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Original Research Article

STUDY ON RISK TAKING AND SENSATION SEEKING BEHAVIOUR AMONG ALCOHOL DEPENDENT MEN

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ABSTRACT

Background: Alcohol dependence syndrome remains a prevalent public health issue in India, with significant social, psychological, and economic consequences. Risk-taking behaviors such as road traffic accidents, violent acts, self-injury, and risky sexual behavior are frequently observed among alcohol-dependent individuals, often associated with sensation-seeking traits. However, studies focusing on this relationship in the Indian context, particularly in South India, are limited.

Materials and Methods: A cross-sectional study was conducted at ASRAM Medical College and Hospital, Eluru, over one year (September 2018 – August 2019). A total of 225 male inpatients diagnosed with alcohol dependence syndrome (ICD-10 criteria) were assessed. Tools included the CIWA-Ar, MMSE, SADQ, High-Risk Behavior Questionnaire (HRBQ), and Sensation Seeking Scale Form V (Indian adaptation). Statistical analysis was done using SPSS v24, with chi-square tests to assess associations.

Results: Among participants, 58.7% exhibited high-risk behaviors, with road traffic accidents (24%) and risky sexual behavior (16%) being most common. Sensation-seeking behavior was present in 43.6%, predominantly mild to moderate. Significant associations were found between sensation-seeking and high-risk behaviors (χ^2=122.325, p=0.001), and between risk behaviors and severity of alcohol dependence (χ^2=225.001, p=0.001). Sensation-seeking scores also correlated positively with the severity of alcohol dependence (p=0.001).

Conclusion: Risk-taking and sensation-seeking behaviors are significantly associated with alcohol dependence severity. These findings underscore the need for targeted interventions in treatment programs addressing these behavioral traits to reduce alcohol-related harm.

Keywords: Alcohol dependence syndrome, risk-taking behavior, sensation-seeking, SADQ, South India, high-risk behavior.

INTRODUCTION

Under British rule, alcohol became more freely available in the Indian subcontinent, but Indians did not generally incorporate drinking alcohol into their religious or social activities.[1] After independence in 1947, Mahatma Gandhi and the Indian National Congress Party campaigned against liquor production and its sales because it was dangerous towards human health.[2] Again during the 1990s, even though several states enacted prohibition as a response to pressure from lobby groups concerned about the health and social consequences of consumption, the result has been mixed.[3] Despite this emphasis on the restriction and sale of alcohol in India and its impact on health, very little information regarding the prevalence of alcohol problems in people attending their primary health care doctor or the role of the doctor in identifying and managing the problem is known.[4]

Among psychiatric disorders, Alcohol Dependence Syndrome is one of the most common and one of the most researched illnesses. It is a widespread condition affecting the general population. Alcohol abuse can result in several diseases, approximately 60 types, and stands in the third position to contribute to the global disease burden.[5]

Alcohol abuse can result in significant phenomena like road traffic accidents, violence, and psychiatric disorders like anxiety, depression, amnestic disorders, and psychosis sometimes.[6] Most people drink alcohol, generally for enjoyment, sociability, and relaxation. Most of them belong to a group of moderate drinkers, and only a few adverse effects occur at this level. If drinking is sensible, it can even be beneficial for the health of an adult.[7] Unlike the moderate drinking, experiencing frequent or severe intoxication affects short-term and long-term health conditions as well.

Often alcohol abuse does not affect just the health of the drinker but also the drinker's family and friends, employer, and the broader community. Even though at higher levels, there is only a smaller proportion of people who consume alcohol, there is a significant impact of this group on society. The society suffers a lot from the heavy drinkers psychologically as well as economically. It is not about the alcohol-related illnesses (liver cirrhosis, or carcinoma of the esophagus or stomach), even the other problems like injuries caused by alcoholism lead to excessive expenditure. All these health-related issues, together with often physical and psychological incompetence caused by intoxication, rise to a decrease in the productivity and absence from work. Among others, alcohol abuse increases vehicle crash costs and crime-related costs, as well. Moreover, those consuming alcohol excessively are more likely to die prematurely. Unfortunately, the burden of alcohol problems does not fall just on the abusers, it is primarily the society, who bears these costs.[8]

The concept of 'risk-taking' further compounds the mortality and morbidity associated with alcoholism. Literature supports the notion that there are links between alcohol use and risky behavior; However, the nature of these links have often explained in terms such as "implicated," "involved" and "associated".[9] Drinking is associated with risk-taking propensities and sensation-seeking, which is measured by personality scales. Therefore, risky behavior and substance use might be part of a larger constellation of risk-taking behavior.[10,11]

Need for the Current Study

Alcohol use is correlated positively with a variety of risk-taking behavior such as violent and criminal acts,[12-14] self-injurious behavior,[15] high-risk sexual behavior,[16] and rash driving causing motor vehicle accidents leading to fatal injuries.[17] Given the cultural differences in the patterns of substance use between western society and developing countries, it is essential to study the association of high-risk behavior with substance use in our country. A few studies were present on risk behaviors and sensation seeking among alcohol-dependent men in India, especially in South India. Thus, the present research is done in the ASR academy of medical sciences, Eluru, a town in south India.

MATERIALS AND METHODS

A single-stage cross-sectional study was conducted over a period of one year, from September 2018 to August 2019, at ASRAM Medical College and Hospital, a tertiary care center in Eluru, West Godavari. The study included 250 male in-patients diagnosed with alcohol dependence syndrome. Out of these, 25 subjects were excluded based on predetermined exclusion criteria. The diagnosis of alcohol dependence was made in accordance with ICD-10 criteria by consultant psychiatrists. Subjects were selected consecutively after obtaining informed consent from both the patients and their caregivers. Ethical clearance was obtained from the Institutional Ethics Committee of ASRAM Medical College prior to the commencement of the study.

Participants included only males aged above 18 years who were in-patients diagnosed with alcohol dependence syndrome (F10.2) as per ICD-10. Reliable caregivers and informed consent were mandatory. Exclusion criteria included female gender, presence of any psychiatric disorders such as schizophrenia or mood disorders, dependence on substances other than tobacco, cognitive impairment, or coexisting acute or chronic medical or surgical conditions requiring urgent attention. Subjects who refused consent were also excluded from the study.

