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Locus of Control, Addiction Severity and Motivation to Change in Persons with Alcohol Use Disorder-A Cross-Sectional Study

Dr Deepak Kumar Rout[1*], Jyotirmayee Pradhan[2], Dr Debasish Biswal[3], Dr. Jasobanta Mahapatra[4]

[1*]MBBS MD, Assistant Professor, Department of Psychiatry, Manipal Tata Medical College, MAHE, Jamshedpur, Email: deepak.rout@manipal.edu
[2]MPhil psychology, Lecture in psychology, M.Phil, Rajsunakhela College, Nayagarh.
[3]MBBS MD, Assistant professor, department of psychiatry, DRIEMS Medical College, Tangi, Cuttack.
[4]MPhil psychology, Professor & HOD, Department of clinical psychology, Scb Medical College, Cuttack.
*Corresponding Author

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ABSTRACT

Background: Alcohol use disorder becoming more prevalent claiming many adolescent, adult lives now a days with prolonged effects of cognitive disability and socio occupational impairment. Many patients presented to hospital during complication stage or withdrawal stage showing high motivation for abstinence again relapsed back with same condition as their locus of control was poor. This study aims to examine the locus of control and its correlation with motivation, readiness to change & severity of disease which was a significant predictor of relapse among those alcohol dependence patients.

Aim: To assess severity of alcoholism, locus of control and the stages of motivation in patients with alcohol use disorder. To correlate locus of control and stages of readiness to change with severity of alcoholism.

Material & Methodology: This is a cross sectional, observational study conducted in a tertiary care hospital of Cuttack, Odisha after obtaining ethical approval from 2020-21 with a sample size of eighty and participants assessed by locus of control, AUDIT & readiness to change questionnaire after obtaining informed consent. Diagnosis of alcohol dependence done on the basis of ICD 10 DCR criteria. Data compiled and statistical analysis on basis of categorical or continuous variables done. Pearson's correlation test is used for assessing relationship between two groups. $P < 0.05$ was considered statistically significant.

Results: Mean age of study participants is 32±4.6 yrs. The majority participants (70%) expressed having an external locus of control; hence, they attribute external factors to their alcohol use behavior. In terms of pattern of drinking habit 72% were showing dependence and rest are in harmful use pattern. There was a significant correlation of external locus of control with dependence pattern of alcohol use with [$r = 0.675$, $p < 0.01$]. A positive correlation $r = 0.456$, $p < 0.05$ was found between internal locus of control and action stage of readiness to change. Also, positive correlation, $r = 0.446$, $p < 0.05$ was found between dependence and contemplation stage. This indicates that addiction severity has a relationship with the contemplation stage of readiness to change.

Conclusion: Major factors responsible for relapse among alcohol dependence in view of not able to maintain abstinence are external locus of control, stages of motivation and severity level of addiction. Those with high internal locus of control are professionally managed themselves in abstinence stage but those with high external locus of control are highly vulnerable to start addiction again. So more frequent follow ups and anticraving drugs will help them to maintain abstinence.

Keywords: Alcohol Dependence, Abstinence, Contemplation, Motivation.

1. INTRODUCTION

Now a days alcohol is being addicted most commonly throughout age groups as psychoactive substance in many cultures for centuries. The dependence pattern use of alcohol will be a great burden in terms of disease, disability and has significant social and economic consequences. In India alcohol use is highly prevalent and a major public health concern. Prevalence of alcohol addiction ranges differently in between rural and urban areas with the prevalence rates are 23% to74% in males in general and 24%to48%infemalesrespectively.[1] In India, according to the National Mental Health Survey 2016, the prevalence of tobacco use disorder was 20.9 per cent, alcohol use disorder was 4.7 per cent, and drug use disorder was 0.6 per cent among the population respectively.[2] Alcohol use was so prevalent that one out of four men had consumed alcohol in past 12-month

duration with a pattern of 33.2% as hazardous drinking, 3.3% as harmful drinking and 5.5% with dependent pattern of drinking.[3] Worldwide, 3 million deaths every year result from harmful use of alcohol and it represents 5.3% of all deaths.[4]Conceptually, addiction severity relates to the strength of one's addiction. The pattern of dependence and its level of severity directly affects both physical and mental well-being. As per texts not a single organ being spared with prolonged alcohol dependence in a hazardous drinking pattern, and this results into liver cirrhosis, acute and chronic pancreatitis, cancer of organs, coronary artery disease, essential hypertension, depression, anxiety, delirium tremens, Wernicke's encephalopathy and Korsakoff's syndrome. Alcohol is also a significant risk factor in developing psychiatric diseases like anxiety, depression, suicide, acute psychosis. On basis of prevalence and fatality alcohol now became major threat to public health globally.

