Emotion Regulation in Persons with Alcohol Dependence Syndrome and the Moderating Role of Awareness and Insight

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***Abstract*- Introduction:** Alcohol dependence is marked by impaired control over alcohol consumption, prioritizing alcohol consumption over other activities, and persisting despite harm or negative consequences. It is therefore possible for subjective cravings or urges to consume alcohol to occur, as well as physiological dependence, which can include tolerance to alcohol's effects, withdrawal symptoms after cessation or reduction in alcohol consumption, or repeated consumption of alcohol in order to alleviate withdrawal symptoms.

Aim: The aim of this cross-sectional prospective study was to examine the impact of specific emotion regulation strategies on the severity of alcohol dependence, with a particular focus on the moderating effect of alcohol use awareness and insight.

Sample: A total of 80 participants (n = 80) receiving treatment in Hyderabad were assessed using the Emotion Regulation Questionnaire (ERQ), the Severity of Alcohol Dependence Questionnaire (SADQ), the Alcohol Craving Questionnaire (ACQ), and the Alcohol Use Awareness and Insight Scale (AAS).

Results: A significant correlation was found between the degree of alcohol dependence/craving and the intensity of emotion regulation. Cognitive reappraisal has a negative correlation with dependence/craving severity, whereas expressive suppression has a positive correlation, while awareness and insight of alcohol use are negatively correlated with expressive suppression, dependence severity, and craving. There was a significant correlation between cognitive reappraisal and expressive suppression when it came to severity and craving. Furthermore, alcohol use awareness and insight moderated the effect of expressive suppression on craving in a significant manner.

Conclusion: As a result of these findings, it is important to enhance alcohol use awareness and insight to promote positive emotion regulation strategies so that dependence severity and craving can be reduced. There is potential for future research to replicate the study with a larger sample size, employ more objective emotion regulation measures, investigate additional moderators, and integrate interventions that aim to improve illness awareness and insight in the future.

***Index Terms*-** Alcohol Dependence Syndrome, Emotion Regulation, Severity, Awareness and Insight

I. Introduction

The disorder of alcohol dependence is caused by repeated or continuous drinking of alcohol. It consists primarily of an internal drive to consume alcohol. Alcohol dependence manifests itself as impaired control of alcohol consumption, increased priority given to alcohol usage over other activities, and persistence despite harm or negative consequences. As a result, subjective cravings or urges to use alcohol may be present, and physiological dependence may also be present, such as tolerance to alcohol's effects, withdrawal symptoms after cessation or reduction in alcohol use, or repeated consumption of alcohol or pharmacologically similar substances to relieve withdrawal symptoms. In addition to the signs and symptoms of dependence persisting for at least twelve months, the diagnosis may also be made if alcohol use continues for at least one month (ICD-11, 2022). Patients with chronic medical conditions like diabetes, asthma, migraines, chronic pain, and insomnia are more likely to become dependent on alcohol. It is common for elderly people to self-medicate in order to ease the painful or uncomfortable symptoms associated with chronic medical conditions. The presence of chronic pain and insomnia is more frequently associated with alcohol dependence (Sheppes & Gross 2011). Thus, smoking cessation is a key component of treating alcohol dependence (Chavan et al., 2007), and peer drinking is a significant source of increased pressure. However, peer group pressure alone is not sufficient to explain adolescent alcohol use (McRae et al., 2017). Adolescent alcohol use leads to increased violence, antisocial behavior, lowered tolerance levels, and rising anger, leading to urban rage, and the desire to be popular among peers, conforming to certain norms, and the availability of alcohol makes individuals vulnerable to using alcohol (Petit et al., 2015). It has been found that alcohol dependence is associated with high-risk behavior, but only a few studies have demonstrated their direct relationship (Thiruchselvam et al., 2011). Alcohol consumption and high-risk behavior decreased during Shravana

(Hindu) and Ramadan (Muslim), suggesting that vices are directly or indirectly associated with these periods.

