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ORIGINAL ARTICLE

A Questionnaire-Based Cross Sectional Study on the Prevalence of Substance Abuse among Age 17 to 25 Years in the Chengalpattu Population with Medico Legal Perspectives

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ABSTRACT

Background: Substance abuse among young individuals represents a growing public health concern with significant social, psychological, and medico-legal implications. The age group of 17–25 years constitutes a vulnerable transitional phase during which initiation of substance use may result in dependence, health deterioration, academic impairment, and legal consequences.[1]

Aim: To determine the prevalence and patterns of substance abuse among individuals aged 17–25 years in the Chengalpattu population and to assess associated medico-legal perspectives.

Methodology: A questionnaire-based cross-sectional study was conducted among participants aged 17–25 years residing in Chengalpattu district. Data on socio-demographic characteristics, substance use patterns, reasons for initiation, frequency of use, features suggestive of dependence, and associated behavioral and medico-legal issues were collected using a structured questionnaire. Descriptive and inferential statistical analyses were performed.

Results: The overall prevalence of substance use was 9.8%. Alcohol was the most commonly used substance, followed by tobacco and cannabis. A proportion of substance users exhibited features suggestive of dependence. Substance use showed associations with family-related issues, health problems, sleep deprivation, and medico-legal concerns, including exposure to violence.

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Conclusion: The study demonstrates a notable prevalence of substance abuse among youth in the Chengalpattu population, influenced by socio-demographic and psychosocial factors. The observed medico-legal implications highlight the need for targeted preventive strategies, youth-focused counseling, and coordinated public health and legal interventions to reduce substance-related harm.

KEYWORDS

• Substance abuse • Tobacco • Alcohol • medicolegal issues • Chengalpattu population

INTRODUCTION

Substance use disorders among adolescents and young adults pose a significant global public health and medico-legal challenge. The 17–25-year age group marks a critical developmental period with heightened vulnerability to psychoactive substances due to peer influence, academic or occupational stress, socioeconomic challenges, and greater access to addictive agents.[1-3] Globally, these disorders impact millions, primarily through alcohol, tobacco, cannabis, inhalants, and opioids; Global Burden of Disease estimates report approximately 29.7 million cases among individuals aged 10–24 years.[4-6]

In India, youth substance use represents an escalating public health concern. National surveys highlight prevalent alcohol and tobacco use among adolescents, with early onset of inhalants and opioids in certain regions.[7,8] Early exposure increases the risk of dependence, psychiatric morbidity, academic decline, risky behaviors, and legal involvement.[9,10] Young adults transitioning to higher education or employment experience psychosocial stressors that further predispose them to substance misuse.[11]

Despite the availability of national data, region-specific evidence remains limited, particularly in districts such as Chengalpattu.[12] Understanding substance use from a medico-legal perspective is essential, given its association with violence, road traffic accidents, and narcotic offences.[13,14] Questionnaire-based cross-sectional studies provide an effective approach to assessing prevalence, patterns, and medico-legal consequences.[15] The present study evaluated substance abuse among individuals aged 17–25 years in Chengalpattu district from a medico-legal perspective.

MATERIALS AND METHODS

This questionnaire-based observational descriptive cross-sectional study was conducted among individuals aged 17–25 years residing in Chengalpattu district after obtaining approval from the Institutional Ethics Committee.[16] The study population included students, employed, and unemployed youth. Stratified random sampling was used to ensure representation across gender, educational or occupational status, and urban–rural residence.[17]

The sample size was calculated using the standard formula for prevalence studies with a 95% confidence interval and allowable error of 4%.[18] Eligible participants provided informed consent prior to participation.[19]

Data were collected using a pre-tested structured questionnaire developed through literature review and expert validation.[20] Data were analyzed using standard statistical methods, with categorical variables summarized as frequencies and percentages, and associations assessed using the chi-square test with a significance level of $p < 0.05$.[21]

RESULTS

A total of 347 participants were included in the study. The majority were students (99.7%), with most respondents aged between 17 and 25 years, and 21 years being the most frequent age. Educational status revealed that 93.9% were undergraduates, followed by higher secondary (6.9%), postgraduates (1.7%), and illiterate participants (0.6%). Half of the participants belonged to families with four members (50.1%), while 17.9% and 18.4% belonged to families with three and six members respectively (Table 1).

The overall prevalence of substance use was 9.8% (34/347). Alcohol was the most commonly reported substance (8.4%), followed by tobacco

(4.9%) and cannabis (1.7%). Among substance users, alcohol use was reported by 85.29%, tobacco by 50%, cannabis and sedatives by 17.65% each, and hallucinogens by 11.76% (Table 2, Figure 1). Features suggestive of dependence were observed in 26.47% of substance users.

