

# Patterns and sociodemographic characteristics of substance abuse in Al Qassim, Saudi Arabia: a retrospective study at a psychiatric rehabilitation center

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**BACKGROUND:** The problem of substance abuse is one of the top 20 risk factors for poor health worldwide. Though widely prevalent in the Middle East, there are few studies in Saudi Arabia.

**OBJECTIVE:** Record the pattern of substances abuse and the sociodemographic characteristics of abusers attending the local rehabilitation center.

**DESIGN:** Descriptive, retrospective medical record review.

**SETTING:** Patients admitted to psychiatric rehabilitation center.

**METHODS:** The sample included all patients admitted to a rehabilitation center during the period of January 2016–December 2016. Data was collected retrospectively from patient records.

**MAIN OUTCOME MEASURES:** Descriptive epidemiological data and statistical comparisons.

**SAMPLE SIZE:** 612 patients.

**RESULTS:** The majority of patients (73%) were 21-40 years of age. Polysubstance abuse (60%) and amphetamine (24%) abuse were most predominant in the 20-40 year olds (45%) and high school dropouts (41%). The average number of drugs being used by polysubstance abusers was 2.5 (and the maximum was 6). There was no relationship of family history of drug abuse and mental illness.

**CONCLUSION:** There was an increased use of polysubstances and amphetamine with a decreased abuse of prescription drugs when compared to previous studies reported in Saudi Arabia. There was a decreasing prevalence for heroin and alcohol. Substance abusers have certain epidemiological, social and drug patterns and we recommend that authorities and planners integrate their efforts to look for the reasons for substance abuse.

**LIMITATIONS:** Females not included and prevalence of tobacco smoking not studied.

**CONFLICT OF INTEREST:** None.

Since antiquity, man has tried and explored every possible means to entertain himself or to feel euphoric on one or the other occasion by use of herbs or special concoctions. Only in recent times has drug involvement grown to epidemic proportion. The problem of substance abuse is one of the biggest and growing challenges worldwide and is causing a range of health problems with considerable morbidity and mortality. Substance abuse is one of the top 20 risk factors for poor health worldwide and the healthcare cost for individuals who abuse substances is nearly twice as high as those who do not.<sup>1</sup> Treatment is challenging, and is further complicated by the presence of multiple drug use referred to as polysubstance abuse where the abusers do not restrict their drug use to one primary drug, but to more than one at the same time. According to a report by World Health Organization (WHO), the prolonged use of psychoactive substance can lead to a dependence syndrome in the abuser.<sup>1</sup>

The United Nations Office on Drugs and Crime has estimated that 155–250 million people worldwide (3.5–5.7%), aged 15–64 years, had used illicit substances at least once in the previous year and 10–15% of them were problem drug users. It also estimated that among substances of abuse, cannabis was the most commonly abused (129–190 million) followed by amphetamine (13.7–52.9 million), opiates (12.8–21.8 million) and cocaine. Comorbidities are common, due to sharing of injecting tools leading to spreading of infectious disease. It is estimated that 12 million people inject drugs, 1.6 million of whom are living with HIV, 6.1 million with Hepatitis C, 1.3 million with both Hepatitis C and HIV along with a high incidence of tuberculosis in this population.<sup>1,2</sup>

In the Middle East, it is reported that amphetamine and abuse of other is very prevalent even though these countries, including Saudi Arabia, implement stringent Sharia law for the sale, possession and consumption of any illicit substance of abuse including alcohol and narcotic substances. Being a Muslim does not guarantee a relentless adherence to all the guidelines in Islam. Therefore, the stigma and fear of disclosure of substance abuse makes treatment strategies difficult to implement and understand. According to a news report, the majority of drug abusers in Saudi Arabia fall within the age group of 12–22 years, and close to 40 percent rely on substances of abuse. The government of Saudi Arabia uses every means to create awareness about the ill effects of substance abuse as rapid socioeconomic and cultural development has led to an emergence of novel attitudes, lifestyles, and recreational pursuits, including drug involvement.<sup>3–6</sup>

There are limited studies on substance abuse in Saudi Arabia. The current study is one of the few studies conducted in Al-Qassim region. The present study attempts to record the pattern of substance abuse and the sociodemographic characteristics of abusers attending a local psychiatric rehabilitation center. This study also attempts to unravel the scale of polysubstance abuse prevalent in the local populace who visit the center.