People's attempts to control emotions are defined as time-limited, situationally bound, and balanced (positive or negative) states. In comparison with its historical predecessors, ER includes up- and down-regulation of positive and negative emotions as a result of regulatory goals (Braunstein, Gross, & Ochsner, 2017; Khosravani et al., 2018). Individuals who require regulation experience a shift in motivation from regulating emotions to acquiring rewarding experiences as long as the need for regulation persists. Consequently, attention is more focused on cues that indicate immediate reward, which leads to increased substance use. In addition, individuals with alcohol and drug use disorders have more significant deficits in emotional regulation compared to those without. Cross-sectional correlational studies have found that worse substance use is associated with more significant deficits in emotion regulation (Dörfel et al., 2014; Weiss et al., 2022). Emotional regulation affects substance use treatment outcomes in clinical research (Griswold et al., 2018) and in cognitive behavioural treatment for alcohol use deficits predict alcohol use (Borges et al., 2017). A person with depression, anxiety, bipolar mood disorder, schizophrenia, panic disorder, social phobia, post-traumatic stress disorder, attention deficit hyperactivity disorder, or borderline personality disorder is at increased risk of alcoholism (Kessler et al, 1997). Alcohol-related depressive and anxiety symptoms are usually secondary to drinking (Schuckit, 1986) and subside when alcohol consumption is reduced. Different factors influence how much and how often people consume alcohol. These factors include environmental, financial, cultural, and availability factors. Analyzing these factors will give helpful information for implementing and enforcing policies comprehensively to reduce alcohol consumption.

Finally, there is evidence that emotional dysregulation may contribute to the development and maintenance of alcohol use disorders by increasing alcohol cravings. Research has shown that the neural circuits associated with regulating craving in alcoholics are also involved in regulating other emotions (Kober et al., 2010; Swerdlow 2020). The Emotion Regulation abilities of cravings were therefore assessed. Considering that response modulation has been linked to negative affect (Gross, 2015; Gross and John, 2003) often associated with cravings, one might conclude that this type of emotional regulation strategy is crucial to increasing cravings and maintaining alcohol use disorders. There has been an increase in alcoholism in recent years, which is the most common drug addiction. An individual's awareness and insight determine whether they consume alcohol or are alcohol dependent, or whether they abstain. The severity of dependence and craving is determined by emotion regulation and alcohol use awareness and understanding.

METHODOLOGY

The aim of this study is to analyze whether the type of emotion regulation strategy predicts the severity of alcohol use and craving in individuals with alcohol dependence syndrome, as well as whether awareness and insight moderate the causal relationship between alcohol use and craving.

Specific Objectives:

1. To understand the relation between emotion regulation strategies and alcohol dependence severity in patients.
2. To examine the relationship between emotion regulation strategies and cravings in patients with alcohol dependency.
3. In path analysis, determine if alcohol use awareness-insight moderates the relationship between emotion regulation strategies and alcohol dependence severity.
4. In path analysis, determine whether alcohol use awareness and insight moderate the relationship between emotion regulation strategies and cravings in patients with alcohol dependence.

Hypotheses:

1. A negative relationship exists between the cognitive reappraisal type of emotion regulation strategy and the severity of alcohol dependence
2. A cognitive reappraisal type of emotion regulation strategy is negatively associated with craving.
3. Expression suppression is a type of emotion regulation strategy that is positively associated with alcohol dependence severity.
4. The expressive suppression type of Emotion regulation strategy positively predicts craving. 5. The alcohol use awareness-insight moderates the relationship between Emotion regulation strategies and the severity of alcohol dependence.
6. The alcohol use awareness-insight moderates the relationship between Emotion regulation strategies and craving.

Sample:

A purposive sampling method was applied to obtain 80 males between the ages of 20 and 60 years from the two rehabilitation and de-addiction centers in Hyderabad. Individuals above 20 years of age with alcohol dependence who are abstinent (for at least three months) and consent to participate are included in the study. The study excluded individuals who depend on substances other than alcohol and tobacco, or who suffer from significant medical, psychiatric, or neurological disorders.

TOOLS:

1. **Emotion Regulation Questionnaire (ERQ)**

The Emotion regulation questionnaire by Gross, J.J., & John, O.P. (2003) incorporates a self-report measure and a 7-point Likert scale with ten items in two facets (Cognitive Reappraisal and Expressive Suppression) to examine a person's ability to regulate their emotions. ERQ cognitive reappraisal (alpha = 0.89 – 0.90) and expressive suppression (alpha = 0.76 – 0.80); Internal consistency is acceptable to excellent range.

2. **The Severity of the Alcohol Dependence Questionnaire (SADQ)**

In order to assess the severity of alcohol dependence, the Maudsley Hospital Addiction Research Unit developed the Severity of the Alcohol Dependence Questionnaire (SADQ). This questionnaire contained 20 items, measured physical withdrawal symptoms, affective withdrawal symptoms, withdrawal relief drinking, alcohol consumption, and rapid reinstatement. A score of 16 to 30 showed “moderate dependence”. A score of below 16 indicated only a mild physical dependency. It has high test-retest reliability and has been found to have good construct and concurrent validity (Stockwell, Murphy, & Hodgon, 1983).

