BURDEN OF ALCOHOL IN PATIENTS WITH ALCOHOLIC LIVER DISEASE [ALD] AND THEIR FAMILIES IN ODISHA

Pradeep Kumar Padhi[1], Shivaram Prasad Singh[2], Jimmy Narayan[3], Preetam Nath[4], Ayaskant Singh[5], Girish Kumar Pati[6], Prasant Parida[7], Sunil Mishra[8]

[1]Assistant Professor, Department of General Medicine, MKCG Medical College, Berhampur, Ganjam, Odisha.
[2]Professor, Department of Gastroenterology, SCB Medical College, Cuttack, Odisha.
[3]Assistant Professor, Department of Gastroenterology, SUM Hospital, Bhubaneswar, Odisha.
[4]Assistant Professor, Department of Gastroenterology, KIIMS Hospital, Bhubaneswar, Odisha.
[5]Assistant Professor, Department of Gastroenterology, SUM Hospital, Bhubaneswar, Odisha.
[6]Assistant Professor, Department of Gastroenterology, SUM Hospital, Bhubaneswar, Odisha.
[7]Assistant Professor, Department of Gastroenterology, SCB Medical College, Cuttack, Odisha, India.
[8]Resident, Department of Cardiology, SCB Medical College, Cuttack, Odisha.

ABSTRACT

BACKGROUND

There is no information on the social, economic, health and psychological impact of alcohol use in ALD patients and their families.

The aim of the study is to estimate the burden of alcohol use, in patients with alcoholic liver disease and their families, in Odisha.

MATERIALS AND METHODS

Demographic and socioeconomic data were collected from hospitalized ALD patients (cases) and Chronic liver disease (CLD) patients with aetiology other than alcohol (controls) using a self-designed non-validated questionnaire and results were analysed.

RESULTS

Study subjects included 400 consecutive CLD patients. 350 patients had CLD of alcohol aetiology (cases), 50 patients had CLD of aetiology other than alcohol (controls). In alcoholic groups, 98% were male, 02% were female, in control groups 80% were male, 20% were female. In alcohol groups 60% were between 30–50 years, literate (69%), either businessmen (39%) or employed (30%) and belonged to middle socioeconomic class. In control groups 62% were above 50 years, 82% belonged to low socioeconomic groups. 90% cases started alcohol use before age 30 years and half before legal age of drinking (below 21 years). 80% cases consumed mixed alcohol (both foreign and country liquor), with average alcohol intake of 190 ml/day and mean duration of 20 years. 60% consumed alcohol daily, 70% consumed alcohol outside home. Family history of drinking present in 63% in alcohol groups and 16% in control groups. Concomitant tobacco abuse was noted in 80% in alcohol groups but 25% in control groups. Average expenditure on alcohol was INR 2000/month. Average hospitalizations for ALD related problems was 4.9 times/year with average expenditure of INR 30,000 during each hospitalization, but in control groups average hospitalization was 4.6 times/year with average expenditure of INR 45000 during each hospitalization. For treatment expenses, 86% (cases) and 94% (controls) borrowed money from friends/relatives, 36% (cases) and 18% (controls) used saving deposits, 28% (cases) and 22% (controls) used Odisha state treatment fund and 4% (cases) and 26% (controls) sold personal belongings, .43% (alcohol groups) and 14% (control groups) had children deprived of education. Besides, 52% (cases) and 08% (controls) had disturbed social and family life. In alcoholic groups, 34% abused their family members, 20% suffered accidents, 37% indulged in physical violence and scuffled with police, 5% faced legal consequences and 3% had attempted suicide.

CONCLUSION

Alcohol drinking is widespread in younger age group and high income groups. Alcohol causes severe social disruption. Children suffer the most. It causes huge financial burden on both family & state.

KEYWORDS

Alcoholic Liver Disease, Chronic Liver Disease, Legal Age of Drinking, Socioeconomic Factor, Social Impact.