## METHODS

This retrospective study was conducted in the Psychiatric Rehabilitation Center (PRC), Buraidah, one of the four main specialized facilities to treat and prevent substance use disorders in Saudi Arabia. Established in 1994, with 50 inpatient beds, an outpatient clinic and after-care department, the center caters to a large area of Hail, Tabouk, Al-Qassim and soldiers in the Military Campus at Hafer Al-Batin. The approval for the study and ethical clearance was obtained from the Director, PRC. All patients admitted for substance abuse during the 12-month period from January 2016 to December 2016 were included in the study. Data was collected retrospectively from patient records. Patient demographic and substance abuse data was grouped into various categories. The statistical analysis was done using the IBM SPSS software package for Windows, version 20 (IBM Corp, Armonk, New York, United States). Since the Fisher exact test requires too many permutations to compute and we had no readily available means of performing alternatives (simulation by Monte Carlo method, for example), we present the chi-square for contingency table analysis after collapsing variables into fewer groups.

## RESULTS

The sociodemographic variables of the 612 substance abusers in this study did not vary substantially from previously published studies of Saudi Arabian subjects (**Table 1**). The majority (73%) were 21–40 years of age and only 6.5% were adolescents under the age of 20 years. The mean age of drug abusers was 33.4 (9.9) years. Most had a secondary or higher school level of education; a few were illiterate and a few were university educated. Almost half were unemployed soldiers and somewhat more than half were married. About two-thirds were admitted were from the Al-Qassim region (65%).

In our study, the most common types of abuse were two or more substances, amphetamine, alcohol and cannabis (**Figure 1**). The average number of drugs being used by polysubstance abusers was 2.5 (and the

**Table 1.** Sociodemographic distribution of substance abusers (n=612).

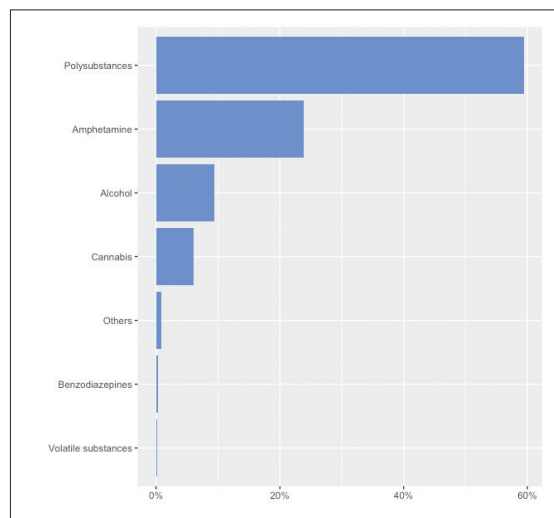
Characteristic	Number	Percentage
<b>Age group in years</b>		
10-20	40	6.5
21-30	217	35.5
31-40	231	37.7
41-50	84	13.7
51-60	31	5.1
61-70	8	1.3
71-80	1	.2
<b>Education level</b>		
Illiterate	15	2.5
Primary	89	14.5
Secondary	148	24.2
High school	301	49.2
University	59	9.6
<b>Occupation</b>		
Unemployed	284	46.4
Soldier	109	17.8
Civilian	108	17.6
Private	50	8.2
Retired	30	4.9
Student	31	5.1
<b>Marital status</b>		
Single	336	54.9
Married	214	35.0
Divorced	58	9.5
Widower	4	0.7
<b>Residence/city</b>		
Qassim	397	64.9
Hail	100	16.3
Tabuk	82	13.4
Hafar Al-Batin	6	1
Others	27	4.4