3. **Alcohol Craving Questionnaire (ACQ-SF-R)**

The alcohol Craving Questionnaire (ACQ-SF-R) by Singleton is a self-reported and 7-point-Likert scale with 12 items in 4 subscales used to assess craving for Alcohol among alcohol users in the

current context. It has a reliability of moderate to strong factor (0.75- 0.97) and subscale (0.77-0.86).

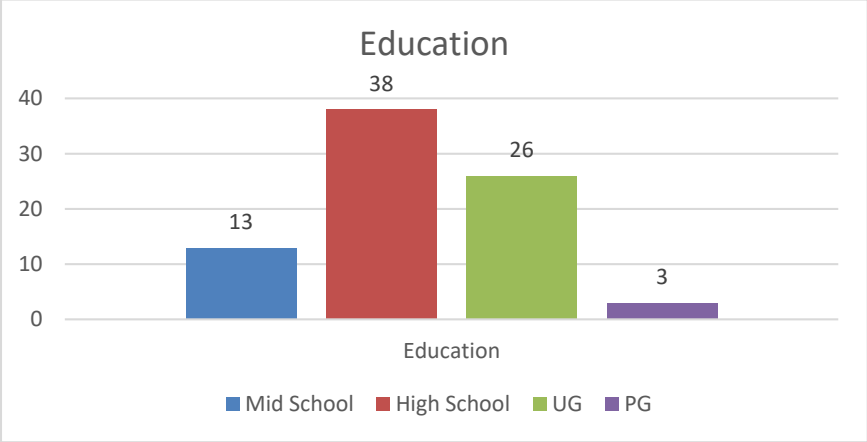
4. Alcohol Use Awareness and Insight Scale (AAS)

The Alcohol Use Awareness and Insight Scale (AAS) developed by Julia Kim is a self-report measure with 7 items in 4 categories used to assess illness awareness & insight in people with alcohol use disorders. It has a good convergent validity (r=0.88, p<0.001), good discriminant validity and internal consistency (Cronbach's alpha = 0.89), and a good Test-retest reliability (intraclass correlation = 0.84).

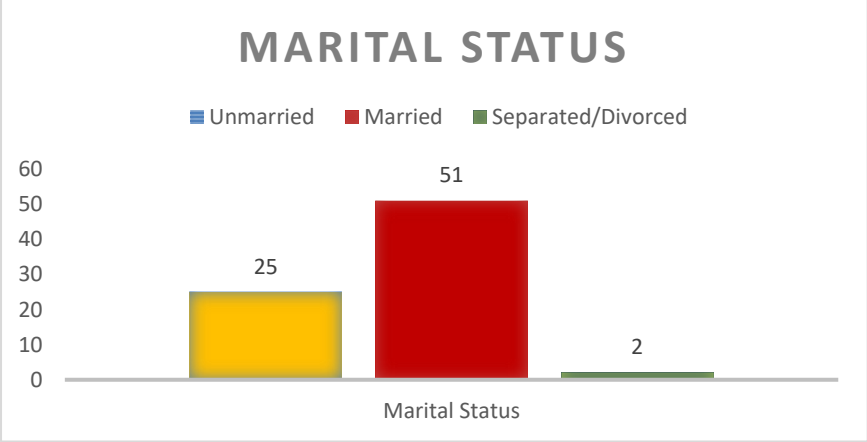
Procedure:

In the demographic datasheet, the following items were included, name, age, and profession, and informed consent was obtained from the participants. The study selected participants who met the criteria for alcohol dependence, as defined in ICD-10. Participants were asked to complete the Emotion Regulation Questionnaire, the Severity of Alcohol Dependence Questionnaire, the Alcohol Craving Questionnaire, and the Alcohol Use Awareness and Insight Scale individually. Following the completion of data collection, all collected data was scored according to the instructions of each tool, and the data was analyzed in light of the study's objectives and hypotheses.