A set of standardized instruments was used in the study. These included a self-designed informed consent form written in the vernacular language, a socio-demographic and clinical profile schedule, the Clinical Institute Withdrawal Assessment for Alcohol (CIWA-Ar) to assess alcohol withdrawal symptoms, and the Mini-Mental Status Examination (MMSE) to screen for cognitive impairment. The Severity of Alcohol Dependence Questionnaire (SADQ) was used to measure the degree of alcohol dependence. To assess behavioral correlates, two psychometric tools were used: the High-Risk Behavior Questionnaire (HRBQ), developed by K. Anupama et al., and the Sensation Seeking Scale Form V (Indian Adaptation), originally developed by Zuckerman.

Each of these tools served a specific purpose. CIWA-Ar is a 10-item scale that identifies the severity of alcohol withdrawal symptoms, while MMSE evaluates various cognitive domains like orientation, memory, and attention. SADQ, a 20-item questionnaire with five subscales, quantifies alcohol dependence severity. HRBQ captures temporal associations between alcohol use and high-risk behaviors—such as road traffic accidents, criminal violence, self-injurious acts, and high-risk sexual behavior—occurring within two hours of consuming 32 grams of alcohol. The Sensation Seeking Scale

Form V consists of 40 forced-choice items divided into four subscales: thrill and adventure seeking, experience seeking, boredom susceptibility, and disinhibition, all of which quantify the subject's propensity for sensation-seeking behavior.

Following consent, socio-demographic and clinical data were collected from participants using a structured form. Each subject underwent a detailed physical examination and necessary laboratory investigations to rule out concurrent medical illness. Psychiatric evaluation using ICD-10 criteria was done to confirm alcohol dependence and exclude comorbid psychiatric conditions. To ensure that participants were neither in a withdrawal state nor cognitively impaired, CIWA-Ar and MMSE were administered prior to proceeding with further assessments. Subjects who qualified were then evaluated for severity of alcohol dependence using SADQ, followed by assessment of high-risk behavior and sensation seeking using HRBQ and SSS Form V, respectively.

Data were analyzed using SPSS version 24 for Windows. Frequencies and percentages were used to describe categorical variables. Pearson's chi-square test was applied to evaluate associations between socio-demographic and clinical variables with sensation seeking, severity of alcohol dependence, and high-risk behavior. Statistical significance was determined using p-values of <0.05, <0.01, and <0.001, corresponding to 95%, 99%, and 99.9% confidence intervals, respectively.

RESULTS

Table 1: Socio Demographic Data.

Variable	Category	Frequency (n)	Percentage (%)
Age	20–25 years	29	12.9
	26–30 years	28	12.4
	31–35 years	27	12.0
	36–40 years	85	37.8
	41–45 years	43	19.1
	46–50 years	4	1.8
	51–55 years	9	4.0
Marital Status	Unmarried	34	15.1
	Married	178	79.1
	Divorced	10	4.4
	Widow/Separated	3	1.3
Religion	Hindu	190	84.4
	Muslim	9	4.0
	Christian	26	11.6
Education	Postgraduate	0	0.0
	Graduate	22	9.8
	Intermediate	31	13.8
	High school	87	38.7
	Illiterate	85	37.8
Occupation	Associate prof./technician	22	9.8
	Clerk	31	13.8
	Skilled worker (agriculture/fisher)	87	38.7
	Unemployed	85	37.8
Monthly Income	₹29,000–39,000	109	48.4
	₹19,000–29,000	31	13.8
	< ₹3,000	85	37.8
Socioeconomic Status	Upper middle	53	23.6
	Lower middle	87	38.7
	Lower	85	37.8
Family Type	Nuclear	196	87.1
	Joint	10	4.4
	Alone	19	8.4
Residency	Rural	207	92.0
	Urban	18	8.0

Table 2: Age at initiation, age at onset of dependence, duration of dependence.

		Frequency	Percent
Age at initiation	<18yrs	31	13.8
	18-25	117	52
	26-35	53	23.6
	>35	24	10.7
	Total	225	100
Age at onset of dependence	<20yrs	38	16.9
	21-30	110	48.9
	31-40	53	23.6
	>41	24	10.7
	Total	225	100

Duration of dependence	1-10	156	69.3
	11-20	30	13.3
	21-30	27	12
	>30	12	5.3
	Total	225	100

Table 3: Description of risk-taking and sensation-seeking behavior.

Variables			Frequency	Percent
Risk taking behaviour		No	93	41.3
		RTA	54	24.0
		CV	18	8.0
		SIB	24	10.7
		RSB	36	16.0
Sensation seeking behaviour		Nil	127	56.4
		Mild	63	28.0
		Moderate	35	15.6
Sub scales of Sensation seeking behaviour	Disinhibition	No	153	68.0
		Yes	72	32.0
	Boredom susceptibility	No	169	75.1
		Yes	56	24.9
	Thrill and adventure-seeking	No	155	68.9
		Yes	70	31.1
	Experience seeking	No	161	71.6
		Yes	64	28.4

Table 4: Association between risk behavior and sensation-seeking behavior.

Variables		Sensation seeking behaviour			χ2 value	p-value
		Nil (127)	Mild (63)	Moderate (35)		
		No. (%)				
Risk behaviour	No	93 (73.2)	-	-	122.325	0.001
	Yes	34(26.8)	63(100)	35(100)		
Risk behaviour	No	93 (73.2)	-	-	141.165	0.001
	RTA	22(17.3)	20(31.7)	12(34.3)		
	CV	-	11(17.5)	7(20.0)		
	SIB	10(7.9)	9(14.3)	5(14.3)		
	RSB	2(1.6)	23(36.5)	11(31.4)		

Table 5: Association between risk behavior and severity of alcohol dependence.

