

Comparative Study

A Comparative Study of Cognitive Reappraisal, Expressive Suppression and Alexithymia Among Patients with Substance Dependence

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ABSTRACT

Individuals often employ Cognitive Reappraisal and Expressive Suppression as emotional regulation strategies to manage and respond to emotional experiences effectively. The correlation between these strategies and Alexithymia may play a role in cases of Substance Dependence. The current study endeavours to comprehend the adaptive and maladaptive employment of emotion regulation strategies by patients with Substance Dependence and their relationship with Alexithymia. This study adopts a cross-sectional design with a retrospective approach, examining 60 samples out of which 30 male patients diagnosed with various forms of substance dependence and comparing them with 30 male individuals without substance dependence selected from the general population through the Purposive Sampling Method. Data collection involved the use of standardized tools, including the CAGE-AID, General Health Questionnaire (GHQ-12), Emotion Regulation Questionnaire (ERQ), and Toronto Alexithymia Scale (TAS-20). The results of independent t-test analyses unveiled significant differences between the two groups concerning the utilization of Cognitive Reappraisal, Expressive Suppression strategies, and Alexithymia. Moreover, Pearson Correlation Analysis highlighted a significant relationship among Cognitive Reappraisal, Expressive Suppression, and Alexithymia within the cohort of patients with Substance Dependence. These findings provide valuable insights into the emotional regulation mechanisms and emotional awareness in individuals affected by substance dependence, underscoring the complex interplay between cognitive processes and emotional experiences in this population.

Keywords: *Cognitive Reappraisal, Expressive Suppression, Alexithymia, Substance Dependence*

Substance use disorders are a major focus of public health efforts. The highest prevalence of substance use is associated with alcohol, followed by cannabis and opioids. Alcohol use stands out as the most widespread, affecting 4.6% of the population, with a significant gender difference (17 males for every female). Cannabis use follows at 2.8%, and opioid use is reported at 2.1%. In terms of harmful and dependent usage,

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Received: October 27, 2023; Revision Received: December 26, 2023; Accepted: December 30, 2023

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19% of alcoholics drink at harmful and dependent levels, whereas just 0.25 % of cannabis users consume at dangerous and dependent levels. A mere 2.1% of the population has acknowledged the use of opioids, encompassing 1.14% for heroin, 0.96% for prescription opioids, and 0.52% for opium. Notably, the predominant pattern observed is dependent use. It's worth noting that the rate of opioid abuse in India is three times higher than the global average (Ambekar et al., 2019). Substance abuse and mood disorder have been linked in both clinical and epidemiological research. Recent research has shown that those with mood disorder are more likely to also struggle with drug abuse. Even in the absence of affective disorders, research has connected substance abuse to a variety of problems with feeling and expressing emotions (Cheetham et al, 2010; Kring & Werner, 2004).

There is considerable evidence, both anecdotal and empirical, indicating a relationship between negative affect and substance dependency. One way to think about this relationship is that people who often experience intense feelings of distress are more likely to resort to self-medicating with substances like food or drink (Mohajerin et al, 2013). Numerous theoretical frameworks and research studies have sought to elucidate the concept of emotion regulation. Gross's (1998) definition was the most widely used at the time; it referred to the "process by which individuals influence which emotions they have, when they have them, and how they experience and express these emotions" (Gross, 1998). In order to achieve one's objectives, "emotional regulation" may be thought of as "the extrinsic and intrinsic processes responsible for monitoring, evaluating, and modifying emotional reactions, especially their intensive and temporal features" (Thompson, 1994).

Individuals employ diverse strategies to regulate their emotions, each of which influences their current mental and social well-being. Although many diverse methods exist for controlling one's emotions, Garnefski et al. (2002) stated that certain methods are more malleable than others and so more likely to lead to positive outcomes in terms of well-being and adaptive behavior. Cognitive Reappraisal and Expressive Suppression are two often used methods for emotional control (Gross, 1998). Expressive Suppression, by inhibiting activity in response to emotional arousal, lessens emotional expression (Gross, 1998). Emotionally valenced stimuli are reinterpreted in neutral terms via a process called "reappraisal" (Speisman et al, 1964). It's the practice of finding less stressful ways of looking at or thinking about a difficult circumstance (Gross, 1998). Beliefs concerning which emotions are acceptable and which are not (Kelly & Gross, 2010) are perhaps especially crucial for psychopathology to reevaluate. Negative effect was mitigated by both reappraising the situation and blocking off emotional cues. Those who have trouble controlling their feelings may turn to alcohol as a coping mechanism, according to models of alcohol misuse (Kenneth & Emily, 2007).

