

# Assessment of Level of Motivation, Locus of Control and their Associated Factors among Alcohol Dependent Males: A Longitudinal Study

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## ABSTRACT

**Introduction:** Alcohol dependence is a major health problem across the globe. Relapses are a characteristic feature of Alcohol Dependence Syndrome (ADS) with various factors studied to identify the ideal management options. Motivation levels are a reflection of an individual's readiness to act on a new healthy behaviour. Locus of control reflects individuals' beliefs about the degree of control they exert over their life events.

**Aim:** To assess the motivation level and locus of control in alcohol dependent males and determining their relationship with successful recovery.

**Materials and Methods:** This hospital-based, longitudinal study was conducted at the Psychiatry Ward of a Tertiary Care Medical College and Hospital, Puducherry, India. Total 150 adult males, who fit the criteria for alcohol dependence as per International Classification of Diseases (ICD-10) were included in the study. The Motivation level and the locus of control were assessed by the application of Readiness to Change Questionnaire and Rotter's Locus of Control scale. Categorical data were presented as frequency and proportions. The Fisher's-exact test was

used to evaluate differences between groups for categorised variables.

**Results:** Total 150 patients were recruited for the present study, the mean age was 37±5.6 years. Overall, 94 (62.7%) participants had their first drink at 18 to 24 years of age and 64 (42.7%) participants reported onset of dependence at the age of 26-30 years. Overall, 70 (46.7%) participants were in the precontemplation level of motivation, as assessed by the Readiness to Change Questionnaire. A majority (n=126, 84%) of the cases had an external locus of control and a majority of lapses happened during 1<sup>st</sup> and 2<sup>nd</sup> months of the study. Age and educational status were found to have statistically significant association with motivation. Level of education, socio-economic class, motivation, pattern of drinking and locus of control had statistically significant association with lapsed cases.

**Conclusion:** The locus of control of an individual, motivation level, and the pattern of drinking serve as prognosticators of lapse in patients with ADS. Individuals with poor motivation to change and those with an external locus of control require intensive follow-up and specific intervention programmes to prevent relapse.

**Keywords:** Behavioural disorder, Drinking pattern, Substance abuse

## INTRODUCTION

Alcohol use disorders are a group of disorders marked by compulsive, heavy use of alcohol along with loss of control over the intake of alcohol. The high prevalence of alcohol use disorders notwithstanding, adequate treatment is not provided partly due to the stigma associated with alcohol use and insufficient screening in healthcare settings [1]. Alcohol dependence is a major health problem across the globe [2]. According to the National Mental Health Survey (NMHS) of India 2015-2016, prevalence of alcohol use disorders in India was 9% [3]. Relapses are a characteristic feature of Alcohol Dependence Syndrome (ADS) with various factors studied to identify the ideal management options [4]. Relapse is the return to regular abuse of alcohol subsequent to a period of abstinence. Timely relapse prevention measures can be instituted for those at high risk of early relapse [2]. Relapse is dynamic and determined by a complex interaction between biological, psychological and social factors [5].

The transtheoretical model of behaviour change assesses an individual's readiness to act on a new healthy behaviour and provides the processes of change to guide the individual through the stages of change to action and maintenance. Precontemplation, contemplation, preparation, action and maintenance are the five stages that lead to successful change [6]. Recognising that patients vary in their readiness to change, researchers have shown increased interest in the concept of motivation and its role in management of alcohol dependence.

Locus of control is a variable that reflects individuals' beliefs about the degree of control they exert over their life events [7]. Individuals with an internal locus of control believe that the events in their life derive primarily from their own actions, whereas people with external locus of control tend to attribute their life events to external factors like chance or others' actions [8].