maximum was 6). The least commonly abused drugs were benzodiazepines and volatile inhalants. In comparison to previous studies, there was greater use of polysubstances and amphetamine (Figure 2). A sig-

nificant difference was observed between age groups and type of substance abused. About three-quarters of abusers were 20-40 years of age (Figure 3). About two-thirds were high school dropouts, 16.5% primary school and 9.6% were university graduates. The majority of abusers were high school dropouts (Table 2).

The higher prevalence of polysubstance abuse (60%) and amphetamine (24%) was notable in this study. This prevalence of polysubstance was more predominant in 20-40 year olds (45%) (Figure 3) and in individuals with high school graduates or dropouts. (41%) (Table 2). The average number of drugs being used by polysubstance abusers was 2.5 (and the maximum number recorded was 6) which included almost all or some of the single abused drugs (Table 2). In this study, there was no significant association between type of substance abused and positive family history of substance abuse and or mental illness (Table 3). Patients admitted to the center were abusing drugs for varying periods of time. Two-thirds were as old as 10 years of age and 29% were from 11-20 years old. Three-quarters of patients who were referred to the center were brought without their consent by families or personnel of the Ministry of the Interior (Table 4).

Various studies have reported frequent hospital readmissions for substance abusers especially during the first 42 months of discharge, which may be attributed to social stress and unemployment with the highest correlation between relapse and interpersonal situations. Our center received 2161 admissions and readmissions during the period January 2016 to December 2016. The highest number of readmissions were in polysubstance abusers (62%) followed by am-

