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SUBSTANCE USE IN GERIATRIC PATIENTS ADMITTED FOR MEDICAL ILLNESS: A CROSS-SECTIONAL STUDY

General Medicine

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ABSTRACT

BACKGROUND: Limited attention is given on illicit substance use among the elderly & pattern of substance use in elderly is different from younger age group. AIM: To study substance use in geriatric patients admitted for medical illness.
METHODS: 150 elderly patients admitted in general medicine ward were interviewed using a specially designed proforma, DSM-IV TR criteria & URICA Scale.
RESULTS: Substance use was found in majority of the participants. Nicotine & alcohol dependence were predominant substance use disorders. Major depressive disorder & Somatoform disorder was also found. Statistically significant associations were noted between gender, presence of icterus and peri knuckle pigmentation with presence of substance use.
CONCLUSION: It is important to prevent substance use disorders in elderly. Psychiatric interventions should be practised in other wards of hospitals and primary health care centres for improving awareness of patients as well as their caregivers.

KEYWORDS

Substance Use, Geriatric, Alcohol, Nicotine, Motivation

INTRODUCTION:

Geriatrics is a specialized branch of medicine that deals with the general health and care of elderly. The United Nations have considered the cut off age for older persons as 60 or 65 years & it is purely arbitrary.[1]

The elderly population in India has been rising steadily along with the general population. Besides the expanding size of elderly population affected by substance use, another reason that substance use disorders are concerning in this population is the increased number of co-morbidities and medications used by the older adults as they age.[2] There has been a limited focus on illicit substance use among the elderly population even though substance use disorders have been recognized as a major health problem globally including India.

Use of alcohol, tobacco, illicit and non-medical prescription drugs decreases with age but substance use has a greater impact on older adults as age related changes slowdown alcohol and drug metabolism. Globally in 2016, alcohol was responsible for 7.2% of all deaths among persons in 69 years of age & younger.[3] Tobacco use too is a major contributor to morbidity, mortality and health care costs.

It is important to understand alcohol and drug use among elderly as older adults are more likely to have alcohol and drug problems that do not meet criteria for dependence, which in turn contributes to lower rates of detection. Substance problems may exacerbate depressive symptoms and interfere with treatment thus older adults with depression are at elevated suicide risk and alcohol is an additional significant risk factor.[4]

Understanding the correlates of substance use disorders are helpful in identifying and treating those who may be at higher risk of having a substance use disorder.

The present study was carried out with following aims & objectives:

1) To analyze the presence, nature and extent of substance use in geriatric patients admitted for medical illness in medicine ward.
2) To study how many of them satisfy the diagnostic criteria for any substance use disorder.
3) To study its correlation with various demographic and clinical factors.
4) To study the motivation of participants to quit substances and the choice of therapy they want.

MATERIALS AND METHODS -

It was a cross-sectional single interview study design carried out in general medicine ward of a tertiary care teaching hospital over a period of 6 months. 150 consecutive patients admitted in general medicine ward & satisfying inclusion exclusion criteria were included in the study. Semi structured proforma included the socio demographic profile, clinical profile of medical illness, clinical profile of substance use, clinical diagnosis. Mental status examination and other relevant examinations were carried out. DSM IV TR criteria in multi axial format was used for diagnosis of substance use and other related conditions. Participants satisfying DSM IV-TR criteria for substance use disorders were administered University of Rhode Island Change Assessment (URICA) Scale for assessing their motivation and each of them were asked for the choice of therapy for substance deaddiction.

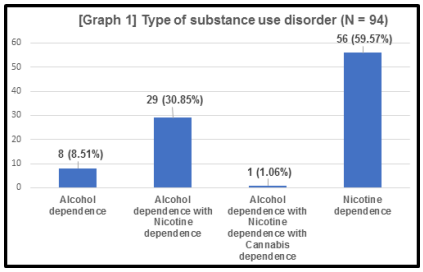
Data collected was tabulated and analysed statistically under guidance of statistician using STATA version 13.0. Continuous variables (age, motivation i.e. URICA scale scores) were presented as mean ± SD. Association between presence of substance use and socio-demographic factors, clinical factors and medical diagnosis were assessed by Pearson's Chi Square test. For small numbers, Fischer Exact test was applied wherever it was applicable & 'p' value < 0.05 was considered as statistical significance.