There is a paucity of literature assessing the motivation level and locus of control in alcohol dependent individuals, and evaluating their relationship with successful recovery. The present study aims to fill this gap, particularly in an Indian setting. Previous studies have shown that people with alcohol use disorders seeking treatment vary in their levels of motivation to change. Locus of control has been demonstrated as a predictor of duration of abstinence [9-11]. The study was conducted at Puducherry, India, since it is a popular tourist destination in south India and the alcoholic beverages are relatively cheaper in price due to lower taxation rates, compared to other parts of India. Due to easy accessibility and affordability of alcohol, consumption of alcohol is high and ADS is a significant problem in Puducherry, India. The present study aimed to assess motivation level and locus of control in alcohol-dependent males and identify their association with lapse in such a setting.

## MATERIALS AND METHODS

This hospital-based, longitudinal study was conducted in a Tertiary Care Medical College and hospital, Puducherry, India, among 150

alcohol dependent males, admitted from January 2016 to April 2016 to the Psychiatry Ward. Sample collection was done after obtaining IEC approval (SMVMCH/DAO/AL/392/2014). Before initiation of the study, informed consent has been obtained in the local language from the study participants.

**Inclusion criteria:** Consenting males belonging to the age group of 18 to 65 years and resident of Puducherry, India, who fit the criteria for alcohol dependence as per International Classification of Diseases (ICD-10) [12], admitted in the Psychiatry ward were included in the study.

**Exclusion criteria:** Patients with complicated alcohol withdrawal, with co-morbid psychiatric disorders were excluded from the study.

### Study Procedure

The motivation level and locus of control were assessed on the first day of admission by the application of following scales:

1. Readiness to Change Questionnaire, which is a 12-item questionnaire with subjects choosing one among the following responses: strongly disagree, disagree, unsure, agree, strongly agree [13].
2. Rotter's Locus of Control, which is a 29-item scale, with each question having two possible responses [14].

Motivation enhancement therapy was given after the application of the scales in the psychiatry ward and also during subsequent follow-up visits in Psychiatry Outpatient Department (OPD). Four sessions were given for each patient, once every 15 days. Each session lasted 15-60 minutes and was given by a psychiatrist. The psychiatrist administering the first session for a patient, was assigned the same patient for subsequent sessions.

Following discharge, the patients were advised to report at Psychiatry OPD for follow-up, once every 15 days. Those who did not turn up for two consecutive follow-ups were contacted by telephone. Patients who couldn't be reached by telephone were paid a personal home visit, once every three months. As there were no specific markers to reliably identify lapses, patient's self-reporting was corroborated with attender's history. A patient who has started drinking again was marked as lapsed and the duration of abstinence was noted.

### STATISTICAL ANALYSIS

Data entry was done in Microsoft Excel software and analysis was done using Statistical Package for the Social Sciences (SPSS) software version 24.0. Categorical data were presented as frequency and proportions. The Fisher's-exact test was used to evaluate differences between groups for categorised variables. All tests were performed at a 5% level of significance, thus, an association was considered significant, if the p-value was less than 0.05.

### RESULTS

The mean age of the population was 37±5.6 years. Majority of study participants were in the age group 31-35 years (32%), followed by 35-40 years (29.30%) [Table/Fig-1]. Overall, 45.3% of the participants had studied up to middle school and majority of the participants (41.3%) belonged to socio-economic class II, as per the updated BG Prasad classification [15]. About 62.7% of the participants had their first alcohol consumption at 18 to 24 years of age and about 42.7% of the participants reported onset of dependence at the age of 26-30 years. About 46.7% of the participants were in the precontemplation level of motivation, while only 8% were in the action stage, as assessed by the readiness to change questionnaire. A majority of the cases, who were admitted for alcohol dependence had an external locus of control (84%) [Table/Fig-2]. About 24% of the study participants

