International Journal of Community Medicine and Public Health
*Ray G. Int J Community Med Public Health. 2023 Apr;10(4):1561-1567*
http://www.ijcmph.com
pISSN 2394-6032 | eISSN 2394-6040

DOI: https://dx.doi.org/10.18203/2394-6040.ijcmph20230942

**Original Research Article**

# Health and social burden of alcohol use disorders in an industrial population of India

**Gautam Ray***

Gastroenterology Unit, Department of Medicine, B. R. Singh Hospital, Eastern Railway, Kolkata, West Bengal, India

**Received:** 21 February 2023
**Accepted:** 16 March 2023

***Correspondence:**
Dr. Gautam Ray,
E-mail: gautam1910@yahoo.com



## ABSTRACT

**Background:** In the last two decades the rate of alcohol consumption has substantially increased in India but the socioeconomic burden of alcohol use disorders (AUD) is understudied.
**Methods:** 48613 patients admitted from January 2009 to December 2018 for diseases directly or indirectly related to alcohol use (40.1% of total admission) were analysed. Retrospective analysis of prospectively maintained data was used as current study design. Diagnosis were arrived at by history, clinical examination and relevant investigations. Social data included demography, alcohol related information, social, emotional, psychological aspects and occupation related issues.
**Results:** There was a rising trend of both direct (59.3%) and indirect (40.7%) alcohol related disorders over the years with the following rates: injuries (30.6%), gastrointestinal disorders (16.7%), AUD (6.2%), other substance abuse (4.1%), seizures (1.7%), infections (16.7%), only diabetes mellitus (1.9%), gastrointestinal cancer (4%), cardiovascular disease (4.3%), neurovascular disease (8%) and chronic kidney disease (5.8%). 39.7% patients had pulmonary tuberculosis. This entailed a yearly hospital expenditure of INR 165.54 million and an additional INR 10.3 million for work absenteeism. 37.6% died whereas disability and poor work productivity led to relocation and premature retirement in 7.2%. Social aspects revealed early initiation of drinking (73% at <30 years of age) at instances of family/ friend in a conducive setting of easy availability and permissive "drinking environment" furthered by vissisitudes in later life. Heavy consumption of spirits (average 118 gm/day), often in binges, fortends serious health consequences.
**Conclusions**: Alcohol related socioeconomic burden is rapidly rising in India and needs urgent attention.

**Key words:** Alcohol, Alcohol use disorders, Socioeconomic burden, Disease burden, India

## INTRODUCTION

The socioeconomic burden of alcohol use disorders (AUD) is rapidly increasing worldwide especially in the last two decade. Approximately 2 billion people worldwide consume alcohol, and 283 million of them have been estimated to be suffering from AUD.[1] The Asia Pacific was the largest region in the global alcoholic beverages market, accounting for 41% of the market in 2019 where China, India, Vietnam, Thailand, and South Korea were the biggest consumers.[2] The per capita consumption of alcohol in India has grown by 38% between 2010 and 2017 and currently growing at a lofty 8%+ compound annual growth rate. More than a fifth of alcohol produced in the world is consumed by Indians and two-thirds of alcohol consumed in India is unrecorded, mainly illicit.[3] The Indian states earn 20-25% of their revenues from alcohol taxation and in 2015, liquor consumption was pegged to touch about 20 billion litres with total value in the neighbourhood of Rs 1.5 lakh crore.[4] With such high consumption rate, the prevalence of AUD is expected to rise. Railways, being the largest industrial unit in the country, has a high burden of

alcohol addiction among its industrial population. It is an apt platform to study the risk factors and social setting in which the addiction develops along with its outcome and economic burden, data on which is very scanty but essential for interventional purpose. Railways bears the entire cost of treatment of all its employees (working and retired) and their family members and being a government concern thus provide a direct opportunity to assess the public expense on treatment of AUD compared to another recent study where the treatment expenses related to alcohol related liver disease only were considered.[5]