Thorberg and colleagues (2009) suggested a association between alexithymia and substance use disorders. Early studies indicated a high prevalence of alexithymia (40-50%) among individuals diagnosed with alcohol misuse or dependence (Thorberg et al., 2009; Uzun et al., 2003). Research by El Raasheed (2001) revealed that heroin addicts with alexithymia reported more polysubstance abuse, increased use of opiates (aside from heroin), and higher benzodiazepine abuse compared to non-alexithymic individuals, aligning with similar studies highlighting the prevalence of alexithymia in those with illicit drug abuse. Studies also demonstrated higher rates of alexithymia in heroin addicts in comparison to controls (Payer et al., 2011; Hamidi et al., 2010). Bulai and Enea (2016) found that alcohol abusers exhibited significantly higher alexithymia levels compared to cannabis users, smokers, and control

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subjects in their study involving three different addictive groups. Additionally, Ghalehban and Besharat (2011) reported that individuals with substance dependence had markedly elevated TAS-20 scores compared to their healthy counterparts.

In meta-analysis, Pignoni et al. (2019) explored the relationship between non-suicidal behavior, risky drinking, and alexithymia. They found that higher TAS-20 scores were linked to increased non-suicidal behavior and risky drinking. Younger adults (those under 30) showed a more pronounced correlation. Another correlation between EOT and hazardous drinking was seen, although EOT was not linked to non-suicidal behavior. Thorberg et al. (2009) studied alcoholics with alexithymia to assess whether there was a relationship between the two conditions. The comprehensive review, comprising 24 studies spanning from 1973 to 2008, revealed that individuals with alcohol-related issues exhibited a higher prevalence of alexithymia compared to control groups. Additionally, the study identified a positive correlation between the presence of alexithymia and both risky alcohol consumption and severe alcohol-related problems. In addition, the Northern Finland Birth Cohort 1986 study by Patwardhan et al. (2019) found that no domain of alexithymia was directly associated with substance use disorder (without specifying what drug the subjects have used) in adulthood, suggesting that more research is required to determine whether or not alexithymia is a trait that predisposes to alcohol or substance abuse.

In the case of substance dependence the Emotion regulation strategies such as Cognitive Reappraisal and Expressive Suppression plays a significant role. According to Marlatt (1996) alcohol use and relapse have been linked to difficulties in emotion regulation and the resulting disruptions in interpersonal relationships. A fundamental element in the maintenance of alcohol-related problems is underlying desire, which may play a significant role in the dysregulation of emotions (Kamboj et al, 2023). Those who score high on the alexithymia scale are more likely to use maladaptive emotion regulation strategies than those who score lower on the scale (Swart & Aleman, 2009). In 2015, Laloyaux et al. investigated the association between alexithymia and a variety of Emotion Regulation Strategy. The study's findings linked alexithymia with Expressive Suppression, particularly difficulties expressing feelings in emotions. A study done by Ghorbani et al. (2017) revealed that patients with alcohol dependence reported higher levels of alexithymia as well as on Expressive Suppression emotion regulation strategy.

Aim of the study

The aim of this study is to investigate and compare the Cognitive Reappraisal, Expressive Suppression, and Alexithymia among patients diagnosed with Substance Dependence in comparison to Non-substance Dependence individuals. By exploring these emotion regulation strategies and their relationship with alexithymia in the context of substance dependence, this research aims to contribute to a deeper understanding of the emotional processing mechanisms in individuals struggling with substance dependence. The study seeks to provide valuable insights that can inform therapeutic interventions and support strategies for individuals dealing with substance dependence.

METHODOLOGY

Objectives

1. To examine the difference in Cognitive Reappraisal Emotion Regulation Strategy between Patients with Substance Dependence and Non-Substance Dependent Individuals.

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2. To examine the difference in Expressive Suppression Emotion Regulation Strategy between Patients with Substance Dependence and Non-Substance Dependent Individuals.
3. To examine the difference in Alexithymia between Patients with Substance Dependence and Non-Substance Dependent Individuals
4. To examine the relationship among Cognitive Reappraisal, Expressive Suppression, and Alexithymia between Patients with Substance Dependence and Non-Substance Dependent Individuals

Hypotheses

1. There will be significant difference in Cognitive Reappraisal Emotion Regulation Strategy between patients with Substance Dependence and Non-Substance Dependent Individuals.
2. There will be significant difference in Expressive Suppression Emotion Regulation Strategy between patients with Substance Dependence and Non-Substance Dependent Individuals.
3. There will be significant difference in Alexithymia between patients with Substance Dependence and Non-Substance Dependent Individuals.
4. There will be significant relationship between Cognitive Reappraisal, expression suppression, Alexithymia and Severity of Substance Dependence among patients with Substance Dependence.