Characteristics	n (%)
<b>Age (years)</b>	
26-30	16 (10.7)
31-35	48 (32)
36-40	44 (29.3)
41-45	28 (18.7)
46-50	12 (8)
51-55	2 (1.3)
Mean±SD age in years	37±5.6
<b>Marital status</b>	
Married	130 (86.7)
Unmarried	20 (13.3)
<b>Socio-economic class</b>	
Class I	56 (37.3)
Class II	62 (41.3)
Class III	26 (17.3)
Class IV	6 (4)
<b>Level of education</b>	
Illiterate	18 (12)
Primary	28 (18.7)
Middle	68 (45.3)
Secondary	26 (17.3)
Higher Secondary	8 (5.3)
Undergraduate	2 (1.3)
<b>Age at first drink (in years)</b>	
12-14	6 (4)
15-17	28 (18.7)
18-24	94 (62.7)
≥25	22 (14.7)
<b>Age of onset of dependence (in years)</b>	
21-25	10 (6.7)
26-30	64 (42.7)
31-35	50 (33.3)
36-40	26 (17.3)

[Table/Fig-1]: Demographic details and chronology of alcohol use.

Characteristics	n (%)
<b>Motivation</b>	
Precontemplation	70 (46.7)
Contemplation	46 (30.7)
Preparation	22 (14.6)
Action	12 (8)
<b>Locus of control</b>	
Internal	24 (16)
External	126 (84)

[Table/Fig-2]: Motivational level of the study participants.

followed abstinence during the entire period of study i.e., six months. Majority of lapses happened during 1<sup>st</sup> and 2<sup>nd</sup> month [Table/Fig-3].

Age and educational status were found to have statistically significant association with motivation [Table/Fig-4]. Level of education, socio-economic class, motivation, pattern of drinking and locus of control had statistically significant association with lapsed cases [Table/Fig-5]. Age and education had a statistically significant association with locus of control [Table/Fig-6]. Motivation to quit and duration of abstinence had a statistically significant association with marital status, but other factors of alcohol dependence had no statistically significant association with marital status [Table/Fig-4,5].

Characteristics	n (%)	n (%)
Duration	Followed abstinence	Lapsed
Less than 1 month	136 (90.7)	14 (9.3)
Completed 1 to <2 months	110 (80.8)	26 (17.3)
Completed 2 to <3 months	84 (76.3)	26 (17.3)
Completed 3 to <4 months	60 (71.4)	24 (16)
Completed 4 to <5 months	48 (80)	12 (8)
Completed 5 to <6 months	36 (75)	12 (8)
Completed 6 months	36 (100)	0

[Table/Fig-3]: Month-wise lapsed cases among study participants (N=150).

Variables	Motivation				p-value
	Pre-contemplation n (%)	Contemplation n (%)	Preparation n (%)	Action n (%)	
<b>Age group (years)</b>					
26-30	6 (37.5)	4 (25)	6 (37.5)	0	0.001*
31-35	24 (50)	14 (29.2)	6 (12.5)	4 (8.3)	
36-40	16 (36.4)	20 (45.4)	4 (9.1)	4 (9.1)	
41-45	20 (71.4)	4 (14.3)	4 (14.3)	0	
46-50	4 (33.3)	4 (33.3)	2 (16.7)	2 (16.7)	
51-55	0	0	0	2 (100)	
<b>Marital status</b>					
Married	58 (44.6)	44 (33.8)	20 (15.4)	8 (6.2)	0.035*
Unmarried	12 (60)	2 (10)	2 (10)	4 (20)	
<b>Socio-economic class</b>					
Class I	28 (50)	16 (28.6)	6 (10.7)	6 (10.7)	0.259
Class II	22 (35.5)	24 (38.7)	12 (19.4)	4 (6.4)	
Class III	16 (61.5)	6 (23.1)	2 (7.7)	2 (7.7)	
Class IV	4 (66.7)	0	2 (33.3)	0	
<b>Level of education</b>					
Illiterate	12 (66.7)	0	4 (22.2)	2 (11.1)	0.001*
Primary	18 (64.3)	6 (21.4)	4 (14.3)	0	
Middle	34 (50)	28 (41.2)	4 (5.9)	2 (2.9)	
Secondary	6 (23.1)	10 (38.5)	8 (30.8)	2 (7.6)	
Higher secondary	0	2 (25)	2 (25)	4 (50)	
Undergraduate	0	0	0	2 (100)	

[Table/Fig-4]: Association between motivation and demographic factors of the study participants.

