration, with a reduced limit for professional drivers and young or novice drivers; (b) promoting sobriety check points and random breath-testing; (c) administrative suspension of driving licences; (d) graduated licensing for novice drivers with zero-tolerance for drink-driving; (e) using an ignition interlock, in specific contexts where affordable, to reduce drink-driving incidents; (f) mandatory driver-education, counselling and, as appropriate, treatment programs; (g) encouraging provision of alternative transportation, including public transport until after the closing time for drinking places; (h) conducting public awareness and information campaigns in support of policy and in order to increase the general deterrence effect;

Contd....

Area	Policy options and interventions
5. Availability of alcohol	<ul style="list-style-type: none"> (i) running carefully planned, high-intensity, well-executed mass media campaigns targeted at specific situations, such as holiday seasons, or audiences such as young people. (a) establishing, operating and enforcing an appropriate system to regulate production, wholesaling and serving of alcoholic beverages that places reasonable limitations on the distribution of alcohol and the operation of alcohol outlets in accordance with cultural norms, by the following possible measures: <ul style="list-style-type: none"> i. introducing, where appropriate, a licensing system on retail sales, or public health oriented government monopolies; ii. regulating the number and location of on-premise and off-premise alcohol outlets; iii. regulating days and hours of retail sales; iv. regulating modes of retail sales of alcohol; v. regulating retail sales in certain places or during special events; (b) establishing an appropriate minimum age for purchase or consumption of alcoholic beverages and other policies in order to raise barriers against sales to, and consumption of alcoholic beverages by, adolescents; (c) adopting policies to prevent sales to intoxicated persons and those below the legal age and considering the introduction of mechanisms for placing liability on sellers and servers in accordance with national legislations; (d) setting policies regarding drinking in public places or at official public agencies' activities and functions (e) adopting policies to reduce and eliminate availability of illicit production, sale and distribution of alcoholic beverages as well as to regulate or control informal alcohol.
6. Marketing of alcoholic beverages	<ul style="list-style-type: none"> (a) setting up regulatory or co-regulatory frameworks, preferably with a legislative basis, and supported when appropriate by self-regulatory measures, for alcohol marketing by: <ul style="list-style-type: none"> i. regulating the content and the volume of marketing; ii. regulating direct or indirect marketing in certain or all media; iii. regulating sponsorship activities that promote alcoholic beverages; iv. restricting or banning promotions in connection with activities targeting young people; v. regulating new forms of alcohol marketing techniques, for instance social media (b) development by public agencies or independent bodies of effective systems of surveillance of marketing of alcohol products; (c) setting up effective administrative and deterrence systems for infringements on marketing restrictions.
7. Pricing Policies	<ul style="list-style-type: none"> (a) establishing a system for specific domestic taxation, on alcohol accompanied by an effective enforcement system, which may take into account, as appropriate, the alcoholic content of the beverage (b) regularly reviewing prices in relation to level of inflation and income; (c) banning or restricting the use of direct and indirect price promotions, discount sales, sales below cost and flat rates for unlimited drinking or other types of volume sales;

Contd....

Area	Policy options and interventions
	<ul style="list-style-type: none"> (d) establishing minimum prices for alcohol where applicable; (e) providing price incentives for non-alcoholic beverages; (f) reducing or stopping subsidies to economic operators in the area of alcohol.
8. Reducing the negative consequences of drinking and alcohol intoxication	<ul style="list-style-type: none"> (a) regulating the drinking context in order to minimize violence and disruptive behavior, including serving alcohol in plastic containers or shatter-proof glass and management of alcohol-related issues at large-scale public events; (b) enforcing laws against serving to intoxication and legal liability for consequences of harm resulting from intoxication caused by the serving of alcohol; (c) enacting management policies relating to responsible serving of beverage on premises and training staff in relevant sectors in how better to prevent, identify and manage intoxicated and aggressive drinkers; (d) reducing the alcoholic strength inside different beverage categories; (e) providing necessary care or shelter for severely intoxicated people; (f) providing consumer information about, and labelling alcoholic beverages to indicate, the harm related to alcohol.
9. Reducing the public health impact of illicit alcohol and informally produced alcohol	<ul style="list-style-type: none"> (a) good quality control with regard to production and distribution of alcoholic beverages (b) regulating sales of informally produced alcohol and bringing it into the taxation system (c) an efficient control and enforcement system, including tax stamps (d) developing or strengthening tracking and tracing systems for illicit alcohol; (e) ensuring necessary cooperation and exchange of relevant information on combating illicit alcohol among authorities at national and international levels; (f) issuing relevant public warnings about contaminants and other health threats from informal or illicit alcohol.
10. Monitoring and surveillance	<ul style="list-style-type: none"> (a) establishing effective frameworks for monitoring and surveillance activities including periodic national surveys on alcohol consumption and alcohol-related harm and a plan for exchange and dissemination of information; (b) establishing or designating an institution or other organizational entity responsible for collecting, collating, analysing and disseminating available data, including publishing national reports; (c) defining and tracking a common set of indicators of harmful use of alcohol and of policy responses and interventions to prevent and reduce such use; (d) creating a repository of data at the country level based on internationally agreed indicators and reporting data in the agreed format to WHO and other relevant international organizations; (e) developing evaluation mechanisms with the collected data in order to determine the impact of policy measures, interventions and programs put in place to reduce the harmful use of alcohol.
	Source: WHO, 2010