Operational Definition of the Variables

1. ***Cognitive reappraisal (CR)*** refers to a cognitive process involving the reinterpretation of situations that may have the potential to elicit emotions, with the aim of altering their emotional significance (Lazarus & Alfert, 1964).
2. ***Expressive suppression (ES)***: Emotional suppression is a strategy used to control one's reactions by consciously restraining the outward display of emotions as they arise (Gross, 1998).
3. ***Alexithymia***: Sifneos (1994) and Taylor et al. (1997) characterized alexithymia as a personality trait that encompasses a broad deficiency in the cognitive processing of emotions, specifically how individuals perceive and communicate their emotional experiences. Alexithymia is a psychological construct characterized by the following observable behaviors and traits:
 - ***Difficulty Identifying Feelings (DIF)***: Individuals with alexithymia have trouble recognizing and distinguishing their emotions. They may struggle to pinpoint specific feelings they are experiencing and might confuse emotions with physical sensations.
 - ***Difficulty Describing Feelings (DDF)***: People with alexithymia find it challenging to put their emotions into words or describe them to others. They often resort to vague terms like "good," "bad," or "fine" when asked about how they feel.
 - ***Externally Oriented Thinking (EOT)***: People with alexithymia tend to focus more on external events and concrete, observable facts rather than their internal emotional experiences.

Participants and Research Design

The study was conducted in Jaipur District. This study adopts a cross-sectional design with a retrospective approach and is a quantitative study. The study involved 30 male patients diagnosed with various forms of substance dependence and 30 male individuals without

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substance dependence selected from the general population through the Purposive Sampling method. The study was conducted from June to August 2023.

Clinical Group

Inclusion Criteria:

1. Patient age group of 18-40yrs
2. Only Male Patients
3. Patient diagnosed with Substance Dependence as per ICD-10 or DSM-V
4. The Patients who provide consent for the study will be included
5. Patients who possess the capability to read and comprehend both English and Hindi languages.

Exclusion Criteria:

1. Those patients with general severe medical illness and organicity.
2. Those Patients with comorbid severe psychiatric illness such as Schizophrenia, BPAD, OCD or Somatization disorder
3. Those Patient with comorbid neuropsychiatric disorder such as Demetia, Delirium and Alzheimer's disease.

Non-Clinical Group:

Inclusion Criteria:

1. Participants age group of 18-40yrs
2. Only Male Participants
3. Those participants scored less than 3 on GHQ-12
4. The participants who provide consent for the study will be included.
5. Participants who possess the capability to read and comprehend both English and Hindi languages.

Exclusion Criteria:

1. Those Participants with general severe medical illness and organicity.
2. Those Participants with comorbid psychiatric illnesses such as Depression, Anxiety, Schizophrenia, BPAD, OCD or Somatization disorder
3. Those Participants with comorbid neuropsychiatric disorders such as dementia, Delirium and Alzheimer's disease.
4. Those Participants with the history of Substance Abuse or Dependence

Tools administered: The following tools were used in the present study:

1. **Socio Demographic Sheet:** A self-made semi-structured socio-demographic sheet consists of age, Gender, Religion, Marital Status, Education, Locality, duration of consumption of substance etc.
2. **General Health Questionnaire (GHQ-12)-** The 12-Item General Health Questionnaire (GHQ-12) is widely recognized as a primary screening tool for assessing common mental health problems and general psychiatric well-being. It was developed by British scholar Goldberg in 1988. The GHQ-12 was used in our study to rule out any psychological distress among individuals with non-substance dependence.
3. **CAGE-AID:** The scale was adapted from CAGE scale utilized to determine the level of alcohol consumption consists of 4 questions like the CAGE scale. It was developed by Brown et al, 1998 expanded to apply for substances in addition to alcohol (CAGE-Adapted to Include Drugs). CAGE-AID scale adapted for drug use focuses more on

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addiction and has been reported not to detect problematic or risky use in non-dependent individuals. It has sufficient criterion validity and has been used in different settings (Brown et al, 1998).

