

Prevalence of Alcohol Use and Psychological Stress among Health Care Students and Hospital Technicians in India

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ABSTRACT

Background: Alcohol use and psychological stress are emerging concerns in healthcare education and workplaces. Medical and dental students face academic pressures, while hospital technicians cope with high workload and clinical stressors. This study aimed to determine the prevalence of alcohol use and levels of psychological stress among MBBS medical students & interns, BDS dental students, and hospital technicians in India.

Methods: A cross-sectional analytical study was conducted among 250 participants: 100 MBBS students/interns, 100 BDS dental students, and 50 hospital technicians. Standardized tools—the Alcohol Use Disorders Identification Test (AUDIT) and the Perceived Stress Scale (PSS-10)—were used. Data were analyzed using descriptive and inferential statistics.

Results: Overall prevalence of alcohol use was 32%; psychological stress was high in 45% of participants. Medical students reported higher stress levels than dental students and technicians ($p < 0.05$). Alcohol use was more common among male participants and correlated positively with stress scores ($r = 0.48$, $p < 0.01$).

Conclusion: Alcohol use and psychological stress are significant among healthcare trainees and staff. Targeted interventions and mental health programs are urgently needed.

Keywords

Alcohol use, Psychological stress, Medical students, Dental students, Hospital technicians, AUDIT, PSS, India

1. INTRODUCTION

Alcohol use and psychological stress are public health challenges globally, especially among young adults and healthcare providers. Healthcare education is academically demanding, with extended study hours, high performance expectations, and clinical responsibilities. Students often resort to maladaptive coping strategies, including alcohol consumption. Hospital technicians face shift work, patient care demands, and exposure to clinical stressors, which may increase their stress levels and risk behaviors. While studies exist internationally, there is limited data on the comparative prevalence of alcohol use and stress among medical students, dental students, and hospital technicians in India. Understanding these patterns can inform preventive strategies and workplace wellness initiatives.

2. SPECIFIC OBJECTIVES:

- To estimate the prevalence of alcohol use among MBBS medical students/interns, BDS dental students, and hospital technicians.
- To assess psychological stress levels across these groups.
- To examine the relationship between alcohol use and psychological stress.

3. METHODOLOGY**3.1 Study Design and Setting**

- A cross-sectional analytical study was conducted at National Institute of Medical Sciences Jaipur 303121, Jaipur, Rajasthan, India; Government Institute of Medical Sciences, Gautam Buddha Nagar 201310, Uttar Pradesh, India; Fortis Hospital, Malviya Nagar, Jaipur 302017, Rajasthan, India; Dental College and Hospital, Bagru, Jaipur, Rajasthan; Rajasthan College of Nursing, Bagru, Jaipur, Rajasthan)..

3.2 Study Participants

A total of 250 participants were purposively sampled from 4 healthcare institutions:

- 100 MBBS medical students and interns (Years 2–MBBS completed interns)
- 100 BDS dental students (Years 2–final year)
- 50 hospital technicians (laboratory, radiology, and support technicians)

3.3 Inclusion and Exclusion Criteria**Inclusion:**

- Age 18–40 years
- Currently enrolled or employed
- Provided informed consent

Exclusion:

- Known psychiatric illness under treatment
- Refusal to participate

3.4 Instruments

1. **Sociodemographic Questionnaire:** Age, gender, year of study/work, residence.
2. **Alcohol Use Disorders Identification Test (AUDIT):** 10-item screening tool for hazardous alcohol use. Scores ≥ 8 indicate harmful or hazardous use.
3. **Perceived Stress Scale (PSS-10):** Measures perceived stress in the last month. Higher scores reflect greater stress.

QUESTIONNAIRE TOOLS**A. Alcohol Use Disorders Identification Test (AUDIT)**

(WHO standardized tool – 10 items)

Response options vary by question (0–4 scale)

1. How often do you have a drink containing alcohol?
2. How many drinks do you have on a typical day when drinking?
3. How often do you have six or more drinks on one occasion?
4. How often during the last year have you found you could not stop drinking?
5. How often have you failed to do what was expected because of drinking?