OBSERVATIONS AND RESULTS -

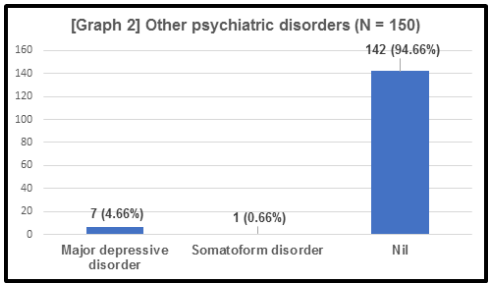
- **Presence of substance use: -** Of the total 150 participants, majority (94 i.e. 62.66%) had presence of substance use while it was absent in rest (56 i.e. 37.33%) of the participants.

A. Psychiatric diagnosis:-

Participants were divided into two subcategories i.e. Substance use disorders & other psychiatric disorders. **(Graph 1)**



- **Substance use disorders: -** Majority (56 i.e. 59.57%) satisfied the criteria for exclusive nicotine dependence, some (29 i.e. 30.85%) satisfied the criteria for diagnosis of both alcohol and nicotine dependence, few (8 i.e. 8.51%) satisfied the criteria for exclusive alcohol dependence and only one had diagnosis of alcohol dependence with nicotine dependence with cannabis dependence.
- **Other psychiatric disorders (Graph 2):** Out of the total 150 participants, apart from substance use disorders few(7 i.e. 4.66%) were diagnosed as Major Depressive Disorder while only one participant had somatoform disorder.



***DISCUSSION* -**

A. SOCIODEMOGRAPHIC PROFILE (Table 1) : -

1. Gender and age group: - In this study majority (78.72%) who used substances were males and when presence of substance use was correlated with gender, a strong association was observed between gender and substance use (p value 0.001) (Table 2). The National Family and Health Survey 4 (2015 – 2016) states that around 29.2% men drink alcohol while only 1.2% of women drink alcohol. Similarly around 44.5% of men use one or more forms of tobacco as compared with only 6.8% of women.[5] Similar finding was reported in studies conducted by Arranz B et al and Kraus et al.[6-7] This suggests that rates of substance use and dependence (alcohol in particular) are consistently higher in males as compared to females however, the ratio of affected men to women varies across cultures.

Maximum (73.40%) participants using substances belonged in the age group of 60 to 69 years. Similar findings were noted by Blazer et al in a study of substance use and disorders among middle aged and elderly community adults where substance use particularly alcohol was more prevalent in the age group of 50 to 64 years along with other substances.[8] A study conducted by Nafiu et al also showed that alcohol and other substance use disorders were more common in the age group of 50 to 64 years.[9]

2. Education: - In this study majority (39.36%) using substances had no formal education in their lifetime and this is similar to various studies conducted globally which conclude that disorders and problems related to substance use are more prevalent among people with low educational status[10-11] but, the association between educational level and substance use is not straightforward. For example, in many countries abstaining from alcohol is less common and non-problematic alcohol use more frequent among people with high education.[12-13] However, study conducted by Assari etal concluded that more educated African American older adults have the same risk of substance use as their less educated counterparts. [14]

3. Marital status: - In this study majority (85.10%) using substances were married and lived with spouse. Ravi S etal also found highest consumption of alcohol in married participants.[15] However, study by Martin CC showed married individuals were less likely to use alcohol and drugs.[16]

4. Occupation:- In this study maximum (73.40%) participants using substances were skilled workers. Ravi S etal in his study on adults & elderly found highest consumption of alcohol in employed individuals.[15] The risk of substance use particularly alcohol and problem drinking is much increased among several occupational groups having an easy access to low cost alcohol.

5. Residential background:- In this study majority (59.57%) of the participants came from the rural area. Ravi S etal also showed similar result[15] but studies have also stated that the prevalence of substance use disorders does not appear to vary across rural and urban areas.[17-18] Study by Martin CC also mentioned that individuals who lived in fraternity or sorority homes were more likely to use substances, this may be because of easy access to alcohol & other substances as they are readily available at such places.[16]

6. Carer and friend circle: - Majority (63.82%) participants were attended by their offsprings who were the principal caregivers. Benshoff et al mentioned that care givers tend to underestimate the existence and severity of substance abuse problems in elderly thus these problems could remain undiagnosed in this population.[19] Majority (68.08%) using substances had friend circle. Beck et al in his article has mentioned that friends can either influence or distract an individual as far as craving for a substance is concerned.[20] Older adults were less likely than younger adults to have close family or friends who encouraged alcohol or drug use.[21]

