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Original Research Article

Cumulative Impact of Alcohol Use in Tribal Patients with Alcoholic Liver Disease [ALD] in North Odisha, India

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Abstract:

Aim: To estimate the cumulative impact of alcohol use in tribal patients with alcoholic liver disease (ALD) and their families in North Odisha, India

Methods: The demographic and socioeconomic data were collected from tribal patients hospitalized for alcoholic liver disease and from their attendants using a self-designed non validated questionnaire and analyzed.

Results: Study subjects included100consecutive tribal ALD patients [all males]. 60% were between 30–50 years. Most were married (96%), literate (63%), either businessmen (37%) or employed (30%) and belonged to middle socioeconomic class. 90% started alcohol use before age 30 years and half during teenage. Mean alcohol intake was 190ml/day [mean duration 23 years]; 60% consumed alcohol daily. Concomitant tobacco abuse was noted in 79%. Average expenditure on alcohol was Rs 3800/month. Average hospitalizations for ALD related problems was 2.6 times/year with average expenditure of Rs 30,000 (~ 440 US$) during each hospitalization. For treatment expenses, 86% patients borrowed money from friends/relatives, 36% used saving deposits and 4% sold personal belongings. 11% lost their job and 7% sold immovable property. In 43% cases, children were deprived of education. Besides, 52% had disturbed social and family life, 34% abused their spouse, 20% suffered accidents and 37% indulged in physical violence.

Conclusion: Majority of tribal patients admitted for ALD and their families had disturbed social and family life, and incurred severe financial loss arising of alcohol use.

Keywords: Socioeconomic factor, Alcohol related disorder, Alcohol users, Social impact, Alcoholic liver disease (ALD), Odisha State Treatment Fund (OSTF).), The International Labor Organization (ILO).

Introduction

Alcohol is one of the leading causes of death and disability globally. About two billion people worldwide consume alcohol and of these about one third (nearly 76.3 millions) are likely to have one or more diagnosable alcohol use disorder [1]. 3.2% of all deaths are attributed to alcohol [2]. WHO estimates for the South East Asian countries indicate that one fourth to one third of male population drink alcohol [3] with increasing trend among women [4]. In India the estimated number of alcohol users is 63 million with17.4% of them being dependent users [5]and 20-30% of hospital admissions are due to alcohol related problems[6].

Alcohol consumption has been identified not only as a risk factor for many health related problems but also for social and economic problems of the community. Traditionally, the adverse effects of alcohol use have been linked only to the acute immediate effects (i.e. state of drunkenness) and long term effects of alcohol dependence or alcohol related health problems [6]. There is growing evidence that apart from the total quantum, the pattern of consumption (frequency of use, drinking to intoxication, binge drinking) plays an important role in many of the public health problems (injuries, violence, etc.) consequent to alcohol use [7].

World Health Organization (WHO) report identified alcohol as being responsible for nearly 60 types of disorders and injuries (WHO, 2000). Alcohol consumption has been recognized as the leading health related risk factor, next to underweight, unsafe sex, hypertension and tobacco use (WHO, 2002). Further, alcohol has also been a known risk factor for increasing crimes, work absenteeism, loss of productivity, damage to property and physical and emotional abuse of women and children. These in turn have a cascading effect on the healthy socio economic growth of families and communities.

However there is insufficient information on social, economic, health and psychological impact of alcohol use in tribal populations with alcoholic liver disease in published literature. Therefore, it is necessary to understand the social and economic costs of this disease to estimate the burden it imposes on society and draw attention of all stake holders to pave the way for initiation of preventive action to contain this menace.

Aim and Objective: To estimate the cumulative impact of alcohol use in tribal patients with alcoholic liver disease and their families in north odisha.

