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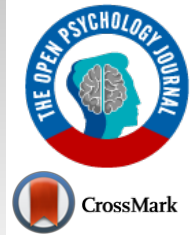
Sociocultural Factors, Sensation Seeking, and Risk of Exposure to Substance Abuse Among Egyptian and Saudi Undergraduates

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Abstract:

Background:

Substance abuse is a major public health issue worldwide, particularly manifesting during the late adolescent and early adult period. Each culture has distinct beliefs and unique ways of raising children. Cultural differences in parenting beliefs and behaviors are an interesting area that enhances understanding of the nature of differences across cultures. Substance abuse risk may be related to family sociocultural factors; however, there are limited studies that address the relationships between pertinent variables.

Objective:

To examine and compare family sociocultural factors, sensation seeking, and risk of drug involvement among Egyptian and Saudi university students.

Methods:

The study employed a comparative correlational descriptive design using two-stage cluster sampling techniques. Data were collected using self-administered questionnaires distributed to students enrolled in Imam Abdulrahman Bin Faisal University (IAU) in Saudi Arabia and Damanhur University (DU) in Egypt.

Results:

The study showed that Egyptian and Saudi students with a higher percentage of supportive parent relationships have less risk of drug involvement. In both countries, cigarette smoking was the first substance used. Moreover, factors predicting the risk of drug involvement and regression analysis revealed that male students had five times more risk of drug involvement than their female peers, keeping all other factors constant (OR = 5.734; 95%CI:3.231-10.174), while highly supportive paternal relationship reduced the risk of drug involvement by 85% (OR = 0.148; 95% CI: 0.045-0.489).

Conclusion:

The risk for substance abuse in both cultural settings was moderate, and smoking was the most common substance used. Moreover, a highly supportive paternal relationship reduced the risk of drug involvement by 85%.

Keywords: Substance abuse, University students, Family sociocultural style, Sensation seeking, Cultural differences, Egyptian and Saudi students, Drug involvement.

1. INTRODUCTION

Substance abuse is a substantial public health issue that tends to manifest in late adolescence or young adulthood,

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which represents the peak evolving time for the onset of drug use problems [1, 2]. Every culture is characterized by deep-rooted and generally accepted ideas about how one needs to feel, think, and behave as a functional member of that culture, which is distinct from other cultures. There are substantial cultural differences in parenting values and attitudes, whether within distinct ethnic groups in one community or across

cultures in various parts of the globe. Related to such acculturation, the relationships and experiences provided by parents also profoundly affect adolescent behavior. Parenting style is shaped by parents' own cultural inheritance and their personal beliefs and preferences, and it affects adolescent's psychological well-being, and subsequently, their risk of substance use. There is relatively limited research exploring the relationships between family sociocultural style, sensation seeking, and risk of exposure to substance abuse. Therefore, the current study aims to examine family sociocultural factors and sensation-seeking tendencies that may influence adolescents' use of substances and to assess how these factors may interact with each other in producing risk for substance involvement behavior [1 - 3].

1.1. Literature Review

1.1.1. Family Sociocultural Factors and Risk of Exposure to Substance Abuse

Sociocultural factors, including parenting style, family diversity, and parental supervision, can play an important role in adolescents' attitudes towards substance abuse. Parenting control and maternal and paternal relationships need to be examined in relation to substance use behavior [4]. Adolescent behavior is influenced by relationships and communications between family members, which provides the atmosphere for family support and role modeling in shaping behaviors and attitudes [5].

Studying the relationship between parenting and social-cultural factors has been an area of interest in clinical and social psychology for a long period of time, especially in cross-cultural studies, to identify the similarities and variations in different cultures in relation to parenting practice. A longitudinal analysis of teenage children of drug users found that 70% of the teens in the survey had undergone at least one parental change in the previous two and a half years, and 28% had experienced at least three parental transitions. During the same time span, about a quarter of the adolescents said they did not have a stable parental figure. About half of the adolescents confessed to delinquent conduct and the use of illegal drugs [6, 7].

1.1.2. Parenting Styles, Cultural Differences, and Impact on Adolescence

The parenting process combines all the activities of the parents intended to support their children's well-being. One of the most important studied methods to understand parental effects on human growth is the concept of parenting style [8]. Parenting behavior is deeply influenced by sociocultural factors, and culture sets the parameters of behavior to be controlled and praised. The parenting style is a psychological concept that reflects the traditional techniques that parents use in their child-rearing. The standard of parenting can be more critical than the amount of time spent with their children; for instance, parents may spend long periods physically present with their children while engaged in different activities (such as browsing their phones) and not displaying enough interest in the children to constitute a meaningful parenthood experience. Parenting practices are individual habits, while parenting styles

reflect larger trends of parenting practices. Parents are willing to engage in different ideas and perspectives about the best ways to rear children, as well as different levels of time and effort [8, 9].

1.1.3. Sensation Seeking and Risk of Exposure to Substance Abuse

Sensation seeking has been described as "the need for varied, novel, complex sensations and experiences and the willingness to take physical and social risks for the sake of such experience." Globally, sensation seeking is a significant biological-based attribute of personality related to substance abuse; specifically, preference for specific medication is a function of arousal-seeking features that may be used to predict engagement in high-risk behaviors. Yanovitzky reported that high sensation seeking in adolescents is associated with an increased propensity to engage in risky behavior, particularly in the context of deviant peer pressures [10, 11].

