



OPEN ACCESS

Key Words

Alcohol Dependence Syndrome, Executive Dysfunction, MoCA, Cognitive Impairment, Relapse, Delirium

Corresponding Author

Dr. Rose Johnson,
Department of Psychiatry,
Government T.D. Medical College,
Alappuzha, Kerala, India
roseisabellajohnson1989@gmail.com

Author Designation

¹Post Graduate Student
²Professor and Head

Received: 25th September 2024

Accepted: 11th October 2024

Published: 30th November 2024

Citation: Dr. Rose Johnson and Dr. Varghese P. Punnoose, 2024. Executive Dysfunction in Patients with Alcohol Dependence Syndrome After Six Weeks of Abstinence: A Descriptive Study from a Tertiary Care Center in South India. Res. J. Med. Sci., 19: 664-666, doi: 10.36478/makrjms.2024.11.664.666

Copy Right: MAK HILL Publications

Executive Dysfunction in Patients with Alcohol Dependence Syndrome After Six Weeks of Abstinence: A Descriptive Study from a Tertiary Care Center in South India

¹Dr. Rose Johnson and ²Dr. Varghese P. Punnoose

¹Department of Psychiatry, Government T.D. Medical College, Alappuzha, Kerala, India

²Department of Psychiatry, Government Medical College, Kottayam, Kerala, India

Abstract

Chronic alcohol consumption is known to cause cognitive deficits, particularly in executive functions. Early detection of these dysfunctions could predict risk for persistent cognitive impairment or alcohol-related dementia. Primary: To estimate the prevalence of executive dysfunction among patients with Alcohol Dependence Syndrome (ADS) after 6 weeks of abstinence. Secondary: To identify factors associated with executive dysfunction in this population. A descriptive study was conducted among 100 patients diagnosed with ADS who attended the psychiatry outpatient clinic of Government T.D. Medical College, Alappuzha, after 6 weeks of abstinence. Tools used included the Montreal Cognitive Assessment (MoCA), Stroop Test, Trail Making Test (TMT), and Controlled Oral Word Association Test (COWAT). Statistical analysis was performed using SPSS v18. Executive dysfunction was detected in 29% of patients. Significant associations were found with past history of delirium ($p < 0.001$) and relapse episodes ($p < 0.001$). No significant correlation was found with age, marital status, or quantity of alcohol intake. Executive dysfunction is prevalent in ADS patients even after a 6-week abstinence period. History of delirium and relapse episodes are key predictors. Routine cognitive screening is recommended for ADS patients during early abstinence to guide rehabilitation strategies.

INTRODUCTION

Alcohol dependence significantly impacts global health by contributing to mortality, morbidity, and social dysfunction. Beyond its known systemic effects, alcohol use profoundly affects the brain, particularly areas responsible for executive functioning. Executive dysfunction, if detected early, may serve as an indicator for risk of dementia and poor rehabilitation outcomes in alcohol-dependent individuals.

This study aimed to assess the proportion and pattern of executive dysfunction in ADS patients after 6 weeks of abstinence and to explore associated factors such as prior delirium and relapse history.

MATERIALS AND METHODS

Study Design: Descriptive cross-sectional study.

Setting: Department of Psychiatry, Government T.D. Medical College, Alappuzha.

Duration: December 2018 – December 2019.

Sample Size: 100 ADS patients aged 18–45 years, selected via convenience sampling.

Inclusion Criteria:

- ADS diagnosed as per ICD-10 DCR criteria
- Abstinent for at least 6 weeks post alcohol withdrawal treatment
- Provided written informed consent

Exclusion Criteria:

- Comorbid major psychiatric, neurological, or severe medical disorders.
- Current substance use or benzodiazepine therapy.
- Intellectual disability or sensory impairments interfering with testing.

Assessment Tools:

- **MoCA:** Cognitive screening tool (cut-off <26).
- **Stroop Test:** Assesses attention and response inhibition.
- **Trail Making Test (Part A and B):** Evaluates visual attention and task switching.
- **Controlled Oral Word Association Test (COWAT):** Tests verbal fluency.

Data Analysis: Descriptive statistics, Chi-square tests, and t-tests were used for analysis. SPSS version 18.0 was employed.