Variables		Severity of alcohol dependence				χ2 value	p-value
		Nil (93)	Mild (45)	Moderate (68)	Severe (19)		
		No. (%)					
Risk behaviour	No	93(100)	-	-	-		
	Yes	-	45(34.1)	68(51.5)	19(14.4)	225.001	0.001
Risk behaviour	No	93(100)	-	-	-		
	RTA	-	27(50.0)	22(40.7)	5(9.3)		
	CV	-	1(5.6)	13(72.2)	4(22.2)		
	SIB	-	15(62.5)	5(20.8)	4(16.7)		
	RSB	-	2(5.6)	28(77.8)	6(16.7)		

Table 6: Association between severity of alcohol dependence and sensation-seeking behavior.

Variables	Sensation seeking behaviour				χ2 value	p-value
Severity of alcohol dependence		Nil	Mild	Moderate	283.240	0.001
	Nil	93(73.2)	-	-		
	Mild	34(26.8)	11(17.5)	-		
	Moderate	-	52(82.5)	16(45.7)		
	Severe	-	-	19(54.3)		

Table 7: Association between socio-demographic variables and severity of alcohol dependence.

Variables		SOADQ (severity of alcohol dependence)					χ2 value	p-value
		Nil (93)	Mild (45)	Moderate (68)	Severe(19)	Total (225)		
		No . (%)						
Age	20-25yrs	10 (10.8)	-	17 (25)	2 (10.5)	29 (12.9)		ns
	26-30yrs	13(14)	7 (15.6)	8(11.8)	-	28(12.4)		
	31-35yrs	6(6.5)	10(22.2)	10(14.7)	1(5.3)	27(12)		
	36-40yrs	40(43)	10(22.2)	23(33.8)	12(63.2)	85(37.8)		
	41-45yrs	20(21.5)	10(22.2)	10(14.7)	3(15.8)	43(19.1)		
	46-50yrs	1(1.1)	3(6.7)	-	-	4(1.8)		
	51-55yrs	3(3.2)	5(11.1)	-	1(5.3)	9(4)		
	Unmarried	6(6.5)	7(15.6)	15(22.1)	6(31.6)	34(15.1)		ns

Marital status	Married	82(88.2)	35(77.8)	48(70.6)	13(68.4)	178(79.1)		
	Divorced	5(5.4)	3(6.7)	2(2.9)	-	10(4.4)		
	Widow/seperate	-	-	3(4.4)	-	3(1.3)		
Religion	Hindu	81(87.1)	37(82.2)	56(82.4)	16(84.2)	190(84.4)		ns
	Muslim	4(4.3)	-	4(5.9)	1(5.3)	9(4)		
	Christian	8(8.6)	8(17.8)	8(11.8)	2(10.5)	26(11.6)		
	Total	93(100)	45(100)	68(100)	19(100)	225(100)		
Education	Professor	-	-	-	-	-	49.781	0.001
	Graduate	4(4.3)	5(11.1)	10(14.7)	3(15.8)	22(9.8)		
	Intermediate	20(21.5)	-	8(11.8)	3(15.8)	31(13.8)		
	High school	29(31.2)	10(22.2)	35(51.5)	13(68.4)	87(38.7)		
	Middle school	-	-	-	-	-		
	Primary school	-	-	-	-	-		
	Illiterate	40(43)	30(66.7)	15(22.1)	-	85(37.8)		
Occupation	Senior official	-					49.781	0.001
	Professional	-						
	associate prof/technician	4(4.3)	5(11.1)	10(14.7)	3(15.8)	22(9.8)		
	clerk	20(21.5)	-	8(11.8)	3(15.8)	31(13.8)		
	Skilled worker shop market sales	-	-	-	-	-		
	skilled worker agriculture fisher	29(31.2)	10(22.2)	35(51.5)	13(68.4)	87(38.7)		
	craft and trade worker	-	-	-	-	-		
	plant and machine operators	-	-	-	-	-		
	elementary occupation	-	-	-	-	-		
	unemployed	40(43)	30(66.7)	15(22.1)	-	85(37.8)		
Income	>78k	-	-	-	-	-	47.504	0.001
	39-78k	-	-	-	-	-		
	29-39k	33(35.5)	15(33.3)	45(66.2)	16(84.2)	109(48.4)		
	19-29k	20(21.5)	-	8(11.8)	3(15.8)	31(13.8)		
	11-19k	-	-	-	-	-		
	3-11k	-	-	-	-	-		
	<3k	40(43)	30(66.7)	15(22.1)	-	85(37.8)		
Socio economic status	26-29=upper	-	-	-	-	-	37.891	0.001
	16-25=uppermiddle	24(25.8)	5(11.1)	18(26.5)	6(31.6)	53(23.6)		
	11-15=lowermiddle	29(31.2)	10(22.2)	35(51.5)	13(68.4)	87(38.7)		
	5-10=upperlower	-	-	-	-	-		
	<5=lower	40(43)	30(66.7)	15(22.1)	-	85(37.8)		
Family	nuclear=1	84(90.3)	40(88.9)	54(79.4)	18(94.7)	196(87.1)	-	-
	joint=2	4(4.3)	2(4.4)	3(4.4)	1(5.3)	10(4.4)		
	extended=3	-	-	-	-	-		
	alone=4	5(5.4)	3(6.70	11(16.2)	-	19(8.4)		
Residency	rural=1	90(96.8)	36(80)	62(91.2)	19(100)	207(92)	13.399	0.004
	urban=2	3(3.2)	9(20)	6(8.8)	-	18(8)		
Age at initiation	<18yrs=1	6(6.5)	9(20)	14(20.6)	2(10.5)	31(13.8)	44.690	0.001
	18-25=2	37(39.8)	20(44.4)	43(63.2)	17(89.5)	117(52)		
	26-35=3	34(36.6)	14(31.1)	5(7.4)	-	53(23.6)		
	>35=4	16(17.2)	2(4.4)	6(8.8)	-	24(10.7)		
Age at dependence	<20yrs=1	8(8.6)	9(20)	16(23.5)	5(26.3)	38(16.9)	41.028	0.001
	21-30=2	35(37.6)	20(44.4)	41(60.3)	14(73.7)	110(48.9)		
	31-40=3	34(36.6)	14(31.1)	5(7.4)	-	53(23.6)		
	>41=4	16(17.2)	2(4.4)	6(8.8)	-	24(10.7)		
Duration of Dependence	1-10=1	72 (77.4)	23 (51.1)	48 (70.6)	13 (68.4)	156(69.3)		ns
	11-20=2	4 (4.3)	12 (26.7)	8 (11.8)	6 (31.6)	30(13.3)		
	21-30=3	12 (12.9)	7 (15.6)	8 (11.8)	-	27(12)		
	>30=4	5 (5.4)	3 (6.6)	4 (5.9)	-	12(5.3)		

Table 8: Association between socio-demographic variables and risk-taking behavior.