## METHODS

Prospectively maintained data of consecutive patients aged > 15 years admitted to the hospital for alcohol related problems from January 2009 to December 2018 were retrospectively analysed. The problems considered were either directly related to alcohol consumption (injuries, chronic liver disease, acute and chronic pancreatitis, AUD like poisoning/intoxication, withdrawal symptoms, delirium or seizures) or diseases that were indirectly related to it i.e. where the attributable fraction is difficult to assess e.g. infection of lower respiratory tract or tuberculosis, hepatitis B and C, HIV, diabetes mellitus (DM), hypertension, cardiovascular (CVD) or neurovascular (NVD) disorders, chronic kidney disease (CKD) and cancers of upper and lower gastrointestinal tract. History, clinical examination, relevant investigations including hemogram, serum chemistry, radiology, endoscopy were done for arriving at the diagnosis. All patients had hazardous alcohol use/ dependence needing indoor attention, confirmed by administration of the AUDIT-C/CAGE questionnaire. History of smoking and other substance abuse were also noted. Social data included demography, socioeconomic status (monthly income, amount spent on alcohol including its source, living conditions/neighbourhood), previous medical history (including hospitalization due to alcohol related or non-related illness), alcohol related information (age and circumstance of inception, duration, type, frequency, amount including binges, and family history of alcohol intake), social, emotional and psychological aspects (disturbed interpersonal relationship, domestic and sexual violence, kids deprived of education, community violence/nuisance, exposure to stress/discrimination), occupation related issues (work absenteeism, drinking at work, early retirement, death) and police/legal trouble (crime, risky/violent behaviour on street, property damage, incarceration). Information was obtained from patients, family members, relatives/friends and also from the community in which patient lives. Patients admitted primarily with other diseases as mentioned above who were found to be significant current drinkers were also evaluated. Mortality at first admission and follow up (if available) was noted. As most patients did not have regular follow up, status at last available follow up was considered. Data were expressed as %. Informed written consent was obtained from patients or their relatives at the time of admission. The study was conducted according to the Declaration of Helsinki and was cleared by the institutional ethics committee.

## RESULTS

In the 10 year period 120048 patients were admitted to the hospital of which 48613 (40.1%) patients had alcohol related problems with progressively rising numbers over the period**.** The break-up of the direct (N=28839, 59.3%) and indirect (N=19774, 40.7%) alcohol related disorders and their trend over 10 years is depicted in (Figures 1-3).