10 KEY ISSUES FOR ALCOHOL CONTROL IN INDIA

1. The recognition of alcohol related health, social and economic impact is a recent beginning in India. For a long period of time, the scene has been dominated by dialogues of economic revenues, promotional aspects, increasing sales, educating people and individual choices; these have had no influence on reducing the consumption and changing drinking patterns. The absence of rational, feasible, sustainable and public health oriented alcohol control policy (ies) and follow through programs has been a major barrier in this regard.
2. The interventions implemented till date have been poor, unscientific, unplanned and fragmented in nature. A closer look at the alcohol problem reveals that for the year 2010, India has an estimated 12 million dependent users, 24 million harmful users and 34 million habitual users. The primary and secondary prevention efforts have failed miserably due to alcohol being a state vs. central issue, a revenue vs. health, drinker's vs. non-drinker's freedom of independence vs. control efforts, and other issues. Thus, no significant dents have been made in reducing harm from alcohol to people at large. Further, as discussions and decisions have been adhoc and in the absence of data, no sustainable efforts have emerged in the past.
3. The community awareness programs have been patchy and isolated. The imparted knowledge has not resulted in changes in attitudes and behavior, which should have reduced alcohol related health problems. De-addiction programs in selected centers across the country hardly reach a few thousands and many become dropouts after the first contact. The long term psychosocial rehabilitation has also not received importance and this is compounded by the scarcity of human and other resources. Thus, in totality, interventions are not commensurate to the burden of the problem.
4. The emergence of social drinking, party and pub culture, liberalized values among the youth, media promotion has increased the social drinking dimensions of alcohol. It is widely recognized that hazardous social drinking is more detrimental as the acute effects could be much more severe due to the binge drinking habits. The drinking patterns also reveal that users graduate from beer to hard spirits; small to large quantities; irregular to regular/continuous use leading to major health consequences. At the society level, the craving for social drinking is increasing by leaps and bounds with nearly half of the adult male population using alcohol. No systematic efforts are in place to address this growing problem.
5. A review of alcohol related health problems indicates that alcohol consumption is a major risk factor for several non-communicable diseases, nutritional deficiencies and injuries. This evidence should be accepted by professionals, media, governments and

industry. Among professionals and policy makers, alcohol consumption is still not considered a risk factor for NCDs. The confusing statements by professionals and misled media only compound the problem further. Systematically and consistently, promotion of alcohol due its J-shape association with cardiac events (discussed earlier) has been highlighted by the media and professionals, which only adds to greater use of alcohol. This scenario needs to change and larger public health should be the focus, if alcohol control has to be achieved.

6. While primary prevention has not been actively pursued, secondary prevention has been clearly out of focus and tertiary prevention has never reached its desired objectives. Early diagnosis and management of alcohol related problems can be effectively handled by trained health professionals even in peripheral centers. For this to happen in realistic terms, it requires screening for alcohol related problems in health sector and capacity building of health professionals along with adequate support mechanisms. The primary emphasis has been to develop de-addiction programs in tertiary

BOX 24

Role of Governments in alcohol control

That the government has a greater role in deciding the production, sale, marketing and thereby consumption of alcohol across the country is undisputable. The flip-flop policies of the various state governments in bringing about either partial or total prohibition in the face of resource crunch are a sufficient indicator for the need to consider/implement alternate sustainable measures. While beverage alcohol cannot be considered a public good, it needs to be simultaneously noted that alcohol use as a habit or behavior cannot be wished away. This increases the responsibility of the governments to look at managing alcohol related harm in a comprehensive and holistic manner. Currently the driving agenda for an alcohol policy in the country seems to be the revenues and international pressure in the wake of globalisation. The domestic alcohol industry concerns have been considered uppermost as against the public health concerns. Notwithstanding idealism the need of the hour is to be pragmatic. The government has to take a more detailed and health conscious perspective to manage problems from alcohol consumption. There is a need to expand prevention efforts to include reducing harm from alcohol across all sections of the society. Some guiding principles in this regard are that:

- a) Alcohol should not be considered as a freely tradable commodity as there is an enormous health, social and economic consequences.
- b) Long term perspectives needs to be drawn up as against short term directives or knee jerk reactions.
- c) The public health concern which includes the larger health and social consequences of alcohol use should be the driver for an integrated alcohol policy for the country.
- d) The focus of efforts should be on prevention of alcohol use and health promotion measures for a healthy life style. School based healthy life style promotion programs incorporating life skills and other setting based approaches should be encouraged.
- e) Taxation as a tool to regulate alcohol consumption has its limits. The price inelasticities of alcohol especially the cheaper ones need to be considered. Rational and simple tax administration uniformly and consistently implemented is bound to produce better results.
- f) The deterrent for alcohol consumption should be both at the societal level and individual level i.e., the individual's right to choose alcohol consumption should be weighed against the harm that the individual can cause to other members of the society. The principle should be akin to "polluter pays". The penalty for such costs as in the case of drunk driving or aiding or abetting manufacture of spurious liquor, etc., should be higher. In essence, the other individuals and family members right to "good and healthy living" should be protected and preserved and not just focus on 'it is my choice to drink'.
- g) Workplace alcohol prevention programs should receive greater importance.
- h) Community based intervention programs focusing on health promotion, early recognition and management in select centers across the country for de-addiction should be incorporated as part of the primary healthcare agenda.
- i) Several governance issues related to existing legislations, for example low conviction rates, drinking and driving, surrogate advertising, etc., need to be seriously addressed.
- j) Monitoring and Surveillance systems for monitoring harm from alcohol consumption should be instituted along with strengthening the knowledge base.