- 4. Toronto Alexithymia Scale (TAS 20):** Bagby et al. (1994) developed the self-report Toronto Alexithymia Scale (TAS-20) to assess the presence of alexithymia. Difficulty describing feelings (DDF), difficulty identifying feelings (DIF), and externally oriented thinking (EOT) are the three subscales that make up the TAS-20. A score of 51 shows the absence of alexithymia, 61 indicates the presence of alexithymia, and 52–60 indicates the possibility of alexithymia. The scale has been successfully repeated in both clinical and general populations, demonstrating high levels of reliability and validity.
- 5. Emotion Regulation Questionnaire (ERQ):** The Emotion Regulation Questionnaire (ERQ) was created by Gross and John (2003) to evaluate the utilization of two commonly employed emotion regulation strategies. This questionnaire comprises 10 items that specifically address CR and ES. Participants are asked to rate each item on a 7-point Likert scale, ranging from strongly disagree (01) to strongly agree (07). The ERQ is a self-report measure that can be completed within a timeframe of 5 to 10 minutes. The reliability of the CR subscale was found to be 0.79, while the ES subscale demonstrated a reliability of 0.73 (Gross & John, 2003).

The procedure of the Study

The sample comprised a total of 60 participants, with 30 diagnosed with Substance Dependence according to ICD-10 criteria, and the remaining 30 drawn from the general population using the Purposive Sampling Method. After providing a detailed explanation of the study's purpose and obtaining informed consent from all participants, the patients diagnosed with Substance Dependence underwent assessments using the CAGE-AID questionnaire, the Toronto Alexithymia Scale (TAS-20), and the Emotion Regulation Questionnaire (ERQ). Conversely, non-substance-dependent individuals were first screened for psychological distress using the GHQ-12 questionnaire. Those scoring less than 3 on GHQ-12 were then further assessed using TAS-20 and ERQ. This method ensured a comprehensive evaluation of participants' Cognitive Reappraisal and Expressive Suppression emotional regulation strategies and alexithymia levels, allowing for a robust comparative analysis between the Substance-dependent and Non-Substance Dependent groups.

Statistical Procedures:

Data was analysed using IBM Statistical Package for social sciences (SPSS) 22 version & analysis of the data was done in line with the hypotheses. Normality of the data, mean, standard deviation, Pearson's product moment correlation and Independent T-Test were calculated. Correlation was used to measure the strength & direction between variables. Independent T-Test was used to check the difference between patients with Substance Dependence and Non-substance Dependent individuals.

RESULTS

In this section, we present the results of our study, which aimed to explore the relationship between Cognitive Reappraisal, Expressive Suppression, and Alexithymia in individuals with Substance Dependence in comparison to those without substance dependence. The analysis of the collected data corroborates the Hypotheses formulated at the outset of our research. To facilitate a comprehensive understanding of the study findings, we will interpret the results in accordance with the initial hypotheses posited in the introduction. The demographic and

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clinical characteristics of the sample are detailed in Table 1. Correlational analyses were performed on the variables of interest.

Table 1: Demographic and Clinical Characteristics of both the Group Participants

<i>Sample Characteristics</i>	<i>Substance Dependence</i>				<i>Non-Substance Dependence</i>			
	<i>f</i>	<i>%</i>	<i>M</i>	<i>SD</i>	<i>f</i>	<i>%</i>	<i>M</i>	<i>SD</i>
Age			31.2	5.94			28.7	2.43
Gender								
Male	30	100			30	100		
Family Type								
Joint	15	50			26	13.3		
Nuclear	15	50			4	86.7		
Education								
Primary	5	16.7						
High School	11	36.7						
Graduation	12	40.0			7	23.3		
Post-Graduation	2	6.7			23	76.7		
Occupation								
Govt.	1	3.3						
Private	12	40			8	26.7		
Student	2	6.7			22	73.3		
Agriculture	13	43.3						
Business	2	6.7						
Marital Status								
Married	18	60			9	30		
Single	11	36.7			21	70		
Divorced/Separated	1	3.3						
Socio Economic Status								
LSES	9	30			1	3.3		
MSES	21	70			28	93.3		
HSES					1	3.3		
Locality								
Rural	17	56.7			18	60		
Urban	10	33.3			12	40		
Semi-Urban	3	10						

Note. N=60 (n=30 for each group)

Hypotheses 1: There will be significant differences in Cognitive Reappraisal Emotion Regulation Strategy between patients with Substance Dependence and Non-Substance Dependent Individuals.