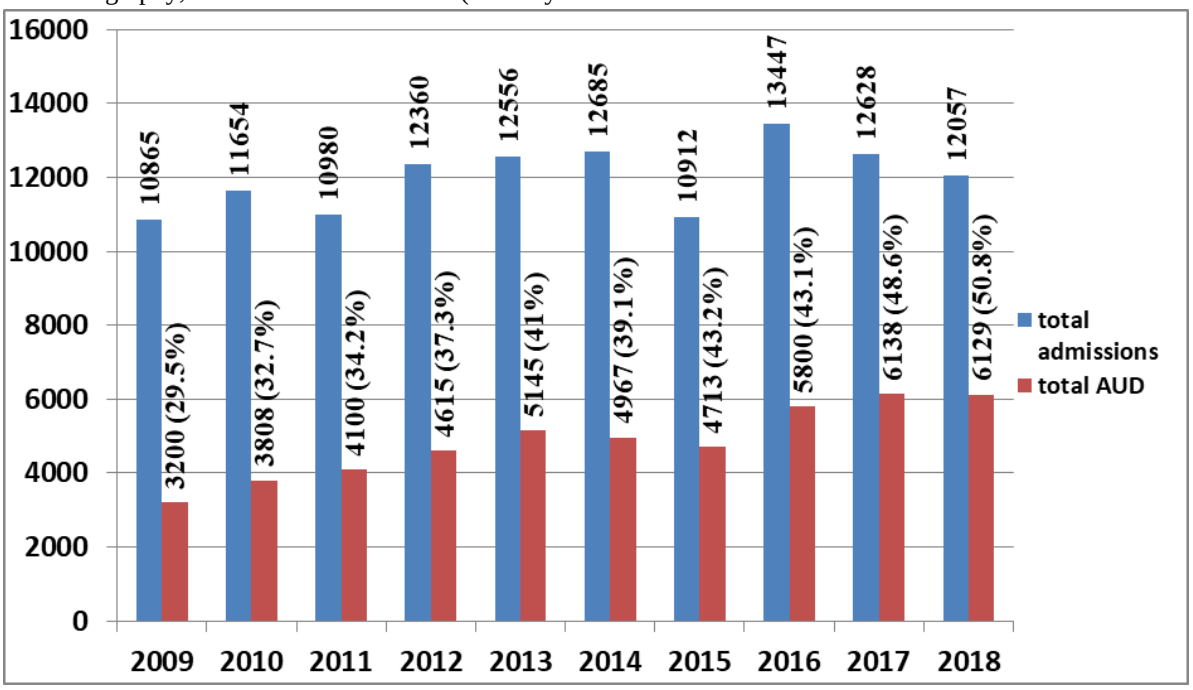


**Figure 1: Yearly admissions due to alcohol use disorders and overall admissions.**

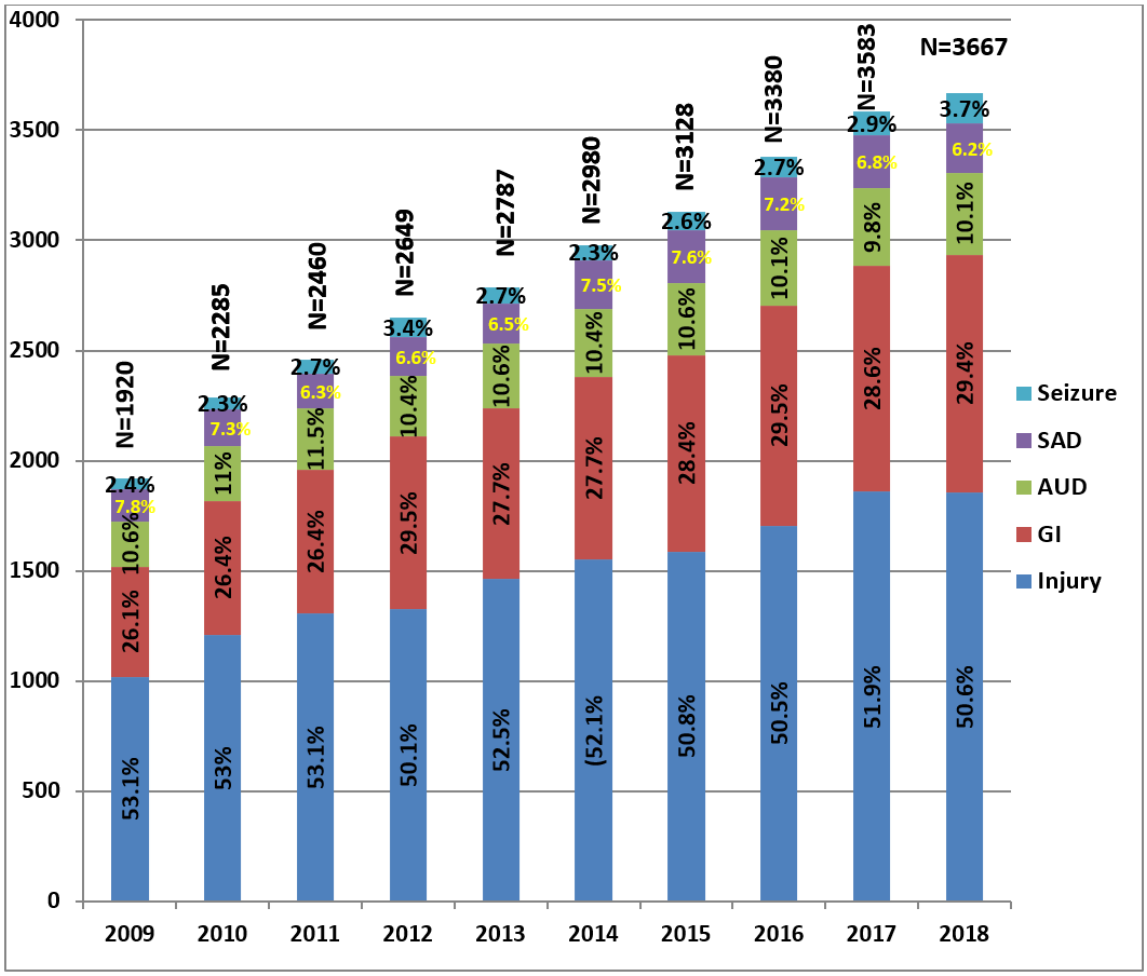


**Figure 2: Total numbers and break up of disorders directly resulting from alcohol consumption over the years.**
SAD = Other substance use disorders, AUD = alcohol use disorders, GI = gastrointestinal.

