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Insights into substance abuse knowledge and attitudes among high school students in Anbar Province, Iraq

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Abstract

Background: The high prevalence of substance use among children and adolescents has become a major global public health concern. This study aims to explore adolescents' knowledge and attitudes toward substance abuse.

Methods: A cross-sectional study was conducted from January 2nd to February 15th, 2023 in Ramadi City, Anbar Province, Iraq. Students from eight high schools participated, selected through a multistage sampling approach. The bivariate analysis included independent sample t-tests and one-way ANOVA. Furthermore, a multivariable linear regression analysis was employed to predict factors influencing knowledge and attitudes. Statistical analyses were performed using SPSS version 16.

Results: The study included 415 students, with a mean age of 16.7 (±9.3) years, with a majority being male (52.8%). Accuracy rates for knowledge and attitude were 79.6% and 70.2%, respectively. About 79.3% of participants were familiar with terms related to drug abuse in Iraq. Regression analysis showed that higher knowledge scores were linked with male gender and a household income exceeding IQD 600,000 monthly (95% CI:1.311 to 2.923; P <0.001; and 95% CI:1.072 to 2.331; P =0.001), respectively. Attitudes toward drug abuse prevention were influenced by male participants and students with employed fathers (95% CI:1.245 to 4.302; P=0.025; and 95% CI: 2.073 to 6.737; P=0.032), respectively.

Conclusion: In conclusion, most of the students had sufficient knowledge and a constructive attitude toward drug use. Male gender, high income, and employed fathers were the main predictors.

Keywords: Students, high school, Substance, Drug, Abuse, Knowledge, Attitude, Iraq

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Background

Adolescence serves as a pivotal phase bridging childhood and adulthood, characterized by significant changes and transitions. It encompasses a spectrum of experiences including education, vocational training, employment, and shifts in living arrangements [1]. A holistic comprehension of adolescence draws from diverse fields such as psychology, genetics, history, sociology, education, and anthropology. This interdisciplinary approach illuminates the multifaceted nature of adolescence and its societal implications [2]. Throughout human history, drug utilization has paralleled the narrative of our civilization. In essence, the judicious application of drugs has offered invaluable medical benefits. Herbal remedies, derived from various sources such as roots, bark, leaves, and plants, have historically provided relief from pain and aided in disease management [3]. However, in recent decades, the proliferation of illicit drug use has surged at an unparalleled pace. Substance abuse stands as a significant challenge in contemporary society [4]. This epidemic transcends national boundaries, affecting communities worldwide, and permeating every corner of the globe. Its grasp extends across rural and urban demographics, encompassing individuals from diverse socioeconomic backgrounds, genders, and age groups. However, it predominantly afflicts young individuals, particularly those residing in hostels and educational institutions [4,5]. Addiction, in its various forms, casts a dark shadow over humanity, impacting not only those directly ensnared by substance dependence but also their families and communities. While moralists may view it as a moral failing and theologians may condemn it as a sin, sociologists recognize drug abuse as a

complex social issue, and law enforcement agencies deem it a criminal offense [6, 7]. Numerous scholars [8-12] have endeavored to identify the roots of drug abuse and addiction to facilitate the development of effective treatments and preventive strategies. Investigations reveal that the issue emanates from various dimensions, including familial factors such as parent-child relationships, parenting styles, family finances, and community dynamics. These encompass aspects such as the presence of illicit social settings, distorted values, and societal neglect. Furthermore, the individuals with whom adolescents choose to spend their time greatly influence their habits. Adolescents who associate with peers engaged in drug use are more susceptible to developing addiction themselves. It is common for friends to initiate others into drug experimentation. Additionally, a lack of awareness regarding the effects of drugs serves as another factor contributing to drug abuse [13]. Recognizing the complex landscape of drug abuse, it is crucial to foster collaboration among a variety of stakeholders to enrich adolescents' understanding and self-awareness. This study aimed to investigate the knowledge, attitudes, and behaviors of adolescents regarding substance abuse within Al-Ramadi city, located in Anbar Province, west of Iraq.

Methods

Study design and participants

Between January 2nd and February 15th, 2023, a cross-sectional investigation took place in Ramadi City, the strategic city and capital of Anbar Province (governorate). Ramadi city accommodates roughly half a million residents distributed over ten neighborhoods. Employing a multistage sampling technique, initially, four neighborhoods were chosen randomly, each housing two high schools - one for boys and one for girls. From these schools, two classes were randomly picked, totaling sixteen classes. The list of students provided by school authorities facilitated the random selection of 25 to 35 students per class. Researchers personally distributed hard copies of the questionnaire to the chosen students, ensuring their participation. This systematic approach guaranteed the representation of diverse neighborhoods and school types within the governorate, fostering comprehensive data collection.