Methods:

The study was carried out in the department of medicine FM Medical college and hospital Balasore Odisha from1st August 2021 to 31st July 2023.Tribal Patients of age more than 18 years with diagnosis of alcoholic liver disease, diagnosed on the basis of history, clinical examination, liver function tests imaging and endoscopy were included as study participants. Only patients with unequivocal evidence of chronic alcoholic liver disease with either demonstration of Porto systemic collaterals or chronic liver disease on imaging and esophageal varies on endoscopy were included in the study. Patients with chronic liver disease of other etiology such as due to hepatitis B and C infection, Wilson disease, Haemochromatosis, Diabetes mellitus, Nonalcoholic steatohepatitis were excluded from the study. An informed consent was taken from each patient both in oral and written form. Those patients, who were unwilling for informed consent, were excluded from study protocol. The demographic and socio-economic data were collected prospectively from consecutive hospitalized alcoholic liver disease patients and their attendants, analyzed and expressed in percentage. ″The data collected included socio demographic details,(i.e. age, sex, occupation, marital status), Health and economic status of individuals(i.e. personal monthly income, savings details, frequency of medical checkup including hospitalization due to alcohol related illness),information pertaining to use of alcohol(i.e. age of starting alcohol intake, duration of alcohol intake, type, frequency and amount of alcohol intake, any family history of alcohol intake and the amount spent per month for alcohol intake), social aspects (i.e. disturbed family life due to frequent quarreling, broken relationship with family members),occupation related issues (i.e. duration of work absenteeism, lost job), economic aspects (i.e. source of health expenditure, disruption of education in children), emotional and psychological aspects(abusing family members, violent behaviors in community) and legal aspects (shuffle with police, suicide or homicide)″. The mean alcohol attributable expenditure was calculated for each individual. The mean alcohol attributable expenditure was calculated by adding up the total expenditure incurred by the patient in purchasing alcohol per month, the monthly treatment expenditure after discharge from the hospital and the expenditure made during hospitalization for alcoholic liver disease in the past one year divided by twelve. This information was used for assessing the overall economic impact due to alcohol use. The available data were utilized to arrive at the socio economic burden and impact at the family level in the analysis.

Results

A total of 100 consecutive tribal patients with alcoholic liver disease admitted to the department of Medicine FM Medical College and Hospital were studied from 1st August 2021 to 31st July 2023. All the patients were males. Two thirds (60%) alcohol users were in the age group 30-50 years and 3% were below 30 year of age and 37% were beyond 50 years of age.65% patients were from rural areas. 69% were literate either businessman(39%) or employed(30%), others are farmer (10%) and laborers(10%) (Table1).

90% patients started alcohol use before age 30 years and half (50%) of them in the teen age (11-20 year) and 21% before age 18year. 96% patients are married(Table 1 and 2). 53% patients had a monthly income between INR 5000-10,000, 18% patients had income <INR. 5000, 27% had income INR 10,000- 25,000 and 2% had >INR 25,000 monthly income (Table1). In 63% patients, there was family history of drinking, such as with father (47%), Brother (50%) Son (12%) and wife (5%) (Table 2).

60 % patients do not have saving bank accounts, only40% patients had savings at banks, Insurance policies Or savings at home. 80% patients consumed both country liquor and foreign liquor, 08 % patients consumed only foreign liquor and 12% patients only country liquor (Table2). 60 % patients consumed alcohol daily, 15% patients 6 days/week, 12% patients 5 days/week and 13% patient's < 3 days/week with mean alcohol intake being 190ml/day with a mean duration of 23years. The Average expenditure on alcohol by the patient was INR 3800/month.

All the patients agreed that it was very common and the accepted forum to consume alcohol on social occasions like festival, various parties or ceremonies. More than 60% of the patients reported that they drink alcohol in commercial settings (Retail stores, liquor shops, restaurants). Nearly half of the patients consumed alcohol at homes. The most common excuse (50%) for consuming alcohol was to alleviate pain and to induce sleep. Habituation and peer pressure (when with friends or in social events/ occasions) are said to be the key

reasons for alcohol use by 42% and 46% respectively. One fifth (20%) of patients cited financial and family disturbances as reasons for alcohol use.