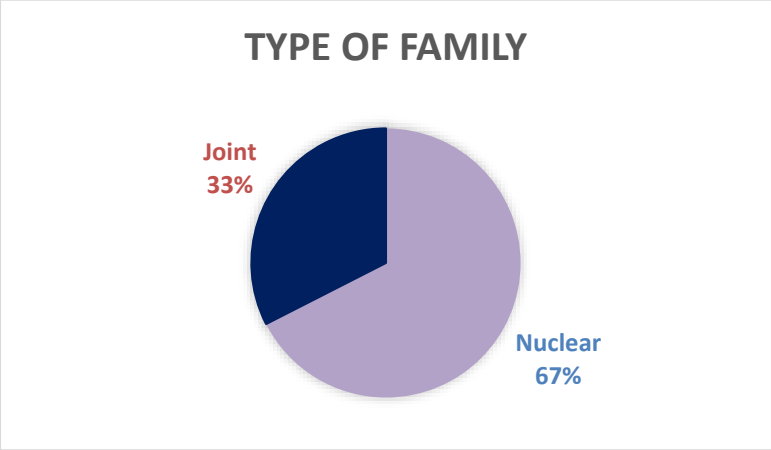
II. RESULTS AND DISCUSSION



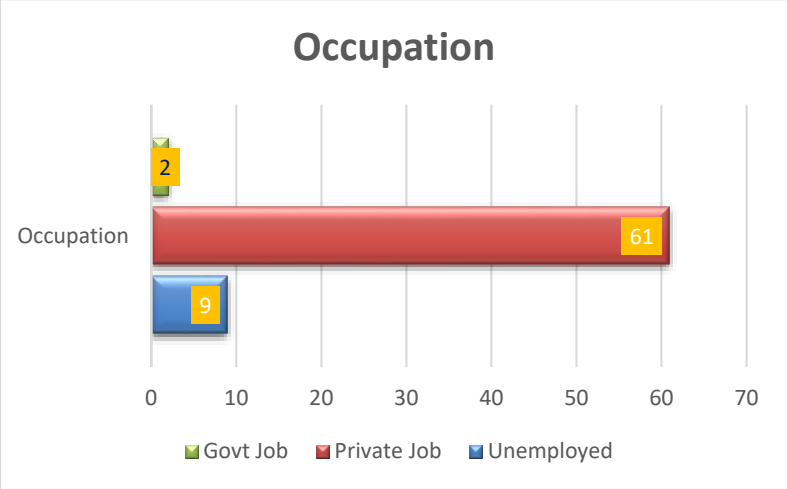
Graph-1: Gives education background of the participants



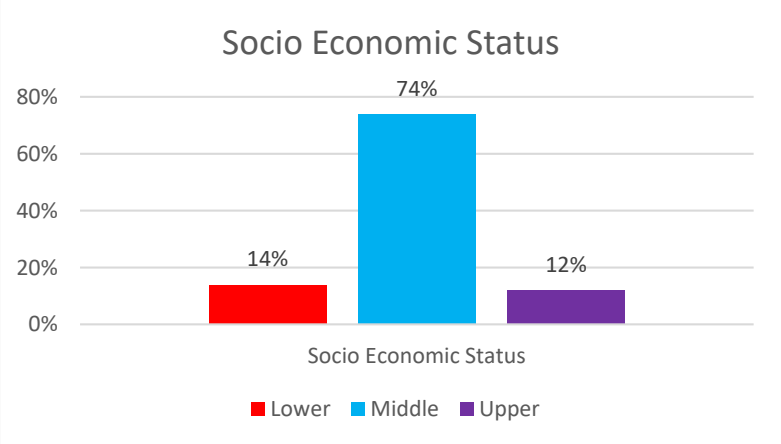
Graph-2: Gives marital stauts of the participants



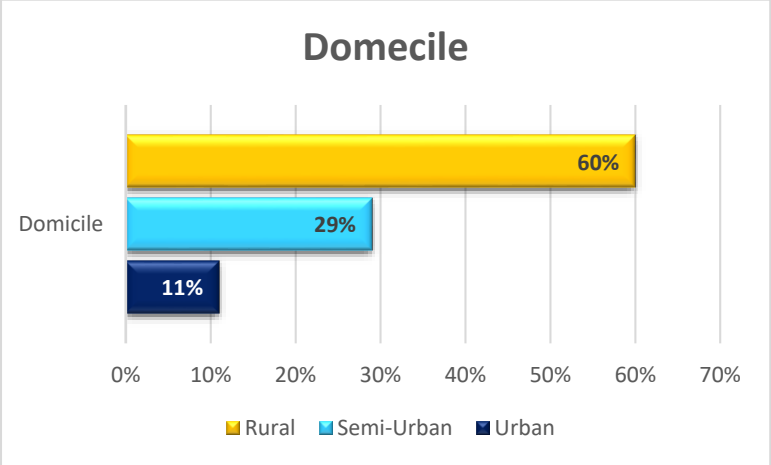
Graph-3: Gives family background of the participants