In order to test the H1, the independent t-test was performed, and the findings are outlined in the Table 2. The study findings indicated that the mean value for individuals without substance dependence (31.96±6.40) was higher than that of patient with substance dependence (24.80±9.21), indicating a significant difference in the use of Cognitive Reappraisal emotion regulation strategy between the two groups (t=-3.498, p=0.001). Therefore, the H1 has been accepted at the 0.01 level of significant.

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Hypotheses 2: There will be significant difference in Expressive Suppression Emotion Regulation Strategy between patients with Substance Dependence and Non-Substance Dependent Individuals.

The results of the independent t-test used to verify the H2 are shown in Table 2. The results showed a significant difference in the use of the Expressive Suppression strategy for emotion regulation between the two groups ($t=2.276$, $p=0.027$), with the Substance Dependence patient exhibiting a higher mean value (21.03 ± 4.99) than the individuals without substance-dependent (17.83 ± 5.86). With a significance level of 0.05, the H2 is therefore accepted.

Hypotheses 3: There will be significant difference in Alexithymia between patients with Substance Dependence and Non-Substance Dependent Individuals.

To examine Hypotheses 3 (H), an independent t-test was performed, and the results are summarized in Table 2. The analysis revealed that the mean value of Alexithymia, was significantly higher among patients with substance dependence (61.70 ± 16.10) compared to individuals without substance dependence (45.43 ± 11.14) which indicates that there was a significant difference in Alexithymia between the two groups ($t=4.54$, $p=0.000$). Furthermore, upon conducting additional analyses, it was revealed that patients with substance dependence exhibited a higher mean value (17.06 ± 5.72) in the Alexithymia dimension such as DDF, in comparison to individuals without substance dependence (12.20 ± 4.23). This significant difference in the DDF dimension between the two groups was evidenced by a t-statistic of 3.74 and a p-value of 0.000. Similarly, individuals with substance dependence displayed a higher mean value (20.36 ± 7.22) in the DIF dimension compared to those without substance dependence (13.23 ± 6.13), indicating a substantial and significant difference ($t=4.12$, $p=0.000$) in the DIF dimension between the two groups. Finally, patients with substance dependence exhibited a higher mean value (24.60 ± 5.04) in the EOT dimension than individuals without substance dependence (20.00 ± 4.26), highlighting a significant difference in the EOT dimension between the two groups ($t=3.81$, $p=0.000$). Consequently, H3 has been accepted at a significance level of 0.01.

Table 2: The Mean, Standard Deviation, and t-test for Patient with Substance Dependence and Non-Substance Dependence individuals (n=60, 30 for each group)

Variables	Groups	Mean	SD	t	p
DDF	Clinical	17.0667	5.72311	3.743	.000
	Non-Clinical	12.2000	4.23776		
DIF	Clinical	20.3667	7.22774	4.121	.000
	Non-Clinical	13.2333	6.13460		
EOT	Clinical	24.6000	5.04189	3.815	.000
	Non-Clinical	20.0000	4.26695		
Alexithymia	Clinical	61.7000	16.10986	4.548	.000
	Non-Clinical	45.4333	11.14693		
CR	Clinical	24.8000	9.21543	-3.498	.001
	Non-Clinical	31.9667	6.40303		
ES	Clinical	21.0333	4.99298	2.276	.027
	Non-Clinical	17.8333	5.86094		

Note: DDF=Difficulty Describing Feelings, DIF=Difficulty identifying Feelings, EOT=Externally Oriented Thinking, CR=Cognitive Reappraisal, ES=Expressive Suppression, SD=Standard Deviation

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Hypotheses 4: There will be significant relationship between Cognitive Reappraisal, Expression Suppression, Alexithymia and Severity of Substance Dependence among patients with Substance Dependence.

