

Pattern of Substance Use in the Elderly: A Hospital based, Cross sectional Study in a Tertiary Setting of North India

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Abstract

Background: There are many unique features related to substance abuse in the elderly, which is an underestimated problem in society. **Objectives:** A cross-sectional exploratory study was conducted in a North Indian tertiary care setting to assess the pattern of substance use in the elderly. **Materials and Methods:** Fifty cases were included in the study via purposive sampling; a Drug Abuse Monitoring System pro forma and a semistructured pro forma designed to gather information on sociodemographic and substance use characteristics were used. Descriptive statistics were applied. Continuous variables were summarized as means and standard deviations and categorical variables as counts and percentages. **Results:** The mean age of the samples was 64.12 ± 4.54 years. Alcohol use was noted in 66% of the cases, tobacco use in 76%, opioid use in 16%, cannabinoid use in 4%, and sedative/hypnotic use in 4%. Majority of the cases were married, studied up to high school, self-employed, and living in joint family. Majority of the cases had initiation of substance use in young age due to peer pressure, and the reason for change in pattern were in majority mainly family issues and tolerance. Majority of the cases were brought by family members for treatment seeking. **Conclusions:** The issue of substance abuse in elderly population is underestimated, and studies are scarce in finding the exact prevalence in the society.

Keywords: Elderly, pattern of use, psychiatric comorbidities, substance use

INTRODUCTION

The proportion of elderly population in developing countries has been increasing, which is estimated to be about 19% of the total population by 2050.^[1] Owing to chronic mental and health problems and part of the natural aging cycle, elderly people have become more vulnerable to drug use disorders and their number has grown over time. The population of older adults grew up in an age of increased illegal drug usage and alcohol consumption, and there are reasons to conclude that there would be a greater effect of substance abuse or dependency on the next generation of older adults.^[2] There is more concern globally regarding substance use among young people and adults, as compared to the elderly, which remains one of the underestimated problems in many parts of the world.^[3]

Substance use is a growing public health problem among the elderly, nearly as high as 17%, which is predicted to increase.^[4] As per the 2017 National Survey on Drug Use and Health, more than 1 million adults aged 65 years or older had substance use disorders (SUDs).^[5]

The prevalence of various addictions was as follows: alcohol, 18.18%; smoking, 29.96%; and tobacco chewing, 29.29%.^[6] Older adults account for a substantial proportion of prescription and over-the-counter drug use. Apart from using the prescription drugs, elderly people can cause harm by deliberately or inadvertently misusing their medications or by combining them with alcohol leading to variety of adverse consequences.^[7]

Since the combination of alcoholism and depression is likely to increase the relative risk of suicide, it is important to consider the prevalence of dual diagnosis in older adults.^[8] Given the

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unique features of elderly substance users and the growing enormity of the problem of elderly substance users, this study aims to discuss the patterns related to SUDs in the elderly.

MATERIALS AND METHODS

This was a cross-sectional exploratory study conducted to determine the patterns of individual substance or drug abuse in the elderly population, aged above 60 years of age, of either gender, and diagnosed as mental and behavioral disorder due to substance abuse according to the World Health Organization International Classification of Mental and Behavioural Disorders-10. Purposive sampling was done, and a total of 50 cases were taken for the study, from the outpatient department of a deaddiction center in a tertiary care setting of northern India.

- Drug abuse monitoring system (DAMS) was used to assess the sociodemographics of patients and the type of substance abuse
- Semistructured pro forma for alcohol/other substance dependence.

Ethical clearance was obtained from the ethical committee of the institute.

Procedure: All the patients fulfilling the study criteria were taken for the study. Informed consent was taken after explaining the aim, objectives, and method of the study. The identity of the patients was kept confidential. Patients along with attendants/relatives were interviewed using DAMS and additional semistructured pro forma to gather information about the sociodemographic details, history, and type and pattern of substance use.