**Table 1: Social parameters of alcohol use disorders (n=15,418).**

| Parameters | % | Parameters | % |
|---|---|---|---|
| **Age at presentation (years)** | | **Type of alcohol** | |
| <30 | 16 | Beer | 7.4 |
| 30-44 | 60 | Spirits | 90.3 |
| 45-59 | 22 | Wine | 2.3 |
| >60 | 2 | Locally brewed (spirits) | 65.8 |
| **Age at initiation (years)** | | **Pattern of drinking** | |
| | | Heavy Episodic drinking | 72.6 |
| <15 | 1.6 | Binge | 43.4 |
| 15-29 | 71.6 | Outside meals | 65.3 |
| 30-45 | 24.8 | | |
| >45 | 2 | | |
| **Sex** | | **How obtained** | |
| Male | 99.6 | Self | 48.5 |
| Female | 0.4 | Friend | 51.2 |
| | | Family | 0.3 |
| **Marital status** | | **Where drunk** | |
| Unmarried | 10.5 | At home | 4.6 |
| Divorced | 21.7 | On site | 69.7 |
| Married | 62.4 | Takeaway | 25.7 |
| Widower | 5.4 | | |

Continued.

| Parameters | % | Parameters | % |
|---|---|---|---|
| **Monthly income (INR/month)** | | **Family history of drinking** | 54.8 |
| | | Father/uncle | 26.4 |
| 5000 -9999 | 24 | Brother | 18.6 |
| 10000-14999 | 51.7 | Son | 9.5 |
| 15000-20000 | 19.6 | Wife | 0.3 |
| >20000 | 4.7 | | |
| **Income spent on alcohol** | | **How started** | |
| 10-30 | 59.4 | Friend circle | 68.6 |
| 30-50 | 30.2 | Home/relative house | 28.7 |
| >50 | 10.4 | Alone | 2.7 |
| **Source of money** | | **Reason to start** | |
| Savings | 83.2 | Family disturbance | 27.3 |
| Borrowing | 14.3 | Elite/manly feel | 90.5 |
| | | Social allowance at fest/party | 54.4 |
| Sale of house item | 2.5 | Discrimination | 18.3 |
| **Amount (grams/day)** | | **Reason to continue** | |
| <50 | 0 | Work pressure/discrimination | 12.3 |
| | | Family/Emotional problems | 62 |
| | | Peer pressure | 25.7 |
| 50-80 | 4.7 | Easy relaxation/sleep | 85 |
| 80-100 | 25.8 | | |
| >100 | 69.5 | | |
| **Duration (years)** | | **Living environment** | |
| <5 | 4.6 | Poor housing/overcrowding | 75.5 |
| 5-<10 | 23.8 | Poor water supply/sanitation | 80.2 |
| 10-15 | 38.3 | Social conflict/violence in environment | 45.4 |
| >15 | 33.3 | Easy availability | 70.7 |
| **Frequency** | | **Social problems** | |
| Every day | 68.2 | Disturbed social/family life | 55.4 |
| | | Domestic violence/ abuse | 35.4 |
| 6 days/week | 29.2 | Child education hampered | 58.2 |
| 5 days/week | 2.6 | Police matter | 24.8 |
| Aware of social/self harm | 37.6 | Legal problems | 33.4 |
| Consulted doctor in last 1 year | 1.5 | | |

**Table 2: Alcohol parameters of leading world economies.**

| Country | Alcohol sale income /GDP (2019) (%) | Health budget/ GDP (2018) | Cost of AUD/ GDP (year of study) | Current rate of drinking in Men/Women (%)[3] | Prevalence of AUD in % population (2017)[9] |
|---|---|---|---|---|---|
| **USA** | 1.3 | 16.89 | 1.66 (2010)[16] | 73/60 | 2.04 |
| **China** | 2 | 5.35 | NA | 48/16 | 1.22 |
| **Japan** | 1.66 | 10.95 | 1.9 (1987)[7] | 89/77 | 0.58 |
| **Brazil** | 3.55 | 9.51 | 7.3 (2010)[10] | 71/42 | 2.68 |
| **India** | 1.85 | 3.54 | 1.45 (2018)[7] | 20/4.1 | 1.13 |
| **UK** | 2.6 | 10 | 2.9 (2006)[17] | 88/83 | 1.9 |
| **Germany** | 1.37 | 11.43 | 1.24 (2002)[6] | 94/90 | 1.81 |
| **France** | 1.7 | 11.26 | 1.44 (1997)[6] | 93/87 | 1.42 |
| **Italy** | 1.88 | 8.67 | 5-6 (2003)[8] | 80/59 | 0.46 |
| **Canada** | 2.36 | 10.79 | 1.24 (2002)[6] | 87/81 | 1.62 |
| **Russia** | 2.77 | 5.32 | 0.6-1.8 (2008)[11] | 80/64 | 4.73 |
| **Spain** | 2.7 | 8.98 | 0.5 (2009)[12] | 78/55 | 0.89 |
| **Australia** | 2.2, | 9.28 | 3.1 (2010)[13] | 88/83 | 1.51 |
| **Argentina** | 5.76 | 9.62 | NA | 94/90 | 1.82 |
| **South Korea** | 1.45 | 7.56 | 2.76 (2000)[6] | 91/77 | 2.02 |