Variables			**RISK BEHAVIOR**					**χ^2 value**	**p-value**
		NIL(93)	**RTA(54)**	**CV(18)**	**SIB(24)**	**RSB (36)**	**TOTAL (225)**		
Age	20-25yrs	10(10.8)	7(13)	2(11.1)	2(8.3)	8(22.2)	29(12.9)		
	26-30yrs	13(14)	7(13)	1(5.6)	4(16.7)	3(8.3)	28(12.4)		ns
	31-35yrs	6(6.5)	6(11.1)	1(5.6)	8(33.3)	6(16.7)	27(12)		
	36-40yrs	40(43)	16(29.6)	10(55.6)	3(12.5)	16(44.4)	85(37.8)		
	41-45yrs	20(21.5)	10(18.5)	4(22.2)	6(25)	3(8.3)	43(19.1)		
	46-50yrs	1(1.1)	3(5.6)	-	-	-	4(1.8)		
	51-55yrs	3(3.2)	5(9.3)	-	1(4.2)	-	9(4)		
	Unmarried	6(6.5)	14(25.9)	3(16.7)	6(25)	5(13.9)	34(15.1)		

Marital status	Married	82(88.2)	40(74.1)	15(83.3)	15(62.5)	26(72.2)	178(79.1)		ns
	Divorced	5(5.4)	-	-	3(12.5)	2(5.6)	10(4.4)		
	Widow/separate	-	-	-	-	3(8.3)	3(1.3)		
Religion	Hindu	81(87.1)	43(79.6)	14(77.8)	22(91.7)	30(83.3)	190(84.4)		ns
	Muslim	4(4.3)	2(3.7)	-	1(4.2)	2(5.6)	9(4)		
	Christian	8(8.6)	9(16.7)	4(22.2)	1(4.2)	4(11.1)	26(11.6)		
Education	Professor								ns
	Graduate	4(4.3)	5(9.3)	7(38.9)	1(4.2)	5(13.9)	22(9.8)		
	Intermediate	20(21.5)	6(11.1)			5(13.9)	31(13.8)		
	High school	29(31.2)	24(44.4)	10(55.6)	12(50)	12(33.3)	87(38.7)		
	Middle school								
	Primary school								
	Illiterate	40(43)	19(35.2)	1(5.6)	11(45.8)	14(38.9)	85(37.8)		
Occupation	Senior official								ns
	professional								
	associate prof/technician	4(4.3)	5(9.3)	7(38.9)	1(4.2)	5(13.9)	22(9.8)		
	clerk	20(21.5)	6(11.1)			5(13.9)	31(13.8)		
	Skilled worker shop market sales								
	skilled worker agriculture fisher	29(31.2)	24(44.4)	10(55.6)	12(50)	12(33.3)	87(38.7)		
	craft and trade worker								
	plant and machine operators								
	elementary occupation								
	unemployed	40(43)	19(35.2)	1(5.6)	11(45.8)	14(38.9)	85(37.8)		
Income	>78k							27.806	0.001
	39-78k								
	29-39k	33(35.5)	29(53.7)	17(94.4)	13(54.2)	17(47.2)	109(48.4)		
	19-29k	20(21.5)	6(11.1)	-	-	5(13.9)	31(13.8)		
	11-19k	-	-	-	-	-	-		
	3-11k	-	-	-	-	-	-		
	<3k	40(43)	19(35.2)	1(5.6)	11(45.8)	14(38.9)	85(37.8)		
Socio economic status	26-29=upper	-	-	-	-	-	-	16.676	0.034
	16-25= uppermiddle	24(25.8)	11(20.4)	7(38.9)	1(4.2)	10(27.8)	53(23.6)		
	11-15= lowermiddle	29(31.2)	24(44.4)	10(55.6)	12(50)	12(33.3)	87(38.7)		
	5-10= upperlower	-	-	-	-	-	-		
	<5=lower	40(43)	19(35.2)	1(5.6)	11(45.8)	14(38.9)	85(37.8)		
Family	Nuclear	84(90.3)	49(90.7)	14(77.8)	20(83.3)	29(80.6)	196(87.1)		ns
	joint	4(4.3)	1(1.9)	3(16.7)	1(4.2)	1(2.8)	10(4.4)		
	extended								
	alone	5(5.4)	4(7.4)	1(5.6)	3(12.5)	6(16.7)	19(8.4)		
Residency	Rural	90(96.8)	48(88.9)	14(77.8)	21(87.5)	34(94.4)	207(92)		ns
	urban	3(3.2)	6(11.1)	4(22.2)	3(12.5)	2(5.6)	18(8)		
Age at initiation	<18yrs	6(6.5)	11(20.4)	2(11.1)	1(4.2)	11(30.6)	31(13.8)		ns
	18-25	37(39.8)	33(61.1)	13(72.2)	15(62.5)	19(52.8)	117(52)		
	26-35	34(36.6)	8(14.8)	2(11.1)	7(29.2)	2(5.6)	53(23.6)		
	>35	16(17.2)	2(3.7)	1(5.6)	1(4.2)	4(11.1)	24(10.7)		
Age at dependence	<20yrs	8(8.6)	12(22.2)	3(16.7)	1(4.2)	14(38.9)	38(16.9)		ns
	21-30	35(37.6)	32(59.3)	12(66.7)	15(62.5)	16(44.4)	110(48.9)		
	31-40	34(36.6)	8(14.8)	2(11.1)	7(29.2)	2(5.6)	53(23.6)		
	>41	16(17.2)	2(3.7)	1(5.6)	1(4.2)	4(11.1)	24(10.7)		
Duration of Dependence	1-10	72(77.4)	29(53.7)	16(88.9)	18(75)	21(58.3)	156(69.3)		ns
	11-20	4(4.3)	13(24.1)	1(5.6)	4(16.7)	8(22.2)	30(13.3)		
	21-30	12(12.9)	10(18.5)	-	1(4.2)	4(11.1)	27(12)		
	>30	5(5.4)	2(3.7)	1(5.6)	1(4.2)	3(8.3)	12(5.3)		