B. SUBSTANCE PROFILE (ALCOHOL):-

1. Duration of intake: Majority (78.94%) belonged in the category that had duration of alcohol intake from 21 to 30 years and more than 30 years. People who start drinking early are at a higher risk of developing alcohol dependence or abuse subsequently. Thus duration of alcohol intake is directly proportional to the severity of alcohol use. Various studies have found out that early age of onset of alcohol & its continued use is associated with severity of alcohol dependance and such individuals have significant physical and mental health problems.[19,22]

2. Precipitating factors: - Precipitating factors for alcohol were present in (44.73%) of the participants. Cerbone et al concluded that there is a strong relation between stress as a precipitating factor and substance use.[23]

3. Pattern of alcohol: - Majority (71%) consumed alcohol daily. Askgaard et al concluded that in men daily drinking was associated with an increased risk of liver cirrhosis.[24]

4. Brand of alcohol:- In this study majority (78.94%) consumed country liquor. Similar results were shown by Nand et al where 79% of the patients consumed country liquor. However, no significant difference was found between the disease severity in country liquor consumers and branded whisky consumers. The incidence of complications, various prognostic markers and mortality rates were similar in country liquor and branded liquor consumers.[25]

5. Timing and style of drinking:- Majority (42.10%) preferred to drink both in the morning and evening hours followed by 36.84% of participants who consumed in the evening hours. Apart from this majority (55.26%) preferred to drink alcohol either alone or with friends and peers. Similar findings were reported by Meena et al.[26]

6. Physical symptoms:- Majority (55.26%) had presence of physical symptoms in the form of gastrointestinal symptoms like nausea, vomiting, loss of appetite, pain in abdomen. Similar observations were reported by Bode et al which mentions that alcohol slows down functioning and interferes with digestion, irritates the lining of stomach and oesophagus causing ulcers, gastritis and increases the incidence of cancer.[27]

7. Psychological symptoms:- Majority (97.36%) reported anxiety symptoms in the form of restlessness, fear of impending doom and palpations. Similar findings were reported by Schuckit et al in which almost all men (98%) reported at least one symptom of anxiety during drinking or withdrawal.[28]

8. Withdrawal symptoms: - Majority (63.15%) had mixed withdrawal features in the form of tremors and insomnia. Stanely PC et al reported 100% of the participants developed tremors and insomnia.[29]

9. Family history:- Majority (71%) had a positive family history of alcohol consumption and there was a strong association between alcohol dependence and presence of family history of alcohol (p value 0.042) (Table 4). Johnson PR et al concluded that family history density and severity of alcoholism are positively correlated.[30] In various international studies, individuals with a positive family history have shown to have an increased severity of alcohol dependence. Thus, the risk of alcoholism is higher for people who have a parent abusing alcohol.[31-32]

C. SUBSTANCE PROFILE (TOBACCO):-

1. Type of consumption:- Majority (50%) preferred to exclusively chew tobacco followed by 34.88% of participants who preferred to

smoke as well as chew tobacco products and a strong association (p value 0.006) (Table 5) was observed when overall type of tobacco consumption was correlated with nicotine dependence. According to the Global Adult Tobacco Survey 2016 -17 prevalence of tobacco use in India is 28.6%. 42.4% of men, 14.2% of women & 28.6% of all adults currently either smoke tobacco and / or use smokeless tobacco. *Khaini* or *bidi* are the most commonly consumed tobacco products and 11% of adults consume *khaini* while 8% smoke *bidi*. As far as age group is concerned, the overall percentage of tobacco users in the age group of 45 to 64 is 39.9% while it is 41.4% in the age group of 65 & above.[33] Bell et al also concluded high rates of tobacco use, especially smokeless tobacco products, among older adults.[34]

2. Psychological symptoms: - Almost all reported psychological symptoms in the form of anxiety. Various studies have concluded that psychological distress is common when it comes to tobacco users. Dube et al observed that smokers and those attempting to quit had higher levels of psychological distress when compared to those who never smoked.[35] Moylan et al also concluded that smoking and nicotine dependence increase the risk of panic disorder and generalized anxiety disorder.[36] Morissette et al also reported tobacco use increases risk for the later development of certain anxiety disorders.[37]

D. Motivation using URICA scale:-

URICA scale was used to access stages of change and readiness to change. Assessing motivation of the participants using URICA scale showed that majority (69.14%) of the participants were in the contemplation stage while rest (30.85%) were in the precontemplation stage. None of the participants were in action or maintenance stage.