\*p-value <0.05 was considered statistically significant (Fischer's-exact test)

Variables	Lapsed cases n (%)						p-value
	<1 month (n=14)	Completed 1 to <2 months (n=26)	Completed 2 to <3 months (n=26)	Completed 3 to <4 months (n=24)	Completed 4 to <5 months (n=12)	Completed 5 to <6 months (n=12)	
<b>Marital status</b>							
Married	12(11.8)	20 (19.6)	24 (23.5)	24 (23.5)	12 (11.8)	10 (9.8)	0.085
Unmarried	2 (16.7)	6 (49.9)	2 (16.7)	0	0	2 (16.7)	
<b>Socio-economic class</b>							
Class I	4 (10.5)	6 (15.8)	10 (26.3)	12 (31.6)	0	6 (15.8)	0.001*
Class II	4 (7.5)	12 (22.2)	12 (22.2)	10 (18.5)	12 (22.2)	4 (7.5)	
Class III	6 (33.4)	4 (22.2)	4 (22.2)	2 (11.1)	0	2 (11.1)	
Class IV	0	4 (100)	0	0	0	0	
<b>Level of education</b>							
Illiterate	4 (28.6)	6 (42.8)	2 (14.3)	0	0	2 (14.3)	0.036*
Primary	4 (14.3)	6 (21.4)	8 (28.6)	4 (14.3)	4 (14.3)	2 (7.1)	
Middle	4 (8.3)	10 (20.8)	14 (29.2)	14 (29.2)	4 (8.3)	2 (4.2)	
Secondary	2 (10)	4 (20)	2 (10)	4 (20)	4 (20)	4 (20)	
Higher secondary	0	0	0	2 (50)	0	2 (50)	

## DISCUSSION

The present study highlights the influence of the level of motivation and locus of control on the duration of abstinence. Motivation influences patients to seek and comply with treatment, thereby playing a crucial role in the treatment of ADS. Internal locus of control has been associated with better treatment results than those with external drinking related control beliefs [16]. Therefore, those with an external locus of control may require more intensive therapeutic interventions to maintain abstinence.

In the present study, about 46.7% of the participants were in the precontemplation level of motivation, while only 8% were in action stage, as assessed by the Readiness to Change Questionnaire. Prochaska JO et al., identified the following stages in the process of behavioural change-precontemplation (i.e., not yet considering change), contemplation (i.e., considering change but not taking action), preparation (i.e., planning to change), action (i.e., making changes in one's behaviour), and maintenance (i.e., changing one's lifestyle to maintain new behaviour) [17]. A study conducted by DiClemente C et al., revealed that the majority of the participants seeking treatment for alcohol related problems were in the precontemplation stage, with progressively decreasing numbers in higher levels of motivation [18]. Individuals with lower motivation levels are more vulnerable to problematic alcohol use and frequent relapses. Hence, such persons are more likely to present to healthcare settings with physical and psychological problems associated with alcohol dependence.

A majority of cases who were admitted for alcohol dependence had an external locus of control. The finding is consistent with study conducted by Prakash O et al., that used locus of control scale to determine if an individual had an external or internal locus of control. Although, a different scale was used, Prakash O et al., found that alcohol-dependent individuals display a higher external locus of control than normal population [19]. Since, those with internal locus of control believe that events are primarily influenced by their own actions, rather than external factors, such individuals are less likely to rationalise their alcohol use by attributing them to external events. Therefore, persons with internal locus of control are less vulnerable to alcohol dependence, which could explain the above finding.