Graph-4: Gives occupational background of the participants



Graph-5: Gives socio-economic status of the participants

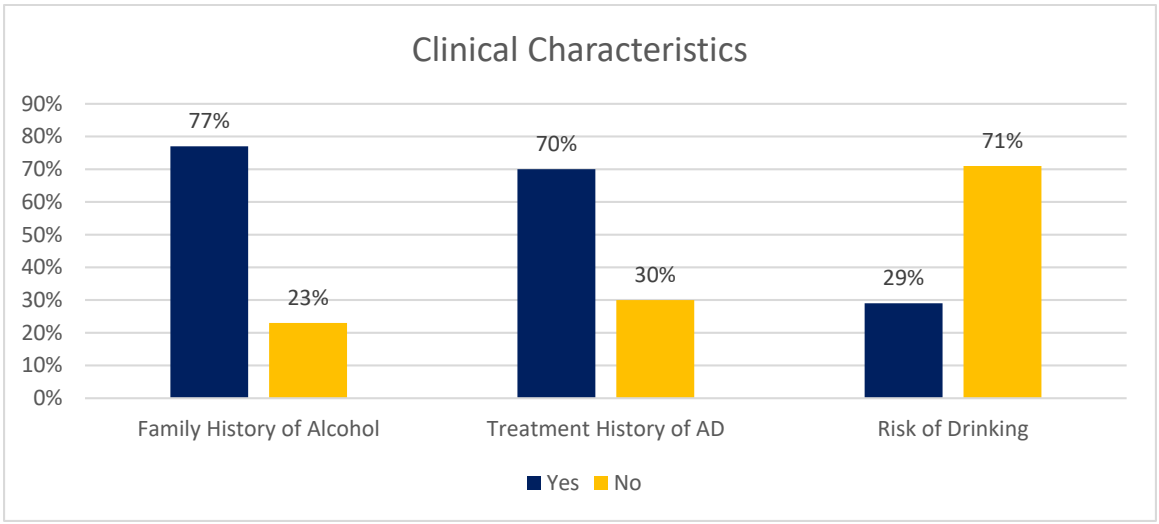


Graph-6: Gives domicile background of the participants

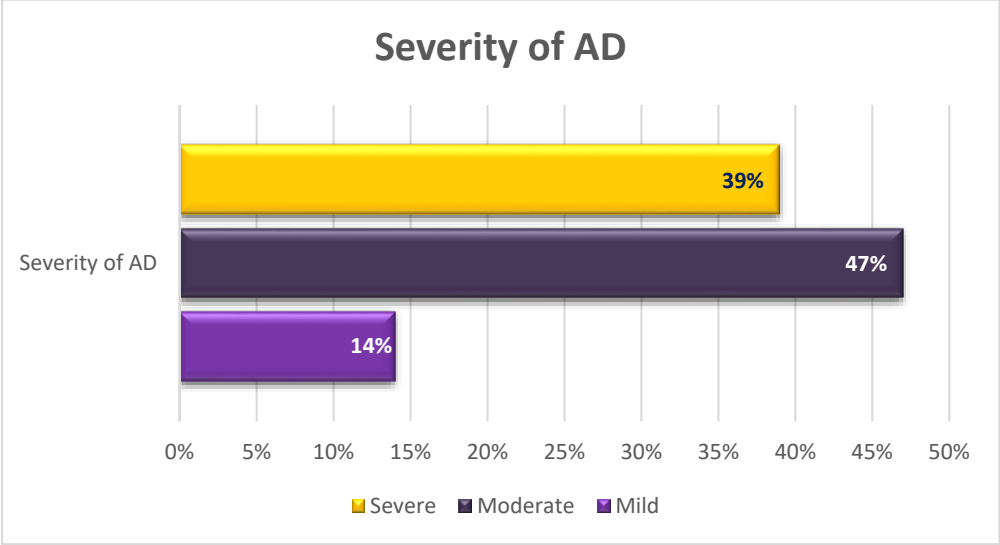
The socio-demographic characteristics of the study sample are depicted in graphs 1-6. According to the results, the sample was found to have a mean age of 37.7 years and a mean number of relapses of 4.4, respectively. In addition, most of the participants had a high school education (47.5%), were from urban backgrounds (60%) and lived in nuclear families (67%). Most of the sample was married (63.7%), working as a Private employee (76.3%), and belonging to a middle SES (74%).