The study employed Multiple Correlation analysis to investigate H4, and the results have been summarized in Table 3. The findings revealed a significant negative correlation between the Cognitive Reappraisal (CR) emotion regulation strategy and the severity of substance dependence ($r = -0.485, p < 0.01$). Conversely, the Expressive Suppression (ES) emotion regulation strategy showed a significant positive correlation with the severity of substance dependence ($r = 0.543, p < 0.01$). Additionally, alexithymia demonstrated a significant positive relationship with the severity of substance dependence ($r = 0.827, p < 0.01$). Furthermore, specific dimensions of Alexithymia, such as DDF ($r = 0.639, p < 0.01$), DIF ($r = 0.740, p < 0.01$), and EOT ($r = 0.731, p < 0.01$), also exhibited significant positive correlations with the severity of substance dependence. Moreover, the Cognitive Reappraisal (CR) emotion regulation strategy displayed a significant negative relationship with the Expressive Suppression (ES) emotion regulation strategy ($r = -0.594, p < 0.01$), Alexithymia ($r = -0.486, p < 0.01$), as well as its specific dimensions - DDF ($r = -0.433, p < 0.05$), DIF ($r = -0.396, p < 0.05$), and EOT ($r = -0.431, p < 0.05$). In contrast, the ES emotion regulation strategy exhibited a significant positive relationship with Alexithymia ($r = 0.695, p < 0.01$), DDF ($r = 0.767, p < 0.01$), and EOT ($r = 0.622, p < 0.01$), and a marginally significant relationship with DIF ($r = 0.411, p < 0.05$). Therefore, H4 has been accepted at both the 0.05 and 0.01 levels of significance indicating a significant relationship between between Cognitive Reappraisal, Expression Suppression, Alexithymia and Severity of Substance Dependence among patients with Substance Dependence.

Table 3: The Relationship of Cognitive Reappraisal, Expressive Suppression and Alexithymia and its dimension among Patient with Substance Dependence (n=30)

	CR	ES	Alexithymia	DDF	DIF	EOT	CAGE
CR	1						
ES	-.594**	1					
Alexithymia	-.486**	.695**	1				
DDF	-.433*	.767**	.854**	1			
DIF	-.396*	.411*	.836**	.520**	1		
EOT	-.431*	.622**	.859**	.750**	.531**	1	
CAGE	-.485**	.543**	.827**	.639**	.740**	.731**	1

Note: **Correlation is significant at the 0.01 level. *Correlation is significant at the 0.05 level, CR=Cognitive Reappraisal, ES=Expressive Suppression, DIF=Difficulty identifying Feelings, DDF=Difficulty Describing Feelings, EOT=Externally Oriented Thinking, SD=Standard Deviation

The results of this study provide crucial insights into the relationship between Cognitive Reappraisal, Expressive Suppression, and Alexithymia between Patient with Substance Dependence and Non-substance dependence individuals. The findings clearly support the initial hypotheses and shed light on the complex interplay of variables studied in the context of Substance Dependence.

DISCUSSION

The study aimed to assess the relationship between Cognitive Reappraisal, Expressive Suppression, and Alexithymia among patients with substance dependence and non-substance

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dependence individuals. To enhance the understanding of the study's outcomes, the findings are systematically discussed based on the predefined objectives of the research.

The primary aim of the research was to explore the variance in the utilization of Cognitive Reappraisal as an Emotion Regulation Strategy between individuals with substance dependence and those without such dependencies. The findings revealed that patients with substance dependence tended to employ cognitive reappraisal less frequently than those without substance dependence individuals, indicating a significant difference between the two groups. These results align with previous research conducted by Kamboj et al. (2023) and Khalid et al. (2018). Cognitive Reappraisal, a strategy involving the reinterpretation of emotionally charged situations to alter their meaning and reduce their emotional impact, was highlighted in the study (Gross & John, 2003).

Numerous studies have shown that individuals with substance dependence often lack effective emotion regulation strategies, particularly Cognitive Reappraisal. This suggests that these patients are less likely to reinterpret negative situations and emotional cues using cognitive processes. A deficiency in Cognitive Reappraisal can lead to poorer psychological well-being, increased anxiety and stress, and a tendency to adopt maladaptive coping strategies, including substance abuse (Troy et al., 2010). Relapses in addiction are often prompted by increased attention toward drug-related stimuli because Cognitive Reappraisal is an adaptive emotion regulation method that is typically deficient in people with substance dependency. These cues could be anything from sights and smells to conversations that remind individuals of their past drug use. Strengthening self-regulation in response to these cues through Cognitive Reappraisal might disrupt the brain's automatic attentional bias and potentially reduce compulsive drug-seeking behavior, even outside of controlled environments, among individuals with substance use disorders (Henderson, 2021).

The study's second objective was to compare the use of Expressive Suppression as an Emotion Regulation Strategy between patients with Substance Dependence and those without Substance Dependence. Our findings revealed that individuals with substance dependence were more inclined to employ expressive suppression as an emotion regulation technique compared to non-substance dependent individuals, indicating a significant difference between the two groups. This outcome aligns with prior research studies (Kamboj et al., 2023; Ghorbani et al., 2017; Khosravani et al., 2018). Expressive Suppression, as defined, involves attempting to conceal, inhibit, or decrease the display of ongoing emotions (Gross & Levenson, 1993; Gross & John, 2003). This strategy operates reactively, intervening after an emotion has already begun and behavioral responses are already in progress. As a result, continuously managing emotional reactions might require repeated efforts, thereby placing a strain on an individual's resources (Cutuli, 2014). Hence, patients with substance dependence tend to restrain their emotions and minimize their emotional expression in response to stressful and emotionally charged situations.