Many researchers likened the sensation-seeking trait compared to impulsivity in the models of the personality of Eysenck and Cloninger; sensation seeking is essentially a biological trait, as explained by the theory of optimum arousal, which hypothesizes that every person has a preferred level of stimulation prerequisite for attainment conditions of arousal that exploits emotional, mental, and motor functioning [12]. Today, an emerging body of research from both the biological and behavioral sciences suggests that understanding differences among adolescents in their propensity to seek out novel sensations offers a path to a greater understanding of popular drug use, particularly among adolescents, and clues on how to reach many of those most at risk for drug abuse, such as in the design of more effective prevention programs [13].

There are limited studies that address the relation between family socio-cultural background, sensation seeking, and risk of exposure to substance abuse. Therefore, the current study examines and compares family sociocultural factors and sensation-seeking tendencies among Egyptian and Saudi university students in order to assess how these factors may interact with each other in producing the risk of substance involvement behavior [2].

2. MATERIALS AND METHODS

2.1. Settings

This study was conducted at two different settings: Imam Abdulrahman Bin Faisal University (IAU) in Saudi Arabia and Damanhur University (DU) in Egypt (referred to as the "Saudi" and "Egyptian" universities for data analysis purposes, respectively). The IAU has 21 colleges and a student population of over 45,000; DU has16 colleges.

2.2. Design

The study employed a comparative correlational descriptive design.

2.3. Sample

The two-stage cluster sampling technique was used to select the required sample. The total sample size required for a

finite population was determined according to research guidelines [14]. The colleges were divided into three main groups that include the health track colleges, the engineering and computer colleges, and the arts and literature colleges. The faculties of each group were written randomly, then the random selection was made from each group according to the number that was statistically indicated. The total sample size was distributed among each of the selected colleges using the proportional allocation method for the Egyptian and Saudi universities in order to have a representative weighting of participants from each institution (Table **1**).

Table 1. Cluster sampling of Egyptian and Saudi universities.

Egyptian University			Saudi University			
College	Stage		Sample Size	College	Stage		Sample Size
	1	2			1	2	
Pharmacy	1897	3	4	Nursing	517	5	6
Nursing	1257	1257	42	Medicine	1200	1200	43
Veterinary	1337	7	8	Community Service	61	9	10
Sciences	2099	11	12	Applied Studies	437	13	14
Agriculture	2130	2130	70	Computer and Informatics Sciences	801	15	16
Education	9361	9361	288	Sciences	2921	2129	70
Art	13896	17	18	Architecture	440	19	20
Commerce	8633	21	22	Arts	5061	5061	146
Kindergarten	1211	23	24	Education	1160	25	26
Total	41821	12748	400	Business administration	384	27	28
				Total	12465	8390	259

2.4. Measurement

● Written approval was obtained from administrative authorities (institutional review boards) in both settings.

● The tool content validity was tested by five jurors who are experts in the related field.

● Reliability statistics were done for all scales using Cronbach's alpha, and all scales were determined to be reliable.

● Informed written consent was obtained from participants before data collection, with the assurance of confidentiality and the right to withdraw.

● Pilot study: Before embarking on the actual study, a pilot study was carried out with 10% of the sample to assess the tools (described below) for clarity and applicability (the pilot results were included in the subsequent data analysis as no changes were carried out).

● Data were collected using an Arabic version of adapted self-administered questionnaires (as described below).

2.4.1. Tool I: Structured Demographics Family Sociocultural Data Questionnaire

This tool was developed by the researchers based on a review of the existing literature. It explores age, residence, academic level, nationality, parental education, occupation, marital status, and the extent of the relationship with parents (including if the student lives with one of them in the case of divorce).

2.4.2. Tool II: Perceptions of Parents Scales/College-Student Scale (POPS)

This was used to assess perceptions of parental autonomy support, involvement, and warmth. It is a 42-item inventory, with 21 items each for mothers and fathers, developed for use among late adolescents and older individuals. From the scale, six subscales scores were calculated: Mother Autonomy Support, Mother Involvement, Mother Warmth, Father Autonomy Support, Father Involvement, and Father Warmth. Responses to each of these items are on a seven-point Likert scale (ranging from 1 = "not at all true" to 7 = "very true"). Subscale scores are calculated by averaging the scores of the items on that subscale, with higher scores indicating that the parent is perceived as possessing more of those characteristics [15].

2.4.3. Tool III: Brief Sensation Seeking Scale (BSSS)

This tool has four components: thrill and adventure seeking, experience-seeking, disinhibition, and boredom susceptibility. The BSSS consists of eight items (scoring 2 in each component), each of which uses a Likert scale of 1–5, with a larger score indicating the higher sensation-seeking scores [16].

2.4.4. Tool IV: The Adolescent Alcohol and Drug Involvement Scale (AADIS)

The Adolescent Alcohol and Drug Involvement Scale (AADIS) [17] is used to measure the degree of substance abuse. It is composed of 2 parts A and B. Part A (Drug Use History) is used to collect data on whether participants have ever tried the substance or not, and then subsequent questions probe about the frequency for each substance used. Participants with experience of using substances continue with part B, which comprises 14 items pertaining to both legal and illegal substances. The items are rated on 5- or 8-point scales, with unique responses for each question. Higher scale scores represent a higher level of alcohol and/or drug involvement [17, 18].

2.4.5. Data Analysis Plan

For statistical analysis, the data were analyzed using IBM SPSS software package version 20.0. (Armonk, NY: IBM Corp.). Qualitative data were described using numbers and percentages, while quantitative data were described using mean and standard deviation. The significance of the obtained results was judged at a 5% level. The statistical tests used are as follows:

● Chi-square test: For categorical variables, to compare between different groups.
● Fisher's Exact or Monte Carlo correction: Correction for chi-square when more than 20% of the variables have an expected count of less than 5.

