International Journal of Science and Research (IJSR)
ISSN: 2319-7064
Impact Factor 2025: 7.089

# The Hidden Menace: Analyzing Alcohol Abuse and Risk Factors in Medical Students

**Thacker Shriya Himmat[1], Vikas Dalal[2], Uddhav Kumbhar[3]**

**Abstract:** ***Background: Due to high baseline academic stress, frequent peer socialization, and decreased parental supervision, medical students represent a particularly vulnerable demographic when it comes to alcohol consumption among young adults, which is a major global public health concern. The purpose of this study is to evaluate the prevalence, consumption trends, and related risk factors of alcohol use among interns and undergraduate medical students. Materials and Methods: 114 undergraduate medical students and interns at the Krishna Institute of Medical Sciences "Deemed to be a University" (KIMSDU), Karad, Maharashtra, India, participated in a convenience sample cross-sectional observational study. A digital, semi-structured questionnaire disseminated via online channels was used to gather data. The standardized 10-item World Health Organization Alcohol Use Disorders Identification Test (AUDIT) scale, behavioral factors, and sociodemographic indicators were all included in the evaluation. For inferential statistical analysis, chi-square tests were employed, and p < 0.05$ was deemed statistically significant. Results: The results showed that the majority of participants (n = 84) preferred English liquors, with hard liquor being the preferred option (n = 45). While celebrations (n = 63) and curiosity (n = 60) drove initial consumption, enjoyment/recreation (n = 72) and managing academic stress (n = 27) drove continued use. 51 individuals were categorized as low risk, 51 as risky, 9 as harmful, and 18 as severe based on AUDIT risk stratification. Parental awareness (p = 0.2683), monthly spending (p = 0.07), and initial drinking triggers (p = 0.3579) did not significantly correlate with AUDIT risk scores, according to inferential analysis. In conclusion, the study shows that among medical students, risky drinking habits and high-risk AUDIT scores are alarmingly common. These results highlight the critical need for medical schools to establish regular, private screening and easily accessible mental health services in order to protect students' health and professional standards.***

**Keywords:** Academic stress, risk factors, substance abuse, medical students, alcohol consumption, and the AUDIT scale

## 1. Introduction

Alcohol consumption among teenagers and young adults is a global public health concern that poses significant health and social challenges in many nations, including India [1]. Alcohol is now the most commonly abused substance among college-bound students [2], with daily consumption rising dramatically in recent years [1, 3]. Alcohol abuse increases a student's risk of negative outcomes, such as aggressive behavior, poor academic performance, depression, suicidal thoughts, and risky sexual behavior [2, 3]. Every year, thousands of college students between the ages of 18 and 24 sustain fatal unintentional alcohol-related injuries, according to research published in the Journal of Studies on Alcohol and Drugs [4]. In a similar vein, research indicates that approximately one in four college students suffer direct academic consequences from drinking, including missed classes, poor test scores, and lower overall grades [5].

In both urban and rural settings, alcohol consumption is widespread [6]. Although alcohol consumption has been known throughout human history, it has become much more common among young adults in recent decades [6, 13]. Due to the tremendous psychological and academic demands of their training, medical students in higher education constitute a particularly vulnerable but vital demographic [2, 7]. Misuse is on the rise due to a number of factors, including increased personal freedom, less parental supervision, frequent peer socialization, and high baseline stress [2, 6].

Understanding the precise prevalence, preferred beverages, cost, and behavioral drivers of alcohol consumption is crucial because the attitudes and behaviors developed during medical school have a direct impact on future professional conduct and patient care [2, 6]. Validated screening tools, like the World Health Organization's Alcohol Use Disorders Identification Test (AUDIT), efficiently detect risky drinking and reduce negative consequences [4, 14]. In order to provide targeted institutional counseling and preventive strategies, this study attempts to assess the prevalence, consumption patterns, and associated risk factors of alcohol use among medical students.

## 2. Materials and Methodology

### Study Design

A cross-sectional, observational study design was employed to assess the prevalence, patterns, and behavioral determinants of alcohol consumption among medical students.

