



www.bioinformation.net  
Volume 22(3)



Research Article

Received March 1, 2026; Revised March 31, 2026; Accepted March 31, 2026, Published March 31, 2026

DOI: 10.6026/973206300221647

SJIF 2026 (Scientific Journal Impact Factor for 2026) = 8.478

2022 Impact Factor (2023 Clarivate Inc. release) is 1.9

**Declaration on Publication Ethics:**

The author's state that they adhere with COPE guidelines on publishing ethics as described elsewhere at <https://publicationethics.org/>. The authors also undertake that they are not associated with any other third party (governmental or non-governmental agencies) linking with any form of unethical issues connecting to this publication. The authors also declare that they are not withholding any information that is misleading to the publisher in regard to this article.

**Declaration on official E-mail:**

The corresponding author declares that lifetime official e-mail from their institution is not available for all authors

**License statement:**

This is an Open Access article which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly credited. This is distributed under the terms of the Creative Commons Attribution License

**Comments from readers:**

Articles published in BIOINFORMATION are open for relevant post publication comments and criticisms, which will be published immediately linking to the original article without open access charges. Comments should be concise, coherent and critical in less than 1000 words.

**Disclaimer:**

Bioinformation provides a platform for scholarly communication of data and information to create knowledge in the Biological/Biomedical domain after adequate peer/editorial reviews and editing entertaining revisions where required. The views and opinions expressed are those of the author(s) and do not reflect the views or opinions of Bioinformation and (or) its publisher Biomedical Informatics. Biomedical Informatics remains neutral and allows authors to specify their address and affiliation details including territory where required.

Edited by Ritik Kashwani

E-mail: [docritikkashwani@yahoo.com](mailto:docritikkashwani@yahoo.com)

Citation: Vyas *et al.* Bioinformation 22(3): 1647-1650 (2026)

# Emotion regulation versus impulsivity in alcohol and cannabis dependence

Devesh Kumar Vyas<sup>1,\*</sup>, Soram Nganbaren<sup>1,\*</sup>, Sandeep Kumar Jain<sup>2</sup>, Vishnu Kumar Gupta<sup>3</sup> & Rupesh Sahu<sup>4</sup>

<sup>1</sup>Department of Psychiatry, SRVS Medical College Shivpuri, Madhya Pradesh, India; <sup>2</sup>Department of Medicine, Chhindwara Institute of Medical Sciences, Chhindwara, Madhya Pradesh, India; <sup>3</sup>Department of Community Medicine, SRVS Medical College Shivpuri, Madhya Pradesh, India; <sup>4</sup>Department Community Medicine, Chhindwara Institute of Medical Sciences, Chhindwara, Madhya Pradesh, India; \*Corresponding author

**Affiliation URL:**

<https://shivpurimedicalcollege.com/>

<https://govtmedicalcollegechhindwara.com/>

**Author contacts:**Devesh Kumar Vyas - E-mail: [deveshvyas88@gmail.com](mailto:deveshvyas88@gmail.com)Soram Nganbaren - E-mail: [soramnaobicha1@gmail.com](mailto:soramnaobicha1@gmail.com)Sandeep Kumar Jain - E-mail: [drsandeepjain000007@gmail.com](mailto:drsandeepjain000007@gmail.com)Vishnu Kumar Gupta - E-mail: [vishnukgupta4@gmail.com](mailto:vishnukgupta4@gmail.com)Rupesh Sahu - E-mail: [rupeshsahu999@gmail.com](mailto:rupeshsahu999@gmail.com)**Abstract:**

Emotion dysregulation and impulsivity are key psychological factors contributing to substance dependence and relapse. Therefore, it is of interest to assess and compare emotion regulation and impulsivity in patients with alcohol dependence syndrome and cannabis dependence syndrome. A hospital-based cross-sectional study was conducted with 64 male patients, using the Emotion Regulation Questionnaire (ERQ) and Barratt Impulsiveness Scale (BIS-30) for assessment. Results showed alcohol-dependent patients had poorer emotion regulation and higher impulsivity than cannabis-dependent patients. This research advances knowledge by highlighting the greater severity of emotion dysregulation and impulsivity in alcohol dependence, emphasizing the need for targeted psychological interventions.