**Figure 1.** Distribution of types of substances (n=612).

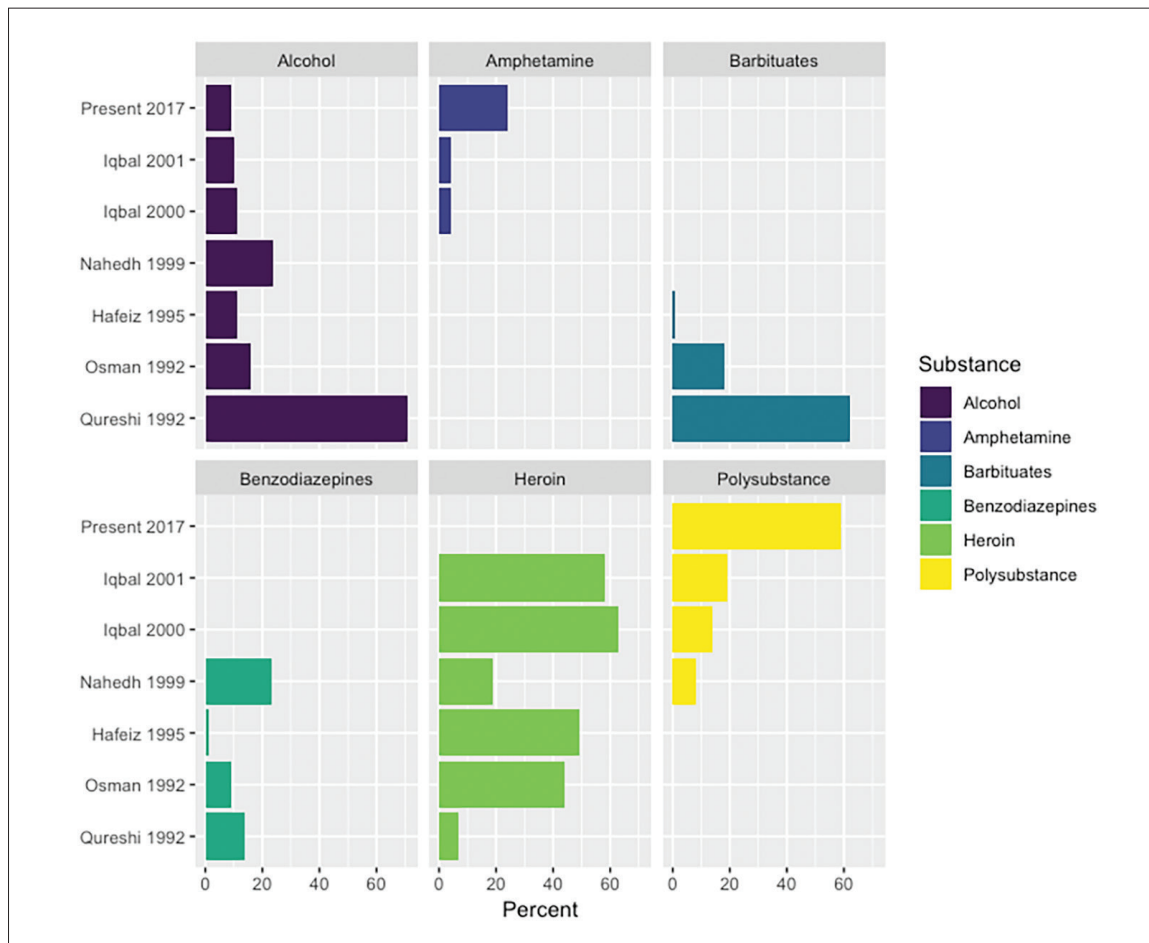


Figure 2. Comparison of substance abuse.

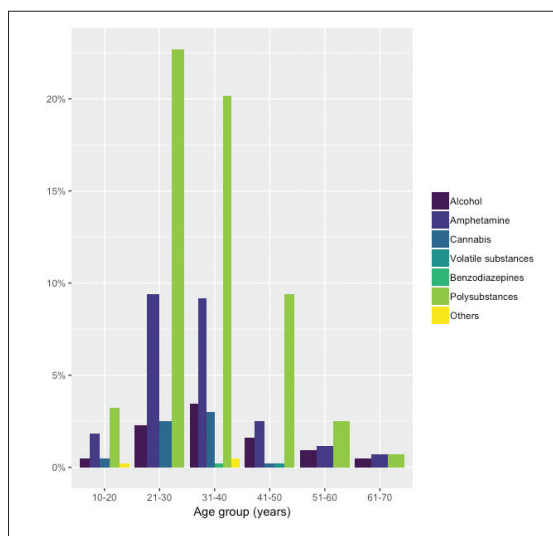


Figure 3. Substance abuse among different age groups ( $\chi^2=12.7$ ,  $df=6$ ,  $P<.049$  for comparison of ages grouped 10-20, 21-40, 41-70 years and alcohol, amphetamine, cannabis, and polysubstances).

phetamine (24%) and alcohol (9%) (Figure 4).

Studies in Saudi Arabia have reported that peer pressure, family problems, health-related problems, seeking pleasure and curiosity were the risk factors for initiating substance use. In our study, possible risk factors for substance abuse were mal sex, age of 20-40 years, availability of multiple drugs of abuse and only a high school education. However, other possible risk factors were not analyzed in our study.

### DISCUSSION

Substance abuse is now recognized as a chronic relapsing brain disease which erodes the same neural scaffold that enables self-control and appropriate decision making. Thus, prevention and early detection and intervention are of paramount importance in the struggle against drug abuse and addiction.<sup>5,6</sup> Substance abuse disorder is a preventable and treatable health problem through effective comprehensive and multidisciplinary interventions. Treatment strategies must be based on

**Table 2.** Level of education among substance abusers.

Education level	Type of substance abused				Total
	Alcohol	Amphetamine	Cannabis	Polysubstance	
Illiterate	1 (0.2)	2 (0.3)	0	12 (2.0)	15 (2.5)
Primary school	7 (1.2)	19 (3.1)	2 (0.3)	60 (9.9)	88 (16.5)
High school	53 (8.8)	106 (17.5)	31 (5.1)	253 (41.9)	443 (64.5)
University	0	20 (3.3)	4 (0.7)	34 (5.6)	58 (9.6)

Values are number and percentage. Chi-squared 17.73, (df=9) , P<.038.