E. Correlation of socio-demographic profile with URICA scale stages of change:-

1. Gender:- Gender wise correlation showed that the mean precontemplation score was higher in males while contemplation, action and maintenance scores along with mean readiness to change score were higher in females. Also, the mean action score was found to be statistically significant (p value 0.0329). Thus it can be said that gender does have a role in stages of motivation

2. Age group:- Age wise correlation showed that the mean precontemplation and mean action scores were higher in the age group of 60 – 69 years while the mean contemplation, mean maintenance scores and readiness to change score were higher in comparatively older age groups but as there was no statistically significant difference noted, it can be said that age factor did not affect stages of motivation.

3. Education:- The educational status of the participants was analysed in relation to stages of change and it was found that the mean contemplation and action scores along with mean readiness to change score were high in graduates as compared to those who had attained lesser education. Also there was statistical significance in the precontemplation (p value 0.0341) and contemplation stages (p value 0.0178) with respect to their mean scores. So it can be said that education does have a significant role in stages of motivation.

4. Marital status and occupation:- The marital status and occupation of the participants too was analysed with respect to stages of change but no statistically significant difference was noted thus it can be said that these factors did not affect the stages of motivation.

5. Carer:- When stages of motivation were correlated with carer it was found that mean contemplation, action and maintenance scores along with mean readiness to change score was high in those participants who were cared by their offsprings as compared to being cared by spouse and siblings. Also the mean action score was found to be statistically significant (p value 0.028). Thus it can be said that carer's role is important in stages of motivation.

6. Friend circle:- When presence or absence of friend circle was correlated with stages of motivation, no statistical significance was noted. Thus it can be said that this factor does not affect the stages of motivation.

F. Correlation of presence of substance use with clinical signs:-

A strong association was observed between icterus (p value 0.021) and peri knuckle pigmentation (p value 0.027) with presence of substance use (Table 3). Literature reports excessive substance abuse particularly alcohol consumption can result in nutritional deficiencies of essential vitamins particularly vitamin B12 due to hyperhomocysteinemia associated with alcohol dependence[38] and knuckle hyperpigmentation is seen in vitamin B12 deficiency.[39] Thus alcohol consumption for prolonged duration could be responsible for knuckle hyperpigmentation. While yellowish discolouration of skin and mucous membranes too is seen with prolonged substance use predominantly alcohol.[40]

CONCLUSIONS –

- Majority (78.72%) who used substances were males, most of them had no formal education or had attained either primary or secondary education, majority being married mostly cared by their offsprings with a predominant rural background and most having a friend circle.
- Majority (78.94%) consumed alcohol for more than 21 to 30 years and more than that, nearly half of them had presence of psychological precipitating factor, many (71%) preferred to consume alcohol daily, the predominant type of consumption being country liquor and participants mostly preferred to drink either in the evening hours or both in morning and evening, majority preferred to drink either solitary or with others (i.e. in both ways), many reported gastrointestinal symptoms, nearly all reported psychological symptoms in the form of anxiety, majority had withdrawal symptoms of tremors and insomnia and majority had a family history of alcohol consumption.
- Majority of them preferred to chew tobacco either exclusively or along with smoking, most (77.9%) used tobacco for 21 to 30 years and more than that, many who preferred to smoke usually smoked 1 to 10 cigarettes or bidis in a day and those who chewed consumed for 1 to 5 times per day almost throughout the day, almost all reported anxiety symptoms when they were devoid of tobacco and family history of tobacco consumption was present in many.
- 5 gave history of cannabis use sometime in their lives of which only one was actually dependent on cannabis.
- Most satisfied the criteria for exclusive nicotine dependence, some satisfied the criteria for both alcohol and nicotine dependence, few satisfied the criteria for exclusive alcohol dependence and only one had diagnosis of alcohol dependence with nicotine dependence with cannabis dependence.
- Few (4.66%) satisfied the diagnosis of Major Depressive Disorder while only one had somatoform disorder as far as Axis-I diagnosis of other psychiatric disorders was concerned.
- When motivation to quit substances was assessed using URICA scale many (69.14%) were in the contemplation stage while rest (30.85%) were in the precontemplation stage of motivation.
- Statistically significant associations (p value < 0.05) were noted between gender, presence of icterus and peri knuckle pigmentation with presence of substance use. Similarly, statistically significant associations were noted when socio-demographic profile of participants using substances was correlated with stages of motivation (using URICA scale) with respect to gender, carer and educational status. Also statistical significance was noted between alcohol dependence with family history of alcohol and between nicotine dependence with type of consumption of tobacco.
- Participants were willing to quit substances but when asked if they would like to take psychiatric help for substance deaddiction none were ready for any psychiatric intervention.
- This study highlighted the importance of targeting elderly population above 60 years and the need for preventing substance use disorders in them by effective psychoeducation so as to improve their quality of life.
- Psychiatric interventions should not be limited just to a psychiatry clinic or department but should be routinely practised in other wards of tertiary care hospitals and primary health care centres by all the clinicians and other health care professionals which would improve awareness of patients as well as their caregivers to these problems. This would ultimately benefit the community as a whole.