- Student t-test: For normally distributed quantitative variables, to compare between two studied groups.
- Regression: To detect the most independent factors predicting the risk of substance abuse/drug involvement among studied students.
- Cronbach's alpha: Reliability statistics were assessed using Cronbach's alpha coefficient (Table **2**).

Table 2. Item reliability.

Overall	No. of items	Cronbach's Alpha
Mother perception	21	0.895
Father perception	21	0.899
Sensation seeking components	8	0.921
Risk of adolescent alcohol and drug involvement	12	0.930

2.4.6. Objectives of the Current Study

(1) Assess family socio-cultural and demographic data of the studied subjects.

(2) Compare family sociocultural style, sensation seeking, and substance use among Egyptian and Saudi university students.

(3) Assess relation between family sociocultural style, sensation seeking, and substance use among studied subjects.

(4) Assess the likelihood of being involved in a substance abuse problem.

3. RESULTS

Table **3** shows that nearly three quarters (72.0%) of the Egyptian students were from the college of arts, compared to 56.4% of Saudi students, with a statistically significant difference($\chi = 17.086$, p = 0.000). The table also reveals that the vast majority of the Egyptian and Saudi students (90.3% and 94.6%, respectively) live with their parents, compared to those living with only one parent (9.8% and 8.0%, respectively), with a statistically significant difference ($\chi = 4.012$, p = 045). Among those who lived with one parent only, the highest percentages lived with their mothers (74.4% and 50.0%).

Table 3. Socio-demographic and cultural data.

Items	Country						Test of Sig.	p
	Egypt (n = 400)		KSA (n = 259)		Total (n = 659)			
	No.	%	No.	%	No.	%		
Faculties/ colleges								
Medical &Allied Health	42	10.5	43	16.6	85	12.9	$\chi^2 = 17.086*$	<0.001*
Engineering&Business	70	17.5	70	27.0	140	21.2		
Arts	288	72	146	56.4	434	65.9		
Age								
18-<20	122	30.5	15	5.8	137	20.8	$\chi^2 = 132.416*$	<0.001*
20-<22	224	56.0	110	42.5	334	50.7		
22-24	54	13.5	134	51.7	188	28.5		
Mean ± SD	20.22 ± 1.48		22.04 ± 2.54		20.94 ± 2.16		t = 10.444	<0.001*
Sex								
Male	183	45.8	91	35.1	274	41.6	$\chi^2 = 7.292*$	0.007*
Female	217	54.3	168	64.9	385	58.4		
Residency								
Living with parents	361	90.3	245	94.6	606	92.0	$\chi^2 = 4.012*$	0.045*
Living with one parent	39	9.8	14	5.4	53	8.0		
Missing mother	10	25.6	7	50.0	17	32.1	$\chi^2 = 2.806$	FEp = 0.109
Missing father	29	74.4	7	50.0	36	67.9		
Family income								
Adequate	330	82.5	210	81.1	540	81.9	$\chi^2 = 0.327$	0.849
More than adequate	48	12.0	35	13.5	83	12.6		
Inadequate	22	5.5	14	5.4	36	5.5		
Extent of family's follow-up								
All the time Most time	317	79.3	202	78.5	519	78.8	$\chi^2 = 72.180*$	<0.001*
Rare time	75	18.8	50	19.3	125	19.0		
Never	8	2.0	70	2.7	15	2.3		
Satisfaction with maternal relationship								

(Table) contd.....

Items	Country						Test of Sig.	p
	Egypt (n = 400)		*KSA (n = 259)*		*Total (n = 659)*			
	No.	%	No.	%	No.	%		
Satisfied	366	91.5	241	93.1	607	92.1	$\chi^2 = 0.848$	MCp = 0.708
To some extent satisfied	30	7.5	17	6.6	47	7.1		
Not satisfied	4	1.0	1	0.4	5	0.8		
Satisfaction with the paternal relationship								
Satisfied	352	88.0	220	84.9	572	86.8	$\chi^2 = 1.804$	0.406
Satisfied to some extent v	42	10.5	32	12.4	74	11.2		
Not satisfied	6	1.5	7	2.7	13	2.0		

χ^2:Chi-square test MC: Monte Carlo FE: Fisher Exact; t: Student t-test; P: P value (comparing studied groups); *: Statistically significant at $p \le 0.05$.

Table **4** compares the Egyptian and Saudi university students' perceptions of supportive parental relationships, sensation seeking, and risk of substance abuse. Regarding the maternal relationship, it was noticed that Saudi students had higher mean scores in mother autonomy support than the Egyptian students (67.62±22.21 and 62.33±23.83respectively), with a statistically significant difference (t = 2.823, p = 0.005).

The same was observed in relation to the *mother involvement* subscale, where the mean score was higher among Saudi than Egyptian students (68.51±19.52 and 66.03±19.57, respectively), but there was no statistically significant difference. *Warmth* mean score was also higher among Saudi than Egyptian students (72.89±21.18, 66.94±23.38) respectively, with a statistically significant difference between both groups only in this subscale (t = 3.337, P = 0.001).

Concerning the paternal relationship, Table **4** shows that the Egyptian students had lower mean scores in autonomy support and warmth than the Saudi students (60.94±26.34 and 64.28± 23.71 respectively), with a statistically significant difference only in autonomy support (t = 2.406, p = 0.016).On the other hand, Egyptian students had higher involvement mean score (62.26±20.09) than Saudi students (61.74±20.22), with no statistically significant differences. It was observed that more than half of both Saudi and Egyptian students had no risk of alcohol and drug involvement with no statistically significant differences. In comparison, nearly one-third of both groups had low risk, with no statistically significant differences.

