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PATTERNS OF ALCOHOL AND DRUG USE AMONG YOUNG ADULTS IN TABUK REGION, SAUDI ARABIA

PADRÕES DE USO DE ÁLCOOL E DROGAS ENTRE JOVENS ADULTOS EM REGIÃO DE TABUK, ARÁBIA SAUDITA

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Abstract
Substance use among young adults is an increasing societal health concern and is linked to physical, mental, and social outcomes. This cross-sectional study examined patterns of substance use, demographic distribution of alcohol use, drug use and types of drug use among young adults in Tabuk Region, Saudi Arabia, using a questionnaire to collect demographic information and Addiction Severity Index (ASI-6) to measure alcohol and drug use. The descriptive statistics analyses were performed to examine patterns of alcohol and drug use using SPSS. The findings reveal that 35.8% of respondents reported lifetime use of any substance, while 34.7% reported use within the past 30 days. Alcohol consumption was reported by 19.5% of respondents for both lifetime and recent alcohol use, with 9.2% indicating alcohol intoxication, reflecting the presence of higher-risk drinking behaviours.

Resumo
O uso de substâncias entre adultos jovens é uma preocupação crescente de saúde pública, estando associado a desfechos físicos, mentais e sociais. Este estudo transversal examinou os padrões de uso de substâncias, a distribuição demográfica do consumo de álcool, o uso de drogas e os tipos de drogas utilizados entre adultos jovens na Região de Tabuk, Arábia Saudita, utilizando um questionário para coletar informações demográficas e o Índice de Gravidade da Dependência (ASI-6) para medir o uso de álcool e drogas. Foram realizadas análises estatísticas descritivas para examinar os padrões de consumo de álcool e drogas por meio do SPSS. Os resultados mostram que 35,8% dos respondentes relataram uso de alguma substância ao longo da vida, enquanto 34,7% relataram uso nos últimos 30 dias. O consumo de álcool foi relatado por 19,5% dos participantes tanto ao longo da vida quanto

Meanwhile, drug use prevalence was higher, with 34.7% reporting lifetime use and 35.8% recent use. The most commonly used types of substances were cannabis, heroin, and amphetamines, with amphetamines emerging as the most frequently reported substance in recent use. Notably, inhalant use appeared in the past 30 days despite no reported lifetime use, indicating evolving substance use patterns. In terms of drug use severity, the majority of respondents were classified as minimal (38.2%) and mild (39.7%). In comparison, 19.9% were moderate and 2.2% significant drug use, suggesting a substantial proportion at risk of progression to more severe substance use disorders. The findings suggest high alcohol and drug use among young adults in the Tabuk Region. Therefore, it is crucial to increase public health education, and early prevention strategies, and targeted intervention programs are required to address substance use among young adults.

Keywords: Substance Use. Demographic. Alcohol and Drug Use. Lifetime Alcohol Use. Alcohol 30-Day Use. Lifetime Drug Use. 30-Day Drug Use. Young Adults. Saudi Arabia.

recentemente, sendo que 9,2% indicaram episódios de intoxicação alcoólica, refletindo a presença de comportamentos de consumo de maior risco. A prevalência do uso de drogas foi mais elevada, com 34,7% relatando uso ao longo da vida e 35,8% uso recente. As substâncias mais comumente utilizadas foram cannabis, heroína e anfetaminas, sendo estas últimas as mais frequentemente relatadas no uso recente. Notavelmente, o uso de inalantes apareceu nos últimos 30 dias, apesar de não haver relatos de uso ao longo da vida, indicando padrões em evolução no consumo de substâncias. Em termos de gravidade do uso de drogas, a maioria dos participantes foi classificada como mínima (38,2%) e leve (39,7%), enquanto 19,9% foram classificados como moderados e 2,2% como uso significativo, sugerindo uma proporção considerável em risco de progressão para transtornos mais graves relacionados ao uso de substâncias. Os achados indicam um elevado consumo de álcool e drogas entre adultos jovens na Região de Tabuk. Portanto, é importante ampliar a educação em saúde pública, além de implementar estratégias de prevenção precoce e programas de intervenção direcionados para enfrentar o uso de substâncias entre adultos jovens.

Palavras-chave: *Uso de Substâncias. Demografia. uso de Álcool e Drogas. Uso de Álcool ao Longo da Vida. Uso de Álcool nos Últimos 30 Dias. Uso de Drogas ao Longo da Vida. Uso de Drogas nos Últimos 30 Dias. Adultos Jovens. Arábia Saudita.*

1 INTRODUCTION

Substance use is widely recognised as a global public health concern due to its association with a range of adverse health and social outcomes. Notably, young adults represent a population particularly vulnerable to substance use. This is due to the fact that this developmental stage is often characterised by increased autonomy, experimentation, and exposure to social and environmental stressors. Studies across different regions have linked alcohol and drug use with mental health disorders, impaired cognitive functioning, risky behaviours, and social instability (United Nations Office on Drugs and Crime,

2023). Consequently, increasing scholarly attention has been directed towards understanding patterns of substance use among young adults across diverse socio-cultural contexts.

In the Middle East, patterns of alcohol and drug use are shaped by distinctive legal, cultural, and religious environments. Many countries in the region maintain strict regulations regarding alcohol consumption and drug possession, largely influenced by Islamic jurisprudence that prohibits intoxicants. These regulatory frameworks are reinforced by strong cultural norms discouraging substance use. Nevertheless, recent studies indicate that substance use continues to occur in the region despite these legal and religious restrictions (Al-Hamdani & Al-Mashhadani, 2022). Social transformations, demographic changes, and the influence of globalisation have been suggested as factors contributing to shifts in behavioural patterns among young adults in several Middle Eastern countries (United Nations Office on Drugs and Crime, 2023).

Furthermore, empirical evidence across the Middle East suggests that patterns of substance use vary across countries and demographic groups. Regional analyses have reported that stimulant drugs, particularly amphetamine-type substances, as well as cannabis and certain prescription medications, are among the substances most frequently detected in seizure and treatment records (United Nations Office on Drugs and Crime, 2023). Although alcohol consumption is generally lower than in many Western regions due to legal restrictions, studies indicate that alcohol use may still occur in private settings or informal social contexts (Al-Hamdani & Al-Mashhadani, 2022). Still, a significant limitation of many regional studies is their reliance on secondary data sources such as seizure statistics or treatment records. These sources primarily capture supply-side activity or severe cases requiring treatment. They may not accurately reflect patterns of substance use within community populations. As a result, researchers have suggested that the actual prevalence of substance use in the region may be underestimated (United Nations Office on Drugs and Crime, 2023).