This study found that lower the level of readiness to change (motivation) in an individual, greater is the risk of early lapse. The finding is consistent with study conducted by Senn S et al., which concluded that higher level of readiness to change, is a predictor of abstinence [20]. A person at a higher level of readiness to change is more likely to recognise the harmful consequences of alcohol use and remain abstinent for longer periods.

Motivation							
Precontemplation	14 (24.1)	26 (44.9)	18 (31)	0	0	0	0.001*
Contemplation	0	0	8 (21.1)	24 (63.1)	6 (15.8)	0	
Preparation	0	0	0	0	6 (33.3)	12 (66.7)	
Pattern of drinking							
Binge	14 (17.9)	26 (33.3)	26 (33.3)	12 (15.5)	0	0	0.001*
Non binge	0	0	0	12 (33.33)	12 (33.33)	12 (33.34)	
Locus of control							
Internal	0	0	0	0	4 (40)	6 (60)	0.001*
External	14 (13.6)	26 (25)	26 (25)	24 (23.1)	8 (7.7)	6 (5.6)	

**[Table/Fig-5]:** Association between lapsed cases and factors influencing lapse.

\*p-value <0.05 was considered statistically significant (Fischer's-exact test)

Variables	Locus of control		p-value
	Internal	External	
Age (years)			
26-30	6 (37.5)	10 (62.5)	0.001*
31-35	8 (16.7)	40 (83.3)	
36-40	6 (13.6)	38 (86.4)	
41-45	0	28 (100)	
46-50	2 (16.7)	10 (83.3)	
51-55	2 (100)	0	
Level of education			
Illiterate	6 (33.3)	12 (66.7)	0.001*
Primary	0	28 (100)	
Middle	4 (5.9)	64 (94.1)	
Secondary	6 (23.1)	20 (76.9)	
Higher secondary	6 (75)	2 (25)	
Undergraduate	2 (100)	0	

**[Table/Fig-6]:** Association between locus of control and demographic factors of the study participants.

\*p-value <0.05 was considered statistically significant (Fischer's-exact test)

The findings in the present study suggest that those with an external locus of control were prone to early lapse, while those with internal locus of control remained abstinent longer. Similar results were observed in a study conducted by Dahal P et al., [21]. A study conducted by Saini DS concluded that, internal locus of control is implicated in positive treatment outcome [22]. Those with external locus of control are likely to attribute their alcohol consumption to external factors like peer pressure, family conflict, work pressure, etc. Those with internal locus, who believe that events are due to their own actions are more likely to take responsibility for harmful consequences of alcohol consumption, thereby, remaining abstinent for longer duration.

The findings in the present study suggest that binge drinkers lapse sooner, while non binge drinkers remained abstinent for longer duration of time. A systematic review conducted by Lannoy S et al., demonstrated emotional deficits in binge drinkers [23]. A systematic review by Lees B et al., concluded that binge drinkers were vulnerable to neurobiological and cognitive deficits [24]. These findings explain, why binge drinkers tend to have poorer treatment outcomes and lapse sooner than non binge drinkers.

The present study reveals that lower motivation levels, external locus of control and binge drinking are associated with early lapse. The findings in the present study conducted in Puducherry, India, are consistent with the results from studies conducted in other parts of the world. These findings enable us to identify patients, who are vulnerable to early lapse and offer them targeted therapeutic interventions.

## Limitation(s)

The present study was done on small scale with patients attending a tertiary care hospital due to the limitation of resources. Large scale multicentric mixed method studies are required to know about the actual status of condition, across the country.

## CONCLUSION(S)

The study revealed that level of education, socio-economic class, higher levels of readiness to change and internal locus of control were having significant association with duration of abstinence. The locus of control of an individual, motivation level, and the pattern of drinking serve as prognosticators of relapse in patients with ADS. Individuals with poor motivation to change and those with an external locus of control, require intensive follow-up and specific intervention programmes to prevent relapse. Qualitative research works are recommended to explore and understand the locus of control, in detail.

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