RESULTS AND DISCUSSIONS

Out of 100 participants:

- Gender: 98% male.
- Mean duration of alcohol use: 13.12 ± 8.2 years.
- Alcohol consumption pattern: Majority consumed 14–20 units/day.
- Executive Dysfunction: Present in 29% (n=29).

Table .1: Comparison of ED and Variables

Comparison of age and ED	Executive dysfunction			
	No n	(%)	Yes n	(%)
20 to 25 years old	16	22.5	12	41.4
26 to 30 years old	7	9.9	2	6.9
31 to 35 years old	14	19.7	6	20.7
36 to 40 years old	14	28.2	7	24.1
41 to 45 years old	20	28.2	2	6.9
Chi-square test value 7.248; d.f 4; p value 0.123				
Comparison of marital status and ED	Executive dysfunction			
	No n	(%)	Yes n	(%)
Married	44	62.0	18	62.1
Single	15	21.1	9	31.0
Separated/Divorced	12	16.9	2	6.9
Chi-square test value 2.314; d.f 2; p value 0.314				
Comparison of alcohol unit consumption and ED	Executive dysfunction			
	No n	(%)	Yes n	(%)
2 to 6 units	18	25.4	9	31.0
7 to 10 units	11	15.5	9	31.0
11 to 14 units	21	29.6	4	13.8
14 to 20 units	21	29.6	7	24.1
Chi-square test value 5.002; d.f 3; p value 0.172				
Comparison of history of delirium and ED	Executive dysfunction			
	No n	(%)	Yes n	(%)
No	35	49.3	01	3.3
Yes	36	50.7	28	96.7
Chi-square test value 21.993; d.f 1; p value <0.001				
Comparison of history of relapse and ED	Executive dysfunction			
	No n	(%)	Yes n	(%)
No	63	88.7	10	34.5
Yes	08	11.3	19	65.5
Chi-square test value 30.744; d.f 1; p value <0.001				

Significant factors associated with executive dysfunction:

- **History of delirium:** p<0.001
- **History of relapse:** p<0.001

No significant associations were found with age, marital status, or daily alcohol units consumed.

The prevalence of executive dysfunction (29%) highlights a substantial cognitive burden in ADS patients, even after a period of abstinence^[1-3]. The strong association with prior delirium episodes and relapse underscores the importance of these factors in predicting cognitive outcomes.

Our findings are consistent with similar studies demonstrating persistent cognitive deficits in ADS populations, particularly in executive domains like set-shifting, attention, and verbal fluency^[4-6].

Limitations:

- Single-center, outpatient-based design limits generalizability
- Only select executive functions assessed
- No longitudinal follow-up to assess recovery or progression

CONCLUSIONS

A significant proportion of ADS patients exhibit executive dysfunction after 6 weeks of abstinence.

Screening for cognitive impairments, especially in those with a history of delirium or relapse, is recommended to tailor rehabilitation strategies.

Acknowledgments: We acknowledge the patients who participated in this study and the staff of the Department of Psychiatry, Government T.D. Medical College, Alappuzha.

Conflict of Interest: None declared.

Funding: No external funding was received for this study.

REFERENCES

1. ICD–10. Classification of Mental and Behavioral Disorders. Clinical Descriptions and Diagnostic Guidelines. World Health Organization, Geneva; 1992.
2. O.A. Parsons, Nixon .S.J., 1998, Neurocognitive Deficits in Alcohol dependents and Social Drinkers: a continuum- Alcohol Clinical and Experimental Research. 22:954-961.
3. N. Cabé, Laniepce .A, Ritz .L, Pitel .A.L., Cognitive Impairments in Alcohol Dependence: From Screening to Treatment Improvements. *Encephale*. 2016. doi: 10.1016/j.encep.2015.12.012.
4. A.M. Alsheikh, Elemam .M.O, El-Bahnasawi .M., Treatment of Depression with Alcohol and Substance Dependence: A Systematic Review. *Cureus*. 2020, 12:e11168.
5. S. Sabia, Fayosse .A, Dumurgier .J, Dugravot .A, Akbaraly .T, Britton .A *et al*. Alcohol consumption and risk of dementia: 23 year follow-up of Whitehall II cohort study. *BMJ*. 2018;;k2927.
6. World Health Organization 2014. World Health Organization. Global Status Report on Alcohol Health. 2011 Geneva Switzerland WHO Press.