Within this regional context, Saudi Arabia represents a distinctive case due to the strong legal and religious prohibition of intoxicants. The country's legal system incorporates principles derived from Islamic law, under which the consumption, possession, and distribution of alcohol and illicit drugs are prohibited. Islamic jurisprudence traditionally interprets the concept of *khamr* as referring to substances that cause intoxication or impair judgment. It is a principle that has historically shaped legal and social norms related to substance use (Jiang, Tang & Jiang, 2021). Collectively, these religious and legal frameworks have contributed to the perception that substance misuse is relatively uncommon in the Kingdom.

Despite these strict prohibitions, available evidence suggests that substance use does occur within Saudi society. Law enforcement authorities regularly report seizures of illicit substances, particularly amphetamine-type stimulants such as Captagon. For instance, large shipments of Captagon tablets have been intercepted at Saudi ports and border crossings in recent years. This indicates the presence of organised trafficking networks targeting the region (Aftandilian, 2022). Although seizure data primarily reflect drug supply rather than actual consumption, such incidents indicate that illicit substances are present within the regional market and may become accessible to local populations.

Healthcare and treatment records also provide insights into substance-related problems in Saudi Arabia. Research examining data from specialised addiction treatment centres indicates that the number of individuals seeking treatment for substance use disorders has increased over time (Perino *et al*., 2023; Tobaiqy; Al-Asmari, 2024). Moreover, rehabilitation institutions, including psychiatric hospitals dedicated to addiction treatment, have reported growing demand for treatment services. This is particularly true among individuals under the age of thirty. In essence, these findings suggest that substance use is emerging as an issue requiring increased attention from public health and healthcare systems.

Recent research has attempted to estimate the prevalence of substance use

disorders in Saudi Arabia using nationally representative data. Findings from the Saudi National Mental Health Survey reported a 12-month prevalence rate of approximately 1.9% for substance use disorders within the population (Elzyat *et al*., 2025). Although this prevalence rate is lower than that reported in many other regions, it nevertheless demonstrates that substance-related disorders exist within the country and represent a relevant public health concern. Nonetheless, interpreting these findings requires careful methodological consideration. Surveys examining substance use often rely on self-reported responses collected through structured interviews. In contexts where substance use is legally prohibited and socially stigmatised, respondents may be reluctant to disclose such behaviours. As a result, social desirability bias may contribute to the underreporting of substance use and affect the accuracy of prevalence estimates (Elzyat *et al*., 2025).

Studies investigating the types of substances used in Saudi Arabia have identified several commonly reported drugs. Amphetamine-type stimulants, particularly Captagon, are frequently cited in both treatment and law enforcement data (Perino *et al*., 2023). Other substances reported in clinical and survey-based studies include cannabis, heroin, tobacco, and alcohol. However, a methodological limitation within the literature is that many studies rely on clinical samples drawn from addiction treatment centres. While these studies provide crucial insights into substance dependence and treatment outcomes, they may not represent the broader population of young adults who use substances without seeking treatment (Perino *et al*., 2023; Tobaiqy; Al-Asmari, 2024).

Methodological limitations are also evident in several recent studies investigating substance use in Saudi Arabia. While many studies utilise cross-sectional designs, which allow researchers to estimate prevalence, they do not permit causal inferences with regard to the factors associated with substance use (Perino *et al*., 2023; Tobaiqy; Al-Asmari, 2024). Additionally, research frequently relies on convenience sampling within universities, treatment centres, or urban populations, potentially limiting generalisability to the broader youth population (Alshamrani *et al*., 2022; Perino *et al*., 2023). Another

methodological challenge relates to the scarcity of nationally representative epidemiological data. Although national surveys such as the Saudi National Mental Health Survey provide valuable insights, such large-scale studies are conducted infrequently and may not capture regional variations in substance use patterns (Elzyat *et al*., 2025).

Another limitation in the existing literature concerns the limited focus on community-based young adults. A considerable proportion of research has been conducted among clinical populations receiving treatment for substance use disorders (Perino *et al*., 2023; Tobaiqy; Al-Asmari, 2024). While these studies contribute to understanding addiction severity and treatment outcomes, they do not adequately capture patterns of experimentation or recreational use among young adults who have not entered treatment systems (Alshamrani *et al*., 2022). Likewise, few studies examine differences between community populations and inpatient populations within the same geographic region. Consequently, this gap limits researchers' ability to identify risk factors, social determinants, and behavioural trajectories associated with substance use (Perino *et al*., 2023; United Nations Office on Drugs and Crime, 2023).

Regional disparities in substance use patterns also remain underexplored in Saudi Arabia. Much of the available research has been conducted in major metropolitan areas such as Riyadh, Jeddah, or Dammam, where research institutions and healthcare facilities are concentrated (Tobaiqy; Al-Asmari, 2024). Consequently, less is known with regard to substance use patterns in peripheral regions, including the northern areas of the Kingdom. At the same time, understanding regional variation is important since socioeconomic conditions, cross-border trafficking routes, and cultural dynamics may differ significantly across regions (Aftandilian, 2022; United Nations Office on Drugs and Crime, 2023).

Given these limitations, further empirical research is required to provide a more comprehensive understanding of alcohol and drug use among young adults in Saudi

Arabia. In particular, studies that combine community-based samples with clinical populations may offer valuable insights into the continuum of substance use behaviours, ranging from experimentation to dependence (Perino *et al*., 2023). On a similar note, region-specific studies may help identify contextual factors influencing substance use patterns and support the development of targeted public health interventions (Tobaiqy; Al-Asmari, 2024).

In response to these research gaps, the present study aims to examine patterns of substance use, demographic distribution of alcohol use, drug use and types of drug use among young adults in Tabuk Region, Saudi Arabia. By including both community-based participants and individuals receiving inpatient treatment, the study seeks to generate a broader understanding of substance use behaviours within the region. Correspondingly, the findings are expected to contribute to the limited empirical literature on substance use patterns in Saudi Arabia. It also provides insights that may support policymakers, healthcare professionals, and public health authorities in developing effective prevention and intervention strategies.

2 METHOD

2.1 Research design

This study employed a cross-sectional research design to examine patterns of substance use, demographic distribution of alcohol use, drug use and types of drug use among young adults in Tabuk Region, Saudi Arabia. The data were obtained using a questionnaire that included questions related to demographic variables and alcohol and drug use behaviours, including both lifetime use and use in the last 30 days.