**Keywords:** Alcohol dependence; cannabis dependence; emotion regulation; impulsivity; barratt impulsiveness Scale (BIS-30); emotion regulation questionnaire (ERQ)

**Background:**

Substance dependence is a chronic relapsing condition defined by compulsive substance use despite negative consequences, which causes considerable psychological, social and bodily impairment [1]. Alcohol and cannabis are the most commonly used psychoactive substances worldwide, contributing significantly to the global disease burden [2]. According to India's National Survey on Extent and Pattern of Substance Use, alcohol is the most commonly used substance and cannabis is the most widely used illegal drug, with a considerable number of users matching dependence criteria [3]. Emotion regulation refers to the methods by which people control their emotions, when they experience them and how they express them [4]. Deficits in emotion regulation are significantly linked to substance dependence, as people frequently use substances as maladaptive coping techniques to deal with uncomfortable feelings [5]. Gross's process model identifies cognitive reappraisal and expressive suppression as crucial emotion regulation techniques, with maladaptive patterns predicting poor mental health outcomes and relapse [6]. Impulsivity is described as the tendency to behave without enough consideration and is seen as a key trait of addictive illnesses [7]. Elevated impulsivity makes people more likely to start using drugs, develop addiction and relapse. According to neurobiological hypotheses, decrease impulse control in substance use disorders results from dysfunction in the prefrontal cortex and reward pathways [8]. Alcohol dependence is associated with significant emotional dysregulation, increased stress reactivity and impulsivity, all of which contribute to risky behavior and poor treatment outcomes [9]. Cannabis dependence has been associated to poor emotion processing and executive dysfunction, however the pattern and severity differs from alcohol dependence [10]. Therefore, it is of interest to test and compare emotion regulation and impulsivity in patients with alcohol and cannabis dependence syndrome attending a tertiary care hospital.

**Methodology:**

The study was conducted in the Department of Psychiatry at Chirayu Medical College and Hospital, Bhopal, which provided access to a diverse patient population diagnosed with alcohol and cannabis dependence syndrome. A total of 64 male patients aged 18-50 years (32 with alcohol dependence and 32 with cannabis dependence) were diagnosed according to ICD-10 criteria. The study lasted for 18 months. Inclusion criteria were male patients aged between 18 and 50 years, diagnosed with alcohol or cannabis dependence syndrome as per ICD-10 and willing to provide written informed consent. Exclusion criteria included patients with multiple drug dependence, pre-existing psychiatric illnesses like schizophrenia or bipolar disorder, chronic medical conditions affecting psychiatric health, alcoholic hallucinosis, a history of head injury, or those experiencing acute withdrawal symptoms. Statistical analysis was conducted with the hypothesis that there would be significant differences in emotion regulation and impulsivity between the two groups. Descriptive statistics summarized demographic and clinical data, while t-tests were used to compare emotion regulation and impulsivity scores. Associations between demographic factors and study outcomes were analyzed using chi-square tests or correlation analyses. Data collected on paper were entered into MS Excel and imported into Stata software version 17.0 for all statistical and graphical analyses, with a significance level set at  $p < 0.05$ .

**Results:**

A total of 64 male participants aged between 18 and 50 years were enrolled in the study, with 32 individuals in each diagnostic group (alcohol dependence and cannabis dependence), selected through non-probability convenience sampling method. All participants met the ICD-10 diagnostic criteria for their respective substance use disorders and provided written informed consent prior to enrolment. The study was conducted over an 18-month period and adhered to all ethical and methodological protocols approved by the Institutional

Ethics Committee. A comparative analysis was performed to examine differences in emotion regulation and impulsivity between the two groups using appropriate statistical methods. **Table 1** summarizes the socio-demographic characteristics of the study participants. Alcohol-dependent patients were predominantly in the 31-40 year age group, while cannabis-dependent patients were younger, with most in the 21-30 year age group. Senior secondary education was most common in the alcohol dependence group, whereas college education predominated among cannabis-dependent patients. Higher proportions of alcohol-dependent patients were from rural areas and were married, while cannabis-dependent patients were mainly urban residents and unmarried. According to Kuppaswamy's socioeconomic classification, alcohol-dependent patients mostly belonged to the upper-middle class, whereas cannabis-dependent patients were commonly from the upper-