Inclusion and exclusion criteria

The research involved adolescents aged 14 to 18 of both genders who were present and willing to take part. Excluded were those who declined or offered incomplete information during the study duration.

Samples Size

With a suggestion of about 50.0% of students understood the concept of drug abuse, a margin of error of ±5%, a 95% confidence level, and a 10% non-response correction factor, the sample size calculator determined a requirement of 415 (377+18) participants using the formula: $N= [Za^2 \times P XQ/(M.E.)^2]$.

Study tool

Participants received semi-structured, pre-tested, self-administered questionnaires. Initially, a questionnaire was created in English and later translated into Arabic. To ensure its effectiveness, twenty individuals (not part of the study) were enlisted to pilot-test the tool. The questionnaire's opening page guaranteed participants the freedom to engage or withdraw at will. It also assured them of the anonymity and confidentiality of all shared information and opinions. The questionnaire encompassed three sections: socio-demographic information, knowledge, and attitudes scores.

Dependent variables

Participants were presented with ten statements testing their knowledge, to which they could respond with "True" or "False". Incorrect answers and "I don't know" responses were scored as zero, while correct answers received points. The resulting knowledge score, ranging from zero to 10, indicated a higher awareness of substance abuse with higher scores. Internal reliability was evaluated using Cronbach's alpha, yielding a coefficient of 0.74, indicating good consistency. Nine attitude statements were also presented, prompting respondents to indicate agreement or disagreement, with the option of "I do not know". Incorrect or uncertain responses received zero points, while correct answers were scored. Attitude scores ranged from zero to 9, with higher scores indicating a more positive attitude towards substance abuse prevention. The Cronbach's alpha coefficient for attitude was 0.77, demonstrating satisfactory internal reliability.

Independent variables

For the sociodemographic variables, gender was denoted as one for males and zero for females. Age was categorized into two groups: zero for those under 16 years old, and one for 16 years and older. Residential status was coded as zero for rural and one for urban areas. Housing ownership was represented by one for owned houses and zero for rented ones. Education levels were classified as zero for higher academic qualifications (college/university degrees, postgraduate degrees) and one for lower education levels (high school or below). Employment status was categorized with zero assigned to the employed and one to the unemployed or homemakers. Monthly income (converted from Iraqi Dinar (IQD) to United States Dollar (USD) using the exchange rate of 0.0008 on January 1st, 2023) was grouped into two categories: less than IQD 600,000, and IQD 600,000 or more.

Statistical analysis

Univariate analysis was utilized to summarize the frequency of social and demographic statistics. Independent sample t-tests and one-way analysis of variance (ANOVA) were employed to assess differences in mean values for knowledge and attitude. The Bartlett test was conducted to evaluate overall mean differences. Additionally, a multivariable linear regression analysis, Durbin-Watson test, tolerance, and variance inflation factor (VIF) were performed to predict factors associated with knowledge and attitudes. All statistical analyses were carried out using SPSS version 16. A significant test was considered at less than 0.05.

Results

Demographic information

As indicated in Table 1, the average age (±SD) of the 415 respondents was 16.7 (±9.3), ranging from 14 to 18 years. The majority of students (52.8%) were male, residing in urban areas (67.7%), and living in their own houses (70.1%). Among the surveyed students, 276 (66.5%) reported a household income

exceeding IQD 600,000, with 250 (60.2%) having employed fathers.

Knowledge and attitude scores by social and demographic characteristics

As depicted in Tables 2 and 3, the average knowledge score stood at 7.96 (SD = 3.43, range: 0–10), with an overall accuracy rate of 79.6% (calculated as 7.96 divided by 10, and multiplied by 100). Regarding attitudes, the mean score was 7.02 (SD = 3.05, range: 0-9), yielding an overall accuracy rate of 70.2% (derived from 7.02 divided by 9, and multiplied by 100), as shown in Tables 3 and 4.

Demographic information

Table 5 illustrates that mean scores for knowledge and attitude toward substance abuse in Al-Ramadi city vary depending on social and demographic characteristics. Factors such as male gender (P=0.001), urban residency (P=0.033), housing ownership (P=0.027), and income exceeding IQD 600,000 (P<0.001) significantly influence knowledge scores.