Clinical Characteristics of the Study Sample

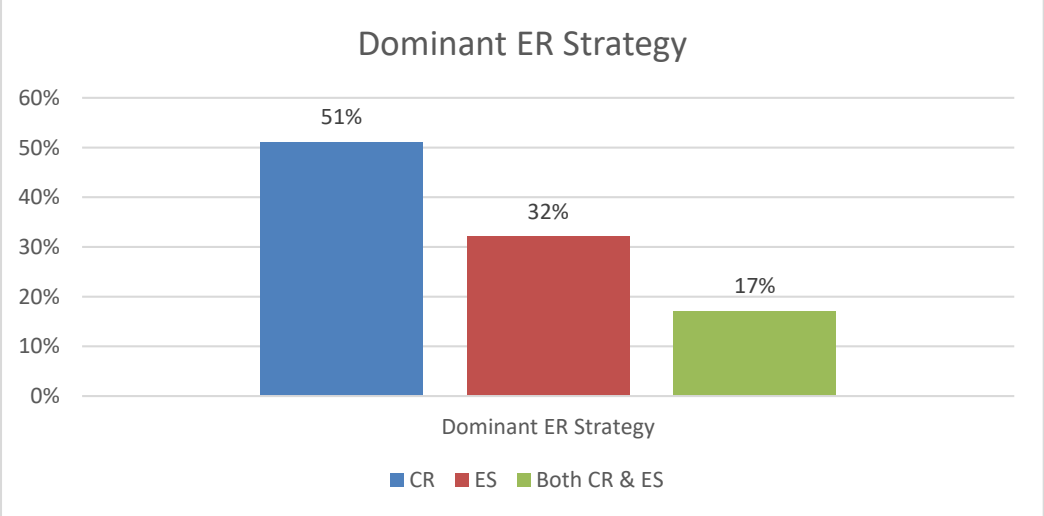
These graphs 7-9 provide an overview of the clinical characteristics of the sample family history of alcohol use, alcohol treatment history, number of relapses, levels of alcohol dependence, dominant emotion regulation strategies, abstinence period in months, and risk of drinking.



Graph-7: Gives clinical Characteristics of the participants



Graph-8: Gives Severity of Alcohol Dependency



Graph-9: Gives ER strategy of the participants

The graphs indicate that most participants are risky drinkers having a moderate level of alcohol dependence with the dominant ER strategy being cognitive reappraisal. Many participants have an inpatient treatment history and a family history of alcoholism. The participants' mean number of relapses and abstinence periods are 4.40 and 3.89, respectively.

Table-1 Gives mean, SD and Correlation among Key Study Variables

Variables	*M* (*SD*)	Age	Ab. P	No.of R	CR	ES	Severity	Craving	AI
Age	37.73 (10.04)	1							
Ab. P.	3.89 (1.03)	.50	1						
No. of R.	4.40 (2.33)	.157	-.539**	1					
CR	5.08 (1.16)	-.021	.292**	-.211	1				

ES	4.37 (1.40)	.038	-.670**	.830**	-.284*	1			
Severity	27.64 (10.66)	.052	-.636**	.840**	-.247*	.944*	1		
Craving	3.35 (1.13)	.039	-.699**	.825**	-.274*	.977**	.919**	1	
AI	5.16 (1.27)	.026	.109	-.173	.085	-.323**	-.336**	-.333**	1

* $p < .05$; ** $p < .01$; Ab. P. = Abstinence Period. No. of R. = Number of Relapses. CR = Cognitive Reappraisal. ES = Expressive Suppression. AI = Awareness and Insight.

According to Table 1, most variables are significantly correlated (p 0.05 and p 0.01), and Cognitive Reappraisal is associated with Emotional Suppression, Severity of Alcohol Dependence, and Craving for Alcohol. Severity and cravings have a significant positive correlation with expressive suppression, while alcohol awareness & insight show a significant negative correlation. As a consequence, the severity of alcohol dependence and cravings has a significant negative correlation with alcohol use awareness and insight. In accordance with these findings, an increase in the use of cognitive reappraisal strategies resulted in a decrease in alcohol dependence and craving severity. Also, an increase in the use of expressive suppression strategies resulted in a greater severity of alcohol dependence. In addition, a greater awareness and understanding of alcohol use illness decreased the severity of alcohol dependency and cravings.

Table-2: Gives Regression Analysis of Association between the Emotion Regulation Strategies, Severity, Craving and Number of Relapses.

Variable - Model	R^2	*B*	SE	t	*P*
1. CR → Severity	.061	-2.256	1.003	-2.248	.027
2. ES → Severity	.890	7.164	.285	-2.802	.000
3. CR → Craving	.075	-.264	.105	-2.512	.014
4. ES → Craving	.954	.781	.019	40.127	.000
5. CR → No. of Relapses	.045	-.422	.221	-1.907	.060
6. ES → No. of Relapses	.690	1.379	.105	13.163	.000

Note. CR – Cognitive Reappraisal; ES – Expressive Suppression.