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BACKGROUND

About two billion people worldwide consume alcohol and 0f these about one third (nearly 76.3 million) 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 numbers of alcohol users are 63 million with 17.4% of them being dependent users[5] and 20-30% of hospital admissions are due to alcohol related problems.[6]

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Corresponding Author:
Dr. Pradeep Kumar Padhi,
Assistant Professor,
Department of General Medicine,
MKCG Medical College, Berhampur,
Ganjam, Odisha, India.
E-mail: drpkpadhy1973@gmail.com
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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 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 ALD patients in published literatures. 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 way for initiation of preventive action to contain this menace.

Aim of the Study

To estimate burden of alcohol use among patients with alcoholic liver disease and their families in Odisha.

MATERIALS AND METHODS

The study was carried out in the Gastroenterology Department of SCB Medical College and Hospital, Cuttack, Odisha from 1st August 2014 to 31st July 2015. All the patients of age more than 18 years consecutively admitted to hospital with diagnosis of chronic liver disease, based on 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 as cases and patients with chronic liver disease of aetiology other than alcohol such as due to hepatitis B and C infection, Wilson disease, Haemochromatosis, Diabetes mellitus, Nonalcoholic steatohepatitis were included as controls. 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 both cases and control groups, 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 and non-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 amount spent per month for alcohol intake, mount spent in each hospitalizations, treatment expenses per month in each groups), social aspects (i.e. Disturbed family life due to frequent quarreling, broken relationship between family members), occupation related issues (i.e. Duration of work absenteeism, lost job), economic aspects (i.e. Source of health expenditure, 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. The present study was approved by the institutional ethic committee of SCB Medical College, Cuttack, Odisha.

RESULTS

A total of 400 consecutive chronic liver disease patients admitted to the Gastroenterology department of SCB Medical College and Hospital, Cuttack were studied from 1st August 2014 to 31st July 2015. 350 patients had CLD of alcohol aetiology (cases), 50 patients had CLD of aetiology 0ther than alcohol (controls). In alcoholic groups 98% were male, 02% were female, in control groups 80% were male, 20% were female. In alcohol groups 60% were between 30-50 years, literate (69%), and either businessmen (39%) or employed (30%), others are farmers (10%) and laborers (17%). In control groups 62% were above 50 years with farmers (28%), businessman (20%), Laborer (12%) (Table 1 & 2). 90% cases started alcohol use before age 30 years and half before legal age of drinking (21 years) (Table 4). In both groups majority patients are married, 96% (cases) and 98% (control groups) respectively (Table 3).

In alcoholic groups 54% patients had a monthly income between INR 5000-10,000, 18% patients had income <INR. 5000, 26% had income INR 10,000- 25,000 and 2% had >INR 25,000 monthly income. In control groups majority patients (82%) had monthly income < INR 5000. (Table 5). .In alcoholic groups, in 63% patients, there was family history of drinking, such as with father (47%), Brother (50%) Son (12%) and wife (5%) but in control groups 16% patients had family history of drinking such as father (4%), brother (16%), son (12%) (Table 6 & 7).

80% cases consumed both country liquor and foreign liquor, 08 % patients consumed only foreign liquor and 12% patients only country liquor (Figure 1) 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 190 ml/day with a mean duration of 20 years. The Average expenditure on alcohol by the patient was INR 2000/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, Concomitant tobacco abuse was noted in 79% in alcohol groups but 25% in control groups. (Figure 2) Average hospitalizations for ALD related problems was 4.9 times/year with average expenditure of INR 30,000 during each hospitalization, but in control groups average hospitalization was 4.6 times/year with average expenditure of INR 45000 during each hospitalization. 86% (cases) and 94% (controls) borrowed money from friends/relatives, 36% (cases) and 18% (controls) used saving deposits, and 4% (cases) and 26% (controls) sold personal belongings to meet treatment expenses. (Figure 3). However, after admission to hospital in alcoholic groups 28% patients meet their treatment expenses through Odisha state treatment funds (OSTF), with average OSTF estimate was INR28, 532/- amounting to total amount of INR 27,96,136 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 11% patients lost their jobs.