Amongst the patients, in 79% patients there was concomitant Tobacco use and 3% patients used charas (Table2). It was observed that the average hospitalization for ALD related problems was 2.6 times/year with an average expenditure of INR 30,000 during each hospitalization.

For treatment expenses, 86% patients borrowed money from friends/ relatives, 36% used saving deposits, 04% sold personal belongings and 03% sold lands (Fig2). However after admission to hospital 28% patients meet their treatment expenses through Orissa state treatment funds (OSTF), amounting to about INR 8,40,000 which is of great concern. 80% patients remain absent from their working place due to alcohol related problems, with average duration of work absenteeism 12 weeks for which 17% patients lost their jobs. In 43% patients, due to financial deficits children were deprived of education, besides 52% patients had disturbed social and family life, 34% abused their family members including their wives. 20% patients suffered accident and 37% indulged in physical violence and faced legal consequence and 03% patients had suicidal impulse for which needed hospitalization (Fig1).

Table 1: Demographic and socioeconomic characteristic of study population

Age of the patients in years	Number of patients "n (%)"
<30	3
31-40	20
41-50	40
51-60	25
>60	12
Occupation of the patients	
Service	30
Business	39
Labourer	19
Farmer	10
Student	2
Marital status	
Married	96
Not married	4
Monthly income of patients (INR)	
<5000	18
5000-10000	53
11000-25000	27
>25000	2

Table 2: Age of starting alcohol, pattern of alcohol, family history and other substance abuse in the study population

Age of starting alcohol drinking	Number of patients "n (%)"
<10	1
11-20	50
21-30	40
>30	9
Types of alcohol consumed	
Country liquor	12
Foreign liquor	8
Mixed both country and foreign liquor	80
Family history of drinking alcohol	
Father	47
Brother	50
Son	12
Wife	5
Other substance abuse	
Tobacco	79
Bidi	21
Cigarette	42
Charas	3

Figure1: Social Impact of Alcohol abuse

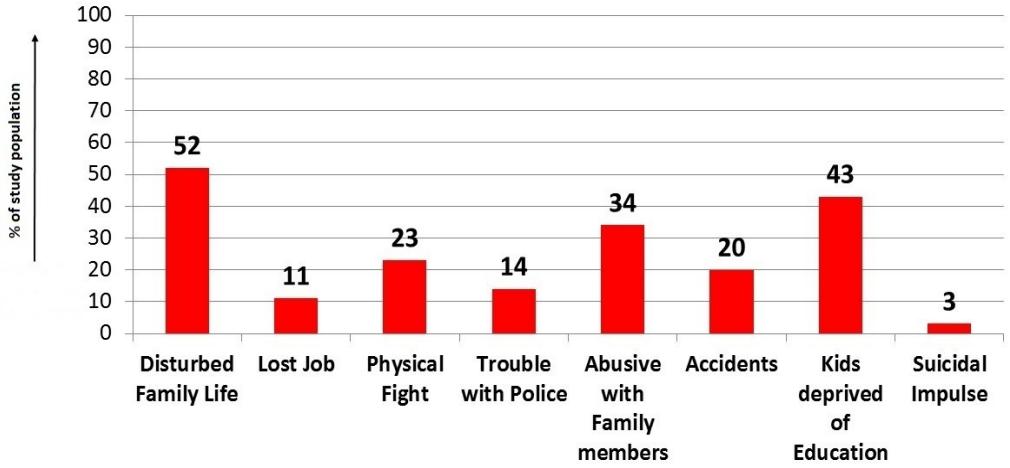
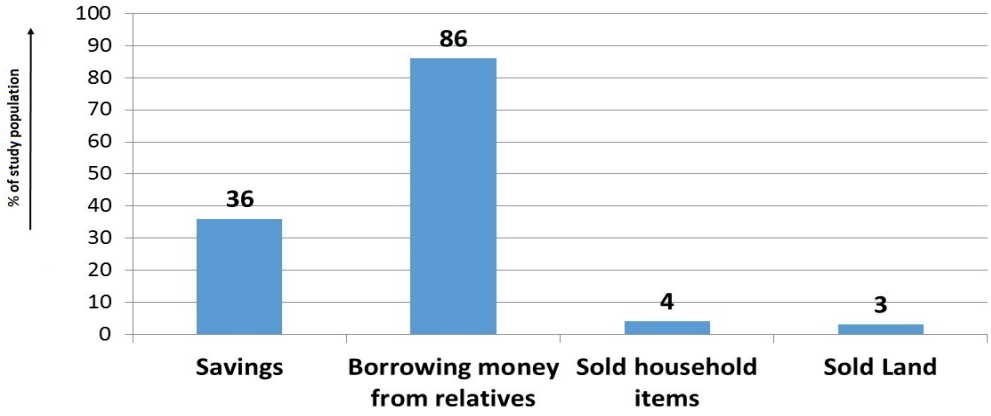