Continued.

| Country | Alcohol sale income /GDP (2019) (%) | Health budget/ GDP (2018) | Cost of AUD/ GDP (year of study) | Current rate of drinking in Men/Women (%)[3] | Prevalence of AUD in % population (2017)[9] |
|---|---|---|---|---|---|
| **Thailand** | 5.3 | 3.79 | 1.98 (2006)[6] | 35/12 | 0.91 |
| **Indonesia** | 1.4 | 2.87 | *0.11 (2016)[14] | 7.3/3.1 | 0.65 |
| **South Africa** | 4.3 | 8.25 | 1.6 (10-12)[15] | 33/23 | 1.55 |
| **Mexico** | 2.4 | 5.37 | NA | 57/39 | 1.73 |
| **Malaysia** | 0.7 | 3.76 | NA | 8.9/2.7 | 0.64 |
| **Singapore** | 0.1 | 4.46 | NA | 85/62 | 0.49 |

*Cost of injuries only, NA = data not available, AUD = alcohol use disorders, GDP = gross domestic product. (Source: World Health Organization Global Health Expenditure database 2018; Revenue of the alcoholic drinks market worldwide by country in 2019 (in million U.S. dollars) STATISTA 2020, GDP figures published by the World Bank Population figures based on United Nations data).

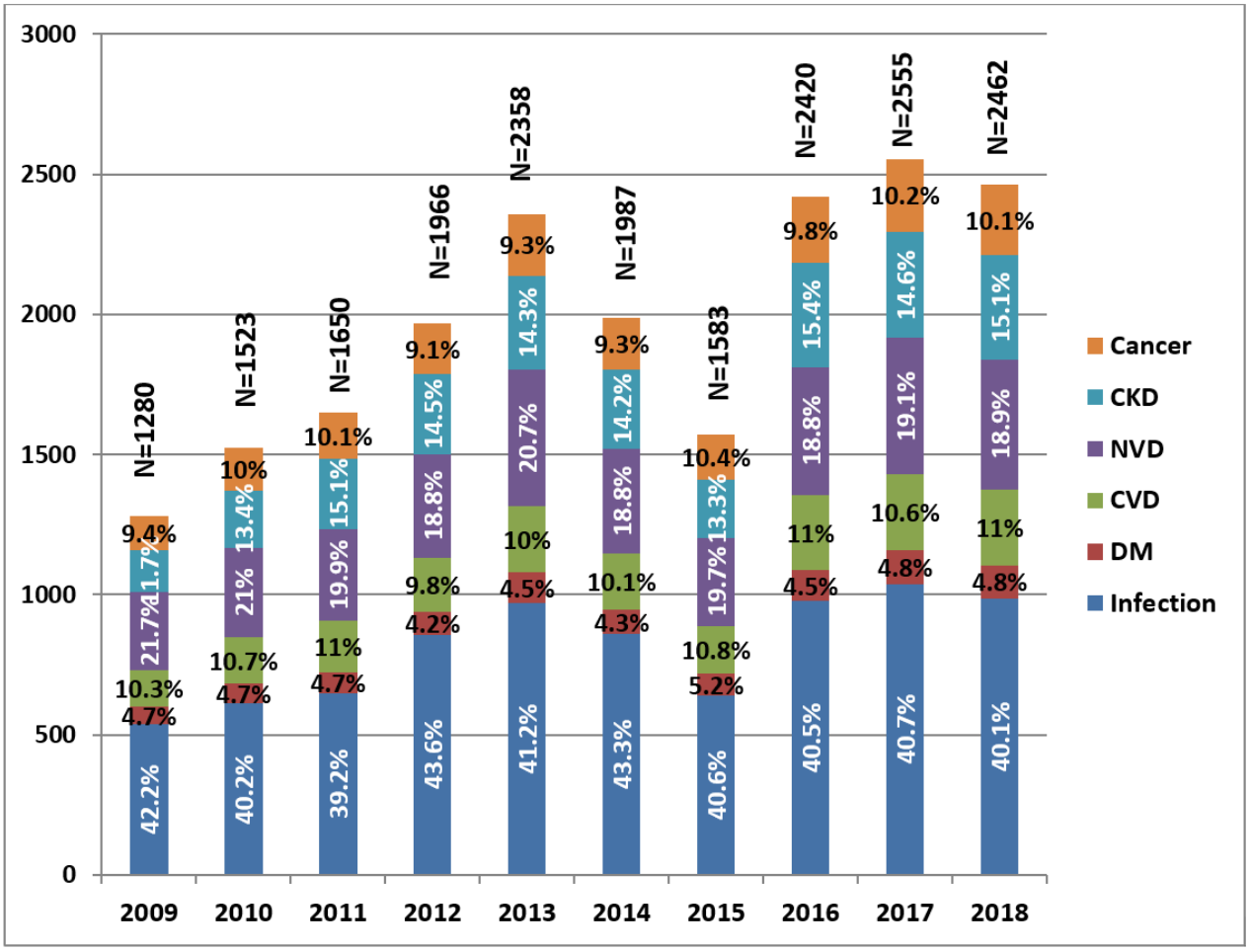


**Figure 3: Total numbers and break up of disorders indirectly related to alcohol consumption over the years.**
DM = only diabetes mellitus, CVD = cardiovascular disorders, NVD = neurovascular disorders, CKD = chronic kidney disease.

The overall incidences were: injury 14888 (30.6%), gastrointestinal disorders 8125 (16.7%), AUD 3012 (6.2%), other substance abuse 1998 (4.1%), seizures 816 (1.7%), infections 8134 (16.7%), only DM 913 (1.9%), CVD 2082 (4.3%), NVD 3873 (8%), CKD 2840 (5.8%), cancer 1932 (4%).

Unintentional injury (N=10144, 68.1%) was the predominant risk of which majority were falls and accidents at workplace, home or on road (due to machinery, road traffic) and the rest were intentional injuries (violence, assaults on road or home) in inebriated state. Of the gastrointestinal disorders, liver disease was present in 7719/8125 (95%) and the rest had pancreatitis. Among infections, majority had lower respiratory infections (N=3980, 48.9%), followed by pulmonary tuberculosis (N=3226, 39.7%), hepatitis B and C (N=820, 10.1%) and HIV (N=108, 1.3%). The overall prevalence of DM/hypertension in the direct and indirect groups was 11.1%/11.3% and 35.8%/43% respectively. Combination

was present in 6158/8795 (70%) of all CVD, NVD and CKD cases combined. Cancers involved oesophagus in 484 (25%), stomach in 570 (29.5%) and colon in 878 (45.5%). Mean alcohol intake was 118 ml/day over a mean duration of 14.7 (5-25) years. Smoking was present in 25387 (52.2%) and other drug and substance use in 1998 (4.1%) patients. Significant psychiatric comorbidity (anxiety and mood disorder, major depression, personality disorder) was present in 35828 (73.7%). There was attempted suicide in 2565 (5%) cases and death occurred in 592 (1.2%) by hanging, ingestion of poison and sedative/alcohol overdosage. 