2.2 Participants

The study participants were community young adults and inpatient substance users in the Tabuk Region, Saudi Arabia. Participants were selected based on specific inclusion and exclusion criteria to ensure relevance to the study objectives.

Inclusion criteria required participants to be 18-40 years old, reside in the Tabuk Region for at least five years, and have experience with substance use, defined as continuous use for six months or more. Community substance users were included if they were young adults consuming substances outside hospital settings. Following this, inpatients were selected from Erada and Mental Health Complex, and King Salman Armed Forces Hospital. Note that they had to be receiving treatment for substance addiction. Exclusion criteria included individuals younger than 18 or older than 40, those unwilling to participate, and patients with severe mental health conditions.

The estimated population of substance use inpatients in Tabuk was 1,179 (Shabu users) (Tabaiqy & Al-Asmari, 2024). Sample size determination for the quantitative component followed Krejcie and Morgan's (1970) formula for a 95% confidence level:

$$s = \frac{X^2 NP(1-)}{d^2(N-1)+X^2(1-P)}, \qquad (1)$$

where

s is the required sample size, X^2 is the chi-square value for 1 degree of freedom at the desired confidence level (3.841), N is the population size, P is the population proportion (assumed 0.50), and d is the degree of accuracy (0.05). Using an online sample size calculator, the minimum sample size was calculated to be 370. To account for potential non-responses or dropouts, 20% was added, resulting in a total of 400 questionnaires distributed.

2.3 Profile demography of respondents

Table 1 presents the demographic characteristics of the respondents, comprising a total sample of 380 individuals, which are divided into two groups: community respondents (n = 180) and patients (n = 200). Table 1 describes the distribution of respondents by age, gender, marital status, level of education, employment status, employment experience, and household income.

The majority of respondents were aged 25-34 years, representing 48.2% (n = 183) of the total sample. Within this age category, 50.6% (n = 91) were from the community group, and 46.0% (n = 92) were patients. This indicates that young adults form the largest proportion of respondents in the study. Meanwhile, respondents aged 35-40 years accounted for 31.3% (n = 119) of the total sample, with a slightly higher proportion among patients (35.5%) compared to the community group (26.7%). Moreover, those aged 18-24 years represented 20.5% (n = 78) of the respondents, including 22.8% from the community group and 18.5% from the patient group.

In terms of gender, the sample was predominantly male, accounting for 96.1% (n = 365) of all respondents. All respondents in the community group were male (100%), whereas in the patient group, 92.5% (n = 185) were male and 7.5% (n = 15) were female.

Regarding marital status, the majority of respondents were unmarried, accounting for 70.0% (n = 266) of the total sample. This proportion was slightly higher in the community group (71.1%) than in the patient group (69.0%). On the other hand, respondents who were married accounted for 17.6% (n = 67), with 19.5% in the patient group and 15.6% in the community group. In addition, 11.8% (n = 45) were separated, and a very small proportion (0.5%, n = 2) reported being divorced, all of whom were from the patient group.

The respondents' educational attainment suggests that 37.9% (n = 144) had no formal education, while another 37.9% (n = 144) had primary education. Among those

with no education, 40.5% were patients and 35.0% were from the community group. Similarly, respondents with primary education were fairly evenly distributed between the community (40.0%) and patient groups (36.0%). Only 24.2% (n = 92) of respondents reported having university-level education or above.

In terms of employment status, 56.6% (n = 215) of respondents were working, while 43.4% (n = 165) were not working. The proportion of employed respondents was similar across the two groups, at 57.2% in the community group and 56.0% in the patient group.

Regarding work experience, 39.5% (n = 150) of respondents reported having none, which was slightly higher among patients (41.5%) than in the community group (37.2%). Among those with experience, 30.3% (n = 115) had 1-5 years of work experience, followed by 24.7% (n = 94) with 6-10 years of experience. A smaller proportion had longer work histories, including 5.3% (n = 20) with 11-15 years and 0.3% (n = 1) with 16-20 years.

Regarding household income, the majority of respondents (70.5%, n = 268) reported earning between 5,000 and 9,999 Saudi Riyals per month. This income category was similar across both groups, with 71.1% in the community group and 70.0% among patients. Respondents earning 10,000 Saudi Riyal or more accounted for 20.0% (n = 76) of the total sample. In comparison, those earning less than 5,000 Saudi Riyal accounted for 9.5% (n = 36).

Table 1

Demographic Characteristics of the Study Respondents (N=380)

Demography	Total		Community		Patient	
	Frequency (N = 380)	**Percentage (%)**	**Frequency (N = 380)**	**Percentage (%)**	**Frequency (N = 380)**	**Percentage (%)**
Age:						
18-24	78	20.5	41	22.8	37	18.5
25-34	183	48.2	91	50.6	92	46.0
35-40	119	31.3	48	26.7	71	35.5
Gender:						
Male	365	96.1	180	100.0	185	92.5

Female	15	3.9	0	0.0	15	7.5
Marital Status:						
Not married	266	70.0	128	71.1	138	69.0
Married	67	17.6	28	15.6	39	19.5
Separated	45	11.8	24	13.3	21	10.5
Divorce	2	.5	0	0.0	2	1.0
Level of Education:						
No education	144	37.9	63	35.0	81	40.5
Primary	144	37.9	72	40.0	72	36.0
University/ above	92	24.2	45	25.0	47	23.5
Working Status:						
Not working	165	43.4	77	42.8	88	44.0
Working	215	56.6	103	57.2	112	56.0
Working Experience:						
No experience	150	39.5	67	37.2	83	41.5
1-5 years	115	30.3	62	34.4	53	26.5
6-10 years	94	24.7	43	23.9	51	25.5
11-15 years	20	5.3	8	4.4	12	6.0
16-20 years	1	.3	0	0.0	1	0.5
Household income						
Less than 5000 Saudi Riyal	36	9.5	16	8.9	20	10.0
5000-9999 Saudi Riyal	268	70.5	128	71.1	140	70.0
10000 and above	76	20.0	36	20.0	40	20.0