Statistical analysis: The data were analyzed using Statistical Package for the Social Sciences, IBM, headquarter situated in Armonk, New York, USA. software v23.0. Descriptive statistics were applied. Continuous variables were summarized as means and standard deviations and categorical variables as counts and percentages.

RESULTS

Table 1 shows sociodemographic characteristics of the samples. The mean age of the samples was 64.12 ± 4.54 years, with a range from minimum 60 years to maximum 80 years. 62% comprised those aged <65 years of age, whereas the rest were ≥ 65 years. Majority of samples comprised males (94%), married individuals (86%), studied up to high school (46%), with

Table 1: Sociodemographic characteristics for the sample

	Alcohol (n=33; 66%), n (%)	Tobacco (n=38; 76%), n (%)	Opioid (n=8; 16%), n (%)	Cannabinoid (n=2; 4%), n (%)	Sedative/hypnotic (n=2; 4%), n (%)	Total (n=50; 100%), n (%)
Sex						
Male	32 (96.97)	37 (97.37)	7 (87.5)	2 (100)	2 (100)	47 (94)
Female	1 (3.03)	1 (2.63)	1 (12.5)	0	0	3 (6)
Marital status						
Never married	3 (9.1)	2 (5.26)	1 (12.5)	1 (50)	1 (50)	3 (6)
Married	27 (81.8)	33 (86.84)	6 (75)	1 (50)	1 (50)	43 (86)
Divorced/separated	1 (3)	0	0	0	0	1 (2)
Widow/widower	2 (6.1)	3 (7.9)	1 (12.5)	0	0	3 (6)
Separated due to drug abuse	0	0	0	0	0	0
Educational status						
Illiterate	3 (9.1)	5 (13.2)	2 (25)	0	0	7 (14)
Literate (read and write)	1 (3.03)	1 (2.6)	0	0	0	1 (2)
Primary (up to 5 th)	4 (12.1)	5 (13.2)	4 (50)	1 (50)	1 (50)	7 (14)
Middle (up to 8 th)	5 (15.2)	5 (13.2)	0	0	1 (50)	6 (12)
Up to 10 th and 12 th	15 (45.5)	19 (50)	2 (25)	1 (50)	0	23 (46)
Graduation	4 (12.1)	3 (7.9)	0	0	0	5 (10)
PG/Tech/prof.	1 (3.03)	0	0	0	0	1 (2)
Employment status						
Never employed	1 (3.03)	2 (5.3)	1 (12.5)	0	0	3 (6)
Presently unemployed	12 (36.4)	12 (31.6)	2 (25)	1 (50)	1 (50)	16 (32)
Full time employed	1 (3.03)	2 (5.3)	2 (25)	1 (50)	1 (50)	2 (4)
Part time employed	1 (3.03)	1 (2.6)	1 (12.5)	0	0	2 (4)
Self employed	7 (21.2)	10 (26.3)	2 (25)	0	0	12 (24)
Student	0	1 (2.6)	0	0	0	0
Housewife/girl	1 (3.03)	0	0	0	0	2 (4)
Any other	10 (30.3)	10 (26.3)	0	0	0	13 (26)
Current living arrangement						
Joint family	18 (54.5)	24 (63.2)	5 (62.5)	1 (50)	1 (50)	31 (62)
Nuclear family	15 (45.5)	14 (36.8)	3 (37.5)	1 (50)	1 (50)	19 (38)

present unemployed status (32%), and currently residing in joint family (68%). Majority of cases were tobacco users, followed by alcohol users. Opioid users accounted for one-sixth of individuals, and the least were cannabinoid and sedative/hypnotic users.

Individual drugs of abuse characteristics

Alcohol

Table 2 shows the characteristics for sample population using alcohol. The mean age of the samples was 64.73 ± 5.08 years. Daily usage pattern ranged from average a quarter of bottle to 2 bottle per day, mostly consuming country-made liquors (CMLs) as compared to Indian-made foreign liquors. Maximum intake of 2 bottles of CML per day in the sample. Two had harmful usage pattern, rest had dependence pattern of alcohol usage.