18274/48613 (37.6%) died at last available follow up with 9895/28839 (34.3%) in the direct group (maximum due to injuries followed by liver disease) and 8379/19774 (42.3%) in the indirect group (maximum due to infections and NVD). Cardiomyopathy contributed 11.3% death due to CVD.

Various aspects of the social burden is shown in (Table 1), full data was available for 15,418 patients only. An approximate estimate of hospital expenditure on direct alcohol related diseases was done by multiplying the average hospitalization rate per patient (2.8 times/year) by the estimated expenditure of INR 5000-40,000 during each hospitalization (median INR 20,500) depending on the nature of problems, being maximum for surgical problems and chronic liver disease. This costs the government exchequer INR 165535860 (165.54 million) per year (as railway provides free treatment to all its patients). The contributory effect of alcohol on the indirectly related disorders and its social burden is difficult to estimate in monetary terms. An estimate of work absenteeism gave an average mandays loss of 71034/year for direct alcohol related diseases (only hospital stay leaving aside unrecorded absenteeism habitual for such persons) worth INR 10.3 million (calculated by multiplying number of absent days spent in hospital by the average daily salary leaving aside the productive loss during this period). Disability and poor productivity at work (due to poor tolerance of work pressure, lack of motivation, loss of dexterity in skilled jobs, poor punctuality, poor relation/altercation with colleagues, drinking at workplace) was reported in 52.5% resulting in relocation to less productive service grade and premature retirement in 3489/48613=7.2% patients.

## DISCUSSION

The traditional "dry" Indian culture has taken a backseat in the last two decades with the new paradigms of alcohol use i.e. decreasing age at initiation, greater permissibility of social drinking resulting from globalization, urbanization and migration aided and abated by a shift from extended/joint to nuclear family with attrition of traditional values, lesser parental control and increasing family disturbances.[5] This is aptly highlighted in (Table 1) which shows that teenagers start drinking early at instances of family/ friend in a conducive setting of easy availability and permissive prevalent "drinking environment" often associated with social turmoil in family/community and furthered by later life vissisitudes.

