



PREDICTORS OF FOLLOW UP ATTENDANCE IN ALCOHOL DEPENDENCE: A STUDY OF SOCIODEMOGRAPHIC AND CLINICAL FACTORS

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ABSTRACT

Background: Alcohol dependence syndrome (ADS) follows a remitting-relapsing course, with poor long-term adherence to treatment. While short-term remission rates are well-documented, there is limited data on follow-up rates and associated determinants in the Indian setting. **Aim And Objectives:** This study aimed to assess the socio-demographic and clinical factors influencing monthly follow-up rates among patients with ADS treated in a tertiary psychiatric hospital in central India. **Methods:** A retrospective, record-based cross-sectional study was conducted over a six-month period (July – December 2024) in an outpatient psychiatric setting. A random sample of 100 patients diagnosed with ADS (per ICD-10) was analyzed. Follow-up adherence was assessed based on scheduled appointments, and associations with socio-demographic and clinical variables were examined using the chi-square test. **Results:** Follow-up rates declined sharply over four months (44% in month one to 4% in month four). Higher education levels ($p=0.002$) and skilled employment ($p=0.002$) were significantly associated with better follow-up in the first month. Patients with a longer duration of illness (>10 years) exhibited higher adherence in the early months ($p=0.017$). Heavy alcohol consumers (3–4 quarters/day) initially showed better follow-up ($p=0.04$), but adherence decreased over time. **Conclusion:** Socioeconomic and clinical factors influence short-term follow-up adherence, but their impact diminishes over time. Targeted interventions such as psychoeducation, reminders, and outreach treatment programs may improve long-term engagement.

KEYWORDS : Alcohol Dependence Syndrome, Follow-up Adherence, Socio-demographic Factors, Clinical Determinants, India.

INTRODUCTION

There is considerable information about short-term remission rates among individuals who have been treated for alcohol use disorders, but much less is known about subsequent follow up rates among these patients. Moreover, we have virtually no information about attrition rates or lost to follow up following remission among treated individuals. Two important related issues involve identification of predictors of short-term remission and subsequent follow up rates among remitted individuals(1).

Alcohol use disorders have long been recognized to have remitting and relapsing courses. According to Durazzo and Meyerhof, irrespective of the type of intervention employed, at least 60% of treated individuals for an alcohol use disorder relapse to a period of hazardous alcohol consumption, typically within three months of treatment. (2).

Previously Kar et al. addressed the question of the factors influencing the short-term outcome of alcohol dependence among 60 patients in the Indian setting. They found that a positive outcome was seen in 55% of patients. However, they could find no association between any of the sociodemographic or clinical variables they studied. (3). A similar cross-sectional study done by Sureshkumar et al., however, found that a family history of substance dependence and past history of ≥ 2 relapses, younger age of onset of dependence, and a shorter time to develop dependence were significantly associated with relapse (4).

However, follow-up studies incorporating data about socio demographic determinants, illness characteristics and their impact on Follow up rates and adherence to pharmacotherapy are very few in Indian settings. Hence, we intended to explore the socio-demographic, clinical factors associated with the monthly follow up rates among patients with alcohol use disorder treated in a tertiary care psychiatric hospital in central India.

MATERIALS AND METHODS

Study Design & Setting

- A retrospective record-based cross-sectional study was conducted at the outpatient department (OPD) of a tertiary psychiatric hospital in Indore, India.
- The study period covered six months (January 2024 – December 2024).

Sample Size

Sample size calculation was done using G*Power software 3.1.9.2 version and 95% confidence interval and 90% Power and a final sample size of 100 based on purposive sampling. Based on a previous study by Rathod S et al, [5]

$$\begin{aligned}
 n &= Z^2pq/d^2 \\
 &= (1.96)^2 * 5.5 * 94.5 / (5)^2 \\
 &= 3.84 * 519.75 / 25 \\
 n &= 80
 \end{aligned}$$

Z: Confidence level at 95% (standard value 1.96)

p: prevalence

q: 1-p

d: margin of error = 5%

Study Population

Inclusion Criteria: All patients diagnosed with Alcohol dependence syndrome as per ICD-10 with a scheduled outpatient appointment during the study period.

A random sample of 100 patients was selected, including those who attended follow-ups and those who missed their appointments.

Definition Of Missed Appointments

A missed appointment was defined as a patient failing to

attend their scheduled visit within ± 3 days of the scheduled date.

Data Collection & Variables

Demographic data: Age, gender, education, employment status, and place of residence (rural/urban), family type(nuclear/urban), family history.

