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Research Article

Impulsivity and High Risk Behaviour among Male and Female Alcohol Dependent Patients

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Abstract

Background: Impulsivity as a personality trait is associated with high risk behaviour among alcohol dependents but the relationship between these two variables has been largely overlooked in addressing Alcohol Dependence Syndrome

Objectives: To study the relationship between impulsivity and High Risk Behaviour among alcohol dependent patients

Methods: The study was conducted in a clinical setting using an explorative study design and non-probability sampling method on 178 male and 22 female alcohol dependent patients in 2011. The tools used prior to sample selection include; ICD-10, CIWA-AD, MMSE, SOADQ, and the HRBQ and BIS were used to assess high risk behaviour and impulsivity respectively.

Results and Discussion: Significant association was found between all the three variables i.e., High impulsivity (p-value=0.000), Low impulsivity (P-vale=0.000), Severity of alcohol dependence (p-value=0.000) and High risk behavior (Road Traffic accidents, Crime and violence, Self-injurious behavior, Risky sexual behavior) in the sample. In addition, significant difference between the groups of Severity of alcohol dependence questionnaire (SADQ) scores and high impulsivity (p-value=0.049) was observed. Patients scoring high on personality constructs such as impulsivity were particularly vulnerable to indulge in high risk behaviour.

Conclusion: The findings of the present study allows to conclude that there was significant influence of gender (-3.260**) and education (-2.350*) on High Risk Behaviour of the sample and impulsivity as a personality construct is significantly associated with the high risk behaviour and severity of alcohol dependence. These results also indicate a strong need for intervention to address the personality traits related to severity of alcohol dependence to control relapses in treatment of Alcohol Dependence.

Keywords: Alcohol dependence, Impulsivity, High risk behaviour, women alcohol dependents, SADQ

1. Introduction

Impulsiveness is viewed as a multifaceted construct comprising of elements like mindfulness, actions and perceptions. Impulsivity is contemplated to be a potential risk factor of alcohol and drug abuse, which by itself is considered as a indicator of risky behaviors [1, 2, 3, 4]. Behavioral impulsivity is connected with inability to withhold a reaction that has already began ; cognitive impulsivity - with incapacity to perceive the consequences of a person's behavior [5] and attentional impulsivity – with inability to be focused on a particular task [6]. In all types of impulsivity, conceptual and intuitive relationships with risky behaviors and accidents can be explained very well [7] Impulsivity and alcohol consumption are both contemplated as potential predictors of unintended as well as intentional injuries. Impulsivity seem to increase the frequency of risky behaviors in alcohol-dependent individuals [8] Disablement in self-control , such as poor impulse regulation and inability to take decisions, play a key role in the formation and persistence of substance use habits in general and alcohol dependence in specific [9, 10, 11]. Even though the past researches mainly focused on the individualistic influence of impulsivity and craving on outcome factors, lately more importance is given to the relationship between these two phenomena. Research has shown that self-reported attribute impulsivity was positively associated with craving in individuals with cocaine-dependence [12, 13] individual with methamphetamine-dependence, substance dependent women seeking treatment [14], alcohol dependent men [13], and habitual smokers [14, 15, 16] In general, these findings reflect that individuals with high impulsivity experience more craving in several substance use disorders. Both impulsivity and craving need to be regarded as factors that influence the alcohol addiction and relapse succeeding abstinence. Impulsivity is a crucial correlate of risky behaviors in alcohol dependent individuals, together with global psychopathology and gravity of alcohol dependence [7]. Alcohol has been shown to increase the death risk due to various health problems such as cancer, Heart disease, and liver disease and around five percent of total deaths worldwide are related to severe alcohol consumption [19]. Approximately 140.6 thousand persons died due to liver cirrhosis caused by alcohol consumption in India in 2016. Road traffic accidents and cancer were also observed among alcohol users during the assessment time period [20] with this background an effort was made to study the relationship between impulsiveness and High risk behaviour among alcohol dependent patients as part of Doctor of Medicine (MD) research.