The dangerous aspect is the daily drinking of predominantly spirits often heavily and in binges without being aware of the health consequences. The socioeconomic burden due to alcohol can be classified into three main categories: (1) direct costs of resources used e.g., health care, research and prevention, crime and law enforcement, property damage or loss, administration, welfare assistance or social work; (2) indirect costs of lost resources e.g., premature mortality, reduced productivity due to absenteeism, poor work capacity, loss of employment or early retirement, foster care and homeless shelters, incarceration and (3) intangible costs, which represented the suffering and the deterioration of quality of life of the person and of those around e.g., family or household, relatives and friends, and those encountered on the street. Harms may be to health (e.g. injury/homicide, a family member's anxiety or depression, sexually transmitted infection), social (e.g. domestic and sexual violence/assault, community nuisance, risky behaviour and criminal victimisation, unplanned sex/pregnancy) or economic (e.g. damage to property, money for family necessities spent on drinking) aspect.[6] Given such multidimensionality of the problem and the difficult conversion of the indirect/intangible factors into monetary terms, an estimate of the total economic burden can at best be modest as in our study. Yet a yearly expenditure of INR 165 million on only hospital care of patients and an additional 10 million "pay without work output" is indicative of the staggering total public expenditure (given that the population in which the present study was conducted represent only 0.05% of the total Indian population) that AUD can entail if all its multifarious aspects are given proper attention.

A recent estimate placed the economic burden of alcohol consumption in India on the health system at $48.11 billion, and societal burden (including health costs, productivity loss, and so on) at $1,867 billion.[7] Others show that 15% to 20% of work absenteeism and 40% of accidents at work in India are due to alcohol consumption entailing an annual loss of INR 70,000 to 80,000 million.[8] There are very few studies (Table 2) available worldwide on the expenditure aspect which compare of the income from alcohol sales vis-à-vis the expenditure on AUD (and health overall) as % of their gross domestic product (GDP) for the leading global economies.[3,6-17] It also compares the estimated prevalence of AUD in these economies vis-à-vis the prevalence of drinking in their men/women. The points to note are (1) even with a most conservative estimate, the expenditure on AUD either equals to or exceeds the income from its taxation in most of the high consuming nations in Europe and North America and even in Asia and that also in spite of a woefully small proportion (1.5-10%) of those in need being given the required treatment, (2) very underestimated prevalence of AUD which is not unexpected because the alcohol related problems are always likely to be under-reported/ denied given the taboo

and discrimination associated with it and the reluctance to take medical advice until the problem is advanced which is reflected in a miniscule proportion of health budget being spent on AUD.[9] For other Asian nations, the problem is emerging so data on economic burden is not forthcoming.

The common argument of economies being ruined by taxation/ limiting sales of alcohol is clearly refuted by the above data and the only plausible explanation of gain in GDP from taxation is at the cost of the country's health. Hence controlling morbidity by limiting alcohol sales is the optimum cost-effective way. The present study gives an estimate of the burden among those with the most severe alcohol dependence. It is likely to be much higher in the general population especially those with milder degrees of addiction in whom intervention can be successful and cost effective. By a WHO estimate there will be an increase of 2.2 litres annual personal consumption in India till 2025.[1] This underscores the necessity of instituting strict control measures at government level at the earliest before it can attain menacing proportions as in Europe/North America where public expenditures for substance abuse treatment are increasing and there is ongoing search for evidence-based, cost-effective interventions based on public expenditure studies.[18] A review of 22 studies in the European Union estimated the annual total direct costs of alcohol to be 0.04-0.31% of a country's annual GDP (0.39-2.99% of annual GDP spent on healthcare per country) and indirect costs to be up to 0.64% of annual European GDP as a whole (7.7% of annual GDP spent on healthcare in the European Union).[19]

Among the "best buys" advocated by WHO for control of AUD an increase of excise taxes on alcoholic beverages is not likely to work in India as irrespective of the price, the habitual drinker will continue to buy his drink at the cost of household income, children nutrition and healthcare of the sick. Similarly, alcohol advertising and event sponsoring by company is not very widespread so bans or comprehensive restrictions will have modest effect. The best results are expected from, (1) restrictions on the physical availability of retailed alcohol (via reduced density of outlets or hours of sale), (2) strong action against production and sale of illicit and locally brewed alcohol, (3) strong legislation against drink–driving or drink at workplace with blood alcohol concentration limits, (4) enactment and enforcement of a uniform minimum age for purchase or consumption of alcoholic beverages at 21 years (already in force in some states) (5) health education in high school/college as a large section starts drinking early at this level, (6) provision for prevention, treatment and care of AUD and comorbid conditions in health and social services including brief psychosocial interventions for persons with hazardous and harmful alcohol use.