Tobacco

Table 3 shows the characteristics for sample population using

Table 2: Characteristics for alcohol using sample	
Characteristics	Frequency
Only alcohol	9 (18)
Coexisting substance use	
With tobacco	24 (48)
With opium and tobacco	1 (2)
With sedative/hypnotics and tobacco	1 (2)
With heroin, opium, cannabinoids, sedatives/hypnotics, tobacco	1 (2)
Mean age of initiation (years), minimum-maximum	24.61 ± 8.33 (15-45)
Mean number of years for the onset till the current treatment seeking (years)	40.12 ± 9.25
Reason for initiation of alcohol use	
Family issues	3 (9.09)
Insomnia	1 (3.03)
Physical symptoms	1 (3.03)
Peer pressure	28 (84.85)
Reason for change in pattern	
Family issues	6 (18.2)
Insomnia	1 (3.03)
Excessive sadness of mood	1 (3.03)
Tolerance	25 (75.8)
Current reason for treatment seeking	
Coexisting physical illness (alcoholic liver disease)	6 (ALD→4) (18.18)
Financial reasons	2 (6.06)
Brought by family members	14 (42.42)
Withdrawal symptoms getting troublesome	4 (12.12)
History of seizure on previous abstinence attempt	1 (3.03)
Hallucinatory voices	1 (3.03)
Wanting to quit by self	5 (15.15)
Coexisting severe mental illness	
Affective illness	4 (12.1)
Psychotic illness	2 (6.06)
Family history of alcohol dependence	7 (21.2)
Motivation level for change in behavior	
Precontemplation	7 (21.21)
Contemplation	22 (66.67)
Preparation	4 (12.12)

ALD: Alcoholic Liver Disease

Tobacco. A total sample of 38 had tobacco smoking, in which 10 cases visited for tobacco cessation services primarily, while rest had coexisting other primary substance of abuse, with alcohol in 24 (63.2%) and polysubstance abuse in 4 (10.5%). The mean age for tobacco smokers was 63.37 ± 3.89 years (ranging from 60 to 75 years). If only sample with sole tobacco use is taken in consideration, the pattern of usage is described in table. The problematic use of tobacco in the case sample was on average near the age of onset. The tobacco product used in all the cases was beedi, which is measured in terms of bundles per day consumption. Usual reported beedi smoking ranged from 1 to 2 bundles per day, with maximum reaching up to 3 bundles per day. Withdrawal symptoms reported were feeling of restlessness and irritability.

Opiates

In total 8 had opioid usage who currently visited for treatment seeking in view of opioid deaddiction. The opioid usage was found to be present in coexistence with other abused substances. Two cases had coexisting long-term alcohol consumption, 5 cases had long-term tobacco consumption, 1 had coexisting cannabinoid usage, and 2 reported of using concurrent sedative/hypnotic class of drugs.

Opium use was reported in 6 cases, where 2 had copresence of usage of opioids. Out of these two opioid-using cases, one had usage of heroin, who was primarily brought for polysubstance use.

Age of initiation: Five reported early age of initiation, in adolescence to young adulthood (range: 15–25 years of age). All had initiated because of peer pressure. Three had reported of late onset of initiation during the elderly age (range: 60–63 years). All the three cases had reported of initiation because of chronic pain, and was medically prescribed which was difficult to control with regards to termination. One case had coexisting depression and 1 case has presence of coexisting somatoform disorder. Two cases had reported of problematic usage of opioids since past four to five decades, i.e., just before the initiation age. One case had usage of heroin injectable present, with sharing of needles present. Three cases had change in pattern during the middle age. 1 case had coexisting depression. Six cases had reported of opium consumption with 3 using afeem, and rest using bhukki. Rest 2 were ingesting tramadol tablets.