In the context of substance dependence, individuals relying heavily on expressive suppression struggle to regulate negative emotions effectively (Hu et al., 2014; Gainey et al., 2017; Elhai et al., 2018). This difficulty in emotional regulation can intensify affective and cognitive responses, potentially leading to the impulse to use substances as a means to manage negative emotions (Linehan, 2018). Patients utilizing expressive suppression as a method of emotional regulation may feel a lack of sufficient social support, reduced coping skills, decreased life satisfaction, self-esteem, and optimism about the future, as well as having fewer intimate

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social connections. These factors increase the likelihood of experiencing depressive symptoms (Sheldon et al., 1997; John and Gross, 2004). Consequently, individuals with substance dependence often struggle with poor emotion regulation, which could be a promising target for treatment interventions. Dialectical Behavior Therapy, which enhances emotion regulation skills, not only improves emotional regulation but also elevates abstinence rates and reduces the severity of substance use (Cavicchioli et al., 2019). Alcohol use or relapse has been linked to problems in social relationships, which in turn may be traced back to a failure in emotion control (Marlatt, 1996).

The study's third objective aimed to compare the Alexithymia between patients with Substance Dependence and those without Substance Dependence. The results revealed a significant difference, with individuals struggling with substance dependence exhibiting notably higher levels of alexithymia compared to non-substance dependent individuals. This disparity was also observed in its specific dimensions: DDF, DIF, and EOT. This finding resonates with previous research studies (Kamboj et al., 2023; Kumar et al., 2018; Kumar & Rathee, 2020). Alexithymia, as defined, refers to the inability to recognize and articulate emotions (Sifneos, 1973). Numerous studies have indicated a strong association between alexithymia and substance dependence. People with alexithymia often lack imaginative capacities, dwell in a realm devoid of positive emotions, and frequently experience negative emotions, contributing to the characteristic features of this condition (Taylor, 2018). Research has highlighted a remarkably high prevalence of alexithymia (ranging from 40-50%) among individuals diagnosed with alcohol dependence (Thorberg et al., 2009; Uzun et al., 2003). This suggests that individuals without substance dependence possess a better grasp of their emotions and can identify them more promptly than their substance-dependent counterparts. Additionally, studies have indicated that individuals with alexithymia experience intensified stress reactions and possess inferior coping mechanisms (Mikolajczak & Luminet, 2006). This deficiency in adaptive coping skills might lead individuals to resort to substance use, viewing substances as a means to compensate for their emotional self-awareness deficits (Taylor et al., 1997). In essence, they might turn to drugs to alleviate undesirable emotional states resulting from alexithymia, inadvertently worsening their situation in the long run (Hamidi et al., 2010).

For individuals displaying symptoms of alexithymia, engaging in risky behaviors can serve as a method of affective regulation. Examples of this association include individuals with alexithymia participating in activities like skydiving to alleviate anxiety (Woodman et al., 2008) and using alcohol as a coping mechanism to modulate distress (Rybakowski et al., 1988; Stewart et al., 2002; Taylor et al., 1997). Consequently, it can be concluded that alexithymia plays a pivotal role in the development of substance abuse disorders. Without the necessary support, individuals struggling with this disorder may resort to substance use as a compensatory mechanism for their emotional deficits. Substance use disorders undeniably pose significant challenges in people's lives. While we acknowledge that these disorders result from complex interactions among various factors, it becomes imperative to offer increased support and assistance to these individuals, enabling them to develop balanced and resilient personalities (Hamidi et al., 2010).

The study's fourth objective aimed to investigate the relationship between Cognitive Reappraisal, Expressive Suppression, and Alexithymia in individuals with Substance Dependence compared to those without Substance Dependence. The study revealed that Cognitive Reappraisal was negatively correlated with the severity of substance dependence,

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indicating that individuals with substance dependence were less inclined to reinterpret situations and emotional cues through mental processes. Instead, they tended to suppress their emotions and minimize their emotional expression when faced with stressful or emotionally charged situations. In contrast, Expressive Suppression showed a positive correlation with the severity of substance dependence, suggesting that individuals with substance dependence tended to use expressive suppression as a strategy to manage their emotions. These findings align with prior research studies (Norberg et al., 2016; Khalid et al., 2018; Kamboj et al., 2023), indicating consistency in the results.

