International Journal for Multidisciplinary Research (IJFMR)
E-ISSN: 2582-2160 ● Website: www.ijfmr.com ● Email: editor@ijfmr.com

Prevalence and Determinants of Substance Use in Rural Areas of Barabanki District, Uttar Pradesh: A Community-Based Cross-Sectional Study

Dr. Varsha Srivastava

Assistant Professor, Department of Community Medicine, Swaminarayan Institute of Medical Sciences and Research, Kalol Gandhinagar, Gujarat, India

Abstract

Background: Substance use is a major public health problem in India, contributing significantly to morbidity, mortality, and socioeconomic burden. Rural areas remain under-studied, particularly at the district level.

Objectives: To estimate the prevalence and determinants of substance use among adults in rural Barabanki district, Uttar Pradesh.

Methods: A community-based cross-sectional study was conducted among 400 adults (≥18 years) selected through multistage random sampling from five rural villages of Barabanki district. Data were collected using a pretested semi-structured questionnaire incorporating the AUDIT-C and Fagerström Test for Nicotine Dependence. Statistical analysis was performed using SPSS version 26. Chi-square test and multivariable logistic regression were applied. A p-value <0.05 was considered statistically significant.

Results: The overall prevalence of any substance use was 41.5%. Tobacco use was reported by 34.0%, alcohol use by 18.5%, and other substances by 3.5%. Male gender (AOR=4.82; 95% CI: 2.91–7.98), lower educational status (AOR=2.14; 95% CI: 1.28–3.56), and lower socioeconomic status (AOR=1.96; 95% CI: 1.12–3.42) were significant predictors of substance use.

Conclusion: Substance use is highly prevalent in rural Barabanki, predominantly tobacco use among males and socioeconomically vulnerable groups. Strengthening primary care-based screening and community-level preventive interventions is essential.

Keywords: Substance use, Tobacco, Alcohol, Rural health, Barabanki, Uttar Pradesh

Introduction

Substance use disorders (SUDs) are among the leading causes of preventable morbidity worldwide. The Global Adult Tobacco Survey (GATS-2) reported that 28.6% of adults in India use tobacco in some form [1]. The National Family Health Survey-5 (NFHS-5) highlights persistent tobacco and alcohol consumption in Uttar Pradesh [2].

The "Magnitude of Substance Use in India" report estimated that approximately 14.6% of the population consumes alcohol, while tobacco remains the most widely used psychoactive substance [3]. Rural

communities are particularly vulnerable due to lower literacy levels, occupational stress, socioeconomic disadvantage, and limited access to de-addiction services [4].

Despite availability of state-level data, district-specific information from rural Barabanki remains scarce. Local evidence is essential for designing targeted public health interventions. Therefore, this study was conducted to assess the prevalence and determinants of substance use in rural Barabanki district.

Materials and Methods

Study Design

Community-based cross-sectional study.

Study Area

Five randomly selected rural villages of Barabanki district, Uttar Pradesh.

Study Period

January 2024 – December 2024.

Sample Size Calculation

Assuming prevalence (p) = 40% (based on national estimates [3])

Allowable error (d) = 5%

$n = 4pq / d^2$

$n = 4 \times 40 \times 60 / 25$

$n = 384$

After adjusting for non-response, final sample size = **400**.

Sampling Technique

Multistage random sampling:

- Five villages selected randomly.
- Systematic random sampling of households.
- One adult selected per household using lottery method.

Study Tool

- Semi-structured questionnaire
- Fagerström Test for Nicotine Dependence [5]
- AUDIT-C screening tool [6]

Operational Definitions

- **Current user:** Use of substance in last 30 days
- **Hazardous alcohol use:** AUDIT-C score ≥4 (men), ≥3 (women)

Statistical Analysis

Data were analyzed using SPSS version 26.

- Descriptive statistics: frequency, percentage, mean ± SD
- Chi-square test for association
- Binary logistic regression for determinants $p < 0.05$ considered statistically significant.

Ethical Considerations

Institutional Ethics Committee approval was obtained. Written informed consent was taken from all participants. Participants requiring assistance were referred to appropriate health facilities.