2. Methods and Materials

The study was conducted in clinical setting using an explorative study design and non-probability sampling method on 178 male and 22 female alcohol dependent patients. The patients admitted with Alcohol dependence syndrome to Psychiatric ward of

Mamata Medical College and Hospital, (Khammam, Telengana State) during one year period (2011) were selected for the study. The tools used prior to sample selection include; ICD-10 for Psychiatric diagnosis, Clinical Institute Withdrawal Assessment for Alcohol (CIWA-AD) [21] to know that patients are not in withdrawal state, Mini Mental Status Examination(MMSE) [22] to ensure that the patient has no cognitive impairment, Severity of Alcohol Dependence Questionnaire(SOADQ) [23] for severity of alcohol dependence . Thus a total sample of 200 comprising of 178 men and 22 women were selected for the study using convenience sampling method. The High Risk Questionnaire was translated into Telugu, standardized and used to examine the high risk behaviours among the sample, they were; Road Traffic Accidents (RTA), Risky Sexual Behaviour (RSB), Self-Injurious Behaviour (SIB) and Crime and Violence (C&V). Barratt's Impulsive Scale (BIS) [24], version 11 was translated in to Telugu language, standardized and used to study the impulsiveness among the sample. The BIS -11 measures impulsivity in terms of three domains; Motor impulsiveness, Non planning impulsiveness and Cognitive impulsiveness. The BIS-11 is self-administered questionnaire with 30 items scored on a four point scale ranging from 1= rarely/ never to 4= almost always /always. Possible scores range from 30 to120, administration time is not specified but is estimated to be 10-15 minutes. The BIS-11 was translated in to Telugu language, standardized and administered to the sample under study.

The data was analyzed using a computerized statistical software -SPSS version 21 of IBM ; to examine the association among the High risk behaviour ,Impulsivity levels and Severity of alcohol dependence the Chi-square test was used, to know the difference between men and women with regard to impulsivity the t-test was applied, using the F-test the difference among the categories of SADQ scores (low, medium and high) and Impulsivity was assessed and Logistic Regression was used to test the strength of associations among socio demographic variables , clinical variables and high risk behaviour of the sample.

3. Results

Table 1: Association between high risk behaviour and personality variables &severity of alcohol dependence

Variables & classification		High Risk Behaviour					Total	Chi square value	p-value
		Nil	RTA	CRIME& VIOLENCE	SELF INJURIOUS BEHAVIOUR	RISKY SEXUAL BEHAVIOUR			
High Impulsivity	Nil	80	0	0	0	0	80		
		100.00 %	0.00%	0.00%	0.00%	0.00%	100.00 %		
	>24	0	5	0	1	0	6		

		0.00%	83.30 %	0.00%	16.70%	0.00%	100.00 %	218.46**	0.000
	25– 48	0	16	16	10	19	61		
		0.00%	26.20 %	26.20%	16.40%	31.10%	100.00 %		
	49-72	0	21	14	4	14	53		
		0.00%	39.60 %	26.20%	7.50%	26.40%	100.00 %		
Total		80	42	30	15	33	200		
		40.00 %	21.00 %	15.00%	7.50%	16.50%	100.00 %		
Low Impulsivity	Nil	80	0	0	0	0	80	261.82**	0.000
		100.00 %	0.00%	0.00%	0.00%	0.00%	100.00 %		
	<16	0	1	0	1	1	3		
		0.00%	33.30 %	0.00%	33.30%	33.30%	100.00 %		
	17-32	0	17	30	10	28	85		
		0.00%	20.00 %	35.30%	11.80%	32.90%	100.00 %		
	33-48	0	24	0	4	4	32		
		0.00%	75.00 %	100.00%	12.50%	12.50%	100.00 %		
Total		80	42	30	15	33	200		
		40.00 %	21.00 %	15.00%	7.50%	16.50%	100.00 %		
Severity of Alcohol Dependence Questionnaire scores	Nil	80	0	0	0	0	80	245.187**	0.000
		100.00 %	0.00%	0.00%	0.00%	0.00%	100.00 %		
	< 20 Low	0	16	0	0	14	30		
		0.00%	53.30 %	0.00%	0.00%	46.70%	100.00 %		
	21-30 Moderate	0	24	25	11	16	76		
		0.00%	31.60 %	32.90%	14.50%	21.10%	100.00 %		
	31-40 High	0	2	5	4	3	14		
		0.00%	14.30	35.70%	28.60%	21.40%	100.00		

			%				%		
Total		80	42	30	15	33	200		
		40.00 %	21.00 %	15.00%	7.50%	16.50%	100.00 %		

Table 2: summary of independent t sample t-test by gender

Levels of Impulsiveness	Gender	N	Mean	Std. Deviation	t-value	p-value
High Impulsivity	Male	178	30.90	26.519	2.316*	0.022
	Female	22	17.23	22.473		
Low Impulsivity	Male	178	16.31	14.277	0.614	0.540
	Female	22	14.27	18.022		