Cannabinoids

Two cases had presence of cannabinoid usage, with one case primarily visited for treatment seeking, other had coexisting polysubstance usage. Both the cases had onset of initiation at age of 15 years, initiated due to peer pressure, have problematic usage since past four to five decades, and experience symptoms of insomnia and irritability when under abstinence. Both use either ganja or sulfa for smoking, mixed with tobacco when making beedi sticks. Usual dosage of beedis smoked are 3–8 beedis/day, with maximum 10 beedis/day. The case with primary visit for cannabinoid dependence c/o coexisting excessive sadness of mood, while the other case

Table 3: Characteristics for the tobacco using characteristics

Characteristics	Frequency
Reason for initiation for tobacco use	
Insomnia	3 (30)
Boredom	1 (10)
Peer pressure	6 (60)
Reason for change to harmful or dependence pattern	
Insomnia	2 (20)
Excessive sadness of mood	1 (10)
Tolerance	7 (70)
Current reasons for treatment seeking	
Coexisting physical illness warranting abstinence	2 (20) (1 case had CVA, 1 case had a renal pathology)
Brought by family members	7 (70)
Wanting to quit by self (reported insomnia)	1 (10)
Coexisting psychiatric disorders	
Affective illness	1 (10)
Anxiety disorder	1 (1)
Psychotic disorder	1 (1)
Motivation level for change in behavior	
Precontemplation	3 (30)
Contemplation	7 (70)

CVA: Cerebrovascular accident

with polysubstance usage reports of anxiety symptoms. Both the cases are under contemplation stage of motivation.

Sedative/hypnotic

Three were found to have sedative-hypnotic abuse. Out of 3, 2 had coexisting other substances of abuse. Age of initiation in all were in adolescence to young adulthood. The used drug involved tablet alprazolam. Initiation because of peer pressure. With 10 tablet/day usage seen in all. On sudden stoppage, c/o anxiety present. Currently under contemplation stage of motivation.

DISCUSSION

Available scientific literature has shown that drug abuse or substance dependence is not limited to any particular age group, although there is more concern regarding substance use among young people and adults. The topic of drug dependence among elderly people is one of the underestimated problems in many parts of the world, including India. Due to inadequate awareness of demographic variables related to drug abuse among the elderly population of India, as well as lack of services and facilities, the problem remains underrecognized, underdiagnosed, and undertreated, similar to many other countries.^[6] It is important to point out that most of our patients and accompanying caretakers reported of many older substance abusers in their locality who had not sought treatment for the reasons of lack of awareness of and/or resources to avail these services. Thus, the treatment seekers represented only a small proportion of the actual community load of the older substance abusers. Difficulties in detection, screening, treatment

engagement and retention for SUDs in this population are well known. In India, factors likely to attenuate clinic attendance include the major stigma associated with SUDs especially in the elderly more so because they are traditionally held in high respect in Indian families due to their mature age and hence any 'irresponsible' behavior by them such as substance abuse is even more stigmatized. Furthermore, the referral process for them to a deaddiction clinic may be inadequate, in view of the relative lack of awareness of the problem. Thus, the numbers reported in this paper, although still very small, should be seen as a tip of the iceberg.^[9]

Sample characteristics: Research required to understand the full impact of substance use among different subgroups of the older adult population, studies on factors associated with correlation of pattern of use, quality of life in elderly with substance dependence in India were scarce. All these factors are independent, so to study their correlation this study was planned.

Age

In our study, there is declining trend in the proportion of substance users with advancing age. Similar finding has been reported in study by Dey *et al.*, where overall substance usage decreases as the age advances.^[10] Overall in our study, the mean age for alcohol drinkers was higher than any other substance, and maximum age up to which substance use was noted was alcohol user at age of 80 years. The use of tobacco and illicit drugs show declining trend as the age advances. The possible reason could be disparity due to higher mortality among the smokers and other illicit drugs of abuse. Smoking can cause respiratory problems as advances, hence there could be declining trend of smoking with age. This finding concurs with the previous study reported by Goswami *et al.*^[11]

Gender

In the sample, majority, i.e., 94% were male and the rest 6% were females. There are multiple possible reasons for such gender gap in the population sample. There is overall less reporting by females for treatment seeking for psychiatric disorders, especially SUDs due to lack of knowledge of the issue and social stigma associated with attending deaddiction services. In females drinking alcohol or use other illicit drugs is considered as taboo in many parts of the country, especially in rural areas. There is also possibility of insufficient referral services made for elderly substance using population.