- apex institutions rather than broad development of facilities at community health centers and district hospitals across the country. Specialist services vis-à-vis training of medical officers and involvement of NGOs has been unfortunately an issue of debate in this process.
- 7. The fact that governments might be losing more on account of health, social, legal and enforcement aspects due to alcohol related problems , than the earned revenues, has not been recognized in totality. The recent study from Bangalore estimated that while the earnings were ₹219 billion, the estimated losses from direct and indirect effects of alcohol could be ₹244 billion. While the immediate returns are noticeable, the medium and long term effect of losses has not been documented due to absence of research. Thus, the health and social impact of alcohol has not been appropriately considered in the earlier policy directives for alcohol control.
 - 8. While health sector and its professionals have not taken a lead role in elucidating the harm from alcohol, the alcohol beverage industry has utilized the doubtful ecological association of a protective effect of moderate consumption (ICAP 2006b) to further promotion and sales. The recommendation of moderate alcohol consumption continues to be advocated and not countered as a misinterpretation of facts (Goldberg et al, 2003, Lancet, 2006).
 - 9. To formulate effective policies and programs, the need for scientific and population based data through well designed methodologies is a fundamental pre-requisite. Absence of such data – *non-inclusion of alcohol as a risk factor for NCDs* – lack of surveillance systems – non-existence of large scale population based data (specially to look at the impact) and registries have only obscured the effects of alcohol in the Indian region. There is no single institution or established registries to document alcohol burden and impact in defined communities in India. The phenomenal amount of research in Indian region has been primarily aimed at examining the prevalence and drinking patterns. Even this data has not been ploughed back into policies and programs.
 - 10. In addition, examining alcohol as a single entity and absence of long term follow up data on any aspects has added further. Many studies are descriptive and cross sectional in nature and analytical and outcome studies of cumulative impact are lacking. Unlike many high Income countries, the country does not have a dedicated agency to guide, supervise, monitor and coordinate activities in the area of alcohol control. Further, adhocism in policy construct and implementation has not considered the importance of data as a pillar to formulate their programs. Thus, working in a vacuum with spells of intervention has resulted in inappropriate policies on alcohol (not having any significant impact on improving health of people) and confusion in the public as it sends out contradictory signals.
 - 11. The stigma associated with alcohol has also reached the stage of consideration that “A drunkard is a drunkard, who cannot be helped in any way”. The late recognition of alcohol problems in the society primarily due to stigma, lack of proper training of primary healthcare providers, along with absence of facilities for management and rehabilitation of these individuals has resulted in a large pool of 11 to 12 million alcohol dependents in the country. The experience from many other disease control programs has clearly demonstrated that if no systematic efforts are made in the early stages, the epidemic will slip out of hand at later stages.

BOX 25
Role of NGOs in alcohol control

It is to the credit of the different NGOs that the immense socio-economic impact of alcohol in the society has received some attention. The Bang and Bang (1991) experience is one such intervention that influenced decision making during the 1990s. Being placed in local contexts, the NGOs have an unusual reach as against governmental bodies. A visible example of this is the women's movement against alcohol, especially in Andhra Pradesh. Despite the very powerful impact, the short term sustainability of such initiatives is a key concern. Notwithstanding this, it is to be realised that NGOs have a dominant role to play in bringing about a greater reduction of harm from alcohol use. Historically, the Gandhian campaigns and the Sarvodaya movement brought in the necessary strengths to implement a seemingly difficult piece of legislation (Prohibition act). This inherent strength of the grass root NGOs needs to be taken into account when one defines and delineates the role of different NGOs. With time and changing lifestyles and values, the NGO movement has also undergone changes. NGOs with industry sponsored agenda can bring discredit to the issues and concerns of reducing harm from alcohol use. With this note of caution, the potential of the existing NGOs need to be harnessed into health life style promotion campaigns across the country.

A group of eminent personalities have petitioned the Prime Minister... . for scrapping a state government sponsored policy diverting huge amount of grain to factories for alcohol production. The petitioners found it strange that at a time when the country was reeling under the impact of back-breaking food prices, induced primarily by reduction in their production, the state would pursue such a policy.

Source: Economic Times, 23rd Feb 2010

12. Apart from health, there is little information on sociological, criminal, legal, behavioral and economic angles of alcohol use in India. Thus, alcohol use has come to be considered as a health problem and not as the society's problem.
13. It needs to be understood that alcohol problems in society cannot be solved by health professionals alone. It is a larger issue, requiring co-ordinated and integrated research and interventions by many other sectors viz. sociology, criminology, judiciary, food and agriculture, industry, education, information and broadcasting along with health. If each of the sector looks at its short term gains, alcohol control can never become a reality. However, the efforts of all these sectors need to be guided based on larger Public good and health of society.
14. Health professionals have not been united and vocal in demanding a public health focused alcohol control policy both due to lack of research and absence of a united approach. The end result has been that while all other sectors have been reaping huge benefits, health sector has only ended spending its already scarce resources (manpower, buildings, operation theatres) for treating those who use alcohol or their victims. For how long will the health bear this burden?
15. Alcohol issues abound in controversies. What is good and bad; at what levels; among whom; to what level control policies need to be brought in; revenue vs. health; gaining less and loosing more; established traditions vs. emerging culture; health promotion or rehabilitation; and several others only have been issues for debates and discussions. However, they have all been short lived. One of the reasons for the status of these unending controversies has been the lack of research from all concerned sectors and the absence of a central guiding agency for integrated activities. The necessary evidence required for policy formulation and implementation needs to be driven by research and applied in the program implementation process. Even today, the impact of alcohol on children, displaced individuals, underprivileged communities and several other sections of the society is not clear. Research and capacity

BOX 26
Research priorities regarding alcohol

Even though alcohol related harm is now well acknowledged in India, a research focus to address specific issues and develop an evidence base has been lacking. In a recent review of research in substance abuse problems in India, Murthy et al (2010) highlight that research has not kept pace with the increasing use, changing pattern and associated harm from alcohol in India. Earlier research efforts have been adhoc, researcher interest based and carried out on smaller populations, with the exception of a few nationally representative studies.