Table **5** shows that the majority of the Egyptian and Saudi students (88.3% and 78.8%, respectively) never tried to use substances, with a statistically significant difference (χ = 35.21, P = 0.000).

Table 4. Distribution according to the perception of supportive parental relationship, sensation seeking, and risk of substance abuse/drug involvement.

Mean % Score	Country		Test of Sig.	P
	Egypt (n = 400)	*KSA (n = 259)*		
	Mean ± SD.	Mean ± SD.		
Maternal relationship components				
Autonomy support	62.33 ± 23.83	67.62 ± 22.21	t = 2.823	0.005*
Involvement	66.03 ± 19.57	68.51 ± 19.52	t = 1.568	0.117
Warmth	66.94 ± 23.38	72.89 ± 21.18	t = 3.337	0.001*
Paternal relationship components				
Autonomy support	60.94 ± 26.34	65.67 ± 22.44	t = 2.406	0.016*
Involvement	62.26 ± 20.09	61.74 ± 20.22	t = 0.312	0.755
Warmth	64.28 ± 23.71	65.33 ± 22.21	t = 0.559	0.576
	Egypt (n = 400)	*KSA (n = 259)*		
Sensation seeking components				
Thrill and adventure seeking	54.94 ± 37.39	60.71 ± 33.92	t = 2.051	0.041*
Experience	50.50 ± 35.29	59.51 ± 30.96	t = 3.451	0.001*
Disinhibition	48.50 ± 35.0	57.72 ± 31.87	t = 3.490	0.001*
Boredom susceptibility	53.50 ± 37.12	58.35 ± 34.09	t = 1.722	0.086
Overall sensation seeking	51.86 ± 31.68	59.07 ± 27.97	t = 3.067	0.002*
Risk of adolescent alcohol and drug involvement				
High	0.0±0.0	0.0±0.0	-	-
Moderate	4.72±4.82	5.32±.55	t = 0.711	0.479

(Table 4) contd.....

Mean % Score	Country		Test of Sig.	P
	Egypt (*n = 400*)	*KSA* (*n = 259*)		
	Mean ± SD.	**Mean ± SD.**		
Low risk	35.50±4.43	33.60±6.43	t = 0.500	0.632
No risk	84.0[#]	57.0±11.36	t = 2.059	0.176

T: Student t-test; P: P-value (comparing studied groups); *: Statistically significant at p ≤ 0.05; #: Mean score percent of the only one Egyptian student who had a high risk of adolescent alcohol and drug involvement.

Table 5. Distribution according to the history of substances or drug use.

-	Egypt (n = 400)		KSA (n = 259)		Total (n = 659)		Test of Sig.	
	No.	*%*	*No.*	*%*	*No.*	*%*	χ^2	*P*
Never tried to use	353	88.3	204	78.8	557	84.5		
Tried to use once	22	5.5	3	1.2	25	3.8	35.21	0.000
Addicted	25	6.3	52	20.1	77	11.7		
Total	400	100.0	259	100.0	659	100.0		

Table **6** shows the distribution of the students according to their substance abuse and drug involvement. Among the Egyptian students, cigarette smoking was the most commonly used substance (75.6%), followed by inhalants (e.g., glues and benzene) (42.2%), marijuana, and hashish (35.6%), while the least used addictive substance was hallucinogens. Among Saudi students, cigarette smoking was also the most commonly used substance (94.5%), followed by inhalants (36.4%), while the least used substance was sedatives (14.5%). A statistically significant difference was observed between the two groups in relation to cigarette smoking (χ^2 = 7.413, p = 0.006).

Table **7** shows the relation between students' thrill-adventure seeking and their perception of the maternal relationship. It can be seen that both Egyptian and Saudi students who have higher supportive maternal relationships had higher scores in thrill-adventure seeking (58.7% and 55.1%, respectively), with a statistically significant difference between those groups with lower scores (χ^2 = 26.192, p = 0.003). The same was observed in relation to students' sensation seeking and their perception of the supportive maternal relationship. On the other hand, both Egyptian and Saudi students who got a higher disinhibition score had a lower perception for mother support (45.5% and 50%, respectively).

In relationship to overall sensation seeking, high sensation seeking was more prevalent among those Egyptian and Saudi students who perceived a highly supportive maternal relationship (48.0% and 47.5%, respectively) than among those with lower overall sensation seeking (18.4% and 13.9%, respectively). A statistically significant difference was noticed between the two groups (χ^2 = 43.988, p = 0.001).

Table **8** shows that both Egyptian and Saudi students with highly perceived supportive paternal relationships exhibited both high and low scores in thrill-adventure seeking, *i.e.*, 53.4% and 56.2% for high, and 30.4% and 21.5%, for low, respectively. The same was found in relation to experience seeking. Concerning the disinhibition subscale, Table **8** reveals that Egyptian students with lower scores in the perception of a supportive paternal relationship had higher scores in disinhibition (50.0%). With respect to overall sensation-seeking among the Egyptian and Saudi students, it was noticed that students with higher perceptions of a supportive paternal relationship had higher sensation seeking (46.6% and 48.8%, respectively), with a statistically significant difference between the two groups (χ^2 = 31.551, p = 0.001).

Table 6. Distribution according to substance/drug involvement.