lower class. **Table 2** compares emotion regulation between the two groups. Alcohol-dependent patients had lower cognitive reappraisal scores ( $26.1 \pm 3.8$ ) and higher expressive suppression scores ( $20.7 \pm 2.71$ ) compared to cannabis-dependent patients ( $27.2 \pm 3.86$  and  $19.5 \pm 2.53$  respectively), although these differences were not statistically significant. The total ERQ score was almost similar in both groups ( $46.8 \pm 4.61$  versus  $46.7 \pm 4.78$ ;  $p = 0.915$ ). **Table 3** shows a significant difference in impulsivity between the two groups. Alcohol-dependent patients scored significantly higher on attention impulsivity ( $29.5 \pm 2.38$  versus  $23.7 \pm 2.48$ ;  $p = 0.002$ ), behavioural impulsivity ( $29.6 \pm 4.17$  versus  $24.8 \pm 3.56$ ;  $p = 0.008$ ) and non-planning impulsivity ( $30.4 \pm 5.46$  versus  $26.5 \pm 4.6$ ;  $p = 0.0027$ ) compared to cannabis-dependent patients. The total impulsivity score was also significantly higher in the alcohol dependence group ( $89.5 \pm 7.65$ ) than in the cannabis dependence group ( $75 \pm 6.96$ ;  $p < 0.0001$ ).

**Table 1:** Socio-demographic profile of participants

Socio-demographic Profile		Alcohol Dependence (n=32)	Cannabis Dependence (n=32)
Age in years	21-30	5 (15.6%)	14 (43.8%)
	31-40	18 (56.3%)	9 (28.1%)
	41-50	9 (28.1%)	9 (28.1%)
Educational Status	Illiterate	5 (15.6%)	9 (28.1%)
	Primary	8 (25%)	2 (6.25%)
	High School	5 (15.6%)	4 (12.5%)
	Senior Secondary	10 (31.3%)	7 (21.9%)
	College	4 (12.5%)	10 (31.3%)
Occupation	Unskilled Labour	3 (9.38%)	3 (9.38%)
	Household and domestic	2 (6.25%)	3 (9.38%)
	Family Business	4 (12.5%)	4 (12.5%)
	Private Service	8 (25%)	7 (21.9%)
	Agricultural	6 (18.8%)	7 (21.9%)
	Clerk Service	9 (28.1%)	8 (25%)
Residence	Rural	19 (59.4%)	14 (43.8%)
	Urban	13 (40.6%)	18 (56.3%)
Marital Status	Single	2 (6.25%)	6 (18.8%)
	Married	29 (90.6%)	23 (71.9%)
	Separated/Divorced	1 (3.13%)	3 (9.38%)
Kuppaswamy SES Class	Lower	5 (15.6%)	6 (18.8%)
	Upper Lower	6 (18.8%)	11 (34.4%)
	Lower Middle	9 (28.1%)	7 (21.9%)
	Upper Middle	12 (37.5%)	8 (25%)

**Table 2:** Distribution of participants based on emotion regulation questionnaire

	Alcohol Dependence (n=32)	Cannabis Dependence(n=32)	P-Value
ERQ Cognitive Reappraisal (Sum of 6 items)	$26.1 \pm 3.8$	$27.2 \pm 3.86$	0.2857
ERQ Expressive Suppression (Sum of 4 items)	$20.7 \pm 2.71$	$19.5 \pm 2.53$	0.0823
ERQ Total	$46.8 \pm 4.61$	$46.7 \pm 4.78$	0.915

**Table 3:** Distribution of participants based on barratt impulsiveness scale

	Alcohol Dependence (n=32)	Cannabis Dependence (n=32)	P-Value
BIS Attention Impulsivity Subscale Score	$29.5 \pm 2.38$	$23.7 \pm 2.48$	0.002
BIS Behavioural Impulsivity Subscale Score	$29.6 \pm 4.17$	$24.8 \pm 3.56$	0.008
BIS Cognitive (Non planning) Impulsivity Subscale Score	$30.4 \pm 5.46$	$26.5 \pm 4.6$	0.0027
BIS Total Impulsivity Score	$89.5 \pm 7.65$	$75 \pm 6.96$	< 0.0001