Figure2: Source of Health Expenditure in ALD patients



Discussion

In the present study all the patients were males, 63% patients were below 50 years of age. Age and gender difference in alcohol use is well documented. The meta-analysis by Reddy and Chandrasekhar revealed a 10-fold difference in rate between men and women [8]. Almost all studies have reported higher use rates among men varying from 26-72%[9,10].In the present study it is seen that90% patients started alcohol use before age 30 years and half in the adolescent age group (11-20years); 21% started before legal age of drinking.(Table2). In the Bangalore study [6] it was seen that two third of users (67.4%) were in the age group25-45years but surprisingly the proportion of users in the age group of 16-20 years was high(50%). Our age-related findings are of great relevance as the younger, the age of initiation into the habit of alcohol use, the more hazardous it would turn out to be later in life. National sample survey data from India empirically found an association between use of alcohol and tobacco[11].In the present study 79% patients had associated tobacco use (Table2)

The problems related to alcohol consumption can be broadly looked at from three dimensions→1) problems and impact on the individual who consume alcohol. 2) The impact on family members. 3) The societal consequence of this consumption. In the earlier study [6] it was seen that nearly 40% of health problems and unintentional injuries were linked to alcohol use. Besides intentional injuries and violence related events like abusing family members, physical violence with community members including police, ranged between 8-96%[6]. Similarly in the present study, family abuse was found in 34% patients and physical violence with community members including police was noted in 48% of patients.(Fig1)

In the previous study conducted at NIMHANS at Bangalore, alcohol users experienced a higher incidence of negative life events, more injuries and increasing psycho social problems and sought more often both emergency and routine services[12]. In the present study, it was seen that 52% patients experienced psychosocial problems with disturbed family life due to chronic alcohol use and alcohol related problems. (Fig1)

Sidebar(2004) in a recent review of available literature from developed countries observed that nearly 5-50% patients admitted to the emergency department for trauma had consumed alcohol. Cheri petal et al (2003) too observed a clear association between alcohol and injuries, especially road traffic injuries within 6 hours of alcohol consumption. In the present study, 20%patients sustained road traffic accidents intentionally or un intentionally following alcohol intake.(Fig1)

In a recent case control study of suicides at Bangalore, alcohol consumption was a major risk factor with increased chances of committing suicides by nearly 25 times among alcohol users[13]. The probability of harboring suicidal ideations was nearly 2 times more among alcohol users, while attempting suicides was 4 times higher among them. In the present study, 3% patients developed suicidal ideations and got hospitalized.(Fig1) However, the numbers should be interpreted with caution due to the small sample size in the study group. The association between alcohol and suicide is multifactorial. (i) An alcoholic person is susceptible to many chronic illnesses. ii) Alcohol deprives the person and his families of funds in a major way leading to difficulties in day to day living. The problems become compounded in situations of already existing poverty and economic loss. iii) Alcoholics are known to suffer from co-existing morbidity of depression. The combined effect of alcohol use and depression is a major risk factor for suicide. iv) Alcoholic patients exhibit intolerable aggressive and violent behavior on spouses and children, which in turn drives them to suicide[12,14].