The locus of control construct refers to the degree to which an individual believes that the occurrence of reinforcements is contingent on his or her behavior.[5] Locus of control is a tool for assessment and prediction of health-related behaviors due to abnormal coping lifestyles activities. There are two factors which controls reinforcement expectancy known as external and internal locus. External locus of control" refers to the perception that events in an individual's life, be they positive or negative are not under their control but are related to external influences which Levenson (1972, as cited in Achterberg & Lawlis, 1990) terms "powerful others" and "chance, On the other hand, internal locus of control, represents the perception that the individual is responsible for those positive or negative events that occur in their life, and that such events are "dependent on some characteristic or quality of the person that he or she can label as skill".[5,6,7]

Motivation to change (MTC) has been described as a multidimensional, dynamic construct that represents one's openness to enter into a behavior change strategy.[8] Prochaska and DiClemente (1992) suggested the 'readiness to change or the 'Trans-theoretical stages of change model' (TTM) for addictive behavior correction, in their research on the subjects who succeeded in smoking cessation. The TTM proposes five stages of change: a) Precontemplation b) Contemplation c) Preparation d) Action e) Maintenance. [9,10] The ultimate goal of TTM is to create an action plan that will assist in preventing relapse and maintaining sobriety. Motivation is a critical dimension in influencing patients to seek, comply with, and complete treatment as well as to make successful long-term changes in their drinking.

Alcohol dependence causes physical and emotional problems and has a huge impact on family life, employment, violence, crime, and Previous studies suggested that the degree of alcohol dependence is closely related to taking action to change problematic drinking. [11,12,13] Also, patients with heavier drinking behavior or binge pattern drinking were less likely to engage in the action stage. [14,15] Therefore, there is a need to study cognitive aspects like locus of control and readiness to change in patients with alcohol use disorder to help design treatment interventions. In addition, there is a dearth of such similar studies in this geographical location. So, the present study would add to the literature in this field.

2. MATERIAL & METHODOLOGY

This is a hospital based cross sectional study carried out at a tertiary care hospital, SCB medical college, Cuttack, Odisha from October 2020 to December 2021. The study was conducted in accordance with the Declaration of Helsinki, and the protocol was approved by Institutional ethical committee vide IEC/ERB- 406/ DT 14-10-2020 of SCB medical college and hospital, Cuttack, Odisha. Participants were informed about the risks and benefits of the study. Confidentiality maintained throughout the study. Participants able to write, read and speak in Odia, Hindi and English included in this study. Participants of age group 18-65 years, males having no other organic disorder or other psychiatric comorbidity, giving written consent for participation and diagnosed as alcohol dependence as per ICD 10 DCR criteria was included in this study.

Sample size is eighty as per fisher's formula considering incidence rate of alcohol dependence 4.6% along with 10% non-responders. Participants were selected on the basis of purposive sampling method from OPD and Indoor wards.

Tools

The tools Used here are socio-demographic data Sheet for collecting details about personal, social, addiction and demographic profile of the participants. Alcohol severity with pattern of drinking assessed by alcohol Use Disorder Identification Test (AUDIT), which was a screening tool for alcohol dependent persons and developed by the World Health Organization.[16]

Drinking Related Internal-External Locus of Control scale (DRIE) was used to assess the extent and intent of control on drinking behavior by alcohol dependent. It was developed by Oziel, Obitz, and Keyson in 1972 and consists of 25 items in a forced-choice, paired format. It has cut-off point to differentiate internal locus of control (0-6 points) from an external locus of control (7-25 points) which is direct evidence to predict the effectiveness of deaddiction therapy. [17]

Readiness to Change Questionnaire (RCQ) is a 12-item scale used to assess the stages of motivation of alcohol addict patients. It is a self-assessment questionnaire. The internal consistency of the 4-item scales representing 3 stages are: Precontemplation-0.80; Contemplation-0.80; Action-0.85.[18]

Procedure

This study was conducted at Mental Health Institute (COE), S.C.B Medical College and Hospital,Cuttack with a sample size of 80 alcohol dependent patients, who were selected purposively after satisfying inclusion and exclusion criteria. The consent of the participant was taken, and confidentiality of the information was assured following which the assessment tool, Drinking Related Internal-External locus of control scale, AUDIT, and Readiness to change scale was administered. Then the data obtained from the assessment tool were coded and accordingly, quantitative evaluation of the data was conducted for result.