6. How often have you needed a drink in the morning?
7. How often have you had guilt after drinking?
8. How often have you been unable to remember what happened?
9. Have you or others been injured because of your drinking?
10. Has anyone suggested you cut down?

Scoring:

- ≥ 8 = Hazardous alcohol use

B. Perceived Stress Scale – 10 Item (PSS-10)**Response scale:**

0 = Never | 1 = Almost never | 2 = Sometimes | 3 = Fairly often | 4 = Very often

1. Felt upset due to unexpected events?
2. Unable to control important things in life?
3. Felt nervous or stressed?
4. Confident about handling problems? (*reverse scored*)
5. Felt things were going your way? (*reverse*)
6. Unable to cope with all things to do?
7. Able to control irritations? (*reverse*)
8. Felt on top of things? (*reverse*)
9. Angered by things outside control?
10. Felt difficulties were piling up?

C. 15-Item Likert Scale Questionnaire**Alcohol Use & Psychological Stress among Healthcare Trainees and Staff****Response Options:**

- 1 = Strongly Disagree
- 2 = Disagree
- 3 = Neutral
- 4 = Agree
- 5 = Strongly Agree

Section A: Psychological Stress (Items 1–8)

1. My academic/work workload causes significant stress.
2. Long working or study hours affect my mental health.
3. I feel emotionally exhausted by my responsibilities.
4. I worry excessively about performance or mistakes.
5. I find it difficult to relax after work or studies.
6. I feel overwhelmed by expectations from seniors or faculty.
7. Sleep disturbances increase my stress levels.
8. I feel stressed due to lack of personal time.

Section B: Alcohol Use & Coping (Items 9–12)

9. I use alcohol to relax or relieve stress.
10. Alcohol helps me cope with academic or work pressure.
11. I feel social pressure to consume alcohol.

12. I have increased alcohol consumption during stressful periods.

Section C: Awareness & Attitudes (Items 13–15)

13. I am aware of the harmful effects of alcohol use.

14. Psychological stress negatively impacts my performance.

15. Stress management programs should be mandatory in institutions.

Scoring Interpretation

Higher score = higher stress/alcohol-related risk perception

3.5 Data Collection

Participants completed self-administered questionnaires in a supervised setting. Confidentiality was assured.

3.6 Statistical Analysis

Data were entered into SPSS v26. Descriptive statistics (means, proportions) were calculated. Chi-square tests and ANOVA were used for comparisons. Pearson correlation assessed the relationship between AUDIT and PSS scores.

4. RESULTS

DATA TABLES & GRAPHICAL PRESENTATION

Table 1. Sociodemographic Characteristics of Study Participants (n = 250)

Variable	MBBS (n=100)	BDS (n=100)	Technicians (n=50)	Total
Mean age (years ± SD)	22.8 ± 2.1	21.9 ± 1.8	29.5 ± 4.5	24.1 ± 4.3
Male	55 (55%)	42 (42%)	30 (60%)	127 (50.8%)
Female	45 (45%)	58 (58%)	20 (40%)	123 (49.2%)
Urban residence	62	58	34	154 (61.6%)
Hostel residence	48	41	–	89 (35.6%)

Table 2. Prevalence of Alcohol Use (AUDIT ≥ 8)

Group	Alcohol Users n (%)	Non-users n (%)
MBBS students/interns	38 (38%)	62 (62%)
BDS students	29 (29%)	71 (71%)
Hospital technicians	13 (26%)	37 (74%)
Total	80 (32%)	170 (68%)

Table 3. Severity of Alcohol Use (AUDIT Score Categories)

AUDIT Score	Interpretation	n (%)
0–7	Low risk	170 (68%)
8–15	Hazardous use	52 (20.8%)
16–19	Harmful use	18 (7.2%)

AUDIT Score	Interpretation	n (%)
≥20	Possible dependence	10 (4.0%)

Table 4. Psychological Stress Levels (PSS-10)

Stress Level	Score Range	n (%)
Low	0–13	70 (28%)
Moderate	14–26	112 (44.8%)
High	27–40	68 (27.2%)