In the model 1 of table 2, 6.1% of the variance in severity can be explained by Cognitive Reappraisal (CR) as the predictor variable, and severity of alcohol dependence (Severity) as the criterion variable. With every unit increase in CR, there was a decrease in severity of 2.256 units.

It was found that 89% of the variance in severity of alcohol dependence could be explained by expressive suppression (ES) and severity of alcohol dependence (Severity) as the criterion variable. Each unit increase in ES resulted in a 7.164 unit increase in severity, as shown in model 2 of table 2.

The predictor variable was cognitive reappraisal (CR), while the criterion variable was craving for alcohol (Craving), and model 3 of table 2 demonstrated that 7.5% of the variance in craving can be explained by CR, and that craving decreased by 0.264 units with every unit increase in CR.

In this study, Expressive Suppression (ES) was used as a predictor variable and Craving for alcohol was used as a criterion variable. Model 4 of table 2 indicates that 95.4% of the variance in Craving is explained by ES and with an increase of one unit in ES, Craving increased by one unit.

Cognitive reappraisal (CR) was used as a predictor variable and the number of alcohol relapses (No. Of Relapses) was used as a criterion variable. According to model 5 of table 2, 4.5% of the variance in Number of Relapses can be explained by CR, and each unit increase in CR reduced the number of relapses by 0.422 units. The predictor variable was Expression Suppression (ES) and the criterion variable was number of relapses. As shown in model 6 of table 2, 69% of the variance in the number of relapses could be explained by Expression Suppression (ES); there was a 1.379 unit increase in craving scores for each unit increase in ES.

Table-3: Multiple Regression on Moderating Role of Awareness and Insight on the Association between Emotion Regulation and Alcohol Dependence

Model	R^2	*B (p-values)*		
		IV	*MV*	*Intercept*
Model 1	.161	-2.032 (.000)	-2.681 (.040)	.133 (.825)
Model 2	.893	7.098 (.000)	-.425 (.232)	-.235 (.266)
Model 3	.178	-.228 (.027)	-.272 (004)	-.055 (.459)
Model 4	.963	.780 (.000)	-.048 (.032)	-.054** (.000)
Model 5	.717	1.449 (.000)	.106 (.402)	-.156* (.036)

Model 1

An examination of the relationship between IV and DV - the severity of alcohol dependence (Severity) based on awareness and insight of alcohol use illnesses (AI) was conducted. In Model 1 of Table 3, we observed that for each unit increase in cognitive reappraisal, there was a 2.03 unit reduction in severity. In the study, for every unit increase in awareness and insight there was a 2.681 decrease in severity, and awareness and insight did not moderate the relationship between cognitive reappraisal and severity.

Model 2

It is important to take into account the role that Alcohol Use Illness Awareness and Insight (AI) plays in the relationship between IV - Expressive Suppression (ES) and DV - Severity of Alcohol Dependence (Severity) and, as can be seen in Model 2 of

Table 3, with every unit increase in ES, there is an increase in SAD by 7.098 units. With every unit increase in AI, there was a .425 unit decrease in the SAD. AI did not moderate the relationship between ES and SAD.

Model 3

A systematic review is underway to investigate the role of alcohol use illness awareness and insight (AI) in the relationship between IV - Cognitive reappraisal (CR) and DV - Craving in model 3 from Table 3. In this study, it was found that for every unit increase in cognitive reappraisal, a 0.228 unit decrease was seen in craving. The percentage decrease in craving was 0.272 units for every unit increase in awareness and insight and it did not seem to moderate the relationship between cognitive reappraisal and craving for every unit increase in awareness and insight.

Model 4

In this model 4, there is an interaction between IV - Expressive suppressions (ES) and DV - Cravings that were affected by the level of alcohol use illness awareness and insight (AI), and we can see that there was a 0.780 unit increase in craving for every unit increase in expressive suppressions (ES). Each unit increase in awareness and insight was associated with a reduction of 0.048 units of cravings and Awareness and insight moderated the relationship between expressive suppression and cravings, which was significant at a $p<0.000$ level.

Model 5

It has been found that awareness and insight about alcohol use illness (AI) have a significant impact on the relationship between IV - Expressive suppression (ES) and DV - Number of relapses (No. Relapses) as shown in model 5 of table 3, there was a 1.449 unit increase in the number of relapses for every unit increase in expressive suppression. It has been found that every unit increase in awareness and insight also led to a 0.106 unit increase in the number of relapses. Additionally, Awareness and insight moderated the relationship between expressive suppression and the number of relapses at a significant level of $p<0.05$.