Much of the research in the past has been on estimating prevalence and patterns of use in diverse populations. Most of these are ultimately incomparable due to methodological differences of sample size, population characteristics, nonstandardised methodologies, and varying interpretations. Research on factors and determinants that predispose individuals to alcohol use, the natural history of alcoholism, course and outcome of alcohol related health conditions and clear linkages of alcohol to other conditions like NCDs are critical areas meriting attention in the Indian scenario. The larger socioeconomic and psychosocial impact, especially on vulnerable populations has received scant attention in the country. There is need for more research on both psychosocial and neurogenetic risk and predisposing factors that will help in prevention, early recognition and management. Information on what type of interventions work and in what kind of setting is critical to formulate rational, evidence based national guidelines. There is need to identify vulnerability markers and traits predisposing to alcohol use, co-morbidity and other risk behaviors. A major prerequisite is also the need for data from nationally representative samples from different geographic regions using standardized methodologies.

Given the scarcity of available data and the need for better information for action, we propose the following research priorities for India to be addressed in the next 5 - 10 years to bridge existing gaps in our understanding of alcohol related harm.

1. With NCDs and injuries emerging as a leading contributor for death and disability and their likely increase in the coming years, the association and contributions of alcohol has to be delineated scientifically and systematically.
2. To reduce early initiation of young and vulnerable individuals to alcohol use, the role and contribution of several social (including media), economic, psychological, neurogenetic and other factors that increase vulnerability of individuals to alcohol needs to be understood for preventing harm from alcohol.
3. The socioeconomic and psychosocial impact of alcohol needs to be researched adequately with well defined research methodologies that move beyond numbers to examine the impact on quality of life and its impact on the larger society.
4. To examine the effectiveness of strategies that reduce harm from alcohol, there is a need for integrated population and hospital based research that addresses the critical question of the efficacy and effectiveness of different setting based interventions.
5. Most importantly, there is need for policy and community oriented research to learn from previous efforts and to set directions for policy frameworks that work on an intersectoral basis for implementation along with monitoring and evaluation.

These priorities cannot be addressed in the absence of rational and grounded operational mechanisms. To promote, facilitate and implement this strong research focus, the Ministry of Health and Family Welfare needs to strengthen the Regional Centers to develop a strong population research base in addition to their clinical service and training focus. A direction to strengthen both basic and clinical research and adequate support should be provided. This includes supportive facilities of manpower, budget, equipment and necessary infrastructure to carry out research on a long term basis. The centers can also become centers for capacity strengthening, human resource development, advocacy, intervention development, community activities, monitoring and evaluation.

strengthening for research deserves special importance in controlling the problem at its different stages (Box 26).

16. Globalisation, industrialization, urbanization are all different faces of global changes having

greater impact on individuals and communities at the local level. With greater pressure for sale of goods and commodities amidst transnational developments, the international alcohol industry is likely to penetrate Indian society in a bigger way in addition to competing with local

BOX 27
Role of communities in alcohol control

The present day communities have reacted differentially with respect to increasing use of alcohol. The changing life style particularly in urban India which also includes alcohol use seems to be more tolerable. What is indeed noteworthy is the manner in which the women in the community have empowered themselves albeit in a small but significant way. The focus group discussion in the slums of Bangalore city revealed this changing trend: the women who tolerate alcohol nuisance by their husbands find it inexcusable to tolerate the physical and mental abuse "how can they take it for granted to beat us; if they want to drink let them do so and keep quiet". The financially empowered women now find it relatively easy to assert themselves and demand something better for themselves. This sort of a trend is also visible in the rural areas wherein the women's self help groups have surely dealt a blow to the male bastion. Notwithstanding these positive developments, there still remains the larger issue of domestic violence link to alcohol use in number of households. The value systems of the past responsible for the prohibition agenda is being replaced with emerging trends of increasing consumption of wine and drinking among women.

Between this established pattern of male drinking and the emerging pattern of drinking among women, the exact mechanisms of control in the communities needs to get delineated. Similarly, in many HICs, drinking and driving or drinking and misbehaving are considered socially unacceptable, while in India they are issues linked to power and prestige. In such situations, communities will have to engage themselves and decide on the permissible limits for alcohol use. The mounting public health costs cannot be ignored otherwise. Unless the public response increases, silence could be misconstrued to mean approval. Should one be talking about sensible drinking (alcohol industry reference) or should there be a debate about responsible disinhibition (Galvani, 2004).

Patel (1998) pertinently observes that a **community based, participatory public health model** to tackle alcohol misuse is the only way to reduce the negative impact of problem drinking while safeguarding the economic benefits of alcohol, avoiding punishing the majority who drink sensibly, and preventing deaths and crime which result from the illegal bootlegging industry.

companies. India being a signatory to WTO has to face this challenge. In this context how far and to what extent the harm from alcohol could be reduced should be a prime concern? Necessary instruments do not seem to be in place.

17. While many countries have addressed alcohol control through combined and integrated measures, there are no proven success stories from India. No systematic efforts have even begun to address the problem. While some interventions developed in the west can be used for learning purposes, the cost effectiveness of these interventions in the local context have not been evaluated systematically.
18. Policies like national drug policy have not placed much emphasis on alcohol and its related problems. Consequently, efforts in terms of resources, programs and capacity strengthening have lagged behind in the area of alcohol prevention and control.