Marital status

In the whole sample, majority were married (86%). In the remaining 6% were never married, 6% were widow/widower and 2% were divorced. This concurs with the study by Grover *et al.* which states that married individuals accounted for majority of treatment seekers in elder age groups, followed by widowed, never married and separated subjects.^[9] Most of our cases being married reflect as much the increased life expectancy as the local culture of treating the marriage as a-must and lifetime commitment.^[12]

Education

Majority of the samples comprised literate individuals. Forty-six percentage had completed their schooling education, while 12% had been for further higher studies. While 14% had not received any formal education, and 2% were just literate, being able to read and write. Twenty-six percentage had left their education midway. This is similar to previous study which reports of similar prevalence of educational levels in the treatment seeking substance using elderly age group.^[9] The presence of higher educational levels in sample can be possibly due to more awareness in the educated people regarding deaddiction services and awareness about the ill-effects of long-term substance usage.

Employment

About one-third (36%) were unemployed and rest were engaged in some or the work. Being employed has been found with higher current alcohol, tobacco, opioid, and sedative/hypnotic usage. This is similar to previous study which shows majority of treatment seekers are working.^[9] The higher working population reflects the community encouragement for elderly to be active and productive. In other sense, it can also be seen that the proportion of cases who were presently unemployed, which is almost one-third reflects that they were previously employed and could have been unemployed because of retirement or job leaving because of advancing age.

Current living arrangement

Majority of the sample were residing in joint family arrangement. This finding is similar to previous study, by Grover *et al.* where the majority of treatment seekers were from joint family arrangement.^[9] In the alcohol and opioid using population, although there is majority residing in joint family structure, almost similar proportion is residing in nuclear family structure. This could reflect that traditional joint family structure is being replaced by nuclear family arrangement where there is less or no social support provided to the elderly.^[13]

Pattern of alcohol

Mean age of first use of alcohol was 24.61 ± 8.33 years, which shows that most were consuming alcohol since at least two to three decades. This is essentially important because it takes many years to develop dependence pattern of substance usage. Western research has identified two types of older alcohol abusers: The early onset/“survivors,” about 70%, have higher rates for family history of alcoholism and alcohol related medical problems; the late onset/“reactors” associated with the age of 50 plus, a major life stressor and higher income.^[14] Our findings are similar to “survivors” group, accounting for 78.8% of the cases with alcohol usage, with 21% of alcohol using population having family history of alcohol dependence, all having alcohol related issues of dependence, making it difficult to abstain from alcohol. Fifty-one percentage of alcohol using population reported having physical ailments, and 18.1% having psychiatric issues of severe mental illness. This is similar to findings in previous study by Grover *et al.*

^[9] The mean number of years for the treatment seeking was 40.12 ± 9.25 years, which reflects long standing treatment gap in the sample with alcohol usage. Peer pressure was reported to be most common initiating factor, which is stated in many studies to be most common factor responsible for initiation. The change in pattern of alcohol consumption has been reported to be within 5 years in about one-fifth of cases, and rest had change in pattern much before that. Increased tolerance to alcohol drinking has been reported to be common reason for change of pattern. Most consume CML, around a quarter to 2 bottles per day. This is similar to the previous study by Grover *et al.* where the mean consumption is high around 720 ml/day.^[9] This is not similar to studies published in developed countries.^[15] the reason behind drinking such high level of alcohol is that CMLs and locally distilled alcohol have lower than legal standard of 42% v/v strength. Withdrawal symptoms were reported by all the cases, which is due to dependence pattern of alcohol drinking. Among the alcohol users, all had coexisting tobacco smoking history, which is very common associated substance of abuse. 10 polysubstance usages was present in 12% cases. Most of the cases were brought by family members (42.4%), followed by those quitting by self (15.15%). These findings are similar to previous study, where the majority of the cases were brought by family members.^[9] Family members play a key role in providing intervention to the substance using individual in the family. Nearly 18.2% of cases reported hypertension, which is one of the most common comorbidities associated in elderly consuming alcohol. Alcoholic liver disease was reported in 12% of cases.