Limitations -

- Study area was limited to those patients who were admitted only in medicine wards.
- More number of participants could have helped in better statistical analysis and conclusive results.
- Follow up study could have helped in better assessment of motivation and improving treatment compliance with respect to substance use disorders.

(Table 1) socio-demographic profile of patients with substance use

Sr. No	Factors		Frequency (N = 94)	Percentage (%)	
1.	Gender	Male	74	78.72%	Mean age = 66.52 years SD=5.25
		Female	20	21.27%	
2.	Age group (Years)	60-69	69	73.40%	
		70-79	21	22.34%	
		>79	4	4.25%	
3.	Education	No formal education	37	39.36%	
		Primary	21	22.34%	
		Secondary	30	31.91%	
		Higher secondary	4	4.25%	
		Graduate	2	2.12%	
4.	Marital status	Single	2	2.12%	
		Married	80	85.10%	
		Widow(er)	12	12.76%	
5.	Occupation	Unskilled	21	22.34%	
		Semiskilled	4	4.25%	
		Skilled	69	73.40%	
6.	Residential background	Rural	56	59.57%	
		Urban	16	17.02%	
		Suburban	22	23.40%	
7.	Carer	Spouse	23	24.46%	
		Offspring	60	63.82%	
		Sibling	11	11.70%	
8.	Friend circle	Yes	64	68.08%	
		No	30	31.91%	

(Table 2) Correlation of presence of substance use with gender

Gender	Substance use		x^2	p-value
	Yes	No		
Male	74	23	21.7738	<0.001,HS
Female	20	33		

(Table 3) Correlation of presence of substance use with clinical signs

Sign and symptoms		Presence of substance use		x^2	p-value
		Present	Absent		
Pallor	Present	51	36	1.4494	0.229,NS
	Absent	43	20		
Icterus	Present	12	1	5.3432	0.021,S
	Absent	82	55		
Periknuckle pigmentation	Present	17	3	4.9198	0.027,S
	Absent	77	53		
Cyanosis	Present	6	0	3.7234	0.054,NS
	Absent	88	56		
Clubbing	Present	6	0	3.7234	0.054,NS
	Absent	88	56		
Oedema	Present	27	12	0.9706	0.325,NS
	Absent	67	44		

(Table 4) Correlation of alcohol dependence with family history

Family history	Type of substance use disorder		x^2	p-value
	Alcohol dependence	Alcohol dependence with other substance dependence		
Present	8	19	4.1284	0.042, S
Absent	0	11		

(Table 5) Correlation of type of consumption of tobacco with nicotine dependence

Type of consumption	Type of substance use disorder		x^2	p-value
	Nicotine dependence	Nicotine dependence with other substance dependence		
Smoking	7	6	10.2391	0.006, HS
Chewing	35	8		
Both	14	16		

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Author contribution –
Dr. Abhijeet Bansod: Study design, data collection, writing
Dr. Niranjana Sakhare: Writing, data analysis
Dr. Yogendra Bansod: Data analysis
Dr. Vivek Kirpekar: Critical analysis, writing

Conflict of interest –
The authors declare that there are no conflicts of interest.