Table 3: Summary of one way ANOVA by SADQ scores

BIS	SADQ scores	N	Mean	Std. Deviation	F-value	p-value
High Impulsivity	< 20 Low	30	49.43a	15.147	2.475*	0.049
	21-30 Moderate	76	50.24a	12.441		
	31-40 High	14	41.29b	18.223		
	Total	120	48.99	14.063		
Low Impulsivity	< 20 Low	30	25.50	8.549	0.516	0.598
	21-30 Moderate	76	27.16	8.043		
	31-40 High	14	27.79	10.445		
	Total	120	26.82	8.434		

Table 4: Logistic Regression – Demographic characteristics, clinical variables as predictors of high risk behaviour

Variables	Classification	B
Age	15 – 25 years	
	26 – 35 years	-0.648
	36 – 45 years	-0.066
	49 – 55 years	-0.836
Gender	Male	
	Female	**-3.260****
Marital Status	Unmarried	
	Married	-0.853
	Divorced	22.605
	Window/separated	2.112
Religion	Hindu	
	Muslim	40.430
	Christian	-0.781
Education	Illiterate	
	Up to 5^{th} standard	18.304
	5^{th} – 10^{th} standard	0.100
	12^{th} standard	**-2.350***
	College/Technical Education	-1.425
Occupation	Unemployed	0.189
Family type	Nuclear	
	Joint	-21.808
	Extended	-20.898
	Single	19.295
Age at initiation of drink	<18 Years	
	18 – 25 Years	0.504
	26 – 35 years	1.070
	>35 years	-38.557
Age at dependence	<20 years	
	21-30 years	0.593
	31-40 years	0.348
	>41 years	-20.660
Years of dependence on alcohol	1 – 10years	
	11 – 20 years	-0.712
	21 – 30 years	0.441

	>30 years	19.885
	Constant	1.622

4. Discussion

The table 1 exhibits that there was significant association found between all the three variables i.e., High impulsivity (p-value=0.000), Low impulsivity (P-vale=0.000), Severity of alcohol dependence (p-value=0.000) and High risk behavior (Road Traffic accidents, Crime and violence, Self-injurious behavior, Risky sexual behavior) in the sample. These findings compare well with a study done by Walton and Roberts, where the researcher studied the relationship between substance use and personality traits in 118 undergraduate students from a large Midwestern University were assessed using both self-reports and structured measures [25]. Several items from the Behavioral Risk Factors Surveillance Systems (BRFSS) and the Youth Risk Behavior Survey were used to assess substance use and heavy drinkers. The quantity of alcohol used to determine these groups of abstainers, moderate drinkers and heavy drinkers. The quantity of alcohol used to determine these groups were: no alcohol in the past year, not more than 12-16drinks per week and more than this amount respectively. Personality traits were assessed using the Goldberg's IPIP-AB5C Inventory that assessed the Bid Five dimensions of personality namely extraversion, agreeableness, and conscientiousness, emotional stability and intellect. Results showed that Heavy users compared to abstainers or moderate users had lower scores on measures of conscientiousness t (70) =4.18, p<0.001. This corroborated significantly with a higher BIS-11 score total score**.** This study results was consistent with findings that heavy users of alcohols and substances were more disagreeable, irresponsible and neurotic compared to abstainers or even moderate drinkers [25] Thus, the present study gave credence to the findings that impulsivity is associated with High Risk Behaviors (HRB). According to Korlakunta [26] the presence of high-risk behavior was considerable among patients with alcohol dependence syndrome. Event analysis method revealed that road traffic accidents indicated significant association with prior heavy alcohol drinking. The severity of alcohol dependence was significantly related to the presence of high-risk behavior. Among the independent variables, younger age group, male gender, married people, lower level of education, and alcohol dependence of 1- to 10-year duration are correlated with an increased occurrence of high-risk behavior among patients with alcohol dependence syndrome.

The table2, indicates the independent sample t-test carried out to observe, whether Male and Female differed from one another with regard to their impulsivity or not**.** Result showed that, the p-value (0.022) corresponding to high impulsivity suggests that there was significant impact of gender on high impulsivity in which Male showed more (mean value-30.90) high impulsivity than Female (Mean value-17.23). Whereas p-value (0. 540) for low impulsivity reveals that males and females have the same gender (male and female) with regard to their scores for high impulsivity. But the men and women understudy did not differ significantly with regards to their scores for Low Impulsivity. Men are over represented in socially problematic behaviors such as aggression and criminal behavior, which have been

linked to impulsivity predicted that sex differences would be most pronounced in risky activities with men demonstrating grater sensations seeking, grater reward sensitivity, and lower punishment sensitivity [27]. In addition, the patients with scores high on personality traits like sensation seeking and impulsivity were particularly vulnerable and prone to indulge in high risk behaviour [28]