19. Importantly, any problem is a public health problem if it affects the society in large numbers and can be prevented through public health approaches. Alcohol fits the bill in this scenario. A public health approach and model has 4 essential steps: (1) recognition of the problem, (2) identifying the risk factors, (3) implementing interventions and (4) evaluating what works. **For this process a key challenge is to first accept that alcohol consumption is an existing and growing problem in the Indian society.**
20. Lastly and more importantly, a public health approach to the policy issues to prevent harm from alcohol use has been totally missing in India. Efforts till date have focused on taxation, revenues or trade concerns (either state level or international) and not its impact on health of people. It is increasingly becoming evident that international conventions set the larger

agenda and individual countries must develop policies that suit to their social and cultural contexts (Box 28). India should strive towards integrating international experience and

develop a comprehensive policy for reducing harm from alcohol with a focus on health concerns of people.

BOX 28 Alcohol Policies

"It is now widely accepted that an effective economic policy demands serious consideration of its ethical and welfare implications also, though on several economic issues one may have difficulty in reconciling economic targets with the ethical and moral targets. One such issue is that of resource mobilization through excise tax revenue and its welfare implications....

...the conclusions of economic decisions need to be strongly grounded on moral commitments to public policy, so as to reconcile economic targets without jeopardising ethical and moral targets." (Abraham J, 1995)

"The conclusion that a certain amount of alcohol can have a beneficial effect on personal health, decreasing mortality from some major conditions to such an extent that it more than compensates for an increased mortality from other conditions, greatly complicates the formation of public health policy. Before a beneficial effect was appreciated, policy could, and generally did, aim to discourage drinking altogether. Policies aimed solely at reducing heavy drinking had little success and the most effective means of reducing alcohol abuse seemed to be a policy aimed at reducing the average amount consumed by the population as a whole..." "The balance of benefit and harm from the consumption of alcohol must therefore be very different in different countries and policies that might be good in one country could well be disastrous in another" (Doll, 1997)

These observations lead to the conclusion that India needs to develop, implement, monitor and evaluate an alcohol control policy of its own keeping in view the social, cultural, health and economic implications for its citizens. The global experience (Room et al, 2002) will definitely help in examining various options that needs to be considered in the Indian scenario. Some of the policy choices that are effective in reducing the burden attributable to alcohol include

- Control over the distribution and sale of alcoholic beverages
 - ◊ limits on the hours and days of sale of alcoholic beverages;
 - ◊ limits on the number and placement of places of sale
 - ◊ a minimum purchasing age for alcoholic beverages
 - ◊ more restricted availability of high- and medium-strength beverages than of low-alcohol beverages
 - ◊ training on-premise servers not to serve the already intoxicated, especially when this is backed up by enforcement
 - ◊ rationing of the amount an individual can purchase per month.
- Taxation of alcoholic beverages
- Counter measures for drinking and driving
- Brief interventions by health workers or counselors
- Reducing harm from drinking without necessarily affecting drinking behavioral/habit

Policy options that have not been demonstrated to be effective include

- Alcohol education
- Alcohol public information campaigns
- Alcohol -free activities and events

CONCLUSIONS AND RECOMMENDATIONS

The previous sections of this report have discussed production, sales, consumption patterns, health consequences, psycho social impact and efforts till date, to address the growing problem of harm from alcohol in India. A review of the available literature suggests that alcohol is a major risk condition for ill health and poor quality of life of the people. The burden of harm from alcohol is likely to increase in the coming years with the growing availability and consumption. Efforts to address the problem till now have been limited, patchy and fragmented and have made no significant inroads towards control of the problem.

Considering the enormous public health burden of alcohol related problems in India, it is important to address this issue in a scientific, systematic, multi pronged and inter-sectoral manner, using a coordinated and an integrated approach. This requires the joint participation of policy makers from

different ministries, professionals from varied disciplines, the media as well as all sections of society. Undoubtedly, a strong political commitment is fundamental to the success of this approach and requires a vision that looks beyond immediate and crisis approach towards a well thought out rational policy aimed at a healthy society.

The growing burden of alcohol problems is due to a combination of several factors, and needs to be addressed using multiple strategies within a well defined and sustainable policy framework. Undoubtedly the formulation and implementation of such a policy framework needs to be evidence-based, culture-specific, cost-effective and sustainable. There are several examples around the world of highly effective measures to reduce harm from alcohol through integrated approaches. We need to formulate and promote a strong alcohol control policy based on our problems and issues, previous

BOX 29

Population versus individual approaches in alcohol control

A combination of interventions are needed to reduce alcohol-related harm - to the benefit of society as a whole. Population-level approaches are important because they can help reduce the aggregate level of alcohol consumed and therefore lower the whole population's risk of alcohol-related harm. These interventions can:

- Prevent people from drinking harmful or hazardous amounts in the first place.
- Detect those who are not in regular contact with the relevant services, to deal with early problems
- Support those who have been specifically advised to reduce their alcohol intake, by creating an environment that supports lower-risk drinking.

Interventions aimed at individuals can help make people aware of the potential risks they are taking (or harm they may be doing) at an early stage. This is important, as they are most likely to change their behavior if it is tackled early. In addition, an early intervention could prevent extensive damage.

experiences and the lessons learnt from around the globe.

The different measures to address the problem can be considered in different ways and at multiple levels. It is essential to keep four major principles in our efforts to develop a society that is free from (or can minimize) the harmful effects of alcohol.

1. Reduce the availability, affordability and consumption of alcohol at the population level.
2. Recognise alcohol related harm at an early stage and undertake corresponding measures to help individuals, thus focusing on specific populations.
3. Render help to those who are already dependent and addicted to alcohol to bring them back to a stage of optimum functioning without alcohol.
4. Enable and empower the community to monitor and participate in reducing harm from alcohol.