2.3 Study area location of study

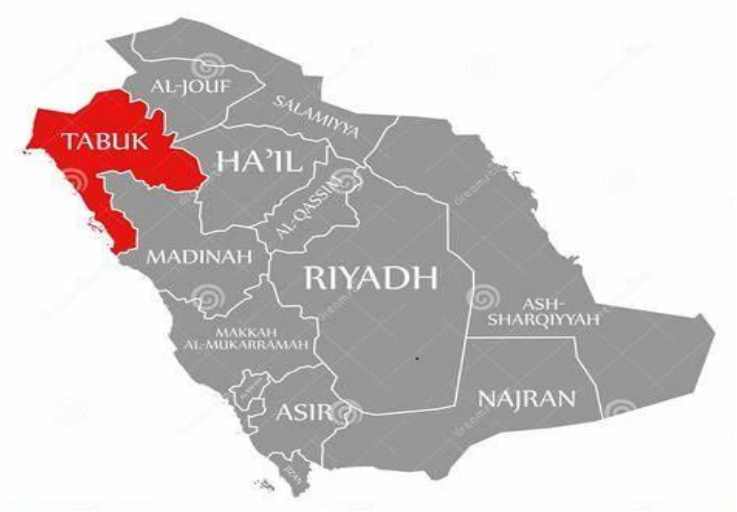
The study was conducted in the Tabuk Region, Saudi Arabia, located on the northwestern coast of the country, facing Egypt across the Red Sea. Covering an area of 146,072 km² with a population of 910,030 (2017), Tabuk serves as the regional capital and includes six main cities: Tabuk, Tayma, Duba, Al Wajh, Haql, and Umluj. The region was selected due to rising substance use among youth and the presence of one of the country's largest psychiatric hospitals. Additionally, plans for a new digital city have attracted both Saudi and foreign residents, contributing to population growth.

Reports indicate a notable increase in substance use, particularly among young adults. For instance, the Saudi Department of Statistics reported that in 2017, over 18 million narcotic pills and 22 tons of hashish were seized in the country, with approximately 80% of these seizures occurring in Tabuk (Al-Jerani, 2019; Jiang, Tang &

Jiang, 2021). These statistics underscore the need to examine the factors contributing to the rise in substance use in this region. A map of Saudi Arabia and the Tabuk Region is presented in Figure 1.

Figure 1

Map Presenting Saudi Arabian Regions and Tabuk



2.4 Instruments of study and procedure

2.4.1 Demographic profile items and addiction severity index (ASI-6)

The instrument utilized in this study was a structured questionnaire that comprised two parts. The first part consists of demographic items that identify respondents' characteristics, such as age, gender, marital status, education level, and income level. The second part is the Addiction Severity Index (ASI-6) to measure alcohol and drug use, including lifetime use and use in the past 30 days and types of drug use among young adults in Tabuk Region, Saudi Arabia. Notably, this standardised questionnaire has been widely translated and validated for use in Arab countries, including Egypt, Jordan, and Saudi Arabia. The ASI-6 comprises multiple domains that assess substance use and

related problems. Specifically, 11 items focus on the participant's lifetime and past 30-day medical status.

2.5 Data analysis

The collected data were analysed using SPSS software. Descriptive statistical methods were employed to summarise and interpret the data. Frequencies and percentages were calculated to describe the demographic characteristics of the respondents. It also determines the patterns of substance use, demographic distribution of alcohol use, drug use and types of drug use among young adults in Tabuk Region, Saudi Arabia. These descriptive analyses provided a clear overview of substance use behaviours, including lifetime use and use within the past 30 days for different types of substances. The Drug Severity was calculated by assigning 4 levels based on index scores: Minimal/None (0.00-0.09), Mild (0.10-0.19), Moderate (0.20-0.39), Significant (0.40-0.59), and Severe (0.60-1.00). This range score is based on the clinical guide and clinical utility.

3 RESULTS

The results will be presented in three sections: first, any substance use in the past 30 days; second, patterns of alcohol use across demographic distributions; and third, patterns of drug use across demographic distributions, drug types, and drug use severity.

A. Patterns of any Substance Use among total substance respondents

Table 2 depicts the prevalence of any substance use (alcohol use or drug use) among the respondents based on lifetime use and recent use within the last 30 days. The results indicate that 136 respondents, representing 35.8% of the total sample, reported using at least one substance at some point in their lives. Additionally, the 95% confidence

interval ranges from 31.1% to 40.7%, suggesting that the true proportion of lifetime substance use in the population is likely to fall within this range.

2.2 Patterns of Alcohol Use among Total Alcohol Use Respondents (Respondents who Use Alcohol)

Table 3 summarises the patterns of alcohol use among the total alcohol use respondents, measured in terms of lifetime use and use within the past 30 days.

2.2.1 Alcohol – any use at all

The results reveal that 74 alcohol use respondents (19.5%) reported lifetime alcohol use. The 95% confidence interval for this estimate ranges from 15.6% to 23.8%, suggesting that the patterns of lifetime alcohol use in the population are likely to fall within this range. Similarly, the patterns of alcohol use in the past 30 days were also reported by 74 respondents (19.6%), with the same confidence interval range of 15.6% to 23.8%. This indicates that nearly one-fifth of the respondents had consumed alcohol at some point in their lives and also reported alcohol use in the recent period.

2.2.2 Alcohol to intoxication

Table 3 also presents findings for alcohol consumption leading to intoxication. A total of 35 alcohol use respondents (9.2%) reported having experienced intoxication from alcohol at least once in their lifetime. The 95% confidence interval for this estimate ranges from 6.5% to 12.6%, indicating moderate uncertainty. In line with this, 35 alcohol use respondents (9.2%) reported alcohol intoxication within the past 30 days, with the same confidence interval range (6.5%-12.6%). This suggests that approximately one in ten

alcohol use respondents experienced alcohol intoxication either historically or in the recent period.

Table 2

Patterns of Any Substance Use among Total Substance Use Respondents

Duration	Frequency	Percentage (%)	Confidence Interval	
			Lower	Upper
Lifetime	136	35.8	31.1	40.7
30 Days	132	34.7	30.1	39.6

Table 3

Patterns of Alcohol Use among Total Alcohol Use Respondents

Alcohol	Lifetime				30 days			
	Count	Percentage (%)	Confidence Interval		Count	Percentage (%)	Confidence Interval	
			Lower	Upper			Lower	Upper
Alcohol - anyuse at all	74	19.5	15.6	23.8	74	19.6	15.6	23.8
Alcohol to Intoxication	35	9.2	6.5	12.6	35	9.2	6.5	12.6

3 PATTERNS OF TOTAL LIFETIME DRUG USE AND 30-DAY DRUG USE AMONG TOTAL DRUG USE RESPONDENTS

Table 4 provides the overall pattern of drug use among total drug use respondents. For lifetime drug use, 132 drug use respondents (34.7%) reported having used drugs at some point in their life, with a confidence interval of 30.0% to 39.8%. For drug use within the past 30 days, 136 drug use respondents (35.8%) reported use, with a confidence interval of 21.0% to 40.8%. In other words, these results indicate that approximately one-third of the study population reported drug use both over their lifetime and within the past month, suggesting a consistent pattern of drug use over time.