Substance Abuse/Drug Involvement	Egypt (n = 47)		KSA (n = 55)		χ2	P
	No.	%	No.	%		
Smoking	34	75.6	52	94.5	7.413*	0.006*
Alcohol	14	31.1	17	30.9	0.0	0.983
Hallucinogens drugs	8	17.8	14	25.5	0.850	0.357
Amphetamine	9	20.0	11	20.0	0.0	1.000
Cocaine powder	11	24.4	11	20.0	0.285	0.594
Crack cocaine	12	26.7	10	18.2	1.038	0.308
Barbiturates	13	28.9	9	16.4	2.263	0.133
PCP (Phencyclidine (	11	24.4	11	20.0	0.285	0.594
Heroin and Afion	13	28.9	10	18.2	1.602	0.206
Inhalants	19	42.2	20	36.4	0.357	0.550

(Table 6) contd.....

Substance Abuse/Drug Involvement	Egypt (n = 47)		KSA (n = 55)		χ2	P
	No.	%	No.	%		
Valium, Prozac, sedatives	12	26.7	8	14.5	2.273	0.132
Marijuana,hashish, qat	16	35.6	12	21.8	2.317	0.128

χ^2:Chi-square test; P: P-value (comparing between groups); *: Statistically significant at p ≤ 0.05.

Table 7. Relationship between sensation seeking and perception of the supportive maternal relationship.

Sensation Seeking	Perception of the Supportive Maternal Relationship												Test of Sig.	
	Egypt						KSA							
	High (n = 196)		Moderate (n = 172)		Low (n = 22)		High (n = 158)		Moderate (n = 86)		Low (n = 8)		χ2	p
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%		
Thrill & adventure seeking														
High	115	58.7	65	37.8	9	40.9	87	55.1	40	46.5	5	62.5	26.192*	MCp = 0.003*
Moderate	33	16.8	39	22.7	4	18.2	37	23.4	23	26.7	2	25.0		
Low	48	24.5	68	39.5	9	40.9	34	21.5	23	26.7	1	12.5		
χ2 (p)	17.181*(0.002*)						2.217 (0.700)							
Experience seeking														
High	97	49.5	56	32.6	8	36.4	76	48.1	33	38.4	5	62.5	52.741*	<0.001*
Moderate	61	31.1	34	19.8	5	22.7	52	32.9	32	37.2	1	12.5		
Low	38	19.4	82	47.7	9	40.9	30	19.0	21	24.4	2	25.0		
χ2 (p)	33.775* (<0.001*)						4.063 (0.396)							
Disinhibition														
High	63	32.1	59	34.3	10	45.5	70	44.3	38	44.2	4	50.0	36.239*	<0.001*
Moderate	77	39.3	39	22.7	1	4.5	54	34.2	24	27.9	3	37.5		
Low	56	28.6	74	43.0	11	50.0	34	21.5	24	27.9	1	12.5		
χ2 (p)	21.045* (<0.001*)						2.168 (0.721)							
Boredom susceptibility														
High	110	56.1	58	33.7	7	31.8	77	48.7	39	45.3	3	37.5	35.119*	<0.001*
Moderate	39	19.9	39	22.7	7	31.8	46	29.1	23	26.7	4	50.0		
Low	47	24.0	75	43.6	8	36.4	35	22.2	24	27.9	1	12.5		
χ2 (p)	23.178* (<0.001*)						2.680 (0.623)							
Overall sensation-seeking score														
High	94	48.0	56	32.6	9	40.9	75	47.5	39	45.3	5	62.5	43.988*	<0.001*
Moderate	66	33.7	46	26.7	4	18.2	61	38.6	28	32.6	2	25.0		
Low	36	18.4	70	40.7	9	40.9	22	13.9	19	22.1	1	12.5		
χ2 (p)	24.380* (<0.001*)						3.468 (0.462)							

χ^2:Chi-square test; *: Statistically significant at p ≤ 0.05.

Table **9** shows that both Egyptian and Saudi students had a higher percentage of perceiving supportive maternal relationship and had no risk of drug involvement in both groups(88.8% and 75.3%, respectively) compared to those with a lower perceived supportive maternal relationship, who fell in the moderate and high-risk groups, with a statistical significance (χ^2 = 31.046, p = 0.002).

Table 8. Relationship between sensation seeking and perception of the supportive paternal relationship.

Sensation Seeking	Perception of the Supportive Paternal Relationship												Test of Sig.	
	Egypt						KSA							
	High (n = 161)		Moderate (n = 180)		Low (n = 30)		High (n = 121)		Moderate (n = 120)		Low (n = 11)		χ^2	P
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%		
Thrill & adventure seeking														

(Table 8) contd.....

Sensation Seeking	Perception of the Supportive Paternal Relationship												Test of Sig.	
	Egypt						KSA							
	High (n = 161)		Moderate (n = 180)		Low (n = 30)		High (n = 121)		Moderate (n = 120)		Low (n = 11)		χ^2	P
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%		
High	86	53.4	78	43.3	12	40.0	68	56.2	57	47.5	5	45.5	12.856	0.232
Moderate	26	16.1	40	22.2	7	23.3	27	22.3	32	26.7	3	27.3		
Low	49	30.4	62	34.4	11	36.7	26	21.5	31	25.8	3	27.3		
χ^2 (p)	4.574 (0.334)						2.229 (0.707)							
Experience seeking														
High	78	48.4	62	34.4	10	33.3	53	43.8	53	44.2	7	63.6	38.633*	<0.001*
Moderate	43	26.7	41	22.8	9	30.0	48	39.7	39	32.5	0	0.0		
Low	40	24.8	77	42.8	11	36.7	20	16.5	28	23.3	4	36.4		
χ^2 (p)	13.335* (0.010*)						9.728*(0.036*)							
Disinhibition														
High	51	31.7	56	31.1	15	50.0	49	40.5	56	46.7	4	36.4	26.806*	0.003*
Moderate	55	34.2	52	28.9	3	10.0	46	38.0	34	28.3	5	45.5		
Low	55	34.2	72	40.0	12	40.0	26	21.5	30	25.0	2	18.2		
χ^2 (p)	8.792 (0.067)						3.258 (0.525)							
Boredom susceptibility														
High	91	56.5	58	32.2	12	40.0	54	44.6	57	47.5	5	45.5	34.499*	<0.001*
Moderate	21	13.0	53	29.4	8	26.7	41	33.9	30	25.0	4	36.4		
Low	49	30.4	69	38.3	10	33.3	26	21.5	33	27.5	2	18.2		
χ^2 (p)	23.850* (<0.001*)						2.994 (0.569)							
Overall sensation-seeking score														
High	75	46.6	55	30.6	15	50.0	59	48.8	53	44.2	5	45.5	31.551*	<0.001*
Moderate	47	29.2	62	34.4	3	10.0	44	36.4	44	36.7	4	36.4		
Low	39	24.2	63	35.0	12	40.0	18	14.9	23	19.2	2	18.2		
χ^2 (p)	15.890* (0.003*)						1.119 (0.905)							