The strategies / activities that could be adopted include :

- A. Reduce supply
- B. Reduce demand
- C. Measures for early recognition of harm
- D. Preventive measures to address vulnerable populations
- E. Measures for better management of alcohol related harm
- F. Development of health human resources for effective service delivery
- G. Measures to empower the community

In developing these strategies the programs should be universal - as applicable to the entire population, and selective for those who are at higher risk, or for those affected by the negative outcomes of alcohol use. In this section we propose the following recommendations for effective control of the problem.

A. Reduce supply

1. At the stage of production

- 1a. The government should undertake strict regulatory measures towards reducing production and sales of alcohol. There has to be a regulation on the quantum of alcohol that is produced in the country.
- 1b. Uniform mechanisms have to be developed to discourage illegal beverage production, adulteration, use and sale. Manufacturing units have to be monitored and strict punishment is required for violators.

2. At the stage of purchase

2.1 Price control and taxation

- 2.1a. The prices of alcoholic beverages need to be consistent and should be linked with minimum prices and cost of living. A minimum social reference price (minimum price for unit of absolute alcohol) for standard drink should be introduced and reviewed annually.
- 2.1b. The prices of alcohol should be strongly linked to the volume of ethyl alcohol in alcohol products within each beverage class. Taxes should be kept high for those alcoholic beverages with high ethyl alcohol content. A surcharge tax should be introduced for alcohol products with high ethanol content, the proceeds of which could be used for prevention and treatment programs.

- 2.1c. Strict regulation of alcohol industry with regard to marketing, promotion, minimum pricing and discounting (example happy hours) needs to be undertaken to curb illegal and harmful practices.

2. 2 Reduce easy availability

- 2.2a. Strict licensing of venues for sale of alcohol must be in force to reduce unauthorized sale of alcohol. The licensing of alcohol sales in malls and supermarkets should be discouraged.
- 2.2b. The number and density of outlets selling alcohol should be restricted and new outlets should not be permitted in residential areas, near educational institutions and healthcare institutions, close to places of worship and in close proximity to national high ways.
- 2.2c. Strong restrictions need to be placed on the timings for sale of alcohol and the current timings of "no sales beyond 12 midnight" should be strongly enforced.
- 2.2d. National days of "no alcohol sale" should be strongly encouraged through legislative measures. At present, certain days of national importance and days prior to national, state and local elections are considered as dry days. Along with strict implementation of closure on these days, this concept has to be expanded to cover more number of days, at least two days in a month.
- 2.2e. The minimum legal age for purchase of alcohol should be fixed at 21 years across the country as this would reduce the availability of alcohol to youngsters and limit their early initiation to alcohol.
- 2.2f. Strict legal provisions have to be introduced to limit the number of drinks that is permissible in alcohol selling outlets to a minimum. Consensus should be reached on the number of drinks that would be available to individual customers.

2.3 Measures in the drinking context

- 2.3a. Server liability, where the responsibility for any damage caused by the alcohol user lies on the servers / owner of premises and penalties for sale to intoxicated persons must be strictly enforced. This must be complimented with strategies that reduce demand through appropriate social marketing approaches.
- 2.3b. Strict ban has to be enforced on drinking in public places and those who violate should be penalized.
- 2.3c. Employment of children and minors in all alcohol selling outlets should be strictly banned.

B. Reducing the demand

1. Restriction on advertisements and promotion

Surrogate and umbrella advertisements linking alcohol to life styles and other promotional strategies must be banned. The timing of such product placements in media must be strictly regulated.

2. Education and Awareness

- 2a. The alcohol industry must provide clear and unbiased total information to the public on effects and dangers of alcohol on a continuous basis to enable people to recognise harmful effects of alcohol.
- 2b. Effective campaigns to change public attitudes for excessive alcohol consumption need to be undertaken on a large scale to increase understanding of harmful effects of alcohol. This should take into consideration local population characteristics.

- 2c. Awareness programs in educational institutions and work places should be initiated to increase awareness among young students and employees as part of larger life skill awareness activities.
 - 2d. Alcohol industry should be strongly informed to put warning labels on alcohol containers in bold letters about the volume of alcohol for information to the public.
 - 2e. Educational programs aimed at young drivers about the harmful effects of drinking should be introduced and simple messages of "do not drink and drive" should be disseminated.
- However, it is important to emphasize that while public education helps in increasing the knowledge levels among interested public, it may not really change their attitudes and existing practices. Hence, all educational activities must be an integral part of larger prevention and control activities and based on health promotion approaches.
- 3f. points approach for repeat drink driving offences should be strictly implemented.
 - 3d. Mandatory treatment programs for drink driving offenders need to be devised.
 - 3e. Mass media campaigns encouraging designated driving and other support services should be implemented to help those who are intoxicated.
 - 3f. All fatal injuries, including road crashes, should be investigated at the time of autopsy and alcohol involvement has to be reported. This should occur in parallel with required changes in medico-legal practices and insurance compensation mechanisms.
 - 3g. Reporting of alcohol involvement in road crashes should be improved with corresponding changes in documentation practices and breathalysers should be made available in all hospitals and police stations.