### Study Setting and Population

The study was conducted among undergraduate medical students and interns at the **Krishna Institute of Medical Sciences "Deemed to be University" (KIMSDU), located in Karad, Maharashtra, India**.

### Inclusion Criteria

- Undergraduate medical students and interns currently enrolled at KIMSDU, Maharashtra.
- Participants aged 21 years and above.
- Individuals owning a smartphone with active internet connectivity and fluency in English.
- Participants who provided voluntary informed consent to participate in the survey.

### Exclusion Criteria

- Students below 21 years of age.
- Non-consenting students or those unwilling to complete the digital questionnaire.
- Students who were not fluent in English or lacked access to the digital survey platform.
- Incomplete or improperly filled-out survey responses.

**Sample Size Calculation**
Accounting for potential non-responses or incomplete entries, a target sample size of approximately **114 participants** was established, which was successfully achieved through the data collection phase across the university [6, 12].

**Sampling Technique**
**Convenience Sampling:** A convenient sampling technique was utilized, allowing researchers to choose respondents directly from the accessible pool of the eligible student population at KIMSDU, Maharashtra. This method ensured both time and cost efficiency during data collection [6, 12].

**Study Tool and Data Collection**
a) **Instrument:** A semi-structured questionnaire was custom-built using Google Forms, featuring simple and intelligible English to ensure clarity.
b) **Distribution Channels:** The survey link was distributed digitally via academic and social communication channels, including WhatsApp groups, emails, and student networking platforms. Peer-to-peer forwarding among students at KIMSDU further facilitated sample accumulation.
c) **Questionnaire Structure:**
- **Socio-Demographic & General Profile:** Information regarding academic year, institute affiliation, substance preferences, monthly pocket money expenditure, and spending per drinking sitting.
- **Behavioral & Social Indicators:** Items assessing peer influence, familial awareness, co-substance usage (e.g., smoking tobacco, weed), and economic compromises made to afford alcohol.
- **AUDIT Scale:** A dedicated section incorporated the standardized 10-item **Alcohol Use Disorders Identification Test (AUDIT)** developed by the World Health Organization (WHO) to quantify alcohol consumption severity and dependency risk [4, 14].

**Statistical Analysis**
Data extracted from Google Forms were compiled and analyzed. Categorical variables were presented as frequencies and percentages ($n$). Cross-tabulations were performed to evaluate associations between AUDIT risk scores, monthly expenditure, parental awareness, and initiating causes of drinking. Hypothesis testing was conducted using the **Chi-square ($\chi^2$) test**, with a $p$-value of less than $0.05$ considered statistically significant.

## 3. Results

**1) Consumption Patterns and Preferences**
- **Beverage and Brand Preferences:** Among preferred types of alcohol, hard liquor was the most commonly reported choice (n = 45), followed by beer (n = 27) and wine (n = 24), while 18 respondents preferred other options. Regarding general preferences, English liquors were favored by 84 participants, whereas 24 indicated that it does not matter as long as it sets the mood, and 6 reported that choice depends on available money.
- **Monthly Pocket Money Expenditure:** The majority of respondents (n = 66) spent between ₹100–1,000 monthly on alcohol, followed by ₹1,000–5,000 (n = 36), ₹5,000–10,000 (n = 9), and greater than ₹10,000 (n = 3).
- **Expenditure per Sitting:** In a single drinking session, 42 participants spent between ₹300–1,000, 33 spent less than ₹100, 27 spent ₹100–300, and 12 spent greater than ₹1,000.

**2) Behavioral and Social Indicators**
- **Company During Consumption:** Alcohol was most frequently consumed with friends (n = 84), followed by drinking alone (n = 48), with family (n = 15), or with strangers (n = 6).
- **Financial and Personal Compromises:** 18 participants reported borrowing money to afford monthly alcohol, while 6 did so sometimes and 84 did not. Similarly, 18 students admitted to lying to their family to secure extra money for alcohol expenses, 18 reported doing so sometimes, 75 did not, and 3 could not say.
- **Substance Co-usage & Basic Needs:** Co-substance usage alongside or other than alcohol (such as smoking, weed, or hard drugs) was confirmed by 30 respondents, with 84 reporting no co-substance usage. Furthermore, 30 students stated they had to compromise on basic needs to afford their monthly alcohol expenses, against 84 who did not.