χ^2:Chi-square test;*: Statistically significant at p ≤ 0.05.

Table 9. Relationship between the risk of substance abuse/drug involvement and perception of the supportive maternal relationship.

Risk of Substance Abuse/Drug Involvement	Perception of the Supportive Maternal Relationship												Test of Sig.	
	Egypt(n = 400)						KSA (n = 259)							
	Low (n = 22)		Moderate (n = 172)		High (n = 196)		Low (n = 8)		Moderate (n = 86)		High (n = 158)		χ^2	^{MC}p
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%		
No risk	17	77.3	148	86.0	174	88.8	7	87.5	64	74.4	119	75.3	31.046*	0.002*
Low risk	5	22.7	20	11.6	21	10.7	1	12.5	16	18.6	38	24.1		
Moderate risk	0	0.0	3	1.7	1	0.5	0	0.0	4	4.7	0	0.0		
High risk	0	0.0	1	0.6	0	0.0	0	0.0	2	2.3	1	0.6		
χ^2 (^{MC}p)	6.596 (0.380)						10.306 (0.089)							

χ^2:Chi-square test;MC: Monte Carlo; *: Statistically significant at p ≤ 0.05.

Table **10** illustrates the relationship between the risk of substance abuse among students and their perception of a supportive paternal relationship. It was observed that most of the Egyptian and Saudi students who perceived their paternal relationship to be supportive had no risk of substance abuse in both groups (91.9% and 77.7%, respectively)with significant differences between them(X^2 = 30.988, p = 0.002).

Table **11** shows that students with a high overall sensation-seeking score have a high overall risk of substance abuse/drug involvement in both countries, compared to those with low overall sensation seeking, demonstrating a statistically significant difference (χ^2= 25.807,p = 0.008).

Table **12** shows that Egyptian students were not involved in drug abuse due to their supportive paternal relationships compared to Saudi students. The most significant independent factors predicting the risk of drug involvement in Egypt were gender (male students) and highly supportive paternal relationship. Keeping all other factors constant:

Table 10. Relationship between the risk of substance abuse / drug involvement and perception of the supportive paternal relationship.

Risk of substance abuse/drug involvement	Perception of supportive paternal relationship												Test of sign	
	Egypt(n = 400)						*KSA (n = 259)*							
	Low (n = 30)		Moderate (n = 180)		High (n = 161)		Low (n = 11)		Moderate (n = 120)		High (n = 121)		χ^2	^{MC}p
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%		
No risk	25	83.3	150	83.3	148	91.9	8	72.7	87	72.5	94	77.7	30.988*	0.002*
Low risk	5	16.7	25	13.9	13	8.1	3	27.3	26	21.7	26	21.5		
Moderate risk	0	0.0	4	2.2	0	0.0	0	0.0	5	4.2	0	0.0		
High risk	0	0.0	1	0.6	0	0.0	0	0.0	2	1.7	1	0.8		
χ^2 (^{MC}p)	9.505 (0.104)						6.716 (0.340)							

χ^2:Chi-square test;MC: Monte Carlo; *: Statistically significant at $p \le 0.05$.

Table 11. Relationship between sensation seeking & risk of substance abuse/drug involvement in both countries.