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REFERENCES:

1. Dey A.B. Geriatric Medicine. In: Shah N.S, Anand Paul M, editors (2008). API Textbook of Medicine. The Association of Physicians of India, 1578 – 1579.
2. Moore, A. A., Whiteman, E. J., & Ward, K. T. (2007). Risks of combined alcohol/medication use in older adults. The American journal of geriatric pharmacotherapy, 5(1), 64-74.
3. World Health Organization. (2019). Global status report on alcohol and health 2018. World Health Organization.
4. Blow, F. C., Brockmann, L. M., & Barry, K. L. (2004). Role of alcohol in late‐life suicide. Alcoholism: Clinical and Experimental Research, 28, 48S-56S.
5. IIPS, I. (2017). National Family Health Survey (NFHS-4), 2015–16: India. Mumbai: International Institute for Population Sciences.
6. Arranz, B., Safont, G., Corripio, I., Ramirez, N., Dueñas, R. M., Perez, V., ... & San, L. (2015). Substance use in patients with first-episode psychosis: is gender relevant?. Journal of dual diagnosis, 11(3-4), 153-160.
7. Kraus, L., Bloomfield, K., Augustin, R., & Reese, A. (2000). Prevalence of alcohol use and the association between onset of use and alcohol‐related problems in a general population sample in Germany. Addiction, 95(9), 1389-1401.
8. Blazer, D. G., & Wu, L. T. (2009). The epidemiology of substance use and disorders among middle aged and elderly community adults: national survey on drug use and health. The American Journal of Geriatric Psychiatry, 17(3), 237-245.
9. Nafiu, I., Blow, F., & Bohnert, A. S. (2014). Older adult substance abuse: Prevalence and risk factors for treatment failure. The American Journal of Geriatric Psychiatry, 22(3), S104.
10. Latvala, A., Tuulio-Henriksson, A., Perälä, J., Saarni, S. I., Aalto-Setälä, T., Aro, H., ... & Suvisaari, J. (2009). Prevalence and correlates of alcohol and other substance use disorders in young adulthood: a population-based study. BMC psychiatry, 9(1), 73.
11. Leach, L. S., & Butterworth, P. (2012). The effect of early onset common mental disorders on educational attainment in Australia. Psychiatry research, 199(1), 51-57.
12. Helakorpi, S., Holstila, AL, Virtanen, S., & Uutela, A. (2012). Health Behavior and Health of the Finnish Adult Population, Spring 2011-Health Behavior and Health among the Finnish Adult Population, Spring 2011.
13. Patrick, M. E., Wightman, P., Schoeni, R. F., & Schulenberg, J. E. (2012). Socioeconomic status and substance use among young adults: a comparison across constructs and drugs. Journal of studies on alcohol and drugs, 73(5), 772-782.
14. Assari, S., Smith, J., Mistry, R., Farokhnia, M., & Bazargan, M. (2019). Substance use among economically disadvantaged African American older adults; objective and subjective socioeconomic status. International journal of environmental research and public health, 16(10), 1826.
15. Ravi, S., Kishore, S., Pasi, R., & Verma, N. (2019). Prevalence of Alcohol Consumption among Adults & Elderly-a Community based Study in Uttarakhand. Indian Journal of Community Health, 31(1), 118-122.
16. Martin, C. C. (2019). High Socioeconomic Status Predicts Substance Use and Alcohol Consumption in US Undergraduates. Substance use & misuse, 54(6), 1035-1043.
17. Booth, B. M., Kirchner, J., Fortney, J., Ross, R., & Rost, K. (2000). Rural at-risk drinkers: correlates and one-year use of alcoholism treatment services. Journal of Studies on Alcohol, 61(2), 267-277.
18. Grant, B. F. (1997). Barriers to alcoholism treatment: reasons for not seeking treatment in a general population sample. Journal of studies on alcohol, 58(4), 365-371.
19. Benshoff, J. J., Harrawood, L. K., & Koch, D. S. (2003). Substance abuse and the elderly: Unique issues and concerns. Journal of rehabilitation, 69(2), 43-48.
20. Beck, A. T., Wright, F. D., Newman, C. F., & Liese, B. S. (2011). Cognitive Therapy of Substance Abuse. Guilford Press.
21. Satre, D. D., Mertens, J. R., Arean, P. A., & Weisner, C. (2004). Five‐year alcohol and drug treatment outcomes of older adults versus middle‐aged and younger adults in a managed care program. Addiction, 99(10), 1286-1297.
22. Hingson, R. W., Heeren, T., & Winter, M. R. (2006). Age at drinking onset and alcohol dependence: age at onset, duration, and severity. Archives of pediatrics & adolescent medicine, 160(7), 739-746.
23. Cerbone, F. G., & Larison, C. L. (2000). A bibliographic essay: The relationship between stress and substance use. Substance Use & Misuse, 35(5), 757-786.
24. Askgaard, G., Grønbæk, M., Kjær, M. S., Tjønneland, A., & Tolstrup, J. S. (2015). Alcohol drinking pattern and risk of alcoholic liver cirrhosis: a prospective cohort study. Journal of hepatology, 62(5), 1061-1067.
25. Nand, N., Malhotra, P., & Dhoot, D. K. (2015). Clinical profile of alcoholic liver disease in a tertiary care centre and its correlation with type, amount and duration of alcohol consumption. The Journal of the Association of Physicians of India, 63(6), 14-20.
26. Meena, P. K., Vohra, A. K., & Rajput, R. (2002). Prevalence and pattern of alcohol and substance abuse in urban areas of Rohtak city. Indian journal of psychiatry, 44(4), 348.
27. Bode, C., & Bode, J. C. (1997). Alcohol's role in gastrointestinal tract disorders. Alcohol health and research world, 21, 76-83.
28. Schuckit, M. A., Irwin, M., & Brown, S. A. (1990). The history of anxiety symptoms