## Discussion:

The study found that alcohol-dependent individuals have poorer emotion management and more impulsivity than cannabis-dependent patients. Similar findings have been observed in studies linking alcohol dependence to increased emotional dysregulation and relapse vulnerability [11]. Longer periods of alcohol dependence were associated with increased suppression and impulsivity, similar with previous research indicating that

chronic alcohol use impairs prefrontal inhibitory function [12]. Cannabis-dependent individuals, although being younger and more educated, demonstrated severe abnormalities in emotion regulation and impulsivity, indicating that cannabis affects executive functioning and emotional processing [13]. According to the ERQ findings, weaker cognitive reappraisal and higher suppression in alcohol dependence predict worse coping and a higher likelihood of relapse, as previously reported [14]. BIS-30

data highlight impulsivity as a significant predictor of relapse and treatment non-adherence [14]. These findings emphasize the need for including emotion regulation and impulse control training into de-addiction programs. Interventions like CBT, DBT and mindfulness-based relapse prevention have been effective in addressing these psychological domains. The importance of addressing emotion regulation and impulse control in addiction treatment is clear. Our study, along with the findings of Mostafa *et al.* (2026) [15] and Nganbaren *et al.* (2025) [16], underscores the need for incorporating psychological interventions such as Cognitive Behavioral Therapy (CBT), Dialectical Behavior Therapy (DBT), and mindfulness-based relapse prevention to target these core issues. These therapies have shown to be effective in improving emotional regulation, impulse control and relapse prevention in individuals with substance use disorders.

#### Conclusion:

Emotion dysregulation and impulsivity are key psychological deficiencies in both alcohol and cannabis dependence, while alcohol dependence is more severe. Early detection and tailored psychological therapies aimed at emotion regulation and impulsivity may improve treatment success and reduce relapse rates.

#### References:

- [1] <https://nida.nih.gov/publications/drugs-brains-behavior-science-addiction/drug-misuse-addiction>
- [2] <https://pubmed.ncbi.nlm.nih.gov/30392731/>
- [3] Avasthi A *et al.* *Indian J Psychiatry*. 2017 **59**:284. [PMID: 29085086]
- [4] de Jesús Gómez RM & Cornu-Labat MA. *Front Psychol*. 2024 **15**:1429361. [PMID: 39575340]
- [5] Stellern J *et al.* *Addiction*. 2023 **118**:30 [PMID: 35851975]
- [6] Kelley NJ *et al.* *Biol Psychol*. 2019 **140**:35. [PMID: 30468894]
- [7] Vassileva J & Conrod PJ. *Philos Trans R Soc Lond B Biol Sci*. 2019 **374**:20180137. [PMID: 30966920]
- [8] Kozak K *et al.* *Ann N Y Acad Sci*. 2019 **1451**:71 [PMID: 30291624]
- [9] Jakubczyk A *et al.* *J Subst Abuse Treat*. 2018 **91**:49 [PMID: 29910014]
- [10] Blair RJR *et al.* *Front Psychiatry*. 2021 **12**:714189. [PMID: 34616316]
- [11] Berking M *et al.* *J Consult Clin Psychol*. 2011 **79**:307. [PMID: 21534653]
- [12] Galkin SA. *Consort Psychiatr*. 2023 **4**:29 [PMID: 38618631]
- [13] Micalizzi L *et al.* *Subst Use Misuse*. 2020 **55**:1146 [PMID: 32107955]
- [14] Chauhan VS *et al.* *Ind Psychiatry J*. 2018 **27**:73. [PMID: 30416295]
- [15] Mostafa S & Seifeldein G, *Egypt J Neurol Psychiatry Neurosurg*. 2026 **62**:34. [DOI: 10.1186/s41983-026-01100-9]
- [16] Nganbaren S *et al.* *Int J Acad Med Pharm*. 2025 **7**:653. [DOI: 10.47009/jamp.2025.7.6.121]

---

*Caveat Emptor is applicable among the literate community where required and possible. The publisher, its journal, editors and the internal/external reviewers take adequate steps to check, evaluate, correct, edit, revise and improve content where possible and required.*