The study findings align with previous research, demonstrating a positive association between Alexithymia and the severity of substance dependence, consistent with Hamidi et al. (2010) and Thorberg et al. (2009). This suggests that individuals with substance dependence might turn to drugs as a way to cope with overwhelming emotional states, especially due to their challenges in understanding and effectively managing these emotions, as observed in Taylor et al.'s work (1990). People with alexithymia face difficulties in recognizing their emotional cues and regulating their feelings efficiently, leading them to misinterpret their emotions as signs of illness, as indicated by Taylor and Bagby (2004). Consequently, they are prone to adopting various maladaptive coping mechanisms, including substance abuse (Taylor, 2000).

Moreover, the study uncovered a negative correlation between Cognitive Reappraisal and Alexithymia, while Expressive Suppression exhibited a positive correlation with Alexithymia. These outcomes are in harmony with prior studies (Kamboj et al., 2023; Connelly & Denney, 2007; Laloyaux et al., 2015; Khosravani et al., 2018; Stasiewicz et al., 2012). Previous research, exemplified by Connelly and Denney's study (2007), indicated that alexithymia is associated to negative affect and emotional dysregulation. Individuals with high levels of alexithymia tend to resort to maladaptive Emotion Regulation Strategies such as Expressive Suppression when compared to those without alexithymia (Swart et al., 2009). Laloyaux et al. (2015) delved into the association between alexithymia and various Emotion Regulation Strategies, uncovering a positive correlation between alexithymia and Expressive Suppression, particularly in the difficulty of verbalizing emotions. This underscores the significance of effective communication and emotional expression as fundamental aspects of alexithymia.

CONCLUSION

Patients with substance dependence exhibited a higher tendency towards Expressive Suppression (ES). In contrast, individuals without substance dependence demonstrated higher utilization of Cognitive Reappraisal (CR), indicating a significant difference in their emotion regulation strategies. Regarding Alexithymia, patients with substance dependence displayed significantly higher levels of alexithymia than those without, suggesting challenges in recognizing and verbalizing emotions. Furthermore, specific dimensions of alexithymia, including DDF (Difficulty Describing Feelings), DIF (Difficulty Identifying Feelings), and EOT (Externally Oriented Thinking), were notably elevated among patients with substance dependence. The study revealed significant correlations; Cognitive Reappraisal (CR) displayed a negative correlation with substance dependence severity. In contrast, Expressive Suppression (ES) exhibited a positive correlation. Alexithymia exhibited a robust positive correlation, indicating that individuals with higher alexithymic traits experienced more severe substance dependence. Notably, Cognitive Reappraisal (CR) demonstrated negative correlations with

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alexithymia and its specific dimensions (DDF, DIF, EOT). In contrast, Expressive Suppression (ES) exhibited positive correlations with alexithymia and its dimensions.

Implication and Limitation

The study has a limited sample size and included only male participants, which might impact the generalizability of the findings. A more extensive and more diverse sample could enhance the study's applicability to broader populations. Using purposive sampling might introduce bias, as participants might not represent the entire population accurately. This could affect the external validity of the results. The study design was cross-sectional, it provides a snapshot of the participants at a specific point in time. Longitudinal studies might offer a more comprehensive understanding of the trends and changes over time. Participants might not always provide accurate information, especially regarding sensitive topics like substance dependence and emotional regulation. Social desirability bias could influence their responses, impacting the study's reliability. The findings underscore the intricate dynamics between emotion regulation strategies, alexithymia, and the severity of substance dependence. Individuals with substance dependence face challenges in recognizing and managing their emotions effectively, leading to specific coping patterns. Understanding these complexities is crucial for tailoring interventions and support strategies, aiming to enhance emotional awareness and regulation skills among individuals struggling with substance dependence. The study's results emphasize the need for comprehensive, individualized approaches in substance dependence treatment programs, addressing both emotion regulation deficits and alexithymic traits to promote effective coping and recovery.

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Acknowledgment

The author appreciates all those who participated in the study and helped to facilitate the research process.

Conflict of Interest

The author declared no conflict of interest.

How to cite this article: Mahadevaswamy, M. & Rawat, V.S. (2023). A Comparative Study of Cognitive Reappraisal, Expressive Suppression and Alexithymia Among Patients with Substance Dependence. *International Journal of Indian Psychology*, 11(4), 2558-2574. DIP:18.01.239.20231104, DOI:10.25215/1104.239