Statistical Analysis

The data was analyzed using Statistical Package for Social Sciences (SPSS) version 25.0 (IBM Corp., Armonk, NY, USA). Descriptive statistics used for socio-demographic and clinical data. Frequencies and percentages were used to analyze categorical variables and its statistical significance compared by using chi-square test. The mean and standard deviation (SD) were calculated for continuous variables and tested for statistical significance of two comparison groups by student's t-test. Spearman's correlation used for assessing relationship between two groups. $P < 0.05$ was considered statistically significant.

3. RESULT

In this study, a total of 80 male participants with Alcohol use Disorder were included, out of them 73.3% had basic education more than 12th standard. The mean age of study population is 32±4.6 yrs. Among all participants 66.67% were married and the majority of participants had an annual income of more than one lakh with semi urban inhabitant [Table 1]. The socio demographic variables which were categorical were analyzed by using the Chi- square test. Table 2 shows Socio-demographic Characteristics i.e., education, marital status, domicile, family type and annual income of the sample according to severity of addiction scores in Alcohol Use Disorder Identification Test (AUDIT). There was no statistically significant difference between AUDIT scores and education ($X^2 = 0.18^a$, p= 0.56), marital status ($X^2= 3.750^a$, p=0.07), domicile ($X^2 = 0.1726^a$, p= 0.42), family type ($X^2 = 2.172^a$, p= 0.15), and annual income ($X^2 = 0.579^a$, p= 0.38) except age($X^2 = 3.75^a$, p= 0.04) which shows statistically significant value.[table 2].

Table 1: Sociodemographic data:

Variables		**Number/Frequency**	**Percentage**
Age	18-35yr 36-49yr 50-65yr	37 30 13	45% 38% 17%
Mean±SD age in years		32±4.6 yrs.	
Education	≤12	24	30%
	≥12	56	70%
Marital status	Married	56	70%
	Unmarried	24	30%
Annual income	≤1lakh	32	40%
	≥1lakh	48	60%
Family type	Nuclear	44	55%
	Joint	36	45%
Domicile	Rural	24	30%
	Semiurban	28	35%
	Urban	28	35%

Table 2: Comparison of sociodemographic details with severity of dependence:

Variables		**Harmful use**	**Dependence**	**X^2**	**df**	**p-value**
Age	18-35yr 36-49yr 50-65yr	10 8 4	27 22 9	3.75	2	0.04
Education	<=12	8	16	0.18	1	0.56
	>=12	14	42			
Marital status	Married	23	33	3.75	1	0.07
	Unmarried	10	14			
Domicile	Rural	4	20	1.72	2	0.42
	Semi- urban	8	20			

	Urban	9	19			
Family Type	Nuclear	10	34	2.17	1	0.15
	Joint	12	24			
Annual income	<=1lakh	12	20	0.579	1	0.38
	>=1lakh	14	34			

Out of all participants, the majority participants (70%) expressed having an external locus of control; hence, they attribute external factors to their alcohol use behavior. In terms of pattern of drinking habit 72% were showing dependence and rest are in harmful use pattern

Table 3: Variables of locus of control, addiction severity & motivation:

Variable		**Frequency**	**Percentage**
Locus of control	Internal	24	30%
	External	56	70%
Addiction severity	Low risk	0	0
	Harmful use	22	28%
	Dependence	58	72%
Readiness to change	Precontemplation	6	8%
	Contemplation	54	67%
	Action	20	25%

The above table 3 shows that out of eighty alcohol use disorder patients, 70% expressed having an external locus of control; hence, they attribute external factors to their alcohol use behavior. No participants belonged to the low-risk group. 72% of participants had a high risk of severity belonging to the dependence group and only 28% had a moderate risk or harmful pattern of alcohol use. Lastly, 67% of the study group displayed to be in the contemplation stage of readiness to change, implying an initiative-taking to change their drinking pattern and 25% were in the action stage suggesting that they are taking steps whereas 8% were in the precontemplation stage which indicates having low readiness to change.

Table 4: Correlation analysis of locus of control and addiction severity:

		Lowrisk	**Harmful use**	**Dependence**
Internal	r	-	-0.151	-
	p-value	-	0.808	.000
External	r	-	0.196	0.675
	p-value	-	0.752	0.000

Table 4 shows correlation between locus of control and addiction severity. As per analysis there was a significant correlation of external locus of control with dependence pattern of alcohol use. A strong positive correlation, $r = 0.675$ at $p < 0.01$ was found between the external locus of control with dependence. Thus, the above findings suggest that external locus of control has a relationship with dependence level of addiction severity. There was no significant relationship between internal locus of control and addiction severity. No significant relationship was found between internal and external locus of control with the precontemplation and contemplation stage of readiness to change. There was a significant relationship of internal and external locus of control with the action stage of readiness to change. A positive correlation $r = .456$ at $p < 0.05$ was found between internal locus of control and action stage of readiness to change. Also, the scores of external locus of control and action stage are negatively correlated, $r = -.574$ at $p < 0.01$. Thus, the above findings suggest that locus of control has a relationship with readiness to change. [table 5]