In control groups 22% patients meet their treatment expenses through Odisha state treatment funds with average OSTF estimate was INR 37,272 amounting to total amount of INR 16,39,968 which is much lesser than that consumed by alcoholic. 43% (alcohol groups) and 14% (control groups) had children deprived of education. Besides, 52% (cases) and 08% (controls) had disturbed social and family life. In alcoholic groups 34% abused their family members, 20% suffered accidents, 37% indulged in physical violence and scuffled with police, 5% faced legal consequences and 3% had attempted suicide.

Socio-Demographic Characteristics

Age in yrs	ALD (n=350)	CLD of other etiologies (n=50)
< 30	7 (2%)	2 (4%)
31-40	70 (20%)	9 (18%)
41-50	140 (40%)	8 (16%)
51-60	70 (20%)	17 (34%)
> 60	63 (18%)	14 (28%)

P = 0.005 (Calculated by Chi square method)

Table 1

Occupation

Occupation	ALD (n=350)	CLD of other etiologies (n=50)
Service	105 (30%)	4 (8%)
Business	136 (39%)	10 (20%)
Labourer	60(17%)	6 (12%)
Farmer	35 (10%)	14 (28%)
Student	7 (2%)	2 (4%)
Others	7 (2%)	14 (28%)

P < 0.001 (Calculated by Chi square method)

Table 2

Marital Status of cases and controls

MARITAL STATUS	ALD(n=350)	CLD of other etiologies(n=50)
Married	336 (96%)	49 (98%)
Not married	14 (4%)	1 (2%)

Table 3

Age of starting Alcohol in cases: n=350

Age of starting Alcohol (years)	No. of patients (%)
< 10	7 (2%)
11-20	175 (50%)
21-30	140 (40%)
31-60	20 (5.7%)
> 60	08 (2.3%)

Table 4

Monthly Income of cases and controls

Monthly Income	ALD (n=350)	CLD of other etiologies (n=50)
< 5000	63 (18%)	41 (82%)
5000-10, 000	189 (54%)	6 (12%)
10,000-25, 000	91 (26%)	3 (6%)
> 25,000	7 (2%)	0

P < 0.001 (Calculated by Chi square method)

Table 5

Family history of drinking alcohol in ALD patients (63%)	
Family history of drinking alcohol	No. of Patients (%)
Father	164 (47%)
Brother	175 (50%)
Son	42 (12%)
Wife	17 (5%)

Table 6

Family history of drinking alcohol in Non-alcoholic CLD (16%)	
Family H/O Drinking Alcohol	No. of Patients (%)
Father	2 (4%)
Brother	8 (16%)
Son	6 (12%)
Wife	0