Clinical Data: Amount of intake of alcohol, total duration of illness.

Outcome Measure: Presence of a missed follow-up appointment as per defined above to calculate follow up rates in subsequent visits scheduled monthly.

Statistical Analysis

Data were analyzed using descriptive statistics, including percentages and frequencies for categorical variables.

Statistical significance was determined by using chi-square test to identify associations between missed appointments and various demographic/clinical factors.

RESULTS:

Follow-up adherence decreased markedly over the four-month period, with an overall follow-up rate of 44% in the first month, 17% in the second month, 11% in the third month, and 4% in the fourth month.

Sociodemographic Factors like Educational status & employment status was significantly associated with follow-up adherence during the first month ($p = 0.002$) however their impact declined in the subsequent follow up months. Among those with higher education, graduates demonstrated the highest follow-up rate at 78%, while individuals with primary education, and no formal education showed rates of 28%, and 38% respectively. Similarly, Skilled workers had a follow-up rate of 69%, significantly higher than that observed in unemployed patients (22%) and unskilled workers (34%). No significant differences in follow-up rates were observed based on residence, family type and marital status in follow-up rates at any time point (Table 1).

Variables	1 st month follow up	2 nd month follow up	3 rd month follow up	4 th month follow up
Follow up Rate [% of N (100)]	44%	17%	11%	4%
Residence				
Rural(65)	31,(48%)	12,(18%)	9,(14%)	3,(5%)
Urban,(35)	13,(37%)	5,(14%)	2,(6%)	1,(3%)
P Value	0.311	0.598	0.215	0.669
Education Level				
No formal education,(13)	5,(38%)	2,(15%)	1,(8%)	0,(0%)
Primary education,(32)	8,(28%)	2,(6%)	0,(0%)	0,(0%)
High-School,(32)	13,(37%)	7,(20%)	6,(19%)	3,(9%)
Graduate,(23)	15,(78%)	6,(28%)	4,(17%)	1,(4%)
P value	0.002	0.176	0.071	0.608
Employment Status				
Unemployed,(23)	5,(22%)	2,(9%)	1,(4%)	0,(0%)
Unskilled Worker,(38)	13,(34%)	6,(16%)	3,(8%)	2,(5%)
Semi-skilled,(7)	4,(57%)	0,(0%)	0,(0%)	0,(0%)
Skilled,(32)	22,(69%)	9,(28%)	7,(22%)	2,(6%)
P value	0.002	0.141	0.105	0.608
Family Type				
Nuclear,(61)	27,(44%)	11,(18%)	8,(13%)	3,(5%)
Joint,(39)	17,(43%)	6,(15%)	3,(8%)	1,(3%)

P value	0.947	0.731	0.398	0.558
Marital Status				
Unmarried,(53)	20,(38%)	8,(15%)	6,(11%)	2,(4%)
Married,(47)	24,(51%)	9,(19%)	5,(11%)	2,(4%)
P value	0.18	0.59	0.913	0.902

Table 1(original). Association of the sociodemographic characteristics of patients and follow up rates.

Analysis of alcohol intake revealed that patients with heavy consumption of alcohol per day (3–4 quarters) had a significantly higher first-month follow-up rate of 62% compared to 32% in those consuming 0–2 quarters ($p = 0.04$). Although a trend toward significance was observed in the second month as well ($p = 0.09$). Duration of illness was significantly associated with follow-up adherence at different time points; these differences were statistically significant at month one ($p = 0.017$), month two ($p = 0.043$), and month three ($p = 0.024$). Patients with a duration of >10 years had the highest follow-up rates with 64% at month one, 36% at month two, and 27% at month three (Table 2).

Variable, N	F1 (1 month) (N, %)	F2 (2 month) (N, %)	F3 (3 month) (N, %)	F4 (4 month) (N, %)
Follow up Rate	44%	17%	11%	4%
Intake Amount				
0-2 Quarter,(47)	15,(32%)	8,(17%)	6,(13%)	2,(4%)
3-4 Quarter,(24)	16,(62%)	7,(29%)	3,(13%)	1,(4%)
>4 Quarter,(29)	10,(48%)	2,(7%)	2,(7%)	1,(3%)
p value	0.04	0.09	0.703	0.984
Total Duration of Illness				
0-1 Years,(31)	17,(55%)	4,(13%)	3,(10%)	2,(6%)
1-5 Years,(28)	7,(25%)	2,(8%)	0,(0%)	0,(0%)
5-10 Years,(19)	6,(32%)	3,(16%)	2,(11%)	1,(5%)
>10 Years,(22)	14,(64%)	8,(36%)	6,(27%)	1,(4.5%)
P value	0.017	0.043	0.024	0.626