Table 4

Patterns of Total Lifetime Drug Use and 30-day Drug Use among Total Drug Use Respondents

Drug Use	Frequency	Percentage (%)	Confidence Interval (CI)	
			Lower	Upper
Life Time	132	34.7	30.0	39.8
30 Days	136	35.8	21.0	40.8

A. Demographic distribution of lifetime alcohol use and 30-day alcohol use across

This section highlights results on the demographic distribution of patterns of lifetime alcohol use and 30-day alcohol use among total alcohol use respondents.

3.1 Demographic distribution of Lifetime alcohol use and 30-day alcohol use among total alcohol use respondents

Table 5 presents the demographic distribution of lifetime alcohol use among total alcohol use respondents. In terms of age, the highest proportion of lifetime alcohol users falls within the 25-34 years age group, accounting for 54.1% (n = 40) of respondents. This is followed by those aged 18-24 years, representing 24.3% (n = 18), while respondents aged 35-40 years constitute 21.6% (n = 16). These findings indicate that lifetime alcohol use is the highest among young adults in the 25-34 years age group.

With respect to gender, lifetime alcohol use is overwhelmingly dominated by male respondents, who account for 95.9% (n = 71) of the sample. In contrast, female respondents represent only 4.1% (n = 3). This suggests that alcohol use is considerably more common among males in the studied population.

In terms of marital status, the majority of respondents with lifetime alcohol use are not married, accounting for 71.6% (n = 53). Respondents who are married represent 18.9% (n = 14), while those who are separated represent 9.5% (n = 7). No divorced

respondents reported lifetime alcohol use. This pattern implies that lifetime alcohol use is common among individuals without marital commitments.

Regarding working status, more than half of respondents who reported lifetime alcohol use are currently working, accounting for 55.4% (n = 41), while 44.6% (n = 33) are not working. This highlights that lifetime alcohol use is present among both employed and unemployed individuals, with a slightly higher proportion among those who are working.

Finally, household income distribution asserts that the majority of respondents with lifetime alcohol use fall within the 5,000-9,999 Saudi Riyal income category, representing 62.2% (n = 46). Respondents earning 10,000 Saudi Riyal and above account for 23.0% (n = 17), while 14.9% (n = 11) earn less than 5,000 Saudi Riyal. This underscores that lifetime alcohol use is the highest among individuals in the low- to middle-income group.

Table 5

Lifetime and 30-day Pattern Alcohol Use by Demographic Characteristics

Demography	Lifetime Alcohol Use		30 days Alcohol Use	
	Frequency	Percentage (%)	Frequency	Percentage (%)
Age:				
18-24	18	24.3	18	24.3
25-34	40	54.1	40	54.1
35-40	16	21.6	16	21.6
Gender:				
Male	71	95.9	71	95.9
Female	3	4.1	3	4.1
Marital Status:				
Not married	53	71.6	53	71.6
Married	14	18.9	14	18.9
Separated	7	9.5	7	9.5
Divorce	0	0.0	0	0.0
Working Status:				
Not working	33	44.6	33	44.6
Working	41	55.4	41	55.4
Household income				
Less than 5000 Saudi Riyal	11	14.9	11	14.9
5000-9999 Saudi Riyal	46	62.2	46	62.2
10000 and above	17	23.0	17	23.0

B. Demographic distribution of lifetime drug use and 30-day drug use, the types of drugs used, and drug use severity

This section discusses the demographic distribution of patterns of lifetime drug use and 30-day drug use, the types of drug use, and drug use severity.

3.2 Demographic distribution of lifetime drug use among total drug use respondents

Table 6 presents the lifetime pattern of drug use by demographic characteristics. In terms of age, respondents aged 25-34 years recorded the highest percentage of lifetime drug use at 38.3% (n = 70). This is followed closely by respondents aged 18-24 years, with 37.2% (n = 29) reporting lifetime drug use. In comparison, respondents aged 35-40 years exhibit a lower percentage of 27.7% (n = 33). These results indicate that lifetime drug use is more commonly reported among younger age groups. With regard to gender, male respondents account for the largest number of lifetime drug use cases (n = 126) compared to female counterparts (n = 6).

In terms of marital status, drug use respondents who are not married exhibit the highest percentage of lifetime drug use at 37.2% (n = 99). This is followed by separated respondents (31.1%; n = 14) and married respondents (28.4%; n = 19). However, no lifetime drug use is reported among divorced respondents.

Regarding working status, drug use respondents who are not working present a slightly higher percentage of lifetime drug use (37.0%, n = 61) compared to those who are working (33.0%, n = 71). This suggests that lifetime drug use is reported among both employed and unemployed drug use respondents.

Finally, household income analysis implies that drug use respondents earning less than 5,000 Saudi Riyal record the highest percentage of lifetime drug use at 38.9% (n = 14). This is followed by respondents earning 10,000 Saudi Riyal and above (36.8%, n =

28), while those earning between 5,000 and 9,999 Saudi Riyal report a slightly lower percentage (33.6%, n = 90).

3.3 Demographic distribution of 30-day drug use among total drug use respondents

Table 6 presents the 30-day pattern of drug use by demographic characteristics. In terms of age, drug use respondents aged 25-34 years demonstrate the highest percentage of drug use in the past 30 days at 39.9% (n = 73). This is followed closely by respondents aged 18-24 years, with 38.5% (n = 30) reporting drug use during the same period. Meanwhile, respondents aged 35-40 years report a lower percentage, 27.7% (n = 33). This pattern suggests that recent drug use is more commonly reported among younger drug use respondents. Regarding gender, male respondents account for the majority of reported cases (n = 129) compared to female respondents (n = 7).

In terms of marital status, drug use respondents who are not married report the highest percentage of drug use in the past 30 days at 38.0% (n = 101). This is followed by separated respondents (33.3%; n = 15) and married respondents (29.9%; n = 20). No cases of drug use in the past 30 days are reported among divorced respondents.

Regarding working status, drug use respondents who are not working highlight a slightly higher percentage of drug use in the past 30 days (38.2%, n = 63) compared to those who are working (34.0%, n = 73). This indicates that recent drug use is reported among both employed and unemployed drug use respondents, with a marginally higher percentage among those not working.