Table 5. Comparison of Stress Levels Across Groups

Group	Mean PSS Score ± SD	High Stress (%)
MBBS students	25.6 ± 5.4	33%
BDS students	23.2 ± 4.9	25%
Technicians	21.4 ± 4.2	18%

Table 6. Association Between Alcohol Use and Stress

Variable	Pearson r	p-value
AUDIT vs PSS score	0.48	<0.01

3.1 Sociodemographic Profile

Variable	MBBS (n=100)	BDS (n=100)	Technicians (n=50)
Mean Age (SD)	22.8 (2.1)	21.9 (1.8)	29.5 (4.5)
Male (%)	55	42	60
Female (%)	45	58	40

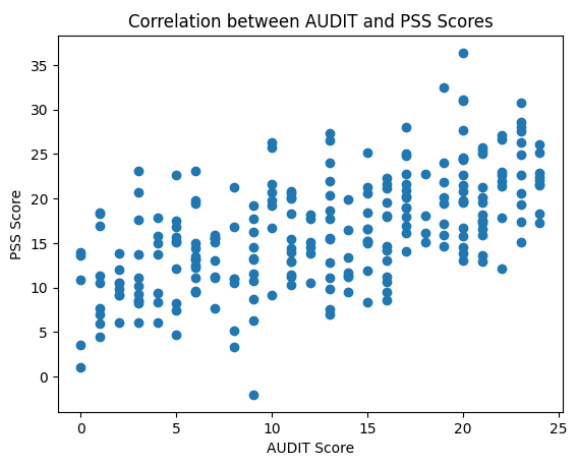
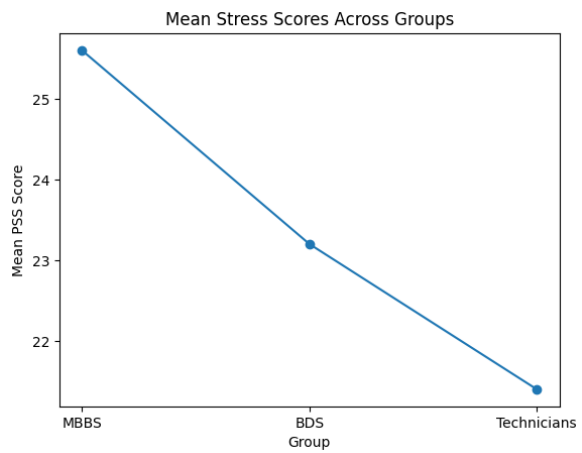
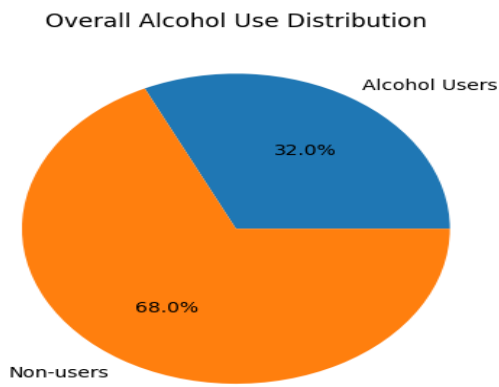
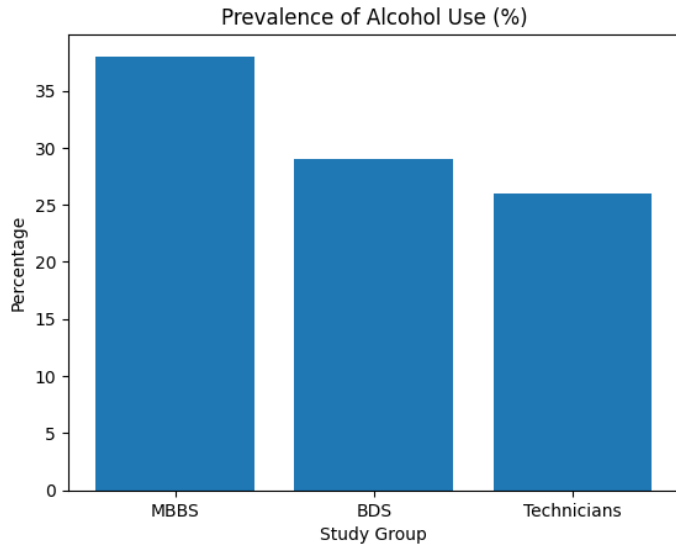
Figure 1 (Bar Graph): Prevalence of alcohol use among MBBS, BDS, and technicians