3. Measures against drinking and driving

- 3a. The existing laws with regard to legal blood alcohol limit for driving should be retained at the current levels of 30 mg per 100 ml as per the Indian Motor Vehicles Act. Efforts to increase the permissible levels will not help in reducing drunk driving.
- 3b. Police enforcement checks by random breath testing and through sobriety check points should be increased with stiff penalties for violators. The strategy has to be expanded to cover district areas and both national and state high ways.
- 3c. The current penalty levels of ₹ 2000 for the first offence with incremental increase and cancellation of license based on a

C. Measures for early recognition of harm

- 1. Screening for alcohol related problems in major health care settings like medical college hospitals, district hospitals and all apex tertiary institutions should be introduced strictly, especially in emergency room settings and out patient clinics.
- 2. Opportunistic screening for alcohol misuse should be introduced in primary health care settings along with delivery of brief interventions and referral services wherever required.
- 3. Life skills training programs aimed at recognizing harm and improving the coping ability should be introduced in all educational institutions, work places and official

- establishments as a larger strategy to combat the broad range of non communicable diseases for which alcohol is a major contributing factor.
4. Specific work place interventions should be introduced to reduce alcohol related absenteeism and ill health to ensure health and safety of all employees. Drinking during work hours should be strictly banned and action taken on offenders.

D. Preventive measures to address vulnerable populations

1. Preventive interventions for populations at risk e.g. children of alcohol dependents with a focus on lifeskills development and coping skills need to be implemented.
2. Persons with underlying mental illness particularly mood and anxiety disorders, psychotic disorders and those with personality attributes of impulsivity, attentional and conduct problems need special attention to prevent or intervene for alcohol related problems,

E. Measures for better management of alcohol related harm

1. The use of evidence based treatment approaches (both pharmacological and non-pharmacological) to manage alcohol problems is an effective strategy. Treatment strategies must extend beyond detoxification, to provide a range of services varying from brief interventions to comprehensive approaches. Greater focus has to be on relapse prevention and long-term support for recovery.
 - a) The facilities for treatment of persons available at present should be scaled up

to cover both rural and urban populations across the country.

- b) Advanced interventions (detoxification, relapse prevention, inpatient facilities) at district and tertiary level facilities need to be developed and implemented.
 - c) To ensure continuity of care, feedback to lower levels for providing simple interventions (Brief Counseling) at the primary care level should be systematically developed.
 - d) A stepped care model (viz. co-ordinated and sequential screening, assessment, treatment at that level and onward referrals) has to be introduced in health care settings.
 - e) Appropriate protocols, supplies, trained manpower and required procedures have to be ensured at different levels of health care delivery system.
 - f) Rehabilitation after acute care has to be strengthened to prevent relapses, which are well known to occur in dependent individuals.
2. Specific programmes, including gender sensitive treatment programmes need to be developed for women.
 3. The growing problem of alcohol use among the elderly needs to be recognized and professionals should be adequately trained to recognise and address this problem.
 4. Care for persons with alcohol related problems must occur as a holistic approach with the active involvement of families and care givers at every stage. This should include screening in health care institutions, early detection, stepped care approach and rehabilitation.
 5. Mandatory treatment of employees with known alcohol related problems should be introduced

- in all work places and institutions to help individuals.
6. Feasible community alternatives to clinical care must be developed and tested. This involves good co-ordination between government and non-governmental agencies and appropriate networking among different partners
 7. Necessary changes have to be introduced in the insurance and related sectors to cover treatment provisions for alcohol dependent persons to cover the cost of treatment and support facilities.
- F. Development of health human resources for effective service delivery**
1. Human resource development and capacity strengthening of professionals from health, (advocacy, care and services, data management) police (enforcement and regulation), transport (motor vehicle rules), excise (taxation, production, sales, and distribution), law and order (legal guidelines for laws) are crucial to implement programs for alcohol control.
 2. Appropriate training of health professionals in recognizing and managing alcohol and other drug related problems, recognizing and intervening for harmful alcohol use in communicable and non-communicable disease conditions must occur in under-graduate and post-graduate training, and as part of continuing professional education in order to develop multiple levels of intervention at primary, secondary and tertiary care levels. Training must not be limited to only medical practitioners, but extend to other health professionals including nurses, grass root community health providers, practitioners of Indian systems of medicine and others.
- G. Measures to empower the community**
- A well informed and active community that demands a safe and healthy society is probably most effective in dealing with harm from alcohol use. Apart from community education and health care measures, efforts to empower the community should include:
1. Development of good community partnerships and networks to enhance awareness, impart lifeskills, develop healthy recreational avenues, improve early help seeking for vulnerable individuals and provides support for recovery.
 2. Interest groups representing victims of alcohol related harm can be powerful agents of change and the development and empowerment of such groups must be catalysed and supported.
- In addition to the measures recommended, a public health strategy for implementing alcohol control program(s) in India needs to include:
- Health promotion should be given major importance as education alone cannot deliver the expected results. Developing an environment and system for implementing policies and programs is an essential prerequisite for facilitating implementation of policy guidelines.
 - Intersectoral approaches are crucial to implement alcohol control programs. It is essential that all different ministries reach consensus by keeping health of the people as

the central focus and identifying measures to be undertaken over time.

- Advocacy towards reducing harm from alcohol aimed at policy makers, parliamentarians and the press is crucial to formulate programs and can reverse the growing trend of harm from alcohol.
- Funding to prevent harm from alcohol and to better manage alcohol related problems should be available on a regular basis. This funding can be obtained with governmental allocation as well as from the surcharge imposed on alcoholic drinks.
- Community empowerment programs which increase awareness and demand action from policy makers and politicians for addressing issues at local and national levels is crucial in the larger framework of advocacy activities. Strengthening research is crucial to identify future directions, to develop specific interventions and to monitor and evaluate the impact of programs and policies. Promotion of research across health care institutions through different methods is essential. Programmatic research must yield a registry of

easy to implement, evidence based prevention and intervention strategies.