**3) Initiation and Motivations for Drinking**
- **First-Time Triggers:** Initial consumption was primarily attributed to celebrations (n = 63) and curiosity (n = 60), followed by stress (n = 24), overcoming pain (n = 15), and peer pressure (n = 9).
- **Primary Motivation to Continue:** The leading motivation for continued drinking was enjoyment/recreation (n = 72), followed equally by heartbreak, academic stress, and loneliness (n = 27 each), with family problems accounting for 9 responses.
- **Onset of Consumption:** Initiation timing varied across academic progression: 39 started during the 2nd/3rd year, 30 during the internship phase, 27 during the 1st year, and 18 before college/during preparation.

**4) Perceptions and Awareness**
- **Self-Categorization:** 72 participants viewed themselves as occasional drinkers, 18 as alcoholics, 12 as crisis drinkers, and 12 categorized themselves under other groups.
- **Impact of Medical Education:** After entering medical college and learning about adverse health effects, 30 participants reported that their consumption remained the same, 30 reported an increase, 27 reported a decrease, and 27 were unsure.
- **Peer Comparison & Estimates:** Regarding comparative volume, 36 students believed they drank more than non-medical peers, 30 drank less, 15 stayed on the same level, and 33 could not say. Estimates of peer involvement showed that 39 participants believed 50–80% of their classmates consumed alcohol, 33 estimated more than 80%, 21 estimated less than 10%, 9 estimated 10–30%, 6 estimated 30–50%, and 6 thought they were the only ones.
- **Health Awareness & Parental Knowledge:** While 42 participants felt "pretty much" aware of systemic ill effects and 27 knew some, 39 felt their peers did not

know, and 6 had not read about them. Regarding parental awareness, 60 parents were reported to be unaware, 30 were fine with it, 15 drank often with the student, and 9 found out subsequently.

**5) AUDIT Risk Stratification**

Standardized scoring via the WHO AUDIT scale classified the participant pool into distinct severity tiers:

- **Low Risk (Score 0–3):** n = 51
- **Risky (Score 4–9):** n = 51
- **Harmful (Score 10–13):** n = 9
- **Severe (Score 14+):** n = 18

**6) Inferential Statistics & Cross-Tabulations**

**Table 1:** AUDIT Score vs. Parental Awareness of Alcohol Consumption

| Audit Score | Parents Aware (n) | Parents Unaware (n) | Total |
|---|---|---|---|
| >9 | 15 | 12 | 27 |
| <9 | 39 | 63 | 102 |

- **Statistical Parameters:** $chi^2 = 2.63$, $p = 0.2683$
- **Inference:** There was no statistically significant association ($p > 0.05$) between parental awareness of alcohol consumption and the student's AUDIT risk severity score.

**Table 2:** AUDIT Score vs. Monthly Alcohol Expenditure

| Audit Score | Total Individuals (n) | Monthly Expenditure > ₹5,000 (n) | Monthly Expenditure ≤ ₹5,000 (n) |
|---|---|---|---|
| >9 | 27 | 0 | 27 |
| <9 | 102 | 12 | 90 |

- **Statistical Parameters:** $chi^2 = 3.10$, $p = 0.07$
- **Inference:** Although a distinct distribution trend is visible, the association between higher monthly expenditure levels and higher AUDIT risk stratification thresholds did not cross the threshold for conventional statistical significance ($p > 0.05$).

**Table 3:** AUDIT Score vs. Initiating Causes of Drinking (Multiple Response)

| Audit Score | Total (n) | Just for Curiosity (n) | Celebration (n) | Stress (n) | Overcome Pain (n) | Peer Pressure (n) |
|---|---|---|---|---|---|---|
| >9 | 27 | 15 | 6 | 15 | 6 | 0 |
| <9 | 102 | 54 | 54 | 21 | 9 | 9 |

- **Statistical Parameters:** $chi^2 = 5.50$, $p = 0.3579$
- **Inference:** The distribution of primary initiating triggers showed no statistically significant difference across high-risk versus low-risk AUDIT categories, indicating uniform motivational origins prior to escalation.