Table 7

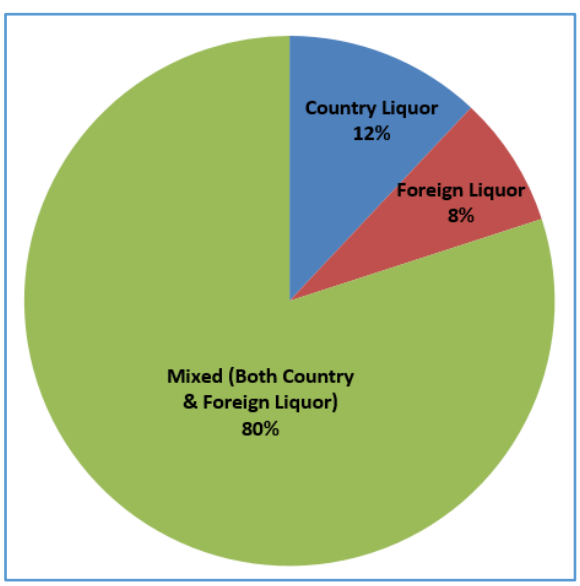


Figure 1. Pie Diagram Showing the Type of Alcohol Consumed by Cases

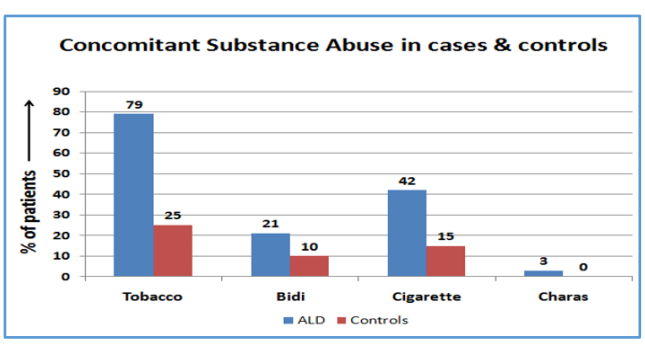
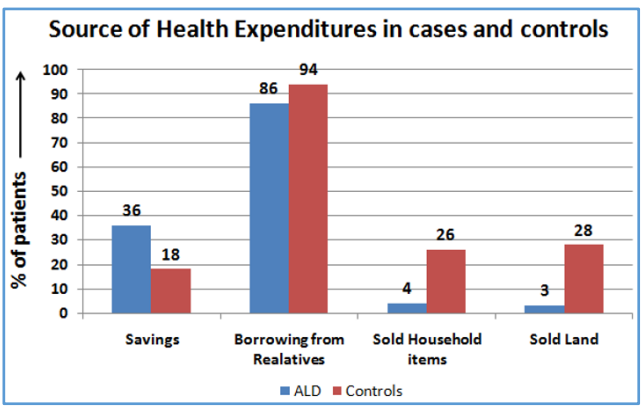


Figure 2



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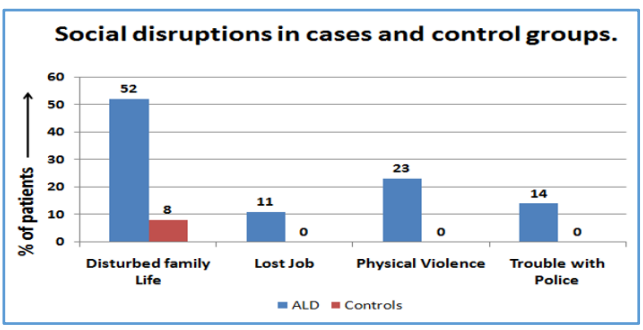

Figure 4

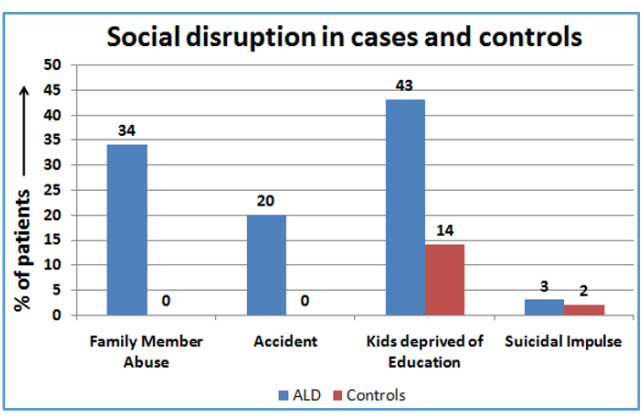

Figure 5

DISCUSSION

Alcohol is one of the recognized risk factors for ill health[2] the new understanding of the problems related to alcohol use is its greater socio-economic impact than realized. There is growing evidence that apart from the total quantum, the pattern of consumption (frequency of use, drinking to intoxication, binge drinking) plays important role in many of the public health problems (injuries, violence etc.) consequent to alcohol use.[7]

The new paradigms of alcohol use i.e. decreasing age at initiation; greater permissibility of social drinking is increasingly associated with the process of globalization, urbanization and migration. A combination of all these factors have made alcohol consumption a common practice, with less understanding on impact of alcohol on health, social and economic areas in Indian society.