Table 2 (original) : Association of the clinical factors of the patients and follow up rates

DISCUSSION:

This study aimed to analyze follow-up adherence among patients diagnosed with Alcohol Dependence Syndrome (ADS) in a tertiary care government psychiatric hospital in central India. Our findings indicate a significant decline in follow-up rates over four months, from 44% in the first month to only 4% in the fourth month. This trend aligns with previous studies indicating poor long-term adherence to treatment among individuals with alcohol use disorder (AUD) (1, 2)

A key finding was the association between educational qualification and follow-up adherence. Patients with higher education levels exhibited significantly better follow-up rates in the first month (78%, $p=0.002$) as opposed to their counterparts with lower education status with just a follow up rate of only 38%, suggesting that education plays a role in treatment adherence. This is consistent with previous studies where individuals with higher educational backgrounds demonstrated better health-seeking behaviors and treatment engagement (4-6).

Employment status was another crucial determinant of follow-up rates. Skilled workers showed the highest adherence in the first month (69%, $p = 0.002$) where as those who were unemployed and were doing unskilled works e.g. daily wage workers showed significantly lower follow up rates of 22% & 34% respectively. This might be due to better financial stability and structured lifestyles, which facilitate regular follow-up visits. In contrast, unemployed individuals had the lowest adherence, possibly due to financial and psychosocial barriers. This supports findings from Durazzo & Meyerhoff (2017), who reported that socioeconomic status significantly influences treatment adherence among individuals with AUD

(2).

Clinical factors significantly impacted follow-up adherence among patients with alcohol dependence. Notably, individuals consuming 3–4 quarters of alcohol per day demonstrated the highest follow-up rate in the first month (62%, $p = 0.04$); however, adherence declined in subsequent months. This pattern suggests that heavy alcohol consumers may initially be more motivated to engage in treatment, possibly due to acute withdrawal symptoms necessitating medical attention. Yet, their sustained engagement diminishes as withdrawal symptoms subside, underscoring the importance of early-stage interventions to capitalize on this initial motivation (4–8).

Furthermore, the duration of illness emerged as a significant determinant of follow-up in the second ($p = 0.013$) and third months ($p = 0.028$). Patients with a history of alcohol dependence exceeding 10 years exhibited the highest follow-up rates across the first three months (64%, 36%, and 27% in months one, two, and three, respectively), compared to other duration cohorts. Conversely, those with a 1–5-year history demonstrated the lowest engagement (25% in the first month), with further declines thereafter. These findings suggest that individuals with a longer history of dependence may exhibit greater early engagement—possibly due to the chronic and severe nature of their condition or enhanced monitoring efforts by healthcare providers (8–10).

Despite the initial significance of sociodemographic factors in predicting follow-up rates, their influence diminished over time. This could be due to multiple factors, including treatment fatigue, lack of immediate perceived benefits, or external circumstances such as work commitments and financial constraints. Addressing these barriers through targeted interventions like psychoeducation, family engagement, and financial support mechanisms could potentially improve long-term adherence to treatment.

Limitations:

Retrospective Design: As this study is retrospective and record-based, it may be subject to documentation errors or missing data, which could impact the accuracy of findings.

Single-Center Study: The study was conducted in a single tertiary care psychiatric hospital, limiting the generalizability of findings to other regions or healthcare settings.

Limited Sample Size: The study included only 100 patients, which may not fully capture the diverse patterns of follow-up adherence seen in a larger population.

Potential Confounding Factors: Certain psychosocial and medical variables, such as psychiatric comorbidities, motivation for treatment, and social support, were not accounted for, potentially influencing follow-up adherence rates.

Short Follow-up Period: The study only assessed follow-up adherence for four months, making it difficult to evaluate long-term engagement with treatment beyond this timeframe.

CONCLUSION

The study identified education level, employment status, alcohol intake amount, and duration of illness as significant predictors of early follow-up adherence among patients with alcohol dependence, with the most pronounced differences observed during the first month of treatment.

Future research should prioritize longer follow up periods and interventional designs to translate these insights into evidence-based practices.

Conflict Of Interest: Nil

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Data Availability: The data supporting this study are available from the corresponding author upon reasonable request, subject to ethical and confidentiality guidelines.

Author's Contributions:

Concept, design, literature search: AC, LD, VN

Data acquisition: LD, AC

Data analysis: LD, AC

Manuscript preparation: LD, AC, VN

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