Alcoholism in a biological family member is a strong positive predictor of alcoholism in other members of the family. Family history of alcoholism and certain sociocultural factors are also associated with increased risk for alcohol use disorders. In addition to earlier onset of drinking (Davis & Levine, 2013) and more severe symptoms of alcoholism (Morawetz et al, 2017), it has been associated with more severe symptom profiles of alcoholism. Most of these individuals (77%) have a history of alcohol abuse in their family and are moderately to severely dependent on alcohol (86%), with around 71% of them falling within the Risky drinking range. These results support the above-mentioned theory. It has been known that response modulation is associated with the type of negative affect (2015; Gross and John, 2003) often associated with craving, and one of the findings of the present study supports this finding. The relationship between expressive suppression and craving is highly significant, and expressive suppression accounts for approximately 95% of the variance in craving. The results of the current study indicate that cognitive reappraisal was the predominant emotion regulation strategy in alcohol-dependence patients. However, the results indicate that response modulation and cognitive change (Cognitive Reappraisal) were significantly more common.

Among individuals with alcohol use disorders, impaired illness awareness can prevent them from seeking treatment. It is common for individuals to discontinue treatment programs prematurely despite seeking treatment for alcohol use disorders (Probst et al, 2015). As a result, treatment adherence, rehabilitation, and clinical outcomes (Kim, et al., 2021) such as the severity of alcohol dependence and craving can be negatively impacted. It has been demonstrated in the current study that alcohol use awareness and insight are significantly negatively correlated with severity and craving. Based on the results of all the above-mentioned studies, the regression analysis indicates significant effects for both the types of emotion regulation strategies (cognitive reappraisal and expressive suppression) in predicting the severity of alcohol dependence and craving.

The selection of reappraisal is influenced by several psychological mechanisms, including decision-making processes, in which the need for regulation is balanced with anticipated success, cognitive costs associated with implementing candidate strategies (Milyalvsky et al., 2019), and an interest in engaging with the emotional aspects of the situation to be controlled (Sheppes et al., 2015). This research endeavors to understand whether awareness and insight about alcohol use have a moderating effect on the relationship between emotion regulation and the severity of alcohol addiction and craving. A significant 96.3% variation in expressive suppression and craving was found to be moderated by alcohol use awareness and insight. Also, it moderated the relationship between expressive suppression and relapses, with a total variation of 71.7% due to the interacting variable.

It is concluded that the findings of this study indicate that alcohol use awareness and insight moderate the relationship between emotional regulation and the severity of alcohol dependence and craving. The relationship between expressive suppression and craving as well as the number of relapses is significantly moderated by alcohol use awareness and insight. In contrast, expressive suppression and severity were not moderated, nor was cognitive reappraisal moderated with severity, craving and relapse frequency. Nevertheless, both cognitive reappraisal and expressive suppression have a positive impact on outcome variables (the degree of alcohol dependence and craving). The results of this study emphasize the importance of using positive emotion regulation strategies, such as cognitive reappraisal, to facilitate an effective recovery process and prevent relapses in individuals suffering from alcohol dependence. According to these results, expressive suppression can increase the severity of dependence and craving in individuals with alcohol dependence, which can further lead to relapse. In order to reduce the severity of dependence and craving, an increase in alcohol awareness and insight may facilitate the selection of a positive Emotion Regulation strategy.

III. IMPLICATIONS OF THE STUDY

Patients with alcohol dependence should be identified with respect to the type of emotion regulation strategy they are using so that appropriate psychological interventions can be planned to improve their emotion regulation, thereby improving their treatment outcome.

IV. LIMITATIONS OF THE STUDY

- In the study presented here, the sample size was rather small (n = 80) and the sample consisted of alcohol dependents from just two centers in Hyderabad, making it insufficient to be able to generalize the results.
- The measures used were self-reports, and there is a possibility of confounding because few participants questioned whether the outcomes of the measures would affect their discharge from the center. Despite this, the researcher made sure that all the participants were knowledgeable about the research process.

Suggestions for Future Research

- It would be possible to replicate the study on a larger scale and with a more representative population since it was limited to alcohol dependents located throughout the country.
- In future studies, a more objective tool to assess Emotion regulation may be used, like the Emotion regulation Interview, to determine how individuals regulate their emotions.
- It is possible that future studies will look at other moderators of emotional regulation and their role in the severity of alcohol dependency and subsequent treatment
- Interventions emphasizing illness awareness and insight can be incorporated into the management plan since awareness and insight about alcohol use moderated the relationship between emotion regulation and the severity of alcohol dependence and craving.

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