**Table 3.** Association of positive family history of substance abuse and mental illness among abusers (n=612).

Response	Positive family history of substance abuse	Positive family history of mental illness
Yes	115 (18.8)	71 (11.6)
No	494 (80.7)	537 (87.7)

Values are number and percentage.

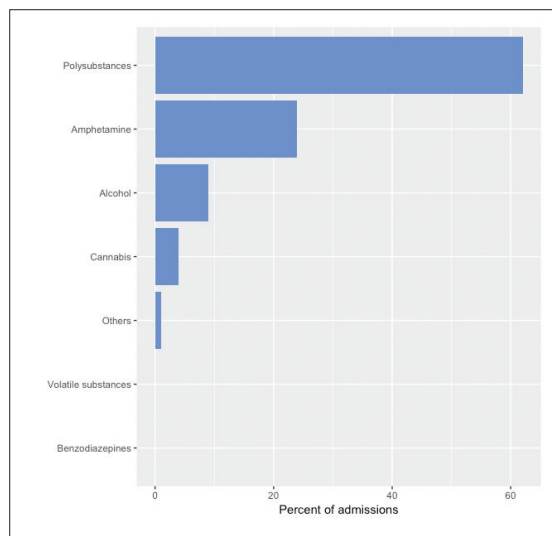
evidence and scientific research.<sup>7-9</sup> Unfortunately, data is scarce on substance abuse in Saudi Arabia general and the Al-Qassim region in particular. Needless to say, studies conducted so far provide an informal description of substance abuse prevalent in different parts of Saudi Arabia.<sup>3-7</sup> The Al-Qassim region is one of the thirteen administrative regions of Saudi Arabia, located in the heart of the country, almost in the center of the Arabian Peninsula. This region is considered a religiously orthodox area with strict observance of Islamic principles and the use of alcohol and abuse of drugs is strictly punishable. Hence the issue of substance abuse is a social stigma and unacceptable in the Saudi society. Cases of abuse are not brought to the attention of care providers in time, leading to ineffective treatment resulting in a high rate of mortality and morbidity. Alcohol and substance abuse mostly involves unscrupulous homemade alcohols and smuggled drugs.<sup>10</sup> Thirty percent of seized amphetamine by anti-narcotic officials worldwide came from Saudi Arabia.

Substance abuse is a complex and multi-dimensional problem. As a worldwide trend, the age of drinking of alcohol is declining and young people are initiating drug use at an earlier age. With the advent of globalization and the internet revolution, abuse at a younger age is on an upward trend. During a 20-year period (1986–2006) in Saudi Arabia, the relative frequency of substance abuse for amphetamine and cannabis increased.<sup>3,4</sup> In contrast, use has decreased for heroin,

**Table 4.** Duration of substance abuse and source of referral for substance abusers.

	Frequency
<b>Duration of abuse (years)</b>	
0-10	403 (65.8)
11-20	177 (28.9)
21-30	21 (3.4)
31-40	7 (1.1)
<b>Source of referral</b>	
Compulsory	457 (74.7)
Voluntary	155 (25.3)

Values are number and percentage. Data for 4 individuals was missing from the dataset for duration of abuse.