Table 1: Socio-demographic characteristics of the study population

Variable	Frequency	Percentage
Education		
Undergraduate	326	93.9
Higher Secondary	24	6.9
Postgraduate	6	1.7
Illiterate	2	0.6
Family Size		
4 members	174	50.1
3 members	62	17.9
6 members	64	18.4

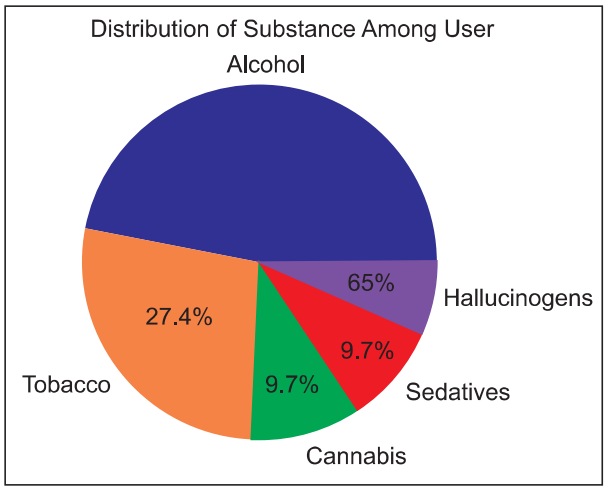

Figure 1: Distribution of substances among users

Table 2: Pattern of substance use among study participants

Substance	Users (n)	% of Total	% Among Users
Alcohol	29	8.4	85.29
Tobacco	17	4.9	50.00
Cannabis	6	1.7	17.65
Sedatives	6	1.7	17.65
Hallucinogens	4	1.1	11.76

Substance use prevalence was higher among participants sleeping for less than six hours per day (11.54%) compared to those sleeping six to eight hours (8.65%). Participants reporting mixed sleep patterns demonstrated a prevalence of 11.11% (Table 3, Figure 2).

Table 3: Association between sleep duration and substance use

Sleep Duration	Substance Use Rate
6–8 hours	8.65%
<6 hours	11.54%
Mixed	11.11%

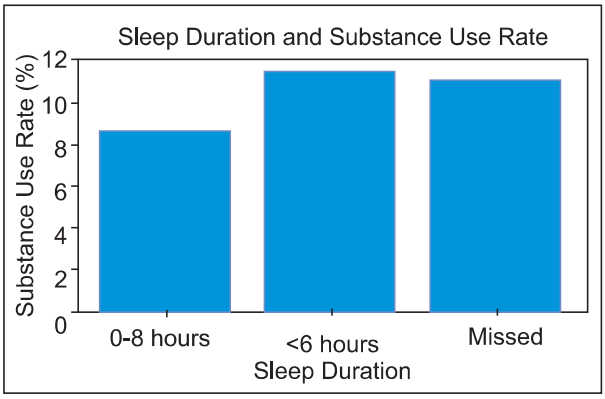

Figure 2: Association between sleep duration and substance use

Family-related issues were reported by 38.24% of substance users compared to 13.10% of non-users, yielding a risk ratio of 2.92 and an odds ratio of 4.11. Health-related issues were reported by 23.53% of users and 4.15% of non-users (RR 5.67; OR 7.10). Sleep deprivation demonstrated a weaker association (RR 1.20; OR 1.37) (Table 4, Figure 3).

Table 4: Association of selected risk factors with substance use

Risk Factor	Non-Users (%)	Users (%)	Risk Ratio	Odds Ratio
Family Issues	13.10	38.24	2.92	4.11
Health Issues	4.15	23.53	5.67	7.10
Sleep Deprivation	39.30	47.06	1.20	1.37

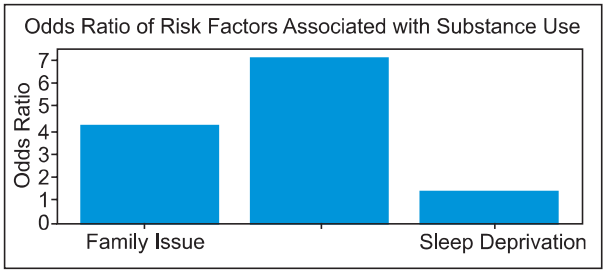

Figure 3: Odds ratio comparison of selected risk factors

Participants with all three risk factors demonstrated a substantially higher prevalence of substance use (17.65%) compared to non-users (2.24%) (Table 5).

Table 5: Distribution of substance use according to cumulative risk factors

Risk Profile	Non-Users (%)	Users (%)
No risk factors	55.27	35.29
One risk factor	35.14	38.24
Two risk factors	7.35	8.82
All three risk factors	2.24	17.65

From a medico-legal perspective, 18.7% of respondents reported experiencing or witnessing violence related to substance abuse. Nearly half of the participants perceived substance abuse to be associated with violent or criminal behavior (Figure 4).