Pattern of tobacco

Age of onset was before 30 years and peer pressure was the most common reason for initiation of smoking and development of tolerance in most of them lead to dependence as tobacco is well known common substance to cause early dependence. Although the problematic use of tobacco was on average near the age of onset, tobacco product used in all the cases was beedi and they were experiencing withdrawals in the form of restlessness and irritability for long time but the factors leading to discontinuation and treatment seeking was pressure from family members or any other physical conditions. Most common coexisting substance was alcohol, overall 66% sample population was consuming alcohol and 48% were smoking beedi along with other substance which is been stated in Western literature that smoking exists more common with other substances and mental health disorders.^[16] Only a few elderly patients were adding third substance like opium and benzodiazepines showing decreased incidence of polysubstance use in elderly consistent with other Indian studies. Almost whole sample was reporting more than one withdrawal most commonly insomnia and tremors and sometimes it was difficult to tell that the withdrawals were solely due to alcohol or other substances as clinical picture was colored with other physical conditions also. One elderly patient who was having polysubstance use reported intravenous opioid use, sharing of needles and unprotected intercourse. Patients

were brought mainly by family members or referred from physicians due to coexisting physical ailments. Sixteen (16%) of the subjects were using opioids, confirming similar pattern in previous studies, reason for this is probably that it is more recent phenomenon in the Indian context and so that elderly is less likely to use such substances.^[3] Mean age was 63 years initiated in young adulthood. Only 3 patients reported onset at and after 60 years and all of them were prescribed medication as already stated in previous studies being socially isolated, and having a history of substance abuse/other psychiatric illness are factors more likely to be associated with prescription drug abuse or misuse among the elderly.^[2] In chronic pain management under treatment of depression may explain the lack of improvement in pain and functional status despite adequate opioid dosage as also stated by previous studies.^[17]

Similarly, 6% of sample were abusing tablet alprazolam prescribed to them for their anxiety or using it as a substitute of other substance. Coexisting somatoform disorder in one patient and depression in one also lead to excess use of given medication ending in dependence. Findings are similar to other studies where patients had physical health problems and at least one mental health disorder.^[18] In north Indian population opium consumption is in the form of afeem and bhukki which was also there in these elderly males, intravenous heroin use, tramadol tablets were also found. Only 4% of sample had cannabis use with initiation as early as 15 years, due to peer pressure in the form of ganja and sulfa, with tobacco and coexisting psychiatric symptoms were found in both of them.

Strength and limitations of study

Although there have been numerous past studies conducted in the area related to elderly population and substance use in Western context, there is a dearth of research in the Indian sub-continent. More research is needed in this part of the world owing to variation in the patterns due to influence of multiple factors, various cultural and subcultural values, and beliefs. This study was an attempt for the same, throwing light on the pattern of substance in elderly Indian sub-population context. However, study has its limitations:

- The study is hospital-based, and hence the findings cannot be generalized for the whole population.
- The sampling technique used was convenience sampling.
- The cross-sectional design of the present study provides limited information about the dynamic influence of various social and clinical factors.

CONCLUSIONS

The issue of substance abuse in elderly population is

underestimated and studies are scarce in finding the exact prevalence in the society.

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Conflicts of interest

There are no conflicts of interest.

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