Sensation seeking	Risk of substance abuse/drug involvement																χ^2	p
	Egypt								*KSA*									
	High (n = 1)		Moderate (n = 4)		Low (n = 46)		No risk (n = 349)		High (n = 3)		Moderate (n = 5)		Low (n = 55)		No risk (n = 196)			
	No.	%	No.	%	No.	%	No.		No.	%	No.	%	No.	%	No.	%		
Thrill & adventure seeking																		
High	1	100.0	1	25.0	22	47.8	140	40.1	2	66.7	2	40.0	23	41.8	89	45.4	21.850*	0.032*
Moderate	0	0.0	1	25.0	12	26.1	89	25.5	1	33.3	3	60.0	23	41.8	62	31.6		
Low	0	0.0	2	50.0	12	26.1	120	34.4	0	0.0	0	0.0	9	16.4	45	23.0		
χ^2 (^{MC}p)	3.714 (0.794)								4.599 (0.577)									
Experience seeking																		
High	1	100.0	1	25.0	20	43.5	155	44.4	2	66.7	1	20.0	27	49.1	92	46.9	18.883	0.099
Moderate	0	0.0	1	25.0	15	32.6	72	20.6	0	0.0	3	60.0	17	30.9	55	28.1		
Low	0	0.0	2	50.0	11	23.9	122	35.0	1	33.3	1	20.0	11	20.0	49	25.0		
χ^2 (^{MC}p)	6.386 (0.307)								4.165 (0.660)									
Disinhibition																		
High	1	100.0	2	50.0	29	63.0	160	45.8	2	66.7	1	20.0	28	50.9	103	52.6	21.913*	0.038*
Moderate	0	0.0	2	50.0	7	15.2	69	19.8	0	0.0	3	60.0	17	30.9	44	22.4		
Low	0	0.0	0	0.0	10	21.7	120	34.4	1	33.3	1	20.0	10	18.2	49	25.0		
χ^2 (^{MC}p)	8.938 (0.102)								6.279 (0.319)									
Boredom susceptibility																		
High	1	100.0	1	25.0	21	45.7	112	32.1	2	66.7	0	0.0	28	50.9	83	42.3	38.656*	<0.001*
Moderate	0	0.0	2	50.0	14	30.4	101	28.9	1	33.3	3	60.0	23	41.8	59	30.1		
Low	0	0.0	1	25.0	11	23.9	136	39.0	0	0.0	2	40.0	4	7.3	54	27.6		
χ^2 (^{MC}p)	7.560 (0.177)								16.708* (0.002*)									
Overall sensation-seeking score																		
High	1	100.0	1	25.0	23	50.0	136	39.0	2	66.7	1	20.0	27	49.1	91	46.4	25.807*	0.008*
Moderate	0	0.0	2	50.0	14	30.4	103	29.5	1	33.3	3	60.0	23	41.8	67	34.2		
Low	0	0.0	1	25.0	9	19.6	110	31.5	0	0.0	1	20.0	5	9.1	38	19.4		
χ^2 (^{MC}p)	5.648 (0.414)								5.859 (0.376)									

χ^2:Chi-square test; MC: Monte Carlo; *: Statistically significant at $p \le 0.05$.

Table 12. Factors predicting the risk of substance abuse/drug involvement according to multivariate logistic regression analysis.

Parameter	B	SE	Wald	df.	Sig.	OR	95% CI	
							LL	UL
Country (Egypt)	-1.611	0.277	33.937	1	<0.001*	0.200	0.116	0.343

(Table 12) contd.....

Parameter	B	SE	Wald	df.	Sig.	OR	95% CI	
							LL	UL
Gender (Male)	1.746	0.293	35.623	1	<0.001*	5.734	3.231	10.174
Highly supportive paternal relationship	-1.912	0.610	9.818	1	0.002*	0.148	0.045	0.489

B: Unstandardized coefficients; SE: Estimates standard error; DF: Degree of freedom; OR: Odds ratio;CI: Confidence interval; LL: Lower limit; UL: Upper Limit.

- Egyptian students had an 80% reduced risk of drug involvement compared to Saudi students (OR = 0.200; 95% CI: 0.116-0.343).
- Male students had five times more risk of drug involvement than female students(OR = 5.734; 95%CI:3.231-10.174).
- Highly supportive paternal relationship reduced risk of drug involvement by 85% (OR = 0.148; 95% CI: 0.045-0.489).

4. DISCUSSION

Substance abuse is one of the top-twenty global risk influences for illness. The prevention of drug addiction among youth is a big challenge for mental and public health policymakers, and it requires assessment and risk-screening of substance use. Early and accurate identification of risk is central to the development of effective efforts to prevent young people from using alcohol, tobacco, and other substances [7, 18]. Many studies conducted on prevention programs to address social self-control were successful in reducing substance abuse in the USA and Russia [19, 20].

This study compared the risk of substance abuse between two different cultural groups, Egyptian and Saudi university students. It was revealed that Saudi students had higher mean scores in relation to perceiving autonomy and warmth from their parents than Egyptian students. The reason for this may be related to the presence of many stressors in the Egyptian family, especially for the mother, who plays multiple roles at the same time, which can limit her ability to find time to communicate and care for her children, in addition to economic and financial pressures. Egyptian students had higher scores in relation to perceiving paternal involvement than Saudi students, and this highly supportive paternal relationship reduced their risk of drug involvement by 85%, reflecting the positive impacts of a warm and loving relationship with a father, and possibly increased parental awareness and monitoring of the adolescents' life choices. Studies in Saudi Arabia found that parents' preoccupation with their own welfare(at the expense of parenting roles) can create an emotional state of aloneness and uncertainty for teenagers [21], and family unity is adversely associated with internet use, with parents spending a great deal of time on electronic devices having more spousal difficulties, which may affect time devoted to their children [22].

Previous studies reported that the common age group in Saudi Arabia for drug use is 12–22 years old, with 40% of users depending on the substances used; this is despite government campaigns to raise awareness about the possibility and dangers of substance abuse, including drug involvement [23]. The present study clearly demonstrated that Egyptian students' higher scores in relation to perceived paternal involvement were a protective factor against drug involvement compared to their Saudi counterparts. Saudi family dynamics are also affected by generational tensions affecting family unity and flexibility, which decreases the time for fathers' involvement with their children [24 - 27].

The findings of this study also showed that Egyptian and Saudi students with a higher overall risk of substance involvement had higher overall scores on the sensation-seeking scale, with a statistically significant difference($\chi = 25.807, p = 0.008$). This is because the sensation-seeking tendency is not only specific to substance use but also includes different components such as thrill and adventure seeking, experience-seeking, disinhibition, and boredom susceptibility. Moreover, it may be specific to characteristics of this age group (18-24 years). However, there is limited literature on the association between sensation seeking and adolescent risk behavior, especially in Arab societies. Wagner [28] investigated sensation seeking, anxiety sensitivity, and self-reinforcing as variables related to participation in high-risk conducted among 155 undergraduate students and revealed significant multivariate effects attributable to sensation seeking and anxiety sensitivity. This study corroborates the finding that sensation seeking and anxiety sensitivity were significant predictors of substance abuse among Egyptian and Saudi students.