Finally, analysis by household income underscores that drug use respondents earning 10,000 Saudi Riyal and above record the highest percentage of drug use in the past 30 days at 39.5% (n = 30). This is followed by drug use respondents earning less than 5,000 Saudi Riyal (38.9%, n = 14), while those earning between 5,000 and 9,999 Saudi Riyal report a slightly lower percentage (34.3%, n = 92).

Table 6

Lifetime Pattern Drug Use Among Total Drug Use Respondents by Demographic Characteristics

Demography	Lifetime Drug Use		30 days Drug Use	
	Frequency	Percentage (%)	Frequency	Percentage (%)
Age:				
18-24	29	37.2	30	38.5
25-34	70	38.3	73	39.9
35-40	33	27.7	33	27.7
Gender:				
Male	126	34.5	129	35.3
Female	6	40.0	7	46.7
Marital Status:				
Not married	99	37.2	101	38.0
Married	19	28.4	20	29.9
Separated	14	31.1	15	33.3
Divorce	0	0.0	0	0.0
Working Status:				
Not working	61	37.0	63	38.2
Working	71	33.0	73	34.0
Household income				
Less than 5000 Saudi Riyal	14	38.9	14	38.9
5000-9999 Saudi Riyal	90	33.6	92	34.3
10000 and above	28	36.8	30	39.5

3.4 Types of drug use for lifetime use and 30-day use among total drug use respondents

Table 7 presents the types of drugs reported for lifetime and 30-day use among total drug use respondents. For a lifetime, cannabis is the most commonly reported, with 18.9% (n = 72) having used it at some point in their life, with a CI of 15.1% to 23.3%. This is followed by heroin, reported by 16.6% (n = 63) of respondents (CI: 13.0-20.7%), and amphetamines, reported by 15.8% (n = 60) (CI: 12.3-19.9%). Other opiates or analgesics were reported by 10.8% (n = 41) of respondents (CI: 7.9-14.4%), while hallucinogens were reported by 8.9% (n = 34) (CI: 6.3-12.3%). Conversely, less frequently reported alcohols include methadone and barbiturates, each at 2.6%, and other sedatives, hypnotics, or tranquilisers at 1.6%. Inhalants were not reported for lifetime use in this sample.

Meanwhile, the types of drugs reported for use within the past 30 days among total drug use respondents indicate amphetamines were the most frequently reported substance, with 20.3% (n = 77) using them in the past month (CI: 16.3–24.7%). This is followed closely by cannabis at 19.2% (n = 73) (CI: 15.4–23.5%) and heroin at 18.4% (n = 70) (CI: 14.7–22.7%). Furthermore, inhalants were reported by 16.3% (n = 62) of respondents (CI: 12.7–23.5%), reflecting a noticeable increase compared to lifetime reports. Other opiates or analgesics were reported by 10.8% (n = 41), hallucinogens by 9.7% (n = 37), methadone and cocaine each by 2.9% (n = 11), barbiturates by 2.6% (n = 10), and other sedatives, hypnotics, or tranquilisers by 1.6% (n = 6). Nonetheless, these results indicate that amphetamines, cannabis, and heroin remain the most commonly reported substances for recent drug use. At the same time, inhalants appear more prominently in the 30-day pattern, suggesting increased short-term use of this substance among drug use respondents.

Table 7

Type of Drug Use for Lifetime and 30 Days among Total Drug Use Respondents

Types of Drug	Lifetime Drug Use				30 days Drug Use			
	Count	Percentage (%)	Confidence Interval (CI)		Count	Percentage (%)	Confidence Interval (CI)	
			Lower	Upper			Lower	Upper
Heroin	63	16.6	13.0	20.7	70	18.4	14.7	22.7
Methadone	10	2.6	1.3	4.8	11	2.9	1.5	5.1
Other opiates/analgesics	41	10.8	7.9	14.4	41	10.8	7.9	14.3
Barbiturates	10	2.6	1.3	4.8	10	2.6	1.3	4.8
Other sedatives/hypnotics/tranquilisers	6	1.6	0.6	3.4	6	1.6	0.6	3.4
Cocaine	11	2.9	1.5	5.1	11	2.9	1.5	5.1
Amphetamines	60	15.8	12.3	19.9	77	20.3	16.3	24.7
Cannabis	72	18.9	15.1	23.3	73	19.2	15.4	23.5
Hallucinogens	34	8.9	6.3	12.3	37	9.7	6.9	13.2
Inhalants	0	0.00	0.0	0.0	62	16.3	12.7	23.5

3.5 Drug Use Severity for the Past 30 Days (n=136)

Table 8 presents the overall drug use severity level for drug use among respondents in the past 30 days (n = 136). The majority of respondents, 39.7% (n = 54), reported mild levels, representing the largest proportion of the sample, followed closely by 38.2% (n = 52) who reported minimal levels. Together, these two categories account for 77.9% of respondents, indicating that the majority experience relatively low levels of past 30-day use. In comparison, 19.9% (n = 27) were categorised as moderate, suggesting that nearly one-fifth of the sample is experiencing a more noticeable level that may warrant attention. Only 2.2% (n = 3) were classified as significant, and none of the respondents were classified as severe.

Table 8

Drug Use Severity Level for the Past 30 Days (n=136)

Category	Frequency	Percent
Minimal	52	38.2
Mild	54	39.7
Moderate	27	19.9
Significant	3	2.2
Severe	0	0.0

3.6 Demographic distribution of drug use severity for the past 30 days among the total drug use respondents

Table 9 presents the drug use severity level for the past 30 days across demographic characteristics. In terms of age, respondents aged 18-24 years report the highest proportion in the mild category (40.0%), followed by minimal (33.3%) and moderate (23.3%), with a small percentage classified as significant (3.3%). A similar pattern is observed among those aged 25-34 years, with 39.7% falling into mild and 38.4% into minimal, while 20.5% are categorised as moderate and only 1.4% as significant. Among respondents aged 35-40 years, 42.4% are in the minimal category, 39.4% in the mild category, 15.2% in the moderate category, and 3.0% in the significant category.

With respect to gender, most male drug use respondents are classified as mild (41.1%) and minimal (37.2%), followed by moderate (20.2%) and a small percentage significant (1.6%). Among female respondents, the highest proportion falls into the minimal category (57.1%), while mild, moderate, and significant each account for 14.3%.

In terms of marital status, not married respondents predominantly fall under minimal (39.6%) and mild (38.6%), with 18.8% moderate and 3.0% significant drug use severity. Married drug use respondents recorded a higher concentration in the mild category (55.0%), followed by minimal (25.0%) and moderate (20.0%), with no cases in the significant category. Meanwhile, separated respondents are mainly classified as minimal (46.7%), while both mild and moderate account for 26.7% each, and none are significant.