From table 3 it is evident that there was significant difference between the groups of Severity of alcohol dependence questionnaire (SADQ) scores and high impulsivity (p-value=0.049). There was no significant difference between SADQ scores and low impulsivity (p-value=0.598) at 0.05 level. Hence it can be concluded that in the present study there was significant influence of Severity of alcohol dependence on high impulsivity but not on low impulsivity. Similar observations were made in a study conducted by Poulose, [3] where the Logistic Regression analysis showed significant association with an Odds Ratio of 1.08 for Addiction Severity Index (ASI) composite score. Which indicated that for every one percent increase in Composite ASI score the risk of associated high risk behaviour increases by about eight percent. Severity of alcohol dependence is positively correlated with high risk behaviour and heavy drinking seems to be an indicator for the occurrence of the high risk behaviour. Furthermore, as more factors are being explored for effective management of Alcohol Dependence Syndrome (ADS) routine personality profiling is accomplished easily and can give valuable insight into clear and designed management plan [29].

The Logistic Regression (table 4) was done on High Risk Behaviour by means of gender, age , marital status, education, occupation, family type, age at initiation of drink, age at dependence and years of dependence on alcohol. The results reflect that there was significant influence of gender (-3.260**) and education (-2.350*) on High Risk Behaviour of the sample. There was no significant influence of age, marital status, occupation, family type, age at initiation of drink, age at dependence and years of dependence on alcohol on High Risk Behaviour of the sample. These findings were similar to the findings of a research carried out by Mattoo et al., [30] where 200 men undergoing treatment for substance dependence at the Drug de addiction and treatment Centre, showed that relapse in persons with alcohol and opioid dependence is related to similar precipitants of relapse but a divergent dysfunction and life events in terms of the frequency and type of events and associated stress in lifetime and during the past one year. The substance dependent persons in a family affect the quality of family life of other members also. This causes problems, difficult situations and stressful events in the family affecting the lives of family members and increases the burden of family caregivers [31] there is every need to identify, screen and counsel youth about alcohol use and to implement policies and programmes that delay alcohol consumption [32]. The early identification of personality constructs such as impulsivity and sensation seeking associated with alcohol dependence among men and women at the family and community level is highly valuable in providing appropriate therapies to control these traits, which further requires health care personnel support to seek the relevant mental health care from professionals.

5. Conclusion

The presence of both alcohol dependence and personality traits as important indicators of High Risk

Behaviour lends support the hypothesis that alcohol dependents with both these variables may be prone for risk taking, probably with a common genetic variability. Patients scoring high on personality constructs such as impulsivity were particularly vulnerable to indulge in high risk behaviour. The findings of the present study allows to conclude that there was significant influence of gender (-3.260**) and education (-2.350*) on High Risk Behaviour of the sample and impulsivity as a personality construct is significantly associated with the high risk behaviour and severity of alcohol dependence. These results also indicate a strong need for intervention to address the personality traits related to severity of alcohol dependence to control relapses in treatment of Alcohol Dependence.

References

1. Coghlan M, Macdonald S. The role of substance use and psychosocial characteristics in explaining unintentional injuries. Accid Anal Prev 42 (2010): 476–9.
2. Hingson RW, Heeren T, Edwards EM. Age at drinking onset, alcohol dependence, and their relation to drug use and dependence, driving under the influence of drugs, and motor-vehicle crash involvement because of drugs. J Stud Alcohol Drugs 69 (2008): 192–201.
3. Poulose B, Srinivasan K. High risk behaviours following alcohol use in alcohol dependent men. Indian J Med Res 129 (2009): 376–81.
4. Richer I, Bergeron J. Driving under the influence of cannabis: links with dangerous driving, psychological predictors, and accident involvement. Accid Anal Prev 41 (2009): 299–307.
5. Arce E, Santisteban C. Impulsivity: a review. Psicothema 18 (2006): 213–20.
6. De Wit H. Impulsivity as a determinant and consequence of drug use: a review of underlying processes. Addict Biol 14 (2009): 22–31.
7. Jakubczyk A, Klimkiewicz A, Wnorowska A, Mika K, Bugaj M, Podgórska A, et al. Impulsivity, risky behaviors and accidents in alcohol-dependent patients. Accid Anal Prev 51 (2013): 150-5.
8. A.Jakubczyk, A.Klimkiewicz, K.Brower, M.Bugaj, J.Sadowska - Mazuryk A. Topolewska - Wochowska M.Wojnar. P-43 - Impulsivity and risky behaviors in alcohol dependence. European Psychiatry 27 (2012).
9. Dom G, De Wilde B, Hulstijn W, van den Brink W, Sabbe B. Decision-making deficits in alcohol-dependent patients with and without comorbid personality disorder. Alc Clin Exp Res. 30 (2006): 1670–1677.
10. Goudriaan AE, Oosterlaan J, De Beurs E, van den Brink W. Neurocognitive functions in pathological gambling: a comparison with alcohol dependence, tourette syndrome, and normal controls. Addiction 101 (2006): 534–547.
11. Verdejo-García A, Lawrence AJ, Clarck L .Impulsivity as a vulnerability marker for substance-use disorders: review of findings from high-risk research, problem gamblers and genetic association studies. Neurosci Biobehav R 32 (2008): 777–810.
12. Roozen HG, van der Kroft P, van Marle HJ, Franken IHA. The impact of craving and impulsivity on aggression in detoxified