In conclusion, the interventions and recommendations placed above cannot be implemented in a vacuum without appropriate policy frame work. A national alcohol control policy has to be developed in consensus with different ministries of central government, involvement of the state governments, alcohol industry and the media for developing short term, medium term and long term programs and are to be revised every 10 years.

As public health harm from alcohol is multifactorial in origin, solutions need to be multisectoral, integrated and coordinated. Formulating a feasible and sustainable Indian alcohol policy is a first step in this direction. The need of the hour is not only to reduce alcohol related deaths but also to minimize harm from alcohol and control the problem at an early stage. A realistic policy should ensure that the objective of minimizing the consumption and maximizing health benefits are achieved from a societal point of view. Are we ready for this challenge?

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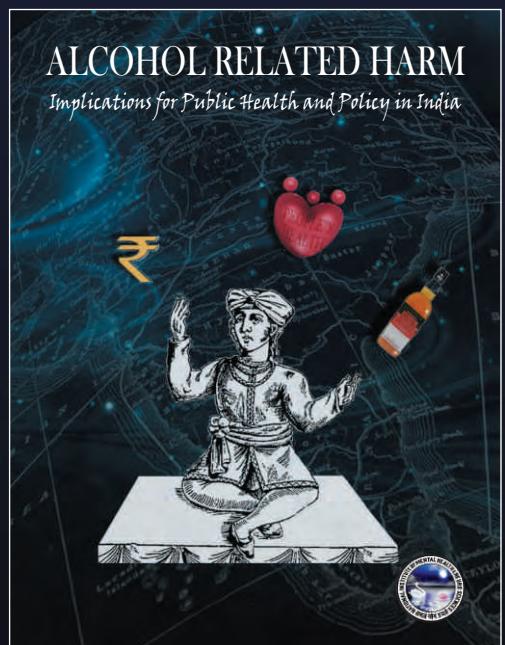
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LIST OF ABBREVIATIONS

ACD	Additional Customs Duty
AIDA	All India Distiller's Association
AIDS	Acquired Immune Deficiency Syndrome
AUD	Alcohol Use Disorders
AUDIT	Alcohol Use Disorders Identification Test
BAC	Blood Alcohol Content
BCD	Basic Customs Duty
BIO	Bottled In Origin
BIS	Bureau of Indian Standards
BRSIPP	Bengaluru Road Safety and Injury Prevention Program
CBT	Cognitive Behaviour Therapy
CI	Confidence Interval
CHD	Coronary Heart Disease
DRP	Dyadic Relapse Prevention
DSM	Diagnostic and Statistics Manual of Mental Disorders
EC	European Commission
ECAS	European Comparative Alcohol Study
ED	Excise Duty
ENA	Extra Neutral Alcohol
EU	European Union
FAO	Food and Agricultural Organization
FDI	Foreign Direct Investment
FGD	Focus Group Discussion
FICCI	Federation of the Indian Chamber of Commerce and Industry
GATT	General Agreement on Trades and Tariffs
GDP	Gross Domestic Product
GENACIS	Gender, Alcohol and Culture International Study
GOI	Government of India
HICs	High Income Countries
HIV	Human Immunodeficiency Virus
ICAP	International Center for Alcohol Policies
ICMR	Indian Council for Medical Research

IMFL	Indian Made Foreign Liquor
INCLEN	Indian Clinical Epidemiology Network
IPC	Indian Penal Code
IRP	Individual Relapse Prevention
IWSR	International Wine and Spirits Report
JWG	Joint Working Group
KSBCCL	Karnataka State Beverages Corporation Limited
KSRTC	Karnataka State Road Transport Corporation
LMIC	Low and Middle Income Countries
MDGs	Millennium Development Goals
MOHFW	Ministry of Health and Family Welfare
MORTH	Ministry of Road Transport and Highways
NCD	Non Communicable Diseases
NCRB	National Crime Records Bureau
NDPS	National Drugs and Psychotropic Substances Act
NFHS	National Family Health Survey
NGO	Non Governmental Organization
NIMHANS	National Institute of Mental Health and Neuro Sciences
NSSO	National Sample Survey Organization
OR	Odds Ratio
RCT	Randomised Controlled Trials
RNTCP	Revised National Tuberculosis Control Program
RS	Rectified Spirit
SEARO	South East Asia Regional Office
SRS	Sample Registration System
TAU	Treatment As Usual
TBIs	Traumatic Brain Injuries
WAPPA	Workplace Alcohol Prevention Program and Activity
WHO	World Health Organization
WTO	World Trade Organization

The use of alcohol has increased phenomenally in India during the last two decades. It has permeated all sections of society. Alcohol consumption is not just detrimental to health, but is also associated with impoverishment and adverse socio-economic impact. Despite the recognition of the range of problems associated with alcohol, efforts to prevent and address alcohol problems in India have to date been adhoc, patchy and fragmented.



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This monograph documents the increasing production, marketing and availability in India, the changing patterns of use, the wide spectrum of harm emerging from alcohol, the impact of alcohol on families as well as in work places, and the needs of people with alcohol dependence. It reviews the various efforts in the country and indicates how policies and programmes have lacked direction, and how governments have to constantly juggle between excise earnings on one hand, and tangible and intangible expenditures from alcohol (health, safety, economic and emotional hardships) on the other. Visibly, the losses from alcohol are much larger than the gains. There is need for coherent policies and integrated programs to prevent and address alcohol related problems in the country.

The monograph will be useful for policy makers, administrators, public health experts, clinicians, professionals working in the social sector and civil society. It calls for a new vision for reducing harm from alcohol in India.