## 4. Discussion

Alcohol use among young adults is a serious public health and professional issue, especially for interns and undergraduate medical students [1, 2]. A particularly vulnerable environment for substance abuse during medical training is created by the demanding academic environment, high baseline psychological stress, increased personal freedom, and decreased parental supervision [2, 6, 7]. This cross-sectional observational study assessed the prevalence, consumption trends, and behavioral risk factors related to alcohol use among medical students at the Krishna Institute of Medical Sciences "Deemed to be University" (KIMSDU) in Karad, Maharashtra.

**Drink Preferences and Consumption Trends**

The results show that among medical students, hard liquor is the most popular option (n = 45), followed by wine (n = 24) and beer (n = 27). This preference is consistent with earlier research showing that young Indian student populations have a clear preference for high-potency spirits [2, 3]. The overwhelming majority (n = 84) preferred English liquors, indicating that social status and brand perception affect beverage choice.

In terms of financial commitment, most respondents reported monthly expenses between ₹100–1,000 (n = 66) and ₹1,000–5,000 (n = 36), with single-sitting expenses typically falling between ₹300–1,000 (n = 42). A subset of students reported much higher outlays, despite the fact that lower monthly brackets were typical. This reflects a variety of socioeconomic backgrounds and varying degrees of use.

**Co-Substance Use and Behavioral Indicators**

Peer socialization is a major driver of consumption behavior, as evidenced by the fact that the great majority of participants (n = 84) reported drinking mostly with friends [2, 6]. Interestingly, a troubling percentage (n = 48) reported drinking alone, which is frequently a sign of psychological distress, coping strategies, or increasing dependence [5].

A significant portion (n = 30) of participants admitted to compromising on basic needs, and several admitted to borrowing money or lying to family members to pay for their alcohol expenses, demonstrating the financial distress caused by substance abuse. Additionally, a poly-substance vulnerability that exacerbates the physiological and psychological risks reported in literature is highlighted by the confirmation of co-substance usage (e.g., tobacco or cannabis) by thirty respondents [3, 8].

**Motivation and Initiation**

Celebrations (n = 63) and curiosity (n = 60) were the main causes of initial consumption, followed by stress (n = 15) and peer pressure (n = 9). But the main reasons for continued consumption changed to enjoyment and leisure (n = 72), along with coping strategies for loneliness, heartbreak, and academic stress (n = 27 each). These results are consistent with earlier research showing that, although experimentation frequently starts out of curiosity or celebratory contexts, escalation is often sustained by the ongoing academic and occupational pressures inherent in medical education [2, 4, 5].

**Inferential Analysis and Risk Stratification for Audits**

Participants were successfully categorized into risk tiers using the Alcohol Use Disorders Identification Test (AUDIT) developed by the World Health Organization [14]. The Risky (Score 4–9)(n = 51) and Harmful/Severe (Score 10+) (n = 27) categories included a sizable portion,

suggesting that a sizable minority engage in risky drinking behaviors that necessitate institutional intervention [4].

**Several noteworthy findings were obtained from inferential cross-tabulation analysis:**

**Table 1: Parental Awareness:** There was no statistically significant correlation between parental awareness and higher AUDIT risk scores, according to the Chi-square analysis ($chi^2 = 2.63$, $p = 0.2683$). This implies that personal autonomy and being away from home during college years separate parental supervision from heavy drinking [2, 6].

**Monthly Spending versus Risk (Table 2):** The association did not reach conventional statistical significance ($chi^2 = 3.10$, $p = 0.07$), suggesting that hazardous drinking occurs across a range of economic spending tiers, despite the fact that individuals with higher AUDIT scores (>9) displayed particular expenditure distributions [12].

**Risk vs. Initiating Triggers (Table 3):** The distribution of initiating causes revealed no significant difference between high-risk and low-risk groups ($chi^2 = 5.50$, $p = 0.3579$), suggesting that escalation is dependent on individual coping styles and environmental reinforcement rather than the initial reason for trying alcohol [4, 6]. Initial triggers, such as curiosity or celebration, are universal.