cocaine-dependent patients. J Subst Abuse Treat 40 (2011): 414–418.

13. Tziortzis D, Mahoney JJ III, Kalechstein AD, Newton TF, De La Garza R II. The relationship between impulsivity and craving in cocaine- and methamphetamine-dependent volunteers. Pharmacol Biochem Behav 98 (2011): 196–202.
14. Zilberman ML, Tavares H, el-Guebaly N. Relationship between craving and personality in treatment-seeking women with substance related disorders. BMC Psychiatry 3 (2003): 1.
15. Evren C, Durkaya M, Evren B, Dalbudak E, Cetin R. Relationship of relapse with impulsivity, novelty seeking and craving in male alcohol-dependent inpatients. Drug Alcohol Rev 31 (2012): 81–90.
16. Billieux J, Van der Linden M, Ceschi G. Which dimensions of impulsivity are related to cigarette craving? Addict Behav 32 (2007): 1189–1199.
17. Doran N, Spring B, McChargue D. Effect of impulsivity on craving and behavioral reactivity to smoking cues. Psychopharmacology 194 (2007): 279–288.
18. Doran N, Cook J, McChargue D, Spring B. Impulsivity and cigarette craving: differences across subtypes. Psychopharmacology 207 (2007): 365–373.
19. John Elflein. Key facts on alcohol-related deaths globally 2018 (2020).
20. Statista Research Department, Number of alcohol attributable deaths in India 2016 by cause. Oct 16 (2020).
21. Sullivan JT. Sykora K. Schneiderman J. Naranjo CA and Sellers EM. Assessment of alcohol withdrawal: The revised Clinical Institute Withdrawal Assessment for Alcohol scale (CIWA-Ar). British Journal of Addiction 84 (1989): 1353-1357.
22. https://oxfordmedicaleducation.com/geriatrics/mini-mental-state-examination-mmse/
23. https://www.smartcjs.org.uk/wp-content/uploads/2015/07/SADQ.pdf
24. Barratt ES, Stanford MS. Impulsiveness, in the personality characteristics of the Personality Disordered client. Edited by Costello, C.G. New York Wiley 91 (1995): 91-118.
25. Walton KE, Roberts BW. On the relationship between substance use and personality traits: abstainers are not maladjusted. J Res Pers 38 (2004): 515-535.
26. Korlakunta A, Reddy CMP. High-risk behavior in patients with alcohol dependence. Indian J Psychiatry 61 (2019): 125-130.
27. Catherine P, Copping Lee T, Campbell, Anne. Sex differences in impulsivity: A meta-analysis. Cross, Psychological Bulletin 137 (2011): 97-130.
28. Anupama K and Pavankumar Reddy CM. Sensation seeking and high risk behaviour among alcohol dependent patients. IP Indian Journal of Neurosciences April-June 4 (2018): 43-47.
29. Prateek Yadav, Rajeev Saini, Chauhan VS, Sunaina Sood. Personality traits associated with Alcohol Dependence Syndrome and its relapse. Medical Journal Armed Forces India (2021).
30. Surendra K Mattoo, Debasish Basu, Anil Malhotra, Rama Malhotra. Relapse Precipitants, Life events and Dysfunction in

alcohol and opioid dependent men Indian Journal of Psychiatry 45 (2003): 39-44.

31. Mattoo SK, Nebhinani N, Kumar BN, Basu D, Kulhara P. Family burden with substance dependence: a study from India. Indian J Med Res 137 (2013): 704-11.
32. Hingson R, Heren T, Winter M, Wechsler H. Early age of first drunkenness as a factor in college students' unplanned and unprotected sex due to drinking. Pediatrics 11 (2003): 134-41.