Table 9: Association between socio-demographic variables and sensation-seeking behavior

Variables		SS (SENSATION SEEKING BEHAVIOR)					χ2 value	p-value
		Nil (127)	Mild (63)	Moderate (35)	Severe (0)	Total(225)		
		No . (%)						
Age	20-25years	10(7.9)	17(27)	2(5.7)	-	29(12.9)		ns
	26-30years	15(11.8)	11(17.5)	2(5.7)	-	28(12.4)		
	31-35years	12(9.4)	13(20.6)	2(5.7)	-	27(12)		
	36-40years	49938.6)	15(23,8)	21(60)	-	85(37.8)		
	41-45years	29(22.8)	7(11.1)	7(20)	-	43(19.1)		
	46-50years	4(3.1)	-	-	-	4(1.8)		
	51-55years	8(6.3)	-	1(2.9)	-	9(4)		
Marital status	Unmarried	13(10.2)	7(11.1)	14(40)	-	34(15.1)		ns
	Married	109(85.8)	48(76.2)	21(60)	-	178(79.1)		
	Divorced	5(3.9)	5(7.9)	-	-	10(4.4)		
	Widow/ seperate	-	3(4.8)	-	-	3(1.3)		
Religion	Hindu	107(84.3)	52(82.5)	31(88.6)	-	190(84.4)		ns
	Muslim	4(3.1)	4(6.3)	1(2.9)	-	9(4)		
	Christian	16(12.6)	7(11.1)	3(8.6)	-	26(11.6)		
Education	Professor	-	-	-	-	-	51.985	0.001
	Graduate	8(6.3)	7(11.1)	7(20)	-	22(9.8)		
	Intermediate	20(15.7)	5(7.9)	6(17.1)	-	31(13.8)		
	High school	29(22.8)	37(58.7)	21(60)	-	87(38.7)		
	Middle school	-	-	-	-	-		
	Primary school	-	-	-	-	-		
	Illiterate	70(5.1)	14(22.2)	1(2.9)	-	85(37.8)		
Occupation	Senior official=1	-	-	-	-	-	51.985	0.001
	professional=2	-	-	-	-	-		
	associate prof/technician=3	8(6.3)	7(11.1)	7(20)	-	22(9.8)		
	clerk=4	20(!5.7)	5(7.9)	6(17.1)	-	31(13.8)		
	Skilled worker shop market sales=5	-	-	-	-	-		
	skilled worker agriculture fisher=6	29(22.8)	37(58.7)	21(60)	-	87(38.7)		
	craft and trade worker=7	-	-	-	-	-		
	plant and machine operators=8	-	-	-	-	-		
	elementary occupation=9	-	-	-	-	-		
	unemployed=10	70(55.1)	14(22.2)	1(2.9)	-	85(37.8)		
Income	>78k=1	-	-	-	-	-	50.571	0.001
	39-78k=2	-	-	-	-	-		
	29-39k=3	37(29.1)	44(69.8)	28(80)	-	109(48.4)		
	19-29k=4	20(15.7)	5(7.9)	6(17.1)	-	31(13.8)		
	11-19k=5	-	-	-	-	-		
	3-11k=6	-	-	-	-	-		
	<3k=7	70(55.1)	14(22.2)	1(2.9)	-	85(37.8)		
Socio economic status	26-29=upper	-	-	-	-	-	47.762	0.001
	16-25= uppermiddle	28(22)	12(19)	13(37.1)	-	53(23.6)		
	11-15= lowermiddle	29(22.8)	37(58.7)	21(60)	-	87(38.7)		
	5-10=upperlower	-	-	-	-	-		
	<5=lower	70(55.1)	14(22.2)	1(2.9)	-	85(37.8)		
Family	nuclear=1	113(89)	50(79.4)	33(94.3)	-	196(87.1)		ns
	joint=2	6(4.7)	2(3.2)	2(5.7)	-	10(4.4)		
	extended=3	-	-	-	-	-		
	alone=4	8(6.3)	11(17.5)	-	-	19(8.4)		
Residency	rural=1	117(92.1)	55(87.3)	35(100)	-	207(92)		ns
	urban=2	10(7.9)	8(12.7)	-	-	18(8)		
Age at initiation	<18yrs=1	12(9.4)	14(22.2)	5(14.3)	-	31(13.8)	33.011	0.001
	18-25=2	56(44.1)	31(49.2)	30(85.7)	-	117(52)		
	26-35=3	42(33.1)	11(17.5)	-	-	53(23.6)		
	>35=4	17(13.4)	7(11.1)	-	-	24(10.7)		
Age at dependence	<20yrs=1	14(11)	15(23.8)	9(25.7)	-	38(16.9)	30.425	0.001
	21-30=2	54(42.5)	30(47.6)	26(74.3)	-	110(48.9)		
	31-40=3	42(33.1)	11(17.5)	-	-	53(23.6)		
	>41=4	17(13.4)	7(11.1)	-	-	24(10.7)		

Duration of Dependence	1-10=1	86(67.7)	44(69.8)	26(74.3)	-	156(69.3)	-	-
	11-20=2	15(11.8)	8(12.7)	7(20)	-	30(13.3)		
	21-30=3	19(15)	7(11.1)	1(2.9)	-	27(12)		
	>30=4	7(5.5)	4(6.3)	1(2.9)	-	12(5.3)		