among 171 primary alcoholics. Journal of Studies on Alcohol, 51(1), 34-41.
29. Stanley, P. C., Nwaneri, D. U., & Bob-Yellowe, E. (2005). Prevalence of alcohol withdrawal syndrome in Port Harcourt, Niger Delta region of Nigeria. January 1999-December 2003. Neurol Asia, 10, 53-9.
30. Johnson, P. R., Banu, S., & Ashok, M. V. (2010). Severity of alcoholism in Indian males: Correlation with age of onset and family history of alcoholism. Indian journal of psychiatry, 52(3), 243.
31. Penick, E. C., Powell, B. J., Bingham, S. F., Liskow, B. I., Miller, N. S., & Read, M. R. (1987). A comparative study of familial alcoholism. Journal of Studies on Alcohol, 48(2), 136-146.
32. Worobec, T. G., Turner, W. M., O'Farrell, T. J., Cutter, H. S., Bayog, R. D., & Tsuang, M. T. (1990). Alcohol use by alcoholics with and without a history of parental alcoholism. Alcoholism: Clinical and Experimental Research, 14(6), 887-892.
33. World Health Organization. Global adult tobacco survey GATS India 2016– 2017.
34. Bell, R. A., Arcury, T. A., Chen, H., Anderson, A. M., Savoca, M. R., Kohrman, T., & Quandt, S. A. (2009). Use of tobacco products among rural older adults: Prevalence of ever use and cumulative lifetime use. Addictive behaviors, 34(8), 662-667.
35. Dube, S. R., Caraballo, R. S., Dhingra, S. S., Pearson, W. S., McClave, A. K., Strine, T. W., & Mokdad, A. H. (2009). The relationship between smoking status and serious psychological distress: findings from the 2007 Behavioral Risk Factor Surveillance System. International journal of public health, 54(1), 68-74.
36. Moylan, S., Jacka, F. N., Pasco, J. A., & Berk, M. (2012). Cigarette smoking, nicotine dependence and anxiety disorders: a systematic review of population-based, epidemiological studies. BMC medicine, 10(1), 123.
37. Morissette, S. B., Tull, M. T., Gulliver, S. B., Kamholz, B. W., & Zimering, R. T. (2007). Anxiety, anxiety disorders, tobacco use, and nicotine: a critical review of interrelationships. Psychological bulletin, 133(2), 245.
38. Kopczyńska, E., Ziółkowski, M., Jendryczka-Maćkiewicz, E., Odrowaz-Sypniewska, G., Opozda, K., & Tyrakowski, T. (2004). The concentrations of homocysteine, folic acid and vitamin B12 in alcohol dependent male patients. Psychiatria polska, 38(5), 947-956.
39. Mori, K., Ando, I., & Kukita, A. (2001). Generalized hyperpigmentation of the skin due to vitamin B12 deficiency. The Journal of dermatology, 28(5), 282-285.
40. Smith, K. E., & Fenske, N. A. (2000). Cutaneous manifestations of alcohol abuse. Journal of the American Academy of Dermatology, 43(1), 1-18.