Hwang and Park [29] explored the association among four constituents of sensation seeking (disinhibition, thrill-adventure seeking, involvement, boredom susceptibility) and three types of smoking behavior (non-smoking, tentative smoking, and recent smoking) among secondary school students in Korea. The two statistically significant subscales of sensation seeking were positively associated with the risk of smoking behaviors. This finding is similar to the present study, which revealed that students who had higher scores in overall sensation-seeking had a high overall risk of substance abuse/drug involvement in both countries, compared to none of the students with low overall sensation seeking, with a statistically significant difference between the two groups. This may be due to the relationship between craving and the biological or psychological aspect involved in it, which may increase the tendency toward experimentation with substances.

Alsheikh *et al.* [30] explored the relationship between sensation seeking and academic achievement among UAE students aged 16-18 years and found that girls who obtained higher grades had lower scores in sensation seeking in both genders ($R2 = 0.073$). Byck *et al.* [31] reported that teenagers had close relationships between sensation-seeking and risk behavior development.

The present study revealed that the risk for substance abuse in both cultural settings was moderate, and smoking was the most common substance used in both cultural settings. Students with a higher percentage of supportive parental relationships had no risk for drug involvement. Moreover, a

highly supportive paternal relationship reduced the risk of drug involvement by 85%.

Loffredo *et al.* [32] explored substance use in the Cairo region and southern Egypt with a self-administered survey. The findings indicated that 72% of participants were male, and tobacco and cannabinoids were the most commonly used substances by both genders [33]. Mangerud *et al.* [34] examined the use of an illegal substance in 566 adolescents with various psychological conditions and compared this sample with 8,173 adolescents from the general population in Norway. They noticed that the current alcohol intake levels were high in both groups but lower among psychiatric patients and that teenagers in the clinical study had a higher incidence rate related to smoking(four times higher than illegal drugs). Concerning the relation between risk of substance involvement and overall sensation seeking, the present study showed that students who had high scores in overall sensation-seeking had a higher risk of substance involvement in both countries.

Previous studies have shown that sensation seeking may be one of the traits most likely to be related to risk-taking behavior, which emphasizes the importance of recognizing the early outcomes of sensation-seekers in order to discourage adverse risk-taking [35]. Sensation-seeking behavior has major behavioral consequences, especially in adolescence, as this developmental phase is characterized by high susceptibility to participation in risk-taking behaviors [36, 37]. It was reported that among a sample of 470 adolescents from the secondary level of education, boys scoring high on sensation seeking have more impulsivity and aggressiveness and perform worse at school. Such relationships have not been established in girls, indicating that gender is an important variable to monitor while examining the relationship between sensation seeking and school performance [36].

This is consistent with the present study, which found that the male gender was a risk factor for drug involvement, while the supportive paternal relationship was a protective factor. Male students had five times more risk of drug involvement than female students, keeping all other factors constant (OR = 5.734; 95%CI:3.231-10.174). A highly supportive paternal relationship reduced the risk of drug involvement by 85%. This may be because parents are particularly involved in male education, guidance, and decision-making, and females are often attached to their mothers. Fathers provide their children, especially boys, with a role model for their future behavior, so the presence of the father within the family entity is necessary and vital. Parental supervision has been shown to be a protective factor for adolescent health [38]. Comparing the Egyptian and Saudi university students in relation to the abovementioned variables sheds light on similarities and differences and reveals the most important risk and protective factors.

CONCLUSION

The most significant independent factors predicting the risk of drug involvement were gender (male students) and the highly supportive paternal relationship. This reflects influences of family lifestyle and child-rearing practice, especially the role of supportive fathers, in relation to the risk of substance involvement. Public health education programs seeking to eliminate the risk of drug involvement should be considered and initiated in Egypt and Saudi Arabia, focusing on these dimensions.

RECOMMENDATIONS

- Initiate health educational awareness programs among university students about the hazards of substance use.
- School health policies should be adjusted to include programs targeted for drug education and counseling.
- Special emphasis should be made on teaching certain issues at the community level, such as the importance of parental support, especially the paternal role, as a protective factor against substance use problems.
- Screening tests should be conducted periodically for university students for early detection of high-risk groups for substance abuse.
- Finally, we recommend looking for the reasons of substance use among university students and applying preventive measures to overcome it, especially in the studied countries.

STRENGTHS AND LIMITATIONS

One of the key strengths of this study was that it included a relatively large and representative sample of diverse university students within the studied countries, enabling some generalization of the results (*i.e.*, for university students in Egypt and Saudi Arabia). However, the study handled a sensitive issue, and despite the questionnaire being anonymous, underreporting of smoking and substance abuse by the students could not be excluded due to potential social desirability bias.

ETHICS APPROVAL AND CONSENT TO PARTICIPATE

The ethical approval obtained from the Institutional Review Board (IRB) at Imam Abdulrahman Bin Faisal University, Saudi Arabia under approval #: IRB-2017-324-Nurs.

HUMAN AND ANIMAL RIGHTS

No animals were used in this research. All human research procedures were followed in accordance with the ethical standards of the committees responsible for human experimentation (institutional and national) and with the Helsinki Declaration of 1975, as revised in 2013.

CONSENT FOR PUBLICATION

Informed consent was obtained from all participants.

AVAILABILITY OF DATA AND MATERIALS

The data sets analyzed during the current study are available from the corresponding author, [N.K], upon reasonable request.

CONFLICT OF INTEREST

ACKNOWLEDGEMENTS

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