DISCUSSION

Initially, 250 patients are considered for the study, out of which 25 have been excluded as per the exclusion criteria; The study sample was of 225 alcohol-dependent men. Age of the patients is divided into seven subgroups of 20-25 years, 26-30 years, 31-35 years, 36-40years, 41-45 years, 46-50 years, 51-55 years, with the majority of patients about 37.8 percent belonged to 36-40 years, followed by 19.1 percent between 41-45 years and the least being 4percent between 51 -55 years. This is compared to a previous Indian study by Mattoo et al titled "Alienation, sensation seeking and multiphasic personality questionnaire profile in men being treated for alcohol and/or opioid dependence" where the mean age of the sample is 37.2±7.78 years.[18]

In the present study population, 79.1percent alcohol-dependent men are married, unmarried is 15.1 percent, followed by 4.4 percent divorced men, and the least being 1.3 percent who are separated. The results are comparable to an Indian study by Chandra Sekhar et al titled "Association between high-risk behavior and alcohol dependence" which shows more significant number of alcohol-dependent men, about 76.7percent, are married, followed by 16.7% who are unmarried.[19] According to P.S. Chandra et al., 53 percent of individuals are married and have high risk behavior.[20]

In the study population, the majority 84.4 percent of subjects belong to the Hindu religion, 11.6 percent belong to the Christian religion, and the least being 4% belong to the Muslim religion.

In this study, there are seven subgroups, i.e., professor, graduate, intermediate, high school, middle school, primary school, illiterate. It is observed that 38.7 percent showed high school educational status, followed by 37.8% illiterate status, 13.8 percent with intermediate, 9.8 percent with graduate status. These study results are in contrast to Chandra Sekhar et al,[19] study with the majority of individuals with graduate educational status, i.e., 35 percent.

In this study, there are ten subgroups, i.e., senior official, professional, associate professor/ technician, clerk, a skilled worker with shop market sales, a skilled worker with agricultural /fishery, craft and trade worker, plant and machine operator, elementary occupation, unemployed. It is observed that 38.7percent have skilled working abilities, i.e., agricultural/ fishing, followed by 37.8 percent unemployed status, 13.8 percent clerk status, 9.8 technician status. Chandra Sekhar et al,[19] study shows the majority of the subjects to have agricultural occupations similar to the present study.

In this study, there are seven subgroups, i.e., income higher than 78 thousand, 39-78 thousand, 29-39 thousand, 19-29 thousand, 11-19 thousand,3-11 thousand, less than 3 thousand. It is observed that the majority, i.e., 48.4percent were earning between 29-39 thousand per month, followed by 37.8% earning less than 3 thousand, and 13.8 percent are earning between 19-29 thousand per month.

In this study, they are divided into 5 subgroups according to the modified Kuppuswamy's socioeconomic status scale 2019 i.e. lower(<5score), upper-lower(5-10score), lower-middle(11-15score), upper-middle(16-25score), upper class(26-29score). It shows that 38.7 percent belong to the lower middle class, followed by 37.8percent belong to the lower class and 23.6 percent to the upper-middle class.

In this study, It is divided into four subgroups, i.e., nuclear, joint, extended, and alone family types. It is observed that 87.1percent of subjects are from nuclear type, followed by 8.4percent loners and 4.4 percent from joint families. According to Chandra Sekhar et al., 73.3 percent belong to a nuclear family, which is similar to the present study.[19]

In this study, 92 percent of individuals are from a rural background, followed by 8percent from an urban background. A study by Mattoo et al, titled "Alienation, sensation seeking and multiphasic personality questionnaire profile in men being treated for alcohol and/or opioid dependence " shows the percentage of the men coming from urban background is 71.8 percent which is in contrast with the current study which shows majority from the rural background, i.e., 92 percent.[18]

In this study, the age of initiation is divided as less than18 years, 18-25years, 26-35 years, greater than 35 years. It is observed that 52 percent of subjects show early age of onset, i.e., between 18-25 years, followed by 23.6 percent, 13.8 percent, 10.7 percent in 26-35 years, less than 18 years, and greater than 35 years respectively. The teenage and early adulthood seems to be the period of initiation of drink; this may be due to peer pressure. Age at onset of dependence is divided as less than 20 years, 21-30 years, 31-40 years, greater than 41 years. It is observed that maximum, i.e., 48.9 percent subjects are between 21-30 years, followed by 23.6 percent between 31-40 years,16.9 percent in less than 20 years, and 10.7 percent is higher than 41 percent. Duration of dependence is divided into 1-10 years, 11-20 years, 21-30 years, and greater than 30 years. It is observed that maximum, i.e., 69.3 percent have a duration of the dependence of 1-10 years followed by 13.3percent, 12 percent, 5.3 percent with 11-20 years, 21-30years, and greater than 30 years of duration of alcohol dependence respectively. The results were similar to a study conducted at the national institute of medical sciences by Soundarya Soundararajan et al titled "Relation between age at first alcohol drink & adult life drinking patterns in alcohol-dependent

patients" mean age at first drink is 21.14±5.33 years.[21] Another Indian study was done at Kerala by Unnikrishnan Reghukumaran Nair et al. titled "Age at Onset of Alcohol Use and Alcohol Use Disorder: Time-trend Study in Patients Seeking De-addiction Services in Kerala" shows similar results when compared to the present study, i.e., the mean ages at onset of alcohol use and dependence are 20.86 ± 5.7 and 34.05 ± 9.3, respectively.[22] Our study findings are similar to a study done by Ralph W. Hingson et al,[23] titled "Age at Drinking Onset and Alcohol Dependence - Age at Onset, Duration, and Severity" which showed that, younger the age at which people started to drink, the higher their likelihood of developing alcohol dependence within 10 years of drinking onset and before age 25 years. Anupama et al. included age at initiation of drinking (<18, 18–25, 26–35, >35 years), age at onset of dependence (<20, 21–30, 31–40, >41 years), and years of dependence (1–10, 11–20, 21–30, >30 years) as variables in logistic regression. However, none of these factors were significantly associated with high-risk behavior in the final model.[24]