Table 5: Correlation analysis of locus of control in comparison to readiness to change:

		Precontemplation	**Contemplation**	**Action**
Internal	r	0.096	-0.15	0.456
	p-value	0.614	0.42	0.011
External	r	0.094	0.22	-0.574
	p-value	0.621	0.24	0.001

Table 6: Correlation analysis of addiction severity in respect to readiness to change:

		Precontemplation	Contemplation	Action
Lowrisk	r	-	-	-
	p-value	-	-	-
Harmful use	r	0.832	0.620	0.196
	p-value	0.081	0.264	0.752
Dependence	r	-0.152	0.446	-0.109
	p-value	0.467	0.026	0.606

No significant relationship was found between low risk and harmful use with precontemplation, contemplation, and action stage of readiness to change. There was a significant relationship between dependence and the contemplation stage of readiness to change. A positive correlation, $r = .446$ at $p < 0.05$ was found between dependence and contemplation stage. This indicates that addiction severity has a relationship with the contemplation stage of readiness to change.

4. DISCUSSION

This present study was undertaken to assess the locus of control, addiction severity, and motivation to change in persons with alcohol use disorder. Secondly, to find out the relationship of the subject's locus of control, the severity of addiction, and their motivation to change. 80 persons with alcohol use disorder responded to DRIE, AUDIT, and Readiness to change questionnaire. Since the total score had a significance value (p-value) of less than 0.05 using the Shapiro Wilk test the data was not normally distributed. The participants have no significant difference in the basic education, marital status, domicile, and socioeconomic status as per their severity of the addiction.

In this present study we found major participants (72%) showing dependence pattern of alcohol use and rest are harmful use with regards to addiction severity. In other studies dependence pattern showed by less percentage of participants and they could not establish any correlation with demographic status.[19] One explanation for this can be that the study was conducted in patients who were coming for treatment having some associated health risk due to alcohol addiction.

Locus of Control and Motivation to Change

On correlating variables of locus of control and stages of motivation among alcohol dependent patients, we found person with high internal locus of control identifies their alcohol problem and show motivation to action stage in controlling problematic drinking behavior. At the same time, persons with high external locus of control lead to more dependence pattern of drinking and less likely to show any motivation for behavioral change. This type of finding correlates with many previous studies. [20,21,22]

Addiction Severity and Motivation to Change

In our study out of all participants 72% (58) dependent level and 28% (22) are in harmful use with nil in low-risk category. Comparing addiction severity with stages of motivation we found that the persons with high severity (dependent category) shown high motivation in both identifying problem and effectively compliant towards treatment for readiness to change. This finding was not in accordance to finding in study conducted by Zhang et al 2004, in which it was opined that severe alcohol dependence patients have poor motivation in compliance.[23] We got different results might be due to our sampling method as we recruited participants from hospital setting and these patients are already getting worst outcome from alcohol dependence, so mostly all are in contemplation stage. According to the Trans theoretical model, in the contemplation stage patients perceive the severity of their problematic drinking and begin to consider changing but are not determined to take action to change indicated that when treatment fails, it is often attributed to the patient's lack of readiness to change.[24] In contrast to other category i.e. harmful use persons there is no significant correlation with motivation to change. These people are mostly in the precontemplation stage and least motivated to shift to the action stage. As per few studies severity is correlated with the cost of change; there are more perceived benefits in the taking action stage than in the contemplation stage. [9,10] On all above the patients are more effectively managed with proper compliance when they understand disadvantages of continuing drinking. Thus, providing treatment appropriate to the stage of change is an important strategy for a successful treatment outcome. But creating or enhancing ambivalence is still an important step in fostering contemplation of change. Decreasing conflicting feelings from one's awareness and making efforts to reduce ambivalence can help patients prepare for readiness to change.

5. CONCLUSION

The present study concludes that high alcohol-dependent patients had attributed their problematic drinking to external factors, and they acknowledge that they have problems related to drinking and are more likely to want

help to prevent it from worsening. However, patients with an external locus of control were, in general, less likely to recognize their problem and less likely to change drinking patterns. Therefore, this subset of severe alcohol-dependent patients with an external locus of control would benefit most if their locus was shifted to internal because readiness to make changes in them would be strengthened.

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