Attitude scores, conversely, are affected by male gender (P=0.024), urban residency (P=0.005), housing ownership (P=0.012), employed father (P=0.005), and household monthly income surpassing IQD 600,000 (P=0.020). These results highlight the complex interplay between demographic factors and attitudes toward substance abuse.

Regression analysis

The regression analysis indicated significant associations between certain variables and knowledge scores. Specifically, male gender (95% CI:1.311 to 2.923; P <0.001) and a household income exceeding IQD 600,000 monthly (95% CI:1.072 to 2.331; P =0.001) were correlated with higher knowledge scores. In terms of attitude scores, male participants (95% CI:1.245 to 4.302; P=0.025) and students with employed fathers (95% CI: 2.073 to 6.737; P=0.032) exhibited significantly more positive attitudes toward substance abuse, as outlined in Table 6.

Table 1: Social and demographic characteristics of the study participants (n=415)

Variables	**Category**	**Number (%)**
Age group	Mean +: 16.7 (9.3)	Range:14-18
	< 16 years	172(41.4)
	16 years and more	243(58.6)
Gender	Female	196 (47.2)
	Male	219 (52.8)
Place of residence	Urban	281 (67.7)
	Rural	131 (32.3)
Housing ownership	Own	291 (70.1)
	Rent	124 (29.9)
Level of education (mother)	High education	167(40.2)
	Low education	203 (59.8)
Level of education (father)	High education	153(36.9)
	Low education	262(63.1)
Employment statutes (father)	Unemployed	165 (39.8)
	Employed	250(60.2)
Household monthly income	<IQD 600000	139 (33.5)
	>IQD600000	276(66.5)

Table 2: Responses to knowledge statements regarding substance abuse in Iraq (n=415)

No.	Statement	Correct N (%)	Incorrect N (%)
1.	Are you aware of substance abuse?	321(77.3)	94(22.7)
2.	Substance abuse pertains solely to the misuse of substances.	245(59.0)	170(41.0)
3.	Substance abuse poses risks to overall health quality.	362(87.2)	53(12.8)
4.	Rising mortality rates can be attributed to substance abuse.	255(61.4)	160(38.6)
5.	Alcohol is commonly abused.	312(75.2)	103(24.8)
6.	Cocaine, Heroin, Morphine, Tramadol, codeine, crystal, hashish, and tablets are some terms and names of related drug abuse in Iraq.	329(79.3)	86(20.7)
7.	Social influences, like peer pressure, impact substance abuse	301(72.5)	114(27.5)
8.	There has been an observable uptick in drug abuse rates over time in Iraq.	278(70.0)	137(33.0)
9.	Family background is the leading cause of substance abuse	211(50.8)	204(49.2)
10.	Professionals like pharmacists and doctors also abuse drugs	223(53.7)	192(46.3)

Table 3: Number of questions, range, scores, levels of knowledge, and attitude toward substance abuse (n=415)

Variables	Number of questions	Range of score	Total scores (mean ± SD)	Accuracy rate (%)
Knowledge	10	0-10	7.96 ± 3.43	79.6
Attitude	9	0-9	7.02 ± 3.05	70.2

Table 4: Attitudes towards drug addicts in Iraq (n=415)

No.	Statement	Agree N(%)	Don't know N(%)	Disagree N(%)
1	The consumption of illegal drugs may induce pleasurable sensations.	131(31.6)	152(36.6)	132(31.8)
2	Not all individuals struggling with drug addiction pose a danger.	188(45.3)	76(18.3)	151(36.4)
3	It's advised that young individuals refrain from experimenting with illegal substances.	244(58.8)	115(27.7)	56(13.5)
4	Some perceive using illegal drugs as enjoyable.	63(15.2)	85(20.5)	267(64.3)
5	Schools need to include drug abuse education in their curriculum.	257(61.9)	107(25.8)	51(12.3)
6	There's a misconception that illegal drugs enrich one's life experiences.	271(65.3)	80(19.3)	64(15.4)
7	Many individuals who abuse drugs come to regret their actions later on.	123(29.2)	189(45.5)	105(25.3)
8	The prospects of those battling drug addiction are often uncertain.	93(22.4)	225(54.2)	97(23.4)
9	There's a prevailing leniency within our society towards drug users.	235(56.6)	55(13.3)	125(30.1)