In this study, Event- analysis method is used to assess the high-risk behaviour about alcohol dependence. Risk behavior included the following groups – road traffic accidents (RTA), crime, and violence (CV), self-injurious behavior (SIB), risky sexual behavior (RSB). It is observed that majority, i.e., 58.7 percent of the subjects have risk behavior, of which 24 percent have RTAs, 16 percent, 8 percent, and 10.7 percent have RSB, CV, SIB, respectively. Also, the majority of the subjects around 56.4 percent did not have sensation-seeking behavior, mild and moderate sensation-seeking behavior in 28 percent, 15.6 percent, respectively. The subscales of sensation-seeking behavior are DIS- Disinhibition, BS- Boredom susceptibility, TAS- Thrill and adventure-seeking, ES- Experience seeking with 32 percent, 24.9 percent, 31.1 percent, 28.4 percent of subjects respectively in each subscale. The percentage of RTAs and RSB is similar to a study by Anupama et al. (2018),[23] i.e., about 21 percent and 16.5 percent, respectively. However, the percentage of subjects with CV, SIB is 15, 7.5 respectively, which is in contrast to the present study. The sensation-seeking scores are also comparable with mild scores (<13) in 26.5 percent and moderate (13-26) in 21.5 percent subjects. The results are in contrast to another Indian study by Chandra Sekhar et al,[19] which shows a higher percentage of RSB, i.e., 56.7percent followed by RTAs, i.e., 53.3percent and equal percentage distribution of 23.3 percent each for CV and SIB and the total subjects with high-risk behaviors are about 78 percent. Whereas the current study showed the higher percentage for RTAs (24percent) followed by RSB (16 percent), SIB(10.7percent), CV(8percent), and the total subjects with high-risk behaviors are about 58.7 percent. Anupama et al. emphasized that individuals scoring high on sensation-seeking traits, as well as impulsivity (measured by the Barratt Impulsiveness Scale), were particularly vulnerable to indulging in high-risk behaviors. This association was especially pronounced among male patients who demonstrated higher mean impulsivity scores (30.90) compared to females (17.23), with statistical significance (p = 0.022).[24]

In this study, It is observed that sensation-seeking behavior and risk-taking behavior are significantly associated. The majority of subjects who did not have sensation-seeking behavior did not have risk-taking behavior, i.e., about 73.2 percent of subjects. However, it can be seen that all the subjects who had sensation-seeking behavior (mild or moderate) have risk behavior too (100percent). Chi-square test indicated that Risk-taking behavior and SS scores are significantly associated (c2 = 122.35, p=0.001). Among the various types of risk-taking behaviors 20 subjects (31.7percent) with RTA type had mild sensation seeking, 11subjects(17.5 percent) with CV type have mild sensation seeking, 9 subjects14.3percent) with SIB type had mild sensation seeking, 23 subjects (36.5 percent) with RSB have mild sensation seeking. Moreover, 12 subjects(34.3percent) with RTA type have moderate sensation seeking, 7subjects (20 percent) with CV type have moderate sensation seeking, five subjects 14.3 percent) with SIB type have moderate sensation seeking, 11 subjects (31.4percent) with RSB have moderate sensation seeking. The results are similar to another study done at the University of Mississippi by McMillen et al,[25] which shows that high sensation seekers have greater risk-taking in driving. Another Indian study from the National Institute of Medical Sciences, Bengaluru by P.S. Chandra et al,[20] shows a significant association between sensation seeking and risky sexual behavior. Anupama et al. observed that sensation-seeking behavior significantly influenced high-risk behavior categories such as road traffic accidents, crime and violence, self-injurious behavior, and risky sexual behavior. These high-risk behaviors were significantly more prevalent in the group with high sensation-seeking scores (p = 0.000).[24]

In this study, It is observed that the severity of alcohol dependence and risk-taking behavior are significantly associated. All the subjects who didn't have the severity of alcohol dependence did not have risk-taking behavior (100percent). But it can be seen that all the subjects who have the severity of alcohol dependence (mild or moderate or severe) have risk behavior too, showing maximum subjects 51.5percent with moderate followed by 34.1percent and 14.4percent with mild and severe alcohol dependence. Chi-square test indicated that Risk-taking behavior and severity of alcohol dependence are significantly associated (c= 225.001, p=0.001). Among the various types of risk-taking behavior 27 subjects (50percent) with RTA type have mild severity of alcohol dependence, 13 subjects (72.2percent) with CV type have moderate severity of alcohol dependence, 15 subjects(62.5percent) with SIB type have mild severity of alcohol dependence, 28 subjects (77.8percent) with RSB have moderate

severity of alcohol dependence. According to an Indian study by Chandra Sekhar et al,[19] there is a significant association between the severity of alcohol dependence and high-risk behavior. Among 60 alcohol-dependent men, 47 have high-risk behavior of which 27 subjects have severe alcohol dependence, followed by moderate and mild severity of alcohol dependence in 19 and1 subjects respectively with chi-square value of 13.916. Anupama et al. found a statistically significant association between the severity of alcohol dependence (as measured by SADQ scores) and the presence of high-risk behaviors. High SADQ scores were more likely to be associated with crime and violence (31.6%), risky sexual behavior (21.1%), and self-injurious behavior (14.5%) (p = 0.000).[24]

In this study, It is observed that the severity of alcohol dependence and Sensation seeking behavior have significant associations. All the subjects who did not have the severity of alcohol dependence did not have Sensation seeking behavior, i.e., 93 (73.2percent). However, it can be seen that all the subjects who have the severity of alcohol dependence (mild or moderate or severe) had Sensation seeking behavior too. The maximum subjects with mild Sensation seeking behavior 82.5 percent have moderate alcohol dependence, 45.7 percent of the subjects with moderate Sensation seeking behavior and alcohol dependence, and 54.3 percent subjects showed moderate Sensation seeking behavior and severe alcohol dependence. Chi-square test indicated that Risk-taking behavior and severity of alcohol dependence are significantly associated (c2 = 283.240, p=0.001). According to an Indian study by Chandra Sekhar et al,[19] there is a significant association with chi-square value 3.786 and p-value <0.005 between sensation seeking score and severity of alcohol dependence with mild, moderate, severe alcohol dependence scores 17.75+/-3.8, 18.96+/-3.2, 20.71+/-2.2. Anupama et al. further demonstrated that individuals with higher SADQ scores showed higher impulsivity scores (mean = 50.24 for moderate severity). The association between high impulsivity and SADQ severity was statistically significant (p = 0.049), suggesting that severity of alcohol dependence increases with greater sensation-seeking and impulsivity.[24-26]

CONCLUSION

The present study was a modest effort to analyze the high-risk behavior in males with alcohol dependence syndrome. Based on observations and inferences of the present study, the following suggestions are humbly put forth.