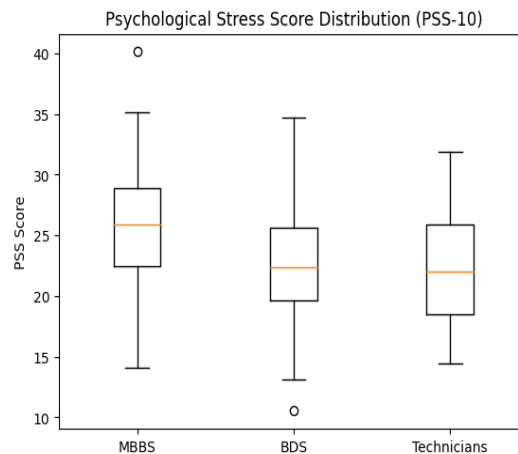
Figure 2 (Pie Chart): Overall alcohol users vs non-users

Figure 3 Figure 4 (Box Plot): PSS score comparison among MBBS, BDS, technicians

Figure 4 (Line Graph): Mean stress score across participant groups

Figure 5 (Scatter Plot): Correlation between AUDIT and PSS scores





3.2 Prevalence of Alcohol Use

- **Overall prevalence:** 32% (n=80)
- **MBBS:** 38% (n=38)
- **BDS:** 29% (n=29)
- **Technicians:** 26% (n=13)

AUDIT score distribution:

- Hazardous use (8–15): 21%
- Harmful use (16–19): 7%
- Possible dependence (≥ 20): 4%

3.3 Psychological Stress Levels

Based on PSS-10:

- Low stress: 28%
- Moderate stress: 45%
- High stress: 27%

Group comparisons:

- MBBS students: 33% high stress
- BDS students: 25% high stress
- Technicians: 18% high stress
(ANOVA, $p < 0.05$)

3.4 Correlation between Alcohol Use and Stress

There was a significant positive correlation between AUDIT scores and PSS scores ($r = 0.48$; $p < 0.01$).

3.5 Gender Differences

- Alcohol use was significantly higher among males (39%) compared to females (24%) ($p < 0.05$).
- Stress levels did not differ significantly by gender.

4. DISCUSSION

This study reveals that nearly one-third of healthcare trainees and staff engage in alcohol use, with a sizable proportion exhibiting hazardous use patterns. Medical students reported the highest alcohol use and stress, likely due to academic pressure and clinical exposure. Dental students also showed substantial stress levels, although

slightly lower than medical counterparts, possibly due to differences in curriculum load and clinical responsibilities.

Hospital technicians, while older and more professionally stable, exhibited notable alcohol use likely related to shift patterns, workload, and limited psychosocial support.

The correlation between alcohol use and stress highlights the need for targeted interventions that address stress management to reduce risk behaviors.

Comparison with Literature

Previous Indian studies report variable prevalence rates of alcohol use among medical students (10–40%) and high stress levels (30–60%). Our findings conform to this, emphasizing the persistent mental health burden in healthcare settings.

5. STRENGTHS AND LIMITATIONS

Strengths:

- Inclusion of diverse healthcare groups
- Use of standardized validated tools

Limitations:

- Cross-sectional design precludes causal inference
- Self-reported data susceptible to bias
- Single-center sample limits generalizability

6. RECOMMENDATIONS

- Mandatory stress management workshops
- Routine mental health screening for students and staff
- Formation of counseling and peer support units
- Alcohol use awareness and cessation programs

7. CONCLUSION

Alcohol use and psychological stress are prevalent among medical and dental students and hospital technicians in India. There is a clear association between stress and alcohol use, particularly in medical students. Institutional policies and supportive interventions are imperative to safeguard the wellbeing of healthcare trainees and professionals.

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