Regarding working status, both working and non-working respondents display almost identical patterns. Among those not working, 39.7% are minimal and 39.7% mild, while 19.0% are moderate and 1.6% significant. Similarly, among working drug use respondents, 39.7% are mild and 37.0% minimal, followed by 20.5% moderate and 2.7% significant.

Finally, household income highlights some variation. Drug use respondents earning less than 5,000 Saudi Riyal are predominantly in the minimal category (64.3%), with smaller proportions in mild (14.3%) and moderate (21.4%), and none in significant. For those earning between 5,000-9,999 Saudi Riyal, the majority are mild (41.3%) and minimal (34.8%), while 22.8% are moderate and 1.1% significant. Among drug use respondents earning 10,000 Saudi Riyal and above, 46.7% are mild and 36.7% minimal, with 10.0% moderate and 6.7% significant, representing the highest proportion of significant cases across income groups.

Table 9

Drug Use Severity for the Past 30 Days by Demographic Characteristics among the Total Drug Use Respondents

Demography	**Frequency**	Drug Use Severity Level	Frequency	Percentage
Age:				
18-24	30	Minimal	10	33.30
		Mild	12	40.00
		Moderate	7	23.30
		Significant	1	3.30

25-34	73	Minimal	28	38.40
		Mild	29	39.70
		Moderate	15	20.50
		Significant	1	1.40
35-40	33	Minimal	14	42.40
		Mild	13	39.40
		Moderate	5	15.20
		Significant	1	3.00
Gender:				
Male	129	Minimal	48	37.20
		Mild	53	41.10
		Moderate	26	20.20
		Significant	2	1.60
Female	7	Minimal	4	57.10
		Mild	1	14.30
		Moderate	1	14.30
		Significant	1	14.30
Marital Status:				
Not married	101	Minimal	40	39.60
		Mild	39	38.60
		Moderate	19	18.80
		Significant	3	3.00
Married	20	Minimal	5	25.00
		Mild	11	55.00
		Moderate	4	20.00
		Significant	0	0.00
Separated	15	Minimal	7	46.70
		Mild	4	26.70
		Moderate	4	26.70
		Significant	0	0.00
Working Status:				
Not working	63	Minimal	25	39.70
		Mild	25	39.70
		Moderate	12	19.00
		Significant	1	1.60
Working	73	Minimal	27	37.00
		Mild	29	39.70
		Moderate	15	20.50
		Significant	2	2.70
Household income				
Less than 5000 Saudi Riyal	14	Minimal	9	64.30
		Mild	2	14.30
		Moderate	3	21.40
		Significant	0	0.00
5000-9999 Saudi Riyal	92	Minimal	32	34.80
		Mild	38	41.30
		Moderate	21	22.80
		Significant	1	1.10
10000 and above	30	Minimal	11	36.70
		Mild	14	46.70
		Moderate	3	10.00
		Significant	2	6.70

4 DISCUSSION

A. Patterns of Any Substance Use during Lifetime and in the Past 30 Days

In terms of patterns of any substance use during lifetime and in the past 30 days, the findings of this study indicate that more than one-third of the respondents reported engaging in substance use, both over their lifetime (35.8%) and within the past 30 days (34.7%). This relatively consistent pattern between lifetime and recent use suggests that substance use among young adults in Tabuk Region is not merely experimental. Rather, it may reflect ongoing and sustained behaviour. In addition, the minimal difference between lifetime and recent prevalence implies continuity in substance use practices, which may signal the presence of habitual or repeated consumption rather than sporadic use. This pattern is consistent with other studies indicating that substance use initiated during adolescence and early adulthood often progresses into repeated or habitual behaviour over time (de la Torre-Luque *et al*., 2021).

These findings are particularly noteworthy given the strict legal framework and strong cultural and religious prohibitions against substance use in Saudi Arabia. Nevertheless, empirical evidence suggests that substance use persists even within such restrictive environments. Building on this, a national epidemiological study in Saudi Arabia reported that substance use disorders, although relatively lower compared to Western countries, are still present and associated with significant social and psychological burdens (Altwaijri *et al*., 2025). Likewise, a scoping review highlighted that substance use in Saudi Arabia remains an emerging concern. However, it is often underreported due to stigma and legal implications (Saquib *et al*., 2020).

From a public health perspective, the persistence of substance use despite these constraints highlights the limitations of prohibition-based approaches alone in curbing such behaviours. Evidence from Saudi Arabia further indicates that substance use is influenced by socio-demographic and environmental factors. This includes peer influence and early exposure during adolescence, which may contribute to continued use patterns into adulthood (Alzahrani *et al*., 2023). Consequently, this suggests that availability and access, often through informal or hidden channels, remain critical drivers of substance use behaviour.

Furthermore, the inclusion of both community and inpatient populations in this study provides a more comprehensive picture, indicating that substance use is not confined to clinical populations. It is also prevalent within the broader community. This aligns with findings from recent community-based research in Saudi Arabia, which revealed that a substantial proportion of individuals exhibit low to moderate levels of substance-related problems, even outside clinical settings (Alzahrani *et al*., 2024). Therefore, reliance solely on treatment-based data may underestimate the actual prevalence of substance use, reinforcing the significance of community-level assessments in understanding the true magnitude of the issue.

B. Patterns of Lifetime Alcohol Use and 30-Day Alcohol Use

In terms of patterns of lifetime alcohol use and 30-day alcohol use, the study reveals that approximately one-fifth of respondents reported alcohol use in both their lifetime (19.5%) and the past 30 days (19.6%). This indicates a stable pattern of alcohol consumption over time. Moreover, the identical prevalence rates suggest that individuals who have ever consumed alcohol are likely to continue using it, reflecting sustained behaviour rather than one-time experimentation. Interestingly, this pattern is consistent with international literature, which demonstrates that early initiation of alcohol use is strongly associated with continued consumption and progression into habitual drinking patterns in adulthood (Degenhardt *et al*., 2018). Additionally, the proportion of respondents reporting alcohol intoxication (9.2%) further indicates that a subset of users engages in higher-risk drinking behaviours. Notably, this is in parallel with global findings linking repeated alcohol use to binge drinking and harmful consumption patterns (World Health Organization, 2018).