**Figure 4.** Admissions and readmissions of substance abusers.

sedatives and volatile substances. However, abuse for alcohol remained stable. The results obtained in our study differ in pattern from earlier studies in that 60% indulge in abuse of polysubstances and 25% abusing amphetamine with a lower prevalence for prescription drugs (benzodiazepines and barbiturates) and alcohol. Notably, the prevalence was more predominant in 20-40 year olds (45%). Two-thirds of all the patients who referred to the center were brought by families or personnel of the Ministry of Interior, which is concurrent with studies conducted elsewhere.<sup>10-12</sup> According to a review on substance use disorders in Saudi Arabia 14-73% are "polysubstance abusers" with one-third to one-half being self-referred to a treatment center and the rest being either by families or friends or personnel of the Ministry of the Interior.<sup>13</sup> This pattern of lower prevalence in prescription drugs in the present study may be due to strict local regulations for sale and distribution of such drugs. It is assumed the abusers often combine drugs either out of necessity when they cannot get their usual substance or to enjoy the altered effects of interactions of one drug with another. The maximum substance abuse in the present study was found among the age group of 20-40 years (37.7%) ( $P < .022$ ) with a tendency for people with a high school education to be more inclined to drug addiction (41.9%). Education helps people to learn skills and develop perceptions of risk. A study conducted in Copenhagen<sup>14</sup> found that those with the lowest level of schooling were most frequently heavy smokers, heavy drinkers and the most physically inactive, corroborating our findings. Other characteristics of the present study were unemployment and unmarried single status which constituted 45% and 55% of abusers, respectively.<sup>15,16</sup> Our results were in agreement with other studies, such as a study in the United States that found the highest rate of drug abuse among youth ages 18 to 20 (22.7%) and 21 to 25 (21.5%). Another study found that those with the least schooling were more frequently heavy smokers and drinkers. These results suggest that education level has some influence the decision to abuse drugs.

A worrisome trend could be the spike in polysubstance and amphetamine abuse in the present study. Most of western studies also indicate the polydrug abuse as the major problem that is more prevalent in males.<sup>17,18</sup> The sociodemographic variables in patients in the present study are comparable to earlier studies reported in Saudi Arabia, but in other studies there was a greater prevalence in heroin, alcohol, benzodiazepines, barbiturates, khat and cannabis.<sup>11</sup> However, in the present study there was a reduction in the abuse of

alcohol, benzodiazepines, barbiturates with no heroin abuse, which probably indicates an overall stricter regulation on the sale and distribution of these substances.

The tremendous stress, rejection, fear and frequent bouts of depression that often result from being unemployed and single are high risk factors for the development of a drug use problem. Many people who are struggling with unemployment and stay single turn to alcohol or drugs to mitigate their discomfort and sense of helplessness.<sup>20</sup>

Another important observation in the present study is the absence of any significant positive family history of substance, indicating strong family bonding and etiquette prevalent in the society. This contrasts with international studies, where drug abuse runs strongly in families and studies have demonstrated that genetic factors contribute substantially to this familial aggregation.<sup>5,19,20</sup>

The reduction in abuse of some substances and lack of absence of family history contrast with observations from international studies. Further studies on the reasons for these differences from the international community would be of interest. Studies based on religious and cultural values can provide us with valuable information on this subject. However, peer influence cannot be ruled out on the influence for substance abuse as 65% of abusers belonged high school students.

The study has the limitation of not having the female component. Knowing demographic data on female drug addiction in this region would be interesting. The study sample may not be totally representative of all the substance use in the region. No attempt was made to study the co-morbidity of patients compelling or aggravating substance use. The prevalence of tobacco smoking was also not studied, which could have given clues about its co-prevalence with substance abuse.

In conclusion, results from the present study clearly indicate an increased use of polysubstances and amphetamine with a decreased abuse of prescription drugs when compared to other previous studies reported in Saudi Arabia. However, there is a similarity in the sociodemographic variables of abusers of the present study. Another important observation was a decreasing prevalence for heroin and alcohol with an upward increase for polysubstance and amphetamine. We found a high prevalence of abuse in high schoolers and in the productive age group of 20-40 years. Finally, it is concluded that substance abusers have certain epidemiological, social and drug patterns. We recommend that concerned authorities and planners integrate their efforts, especially in Al-Qassim region to look for the reasons for substance abuse in our region.

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