## 5. Implications and Limitations

The results highlight the critical need for preventive education programs, mental health support, and focused institutional counseling at medical universities [4, 12]. Proactive screening with validated instruments such as the AUDIT is crucial because attitudes developed during medical training have a direct impact on future professionalism and patient care [2, 6, 14].

But there are a few restrictions to be aware of. The study's small sample size (n = 114) and convenience sampling within a single university setting (KIMSDU, Maharashtra) restrict the findings' applicability to all medical students in India [6, 12]. Furthermore, self-reported digital surveys may underreport the severity of consumption due to recall and social desirability biases. It is advised that larger, randomized cohorts be used in future multicentric studies to confirm these results and track long-term patterns.

## 6. Conclusion

According to this study, peer socialization, curiosity, and ongoing academic stress are the main causes of the alarmingly high prevalence of hazardous alcohol consumption and risky drinking patterns among medical students. The results highlight the critical need for institutional action because a sizable portion of participants fell into high-risk AUDIT categories, along with reported co-substance use and financial compromises. To protect students' well-being and guarantee ethical behavior, medical schools must establish regular, private screenings and easily accessible mental health services.

## References

[1] Ningombam S, Hutin Y, Murhekar MV. Prevalence and pattern of substance use among the higher secondary school students of Imphal, Manipur, India. The National Medical Journal of India. 2011;24(1):11–5.
[2] Garg A, Chavan BS, Singh GP, Bansal E. Patterns of alcohol consumption in medical students. Journal of the Indian Medical Association. 2009;107(3):151–5.
[3] Gupta S, Sarpal SS, Kumar D, Kaur T, Arora S. Prevalence, pattern and familial effects of substance use among the male college students—A north Indian study. Journal of Clinical and Diagnostic Research (JCDR). 2013;7(8):1632–6.
[4] Gajda M, Sedlaczek K, Szemik S, Kowalska M. Determinants of alcohol consumption among medical students: Results from POLLEK cohort study. International Journal of Environmental Research and Public Health. 2021;18(11):5872.
[5] Yoo HH, Cha SW, Lee SY. Patterns of alcohol consumption and drinking motives among Korean medical students. Medical Science Monitor. 2020;26:e921613.
[6] Freire BR, Castro PASV, Petroianu A. Alcohol consumption by medical students. Revista da Associação Médica Brasileira. 2020;66(7):943–7.
[7] Rai D, Gaete J, Girotra S, Pal HR, Araya R. Substance use among medical students: Time to reignite the debate? The National Medical Journal of India. 2008;21(2):75–8.
[8] Kumar P, Basu D. Substance abuse by medical students and doctors. Journal of the Indian Medical Association. 2000;98(8):447–52.
[9] Singh G. Drug use among medical students—I. Prevalence of pattern of use. Indian Journal of Psychiatry. 1979;21(4):332–8.
[10] Tessier JF, Fréour P, Belougne D, Crofton J. Smoking habits and attitudes of medical students towards smoking and antismoking campaigns in nine Asian countries. International Journal of Epidemiology. 1992;21(2):298–304.
[11] Gupta S, Kumar D, Aeri BT, Gupta A. Substance abuse amongst the medical graduate students in a developing country. Journal of Clinical and Diagnostic Research. 2016;10(4):VC01–4.
[12] Sircar S, Sengupta P, Chaudhuri S. Magnitude of substance use and its associated factors among the medical students in India and implications for medical education: A narrative review. Journal of Family Medicine and Primary Care. 2022;11(5):1650–8.
[13] Ambekar A, Agrawal A, Rao R, Mishra AK, Khandelwal SK, Chadda RK. Magnitude of substance use in India. New Delhi: Ministry of Social Justice and Empowerment, Government of India; 2019.
[14] Babor TF, Higgins-Biddle JC, Saunders JB, Monteiro MG. AUDIT: The Alcohol Use Disorders Identification Test: Guidelines for use in primary care. 2nd ed. Geneva: World Health Organization; 2001.
[15] Verenkar PS, Vaz FS. Prevalence of alcohol use and its pattern among undergraduate medical students in a medical college of Goa. Indian Journal of Community Health. 2020;32(2):374–8.