In the present study alcohol use was predominantly a male phenomenon. Age and gender difference in alcohol use

is well documented. The meta-analysis by Reddy and Chandrasekhar revealed a 10 fold difference in rates 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 that 90% patients started alcohol use before age 30 years and half in the adolescent age group (11-20 years), 50% before legal age of drinking. Similarly, in previous Bangalore study it was seen that two third of users (67.4%) are in the age group 26-45 years and also surprisingly the proportion of users in the age group of 16-20 years is high (50%). This finding is of great relevance as younger the age of initiation in to 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% cases had associated tobacco use.

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 despite their frequency of occurrence nearly 40% of health problems and unintentional injuries have been reported to be linked to alcohol use. With respect to intentional injuries and violent related events like abusing family members, physical violence with community members including police it ranges between 8-96%.[6] Similarly in the present study family abuse was found in 32% patients and physical violence found in 37% of patients in alcoholic groups whereas the control groups do not give history physical violence or family abuse though they are economically poor in comparison to study groups.

In the previous study conducted by NIMHANS, alcohol users experienced a higher incidence of negative life events, more injuries and increasing psycho social problems. They sought health care services more often both emergency and routine services.[12] In the present study it was seen that in alcoholic groups 52% patient's experienced psycho social problems due to chronic alcohol use and alcohol related problems, which is much lesser in control groups.

Sidebar (2004) in a recent review of available literature from high income countries observed that nearly 5-50% patients admitted at emergency department for trauma had consumed alcohol. A clear association between alcohol and injuries especially road traffic injuries within 6 hours of alcohol consumption has been proven beyond doubt (Cheripetal et al 1993). In the present study 20% patients sustained road traffic accident intentionally or un intentionally following alcohol intake.

In a recent case control study of completed suicides in Bangalore, alcohol consumption was a major risk factor with chances of increasing suicides by nearly 25 times among users.[13] The probability of harboring suicidal ideations was nearly 2 times more among users, while attempting suicides was 4 times higher among users. In the present study 3% patients developed suicidal ideations and get admitted. However, the numbers should be interpreted with caution due to small sample size in the study group. The association between alcohol and suicide can be seen at different level and through different mechanism such as-

i. An alcoholic person is susceptible to much chronic illness.
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 employs at the workplace, excess alcohol consumption results in a high degree of work absenteeism, poor punctuality, poor work efficiency, loss of dexterity in skilled jobs. The international labor organization estimates that globally 3-5% of average force is alcohol dependent and up to 25% 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 INR 70,000 to 80,000 million.[1,16] In the present study 80% patients remain absent from their working 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 feel guilty, 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, conflict 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 in alcoholic groups majority of patients (53%) had monthly income Rs. 5000-1000, with 60% patients do not have savings in any form and average expenditure on alcohol use was Rs. 2000/month. However, in control groups majority of patients (82%) had monthly income less than INR 5000 with 80% patients do not have savings in any form. Despite 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 amounts of family income is spent on alcohol, leaving very little money for food, education, housing, health and other needs. In the present study 43% cases had children deprived of education whereas in controls only 14% had children deprived of education. In the present study 4% patients sold their household assets and 86% patients borrowed money to meet hospital expenses. In

controls 25% had associated tobacco use, 26% sold their household assets and 94% borrowed money to meet health expenses. 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 different national sample surveys in India observes that households that consume alcohol spend on an average 5.1% of the total earning on all alcohol related items and o.5% of the population spent more than 30%.[17]

In the present study 15% cases sent their children under 15 years 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 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 Government, 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 State Government of Odisha through Odisha State Treatment Fund (OSTF) amounting to about INR 27,96,136 during study period.

It is estimated that Indian Government spends nearly Rs. 244 billion 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

Alcohol drinking is widespread in younger age group and high income groups and much of the effect of harmful use of alcohol is absorbed not only by patients or family members but also by the health sector (Government) either directly or indirectly. Majority of patients and their families in alcoholics had disturbed social and family life. Children are the worst sufferers in the family.

The present study has revealed the increasing burden the health, social and economic sectors will have to face in the years to come if systematic efforts are not made to control the growing malaise of alcohol consumption.

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