Demographic patterns indicate that alcohol use is most prevalent among individuals aged 25-34 years. This aligns with the notion that early adulthood represents a critical developmental stage characterised by increased independence, social exposure, and risk-taking tendencies. This finding is supported by international evidence indicating that young adults exhibit higher rates of alcohol consumption due to transitions in social roles and increased autonomy (Patrick & Terry-McElrath, 2019). Within the Middle Eastern context, although overall alcohol consumption rates are lower compared to Western countries, studies suggest that young adults remain the most vulnerable group

due to changing social norms and exposure to global influences (Al-Hamdani & Al-Mashhadani, 2022).

The dominance of male respondents in alcohol use aligns with findings from Saudi Arabia and other Gulf countries, where substance use is significantly higher among men due to gender norms, cultural expectations, and greater social freedom (Bassiony, 2013). Still, the presence of female alcohol users, although limited, is an important finding, suggesting that substance use behaviours are not exclusively gender-specific. This is supported by emerging evidence indicating that substance use among women in conservative societies, although underreported, is increasing and requires more gender-sensitive approaches (Altwaijri *et al*., 2025).

In terms of the demographic profile of alcohol users, the associated socioeconomic characteristics of alcohol users are, particularly among individuals who are not married and those within the low- to middle-income group, may potentially reflect underlying psychosocial stressors. Accordingly, financial pressures, social isolation, or lack of stable social support systems could contribute to the adoption of maladaptive coping mechanisms such as alcohol consumption. This finding is consistent with other research demonstrating that lower socioeconomic status and lack of social support are significant predictors of alcohol misuse (Collins, 2016). On a similar note, studies in Saudi Arabia have highlighted that social and psychological stressors, including unemployment and limited social integration, are associated with a higher risk of substance use behaviours (Ibrahim *et al*., 2018).

C. Patterns of Lifetime Drug Use and 30-Day Drug Use, Types of Drug Use, and Drug Use Severity

The prevalence of drug use in this study is notably higher than alcohol use, with 34.7% of respondents reporting lifetime drug use and 35.8% reporting use in the past 30 days. Similar to the pattern observed for overall substance use, the consistency between lifetime and recent drug use suggests ongoing engagement rather than isolated experimentation. This raises concerns regarding the potential progression from use to dependence among a substantial proportion of young adults. This pattern is consistent with international evidence indicating that early and repeated exposure to drugs significantly increases the likelihood of developing substance use disorders over time (Degenhardt *et al*., 2013).

Analysis of drug types indicates that cannabis, heroin, and amphetamines are the most commonly used substances. The prominence of amphetamines in recent use (20.3%) is particularly significant, as it reflects regional trends associated with the widespread availability of stimulant-type drugs such as Captagon in the Middle East. Reports have constantly identified amphetamine-type stimulants as the dominant drug in the region due to trafficking routes and market demand (United Nations Office on Drugs and Crime, 2023). Likewise, studies in Saudi Arabia have highlighted amphetamines and cannabis as among the most commonly used substances among individuals in treatment settings (Bassiony, 2013). The emergence of inhalant use in the past 30 days, despite not being reported in lifetime use, may indicate evolving patterns of substance use, possibly driven by accessibility, affordability, or perceived lower risk. Such shifts are consistent with global findings highlighting that young adults may experiment with readily available substances, particularly when access to conventional drugs is restricted (Volkow, 2022).

Demographically, drug use is most prevalent among individuals aged 25-34 years, consistent with the findings for alcohol use and reinforcing the vulnerability of this age group. This aligns with international research indicating that young adulthood is a peak period for substance use due to increased independence, social pressures, and exposure to risk environments (Arnett, 2005). Within the Saudi context, similar demographic trends have been reported, with the majority of substance users concentrated in younger age groups, particularly those under 35 years (Ibrahim *et al*., 2018). Interestingly, while males constitute the majority in absolute numbers, female respondents exhibit higher proportional rates of drug use, suggesting that when females engage in substance use, the intensity or likelihood may be comparatively higher. This finding is supported by emerging literature suggesting that although substance use is less prevalent among women in conservative societies, it may be underreported and associated with unique psychosocial stressors, requiring gender-sensitive approaches (Altwaijri *et al*., 2025).

Regarding drug use severity, the majority of respondents fall within the minimal (38.2%) and mild (39.7%) categories, indicating that most users are at an early or less severe stage of substance involvement. However, nearly one-fifth (19.9%) are classified as moderate, and a small proportion (2.2%) as significant, suggesting the presence of individuals at risk of developing more serious substance use disorders. This distribution is consistent with clinical and epidemiological evidence suggesting that substance use

exists along a continuum, where early-stage use can progress to more severe dependence if left unaddressed (McLellan *et al*., 1992). Concurrently, the absence of severe cases may reflect underreporting or the inclusion of community-based participants who have not yet progressed to advanced stages of addiction. Nevertheless, the presence of moderate and significant cases underscores a critical window for early intervention. This is strongly supported by global public health research emphasising prevention and early treatment as cost-effective strategies to reduce substance-related harm (Volkow, 2022).

5 CONCLUSION

This study emphasises that alcohol and drug use are not decreasing in young adults in Tabuk, Saudi Arabia, although legal, cultural, and religious bans are strong, which means that the use of substances can be considered a topical health issue. The results indicate significant lifetime and recent alcohol and drug use, such as cannabis, heroin, and amphetamines, implying that there is still access and availability of such substances. Following this, demographic trends indicate that the age group of 25-34 years is especially susceptible, and substance consumption among men and women is another factor that contributes to the significance of the gender approach. Furthermore, there appears to be a socioeconomic influence associated with the increased risk: lower income and not being married, indicating underlying social and economic strains. On the whole, the paper underlines the importance of specific preventive and intervention measures, such as educational activities, early detection, and community-based interventions. This includes further research and data collection to facilitate the promotion of evidence-based policymaking and more efficient responses to substance use in the Saudi context.

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ETHICS OF THE STUDY

The author declares that the study adheres to and respects all ethical considerations in conducting the systematic review. The study obtained ethics approval from the National University of Malaysia (UKM) ethics committee, the Saudi Ministry of Health, Erada Mental Health Complex Tabuk, and King Salman Hospital Tabuk. Therefore, all the processes followed were clearly explained in the study.

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Authors' Contribution

Conception and design: GA, NA.; Analysis and interpretation of the data: GA, NA.; Drafting of the article: GA, NA.; Critical revision of the article for important intellectual content: GA, NA, SEG, PS.; Final approval of the article: NA, SEG, PS.

Data availability

All datasets relevant to this study's findings are fully available within the article.

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