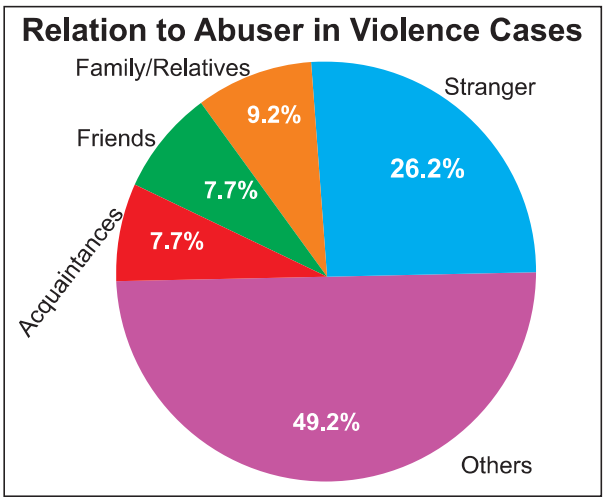

Figure 4: Perceived association between substance use and violence/criminal behavior

DISCUSSION

The present questionnaire-based cross-sectional study highlights the prevalence and medico-legal correlates of substance abuse among individuals aged 17–25 years in the Chengalpattu population. The observed prevalence of 9.8% indicates that substance use remains a significant concern even among predominantly student populations, reflecting early initiation and normalization of substance use during late adolescence and young adulthood. Comparable prevalence rates have been reported in institution-based studies from South India, underscoring that educational attainment alone does not confer protection against substance use.[22,23]

Alcohol and tobacco were the most frequently used substances, followed by cannabis, a pattern consistent with regional and international literature identifying licit substances as the most accessible and socially sanctioned entry points into substance use among youth.[24] The "gateway substance" hypothesis postulates that early exposure to alcohol and tobacco increases susceptibility to experimentation with illicit drugs and subsequent dependence, thereby amplifying long-term health and social consequences.[25]

Although opioid use was not prominent in the present cohort, the identification of polysubstance use among a subset of participants is of notable medico-legal relevance. Forensic literature emphasizes that even intermittent polydrug use substantially increases the risk of acute toxicity, atypical clinical presentations, and sudden death. The narrative review by Barman and Mukesh highlights that contemporary opioid-related fatalities are frequently driven by unrecognized interactions with alcohol or sedatives, complicating both clinical management and post-mortem interpretation.[26]

Peer pressure emerged as the most commonly reported factor for initiation of substance use. Neurodevelopmental and behavioral studies demonstrate heightened reward sensitivity and immature impulse control during adolescence and early adulthood, rendering this group particularly vulnerable to peer influence.[27,28] These findings support the effectiveness of peer-led preventive strategies, rather than interventions focused solely on individual behavior modification.

A significant association was observed between substance use and family-related issues, health problems, and sleep deprivation. Participants reporting family dysfunction or pre-existing health concerns demonstrated higher odds of substance use, suggesting maladaptive coping in response to psychosocial stressors. Similar associations have been documented in community-based studies linking substance use with emotional distress, family conflict, and lifestyle dysregulation.[29]

From a medico-legal perspective, nearly one-fifth of respondents reported witnessing or experiencing substance-related violence, and many perceived a direct link between substance use and criminal behavior. Substance intoxication is a well-established contributory factor in interpersonal violence, road traffic accidents, and public disorder,

often complicating assessment of criminal responsibility and forensic opinion.[30] The involvement of strangers in several incidents further underscores the broader societal impact of youth substance abuse beyond the domestic setting.

Overall, the findings emphasize the need for early identification of modifiable risk factors, including poor sleep hygiene, family stressors, and untreated health problems. Preventive approaches integrating mental health screening, family-based interventions, and awareness of medico-legal consequences may limit progression to dependence and reduce subsequent legal complications. From a forensic standpoint, improved documentation, early referral, and anticipatory guidance may help prevent fatal outcomes and reduce the burden on the criminal justice system.[31]

CONCLUSION

The present study establishes that substance abuse among individuals aged 17–25 years in the Chengalpattu population, though affecting a minority (9.8%), represents a significant public health and medico-legal concern. Alcohol and tobacco were the predominant substances, reaffirming their role as socially accepted gateway agents during late adolescence. Substance use showed significant associations with peer pressure, family-related stressors, health problems, and sleep deprivation, indicating a multifactorial and potentially preventable pattern. The reported occurrence of substance-related violence, including incidents involving strangers, highlights broader public safety and legal implications. Early screening of at-risk youth, targeted educational measures, family-based interventions, and awareness of medico-legal consequences are essential to prevent progression to dependence and reduce substance-related morbidity and legal burden.

Limitation:

This cross-sectional, self-reported study limits causal inference and may be affected by reporting bias. The predominantly student-based sample from a single district may restrict generalizability. Objective biochemical validation and standardized diagnostic assessments were not undertaken.

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