## CONCLUSION

Alcohol related socioeconomic burden is rapidly rising in India with both directly and indirectly attributable health risk especially among younger population and needs urgent attention.

## ACKNOWLEDGEMENTS

Authors are thankful to Dr. P. Manjubhargav, S. Mondal, T. Agarwala and C. Kumar who have contributed towards data collection and compilation for this manuscript.

*Funding: No funding sources*
*Conflict of interest: None declared*
*Ethical approval: The study was approved by the Institutional Ethics Committee*

## REFERENCES

1. Global status report on alcohol and health. Available at: https://www.who.int/. Accessed on 20 November 2022.
2. Alcoholic beverages. Available at: https://www.researchandmarkets.com/reports/5606738/alcoholic-beverages-global-market-report-2022. Accessed on 20 November 2022.
3. Lertpitakpong C. The global burden of disease attributable to alcohol and drug use in 195 countries and territories, 1990-2016: a systematic analysis for the global burden of disease study 2016. Lancet Psychiatr. 2018;5(12):987-1012.
4. The Alcohol Economy. Available at: https://fourloko.com/alcohol-beverage-economic-impact. Accessed on 20 November 2022.
5. Padhi PK, Singh SP, Narayan J, Nath P, Singh A, Pati GK et al. Burden of alcohol in patients with alcoholic liver disease and their families in Odisha. J Evid Based Med Health. 2018;5(35):2560-6.
6. Thavorncharoensap M, Teerawattananon Y, Yothasamut J, Lertpitakpong C, Chaikledkaew U. The economic impact of alcohol consumption: a systematic review. Subst Abuse Treat Prev Policy. 2009;4:20.
7. Jyani G, Prinja S , Ambekar A, Bahuguna P, Kumar R. Health impact and economic burden of alcohol consumption in India. Int J Drug Policy. 2019;69:34-42.
8. The Global Burden of Disease: 2004 Update. Available at: https://www.who.int/. Accessed on 20 November 2022.
9. Ritchie H, Roser M. Alcohol Consumption. Available at: https://ourworldindata.org/alcohol-consumption. Accessed on 20 November 2022.
10. Claro HG, de Oliveira MAF, Bourdreaux JT, Fernandes IFAL, Pinho PH, Tarifa RR. Drug use, mental health and problems related to crime and violence: cross-sectional study. Rev Lat Am Enfermagem. 2015;23(6):1173-80.
11. Potapchik E, Popovich L. Social Cost of Substance Abuse in Russia. Value Health Reg. 2014;4:1-5
12. Santonjaa FJ, Sánchezb E, Rubioc M, Morerac JL. Alcohol consumption in Spain and its economic cost: A mathematical modeling approach. Math Computer Model. 2010;52(7-8):999-1003.

13. Room R, Doran C. Alcohol costs Australians $36 billion every year. Available at: www.fare.org.au. Accessed on 20 November 2022.
14. Aztyamalia S, Dwi SAK. The estimated economic cost of alcohol-related accident and injuries in Indonesia. Int Res J Pharm. 2019;10(3):49-53.
15. Matzopoulos RG, Truen S, Bowman B, Corrigall J. The cost of harmful alcohol use in South Africa. S Afr Med J. 2014;104(2):127-32.
16. Alcohol use in the United States: alcohol facts and statistics. Available at: https//:www.nihaa.nih.gov. Accessed on 28 November 2022.
17. Estimates of the cost of alcohol. Available at:www.ias.org.uk. Accessed on 28 November 2022.
18. Lievens D, Laenen FV, Christiaens J. Public spending for illegal drug and alcohol treatment in hospitals: an EU cross-country comparison. Subst Abuse Treat Prev Policy. 2014;9:26.
19. Laramée P, Kusel J, Leonard S, Aubin HJ, François C, Daeppen JB. The Economic Burden of Alcohol Dependence in Europe. Alcohol. 2013;48(3):259-69.

**Cite this article as:** Ray G. Health and social burden of alcohol use disorders in an industrial population of India. Int J Community Med Public Health 2023;10: 1561-7.