Alcohol abuse affects employees at the workplace; excess alcohol consumption results in a high degree of work absenteeism, poor punctuality, poor work efficiency and loss of dexterity in skilled jobs. In the present study, 80% patients took both country and foreign liquor(Table2). The International Labor Organization (ILO) estimates that globally 3-5% of the average work force is alcohol dependent and up to25% drink heavily enough to be at risk dependence[15].The annual loss due to alcohol related problems in workplace in India is estimated to be between INR70,000 to 80,000 million [1,16]. In the present study 80% patients remained absent from their work place due to alcohol related problems with average duration of work absenteeism of 12 weeks.

The relationship between an alcohol abuser and his family is complex. Family members experience guilt, shame, anger, fear, grief and isolation due to presence of an alcohol abuser in the family. They are often subjected to moderate to severe forms of harassment, hostility and tense atmosphere when they confront the drinking behavior of their alcohol abusing family member. Other complications in the family include long absence from home, destruction of household objects in rage, lack of communication between family members, abusing family members and separation from spouse.

In the present study, the majority of patients (53%) had monthly income of Rs.5000-1000 (Table1) with 60% patients did not have savings in any form and average expenditure on alcohol use was Rs 3800/month. Despite the waves of modernization, major parts of India continue to be agrarian and majority of population is either middle class or poor as per economic assessment. In presence of poor socioeconomic status in family, disproportionate amount of family income is spent on alcohol, leaving very little money for food, education, housing, health and other needs. In the present study, in 43%patients children were deprived of education(Fig1). 4% patients sold their household assets, 3% sold their land and 86% patients borrowed money to meet their hospital expenses.(Fig2) In India, it has been reported that house hold expenditure on alcohol varied between 3-45% of income[1,17]. In the present study, patients spent 30% of their monthly income in their alcohol use. Raman analyzing the data from different national sample surveys in India observed that households that consume alcohol, spend on an average 5.1% of the total earning on all alcohol related items and 0.5% of the population spent more than 30%[17].

In the present study, 15% patients sent their children under 15years to outside state to work for supplementing family income. In previous Bangalore study it was seen that 9.7% alcohol users sent their children under 15 to work outside to supplement the family income.

The study by the National Institute of Alcohol Abuse and Alcoholism (NIAAA, USA) observed that 45% of the costs of harmful use of alcohol is borne by those who abuse alcohol and members of their families, 39% by federal state and local governments, 16% by private insurance and concluded that “much of the economic burden was on the population that does not abuse alcohol and drugs” [18]. In the present study, medical costs of 28% of patients were borne by the State Government of Odisha through Odisha State Treatment Fund (OSTF) amounting to about

INR8,40,000 (~ 12,500 US $)during the study period.

It is estimated that the Indian Government spends nearly Rs. 244 billions every year to manage the consequences of alcohol use which is more than its total excise earning Rs.216 billion [3] which clearly indicates that Indian society is losing more than it is gaining.

Conclusion

Tribal populations with Chronic alcohol users spend nearly one third of their earning (monthly) on alcohol. Alcohol drinking is widespread in younger age group and high income groups and much of the effect of harmful use of alcohol are absorbed not only by patients or family members but also by the state government either directly or indirectly. Majority of patients and their families had disturbed social and family life. Children are the worst sufferers in the family. So the present study has revealed the increasing burden which the health, social and economic sectors will have to face in the years to come if systematic efforts are not initiated to control the growing malaise of alcohol consumption in tribal populations..

Compliance with ethical standards

Informed consent

All procedures followed were in accordance with the ethical standards of the responsible committee on human experimentation (institutional and national) and with the Helsinki Declaration of 1975 as revised in 2008. We obtained informed consent from individual patients and Institutional ethics committee clearance was obtained.

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