Table 5: Comparison of social and demographic characteristics and mean knowledge and attitude scores (n=415)

Variables	Categories	Total	Knowledge			Attitude		
		N(%)	Mean	SD	P	Mean	SD	P
< 16 years	172(41.4)	< 16 years	8.2	2.6	0.106	7.1	2.6	0.072
16 years and more	243(58.6)	16 years and more	8.7	2.4		7.3	2.2	
Gender	Female	196 (47.2)	8.2	2.7	0.001	7.2	2.5	0.024
	Male	219 (52.8)	9.1	3.3		7.9	2.2	
Place of residence	Urban	281 (67.7)	8.6	2.2	0.033	8.2	2.1	0. 005
	Rural	131 (32.3)	7.3	2.9		6.9	2.6	
Residents house	Own	291 (70.1)	8.3	3.1	0.027	7.5	2.5	0. 012
	Rent	124 (29.9)	7.5	3.7		6.8	2.8	
Level of education (mother)	High education	167(40.2)	9.3	2.5	0.172	7.2	2.2	0.110
	Low education	203 (59.8)	8.7	3.1		7.7	2.4	
Level of education (father)	High education	153(36.9)	8.4	3.1	0.070	7.7	1.9	0.108
	Low education	262(63.1)	8.1	3.5		7.9	2.2	
Employment statutes (father)	Unemployed	165 (39.8)	7.8	3.1	0.091	7.1	2.7	0.005
	Employed	250(60.2)	8.0	2.9		7.9	2.5	
Household monthly income	<IQD 600000	139 (33.5)	7.8	2.1	0.000	7.0	2.5	0.020
	>IQD600000	276(66.5)	9.2	2.7		8.5	3.0	

Table 6: Regression results of knowledge and attitude-related factors (n=415)

Variable	B	SE	Beta	t	*P*-value	95% CI lower-Upper	Tolerance	VIF
Knowledge (Durbin-Watson= 1.629)								
Male (VS Female)	2.137	0.234	0.267	3.756	0.000	(1.311,2.923)	0.893	1.117
>IQD600000 (VS <IQD600000)	2.015	0.355	0.281	2.610	0.001	(1.072,2.331)	0.923	1.109
Attitude (Durbin-Watson= 1.657)								
Male (VS Female)	1.382	0.215	0.229	2.216	0.025	(1.245, 4.302)	0.899	1.108
Students of employed fathers (vs unemployed)	1.201	0.293	0.247	1.874	0.032	(2.073,6.737)	0.915	1.102

Discussion

The average knowledge score of 7.96 (SD = 3.43), with 321 (77.3%) participants being aware of substance abuse, reflects a commendable level of awareness among the respondents. Approximately three-quarters (75.2%) of respondents acknowledged alcohol as commonly abused in Iraq. Additionally, a significant majority (79.3%) were familiar with the various terms and names associated with drug abuse in the country. Moreover, 362 (87.2%) recognized the risks posed by substance abuse to overall health quality, and 255 (61.4%) acknowledged its association with rising mortality rates. These findings indicate that the majority of students have a firm understanding of drug-related information, which is crucial for making informed decisions and adopting preventive measures. Similarly, research conducted in Iraq [8], Jourdan [14], and Lagos State [15] revealed that a significant portion of adolescents possessed knowledge about the detrimental effects of substance abuse on both the individual and society. In this study, the demographic background of the surveyed students offers crucial insights into their knowledge and attitudes regarding drug abuse. With an average age of 16.7 years, the research sheds light on late adolescence, a pivotal developmental phase during which attitudes and behaviors toward substance use often solidify [8]. International organizations like the United Nations (UN) and The