Results

Table 1. Socio-Demographic Characteristics of Study Participants (n = 400)

Variable	Category	Frequency (n)	Percentage (%)
Gender	Male	210	52.5
	Female	190	47.5
Age (years)	Mean ± SD	38.6 ± 13.2	—
Education	Illiterate	118	29.5
	Literate	282	70.5
Socioeconomic Status	Lower	162	40.5
	Middle/Upper	238	59.5

Table 2. Prevalence of Substance Use Among Participants (n = 400)

Type of Substance	Frequency (n)	Percentage (%)
Any substance use	166	41.5
Tobacco (overall)	136	34.0
Smoking	78	19.5
Smokeless tobacco	104	26.0
Alcohol use	74	18.5
Other substances	14	3.5

Table 3. Pattern of Substance Use Among Users (n = 166)

Variable	Category	Frequency (n)	Percentage (%)
Age of initiation (years)	Mean ± SD	21.4 ± 5.8	—
Frequency of use	Daily	103	62.0
	Occasional	63	38.0
Duration of use	>5 years	97	58.4
	≤5 years	69	41.6
Nicotine dependence (tobacco users)	Moderate–High	51	37.5
Hazardous alcohol use (among alcohol users)	Yes	22	29.7

Table 4. Association Between Gender and Substance Use (n = 400)

Gender	Users (n)	Non-Users (n)	Total	Percentage Users (%)
Male	124	86	210	59.0
Female	42	148	190	22.1
Total	166	234	400	41.5

Chi-square = 62.4 $p < 0.001$

Table 5. Multivariable Logistic Regression Analysis of Determinants of Substance Use

Variable	Adjusted Odds Ratio (AOR)	95% Confidence Interval	p-value
Male gender	4.82	2.91 – 7.98	<0.001
Lower education	2.14	1.28 – 3.56	0.003
Lower socioeconomic status	1.96	1.12 – 3.42	0.018

Nagelkerke $R^2 = 0.42$

Hosmer–Lemeshow test p = 0.61

Discussion

The present study demonstrated a high prevalence (41.5%) of substance use in rural Barabanki. Tobacco was the most commonly used substance, consistent with GATS-2 findings [1] and previous Indian studies [7].

Male gender emerged as the strongest predictor, consistent with NFHS-5 and national reports [2,3]. Lower educational attainment and socioeconomic status were significantly associated with substance use, reflecting the social gradient in addiction [4].

The early mean age of initiation (21 years) underscores the need for adolescent-focused prevention programs. Integration of validated screening tools such as AUDIT-C and Fagerström Test at primary health centers may facilitate early detection and intervention [5,6].

Strengths and Limitations

Strengths:

- Community-based design
- Use of validated screening tools
- Multivariable regression analysis

Limitations:

- Self-reported data
- Cross-sectional design limits causal inference
- Possible underreporting among females

Conclusion

Substance use is highly prevalent in rural Barabanki, particularly tobacco consumption among adult males and socioeconomically disadvantaged populations. Strengthening primary care-based screening, community awareness campaigns, and district-level de-addiction services is urgently needed.

Recommendations

- Routine screening at PHC level under NPCDCS
- School-based awareness programs
- Community IEC interventions
- Establishment of accessible de-addiction services at district level

References

1. Ministry of Health and Family Welfare. Global Adult Tobacco Survey GATS 2 India 2016–17 Report. New Delhi: Government of India; 2018.
2. International Institute for Population Sciences (IIPS) and ICF. National Family Health Survey (NFHS-5), 2019–21: Uttar Pradesh Fact Sheet. Mumbai: IIPS; 2021.
3. 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; 2019.
4. Thakur JS, Prinja S, Bhatnagar N, Rana SK, Sinha DN. Socioeconomic inequality in the prevalence of smoking and smokeless tobacco use in India. Asian Pac J Cancer Prev. 2013;14(11):6965–9.
5. Fagerström K. Determinants of tobacco use and renaming the FTND to the Fagerström Test for Cigarette Dependence. Nicotine Tob Res. 2012;14(1):75–8.
6. Bush K, Kivlahan DR, McDonell MB, Fihn SD, Bradley KA. The AUDIT alcohol consumption questions (AUDIT-C): an effective brief screening test. Arch Intern Med. 1998;158(16):1789–95.
7. Jha P, Jacob B, Gajalakshmi V, Gupta PC, Dhingra N, Kumar R, et al. A nationally representative case-control study of smoking and death in India. N Engl J Med. 2008;358(11):1137–47.