1. High-risk behaviors are quite common among males with alcohol dependence syndrome. Given the rising incidence of road traffic accidents, risky sexual behaviors, and crime, specifically targeting these behaviors as part of treatment intervention, becomes essential.
2. Also, public health initiatives such as increased deterrence against drunken driving and better policing and regulation of public drinking places to prevent violence and assault assume importance.
3. Treatment interventions must inquire into and specifically target such high-risk behavior to reduce morbidity and mortality associated with heavy drinking.
4. Education concerning safe sex, especially among the high-risk population, cannot be overemphasized. Early intervention programs need to be instituted primarily for persons that are prone to risk-taking behavior and concurrent substance use.

REFERENCES

1. Bennett LA, Campillo C, Chandrashekar CR, Gureje O. Alcoholic beverage consumption in India, Mexico, and Nigeria. Alcohol Research. 1998;22(4):243.
2. Iontchev A, Grant M. Alcohol and Emerging Markets. Patterns, Problems, and Responses. Central and eastern Europe. 1998:177-201.
3. Patel V. The politics of alcoholism in India. Bmj. 1998 May 2;316(7141):1394.
4. Benegal V. India: alcohol and public health. Addiction. 2005 Aug;100(8):1051-6.
5. World Health Organization. Global health risks: mortality and burden of disease attributable to selected major risks. Geneva: World Health Organization; 2009.
6. Rehm J, Mathers C, Popova S, Thavorncharoensap M, Teerawattananon Y, Patra J. Global burden of disease and injury and economic cost attributable to alcohol use and alcohol-use disorders. The lancet. 2009 Jun 27;373(9682):2223-33.
7. White IR. The level of alcohol consumption at which all-cause mortality is least. Journal of clinical epidemiology. 1999 Oct 1;52(10):967-75.
8. Harwood HJ, Fountain D, Livermore G. Economic costs of alcohol abuse and alcoholism. InRecent developments in alcoholism 1998 (pp. 307-330). Springer, Boston, MA.
9. Leigh BC. Peril, chance, adventure: concepts of risk, alcohol use and risky behavior in young adults. Addiction. 1999 Mar;94(3):371-83.
10. Wood PB, Cochran JK, Pfefferbaum B, Arneklev BJ. Sensation-seeking and delinquent substance use: An extension of learning theory. Journal of Drug Issues. 1995 Jan;25(1):173-93.
11. Zuckerman M. Sensation seeking: The balance between risk and reward. Self-regulatory behavior and risk taking: Causes and consequences. 1991:143-52.
12. World Health Organization. The World health report: 2003: shaping the future.
13. Greenfield TK, Weisner C. Drinking problems and self-reported criminal behavior, arrests and convictions: 1990 US alcohol and 1989 county surveys. Addiction. 1995 Mar;90(3):361-73.
14. D'costa G, Nazareth I, Naik D, Vaidya R, Levy G, Patel V, King M. Harmful alcohol use in Goa, India, and its associations with violence: a study in primary care. Alcohol and alcoholism. 2006 Dec 15;42(2):131-7.
15. Preuss UW, Schuckit MA, Smith TL, Danko GP, Bucholz KK, Hesselbrock MN, Hesselbrock V, Kramer JR. Predictors and correlates of suicide attempts over 5 years in 1,237 alcohol-dependent men and women. American Journal of Psychiatry. 2003 Jan 1;160(1):56-63.
16. Leigh BC, Stall R. Substance use and risky sexual behavior for exposure to HIV: Issues in methodology, interpretation, and prevention. American Psychologist. 1993 Oct;48(10):1035.

17. Waller PF, Stewart JR, Hansen AR, Stutts JC, Popkin CL, Rodgman EA. The potentiating effects of alcohol on driver injury. JAMA. 1986 Sep 19;256(11):1461-6.
18. Mattoo SK, Varma VK, Singh RA, Khurana H, Kaur R, Sharma SK. Alienation, sensation seeking and multiphasic personality questionnaire profile in men being treated for alcohol and/or opioid dependence. Indian journal of psychiatry. 2001 Oct;43(4):317.
19. Chandra Sekhar A, Ravula ER. Association between high risk behaviour and alcohol dependence syndrome. Int J Intg Med Sci. 2018;5(7):678-86.
20. Chandra PS, Krishna VA, Benegal V, Ramakrishna J. High-risk sexual behaviour & sensation seeking among heavy alcohol users. Indian Journal of Medical Research. 2003 Feb 1;117:88-92.
21. Soundararajan S, Narayanan G, Agrawal A, Prabhakaran D, Murthy P. Relation between age at first alcohol drink & adult life drinking patterns in alcohol-dependent patients. The Indian journal of medical research. 2017 Nov;146(5):606.
22. Nair UR, Vidhukumar K, Prabhakaran A. Age at onset of alcohol use and alcohol use disorder: Time-trend study in patients seeking de-addiction services in Kerala. Indian journal of psychological medicine. 2016 Jul;38(4):315.
23. Hingson RW, Heeren T, Winter MR. Age at drinking onset and alcohol dependence: age at onset, duration, and severity. Archives of pediatrics & adolescent medicine. 2006 Jul 1;160(7):739-46.
24. Anupama K, Reddy PCM. Impulsivity and High Risk Behaviour among Male and Female Alcohol Dependent Patients. Fortune J Health Sci. 2022;5(2):243-53.
25. McMillen DL, Smith SM, Wells-Parker E. The effects of alcohol, expectancy, and sensation seeking on driving risk taking. Addictive Behaviors. 1989 Jan 1;14(4):477-83.
26. Korlakunta A, Reddy CP. High-risk behavior in patients with alcohol dependence. Indian journal of psychiatry. 2019 Mar;61(2):125.