Global Burden of Disease (GBD) have highlighted drug abuse as a major global challenge, especially impacting younger individuals, particularly males, and leading to increased health burdens [16, 17]. The regression analysis highlights the impact of social and demographic variables on adolescents' understanding and attitudes toward drug abuse. It suggests that male gender and higher household income are linked with higher knowledge scores, suggesting unequal access to information and resources among various demographic groups. Likewise, positive attitudes toward drug abuse prevention are linked with being male and having an employed father. Research suggests that men exhibit a higher propensity for the use of various illicit substances compared to women [18]. Moreover, Ali Jadoo et al. [8] have supported that sexual features and nerves in male students, and university students, predict a positive position towards a tendency to use drugs. This trend extends to emergency department visits and overdose fatalities, with men experiencing a higher likelihood of such occurrences [19]. However, it's noteworthy that women are equally prone to developing substance use disorders. Furthermore, women may face increased vulnerability to relapse [20]. Elevated family income could be linked to substance use due to enhanced access and social connections with others who possess financial means. A previous study by Humensky [21] found that increased household income correlates with elevated odds of binge drinking and marijuana use. Specifically, each additional $1000 in annual household income during adolescence is linked with a 1.003 increase in the odds of binge drinking in early adulthood (AOR = 1.003, 95% CI [1.001-1.004]). Conversely, lower income might be associated with substance use as individuals may resort to it as a coping mechanism amid heightened stress and limited access to alternative activities [22]. The majority (79.2%) of participants were acquainted with various terms and names associated with drug abuse in Iraq, including cocaine, heroin, morphine, tramadol, codeine, crystal, hashish, and tablets. It is noteworthy that adolescents exhibited proficiency in understanding the terminology commonly used by drug users [23]. More than seventy percent of students approved of social effects, such as peer pressure on drug use and they were aware of a noticeable rise in drug use rates over time in Iraq. Our results were not far from those in previous Iraqi studies [8,24,25]. Melkam and colleagues [26] reported similar results, indicating that peer pressure significantly influenced students, increasing the likelihood of substance use by 5.77 times compared to their peers. Additionally, half of the studied students announced that the family's background is the main cause of drug use and did not rule out that professionals such as pharmacists and doctors may be involved in the use of drugs. Evidence from previous research has confirmed that a history of substance abuse significantly contributes to the development of addiction in the future [27,28]. According to Kenna and colleagues [29], certain healthcare professions exhibit higher rates of family histories of alcohol (FHPA) and drug problems (FHPD). They found that FHPD was significantly linked to past-year drug use among physicians. With the steady increase in drug use, it will be important to focus research on the multiple groups vulnerable to addiction while doubling interest in individual factors. Diverse studies, especially those related to demographic factors, may be more effective in generating results that characterize certain areas and therefore may be more useful in generating and evaluating local control and prevention efforts. Reforming and improving the health system to ensure equal access to all members of society [30]. Interventions that use various psychological treatments based on theory and recognition of unique developmental features for adolescents are among the examples that can be used [31]. Risk factor-reducing programs that involve adolescents from primary school to puberty most likely enhance the prevention and control of drug abuse. Continuous implementation and enforcement of legal measures against drug use are crucial components of our ongoing efforts to address the public health impact of substance abuse. The participation of public and private actors including the non -governmental organizations in raising awareness and finding solutions. Directing the public and private media to highlight the size of drug abuse and deal with it as a major national issue [32].

Conclusion

In summary, the study found that the majority (79.2%) of participants were familiar with various terms related to drug abuse in Iraq. The average knowledge score was 7.96 (SD = 3.43), with 77.3% aware of substance abuse. Regarding attitudes, the mean score was 7.02 (SD = 3.05). Regression analysis revealed significant associations between certain variables and knowledge scores. Specifically, male gender and household income exceeding IQD 600,000 monthly were linked to higher knowledge scores. Similarly, male participants and students with employed fathers demonstrated significantly more positive attitudes toward substance abuse

Abbreviation

ANOVA: One-Way Analysis of Variance; SD: Standard Deviation; US$: United States Dollar; NIDA: National Institute on Drug Abuse; IQD: Iraqi Dinar; GBD: Global Burden of Disease; UN: United Nations; EU: European; SAMHSA: Substance Abuse and Mental Health Services Administration; FHPA: Family Histories of Alcohol; FHPD: Drug Problems

Declaration

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Availability of data and materials

Data will be available by emailing med.badeaa.thamir@uoanbar.edu.iq

Authors' contributions

Badea'a Thamir Yahyaa (BTY) and Badea'a Thamir Yahyaa1*, Ru'ya Abdulhadi Al-Rawi (RAA) have equally conceived and designed the study, analyzed and interpreted the data; drafted the manuscript; and revised the manuscript. Badea'a All authors read and approved the final manuscript.

Ethics approval and consent to participate

We conducted the research following the declaration of Helsinki. The ethical approval was obtained from the Ethics Review Committee, College of Medicine, Anbar University, Anbar, Iraq

(Ref No: 638-2022). Informed consent was obtained from the participants before filling out the survey questionnaire.

Consent for publication

Not applicable

Competing interest

The authors declare that they have no competing interests.

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