

DRUG USE AND RISK FACTORS AMONG SECONDARY STUDENTS¹

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Adolescence is a phase of exposure to several risk behaviors, especially the experimental use of drugs and its associated problems. The study aims to identify risk factors and drug use among secondary students in Comonfort, Guanajuato, Mexico. This is a cross-sectional study, using a version of the Drug User Screening Inventory (DUSI) adapted from Portuguese to Spanish. The sample was composed of 695 (42.9%) students, 52.8% women. Drug use was present in 20.3%, predominantly alcohol and tobacco. Risk factors are related to the male gender, older than 13 years, second and third grades, living with relatives, poor relationships, curiosity, family conflicts, peer pressure and solidarity. Conclusion: alcohol and tobacco are the most used drugs and are associated to curiosity and peer pressure.

DESCRIPTORS: risk factors; substance abuse detection; adolescent, alcoholism, tobacco

USO DE DROGAS Y FACTORES DE RIESGO ENTRE ESTUDIANTES DE ENSEÑANZA MEDIA

La adolescencia es una etapa de exposición a múltiples factores de riesgo, que hace los adolescentes vulnerables al uso de drogas y problemas asociados. Objetivo: identificar los factores de riesgo y el uso de drogas entre los estudiantes de educación secundaria en Comonfort, Guanajuato, México. Métodos: Estudio exploratorio, transversal. La recolección de datos fue con el DUSI, versión adaptada del portugués para el español, de forma autoaplicada, con previo consentimiento escrito de los padres. La muestra fue integrada por 695 adolescentes. Resultados: 52.8% era mujer, media de edad de 13.03±.99 años, 20.3% de los adolescentes usa drogas, 38% refiere que por curiosidad. Conclusiones: Los factores de riesgo identificados son: sexo masculino, edad mayor de 13 años, estar en segundo y tercer grado, vivir con familiares, tener malas relaciones intrafamiliares, tener curiosidad y enfrentar situaciones desagradables. Predominó el uso experimental de alcohol y tabaco. Se encontró el uso de drogas ilícitas en menor porcentaje.

DESCRIPTORES: factores de riesgo; detección de abuso de sustancias; adolescente; alcoholismo; tabaco

USO DE DROGAS E FATORES DE RISCO ENTRE ESTUDANTES DE ENSINO MÉDIO

A adolescência é fase em que os indivíduos ficam expostos a múltiplos fatores de risco que os tornam os vulneráveis para o uso de drogas e problemas associados. O objetivo deste trabalho foi identificar os fatores de risco e o uso de drogas entre os estudantes do Ensino Médio no Comonfort, Guanajuato, México. É estudo exploratório, transversal, e a coleta dos dados foi realizada por meio do DUSI, versão adaptada do português para o espanhol, de forma auto-aplicada, com prévio consentimento, por escrito, dos pais. A amostra foi composta por 695 adolescentes, 52,8% eram mulheres, média de idade de 13,03±0,99 anos, sendo que 20,3% dos adolescentes usam drogas, 38% referem que o uso é somente por curiosidade. Conclui-se que os fatores de risco identificados são: adolescentes do sexo masculino, idade maior que 13 anos, que cursavam o segundo e terceiro grau, viviam com familiares, tinham relacionamento ruim, usavam drogas movidos pela curiosidade, e mostraram enfrentar situações desagradáveis, com predomínio de uso experimental de álcool e tabaco, o uso de drogas ilícitas foi encontrado em menor porcentagem.

DESCRIPTORES: fatores de risco; detecção do abuso de substâncias; adolescente, alcoolismo, tabaco

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INTRODUCTION

The phenomenon of drug use has become extremely important in recent decades due to its dissemination, social and health consequences. This fact is evidenced by its evolution in several cultures, with the increasing development of an industrial and consumption society⁽¹⁾, which privileges the use of these substances to favor socialization and wellbeing. Drug use implies a series of physical, psychological and social problems, in addition to the spending of public resources due to related complications, especially in adolescents⁽²⁾, even when its use is experimental or recreational. The study aims to explore drug consumption and identify its risk factors among secondary students, based on the premise that studying specific characteristics of substance use is important to design adequate and specific interventions in order to inhibit or decrease the chances of drug use among adolescents⁽³⁾.

JUSTIFICATION

Drug consumption in the Mexican Republic has shown important variations. In addition to the traditional problem of inhalant use among minors and marijuana consumption among young people and adults, the consumption of cocaine and other drugs like methamphetamine has increased and started at an increasingly young age⁽⁴⁾. According to the most recent National Survey on Drug Use (1998 and 2002) and other studies carried out in Mexico, the experimental use of drugs among adolescents and women has increased. Its use is greater in the North, followed by the Central region and then the South, especially in big cities⁽⁴⁾. Thus, 3.57% of men and 0.6% of women, between 12 and 17 years old, had already used one or more illicit drugs⁽¹⁾, revealing an increase from 27 to 35% in alcohol consumption among male adolescents and from 18 to 25% among females, between 1998 and 2002⁽⁵⁾. The illicit drugs adolescents most frequently consume are marijuana (22%), inhalants (25%), cocaine (22%) and stimulants like amphetamines (13%). The onset age is 15, 14 and 16 and between 14 and 16 years old, respectively⁽⁵⁾. The almost threefold national increase in the consumption of cocaine from 1993 to 1998 is highlighted; 50% of crack cocaine consumers are younger than 18 years.

Adolescence is a phase of exploration and conflicts, in which adolescents give much importance to their groups and relationships and come in conflict with

themselves and family, which make them vulnerable to external situations like drugs consumption, delinquency and risky sexual conducts. Generally, they are exposed to multiple risk factors, defined as attributes, or exposure to a person or population associated to higher probability of drug use and abuse⁽²⁾. All those unhealthy conditions, associated to family situation, society, friends and environment, are included among risk factors. Their implications for the use of drugs vary according to the personality and the environmental development stage. Several national and international studies identified the association of (psychological and sociocultural) risk factors of adolescent drug users with variables like male gender, age, work, family and religious disintegration, which are related to greater drug use by adolescent students in several sociocultural contexts^(3,6). Adolescents and school-age children do not compose the population most affected by the consumption of drugs and they usually drop out school when starting its consumption. However, studies carried out with this population permit knowledge about consumption patterns and efficacy of preventive programs⁽¹⁾, which indicate that such programs are more effective when put in practice at an early age.

This study aimed to identify the drug use pattern and risk factors among secondary students.

MATERIAL AND METHOD

This quantitative, exploratory and cross-sectional study was carried out during the school year 2006-2007 in two secondary schools in Comonfort, Guanajuato, Mexico. Ethical requirements were met through the project submission to the Bioethics Committee of the Celaya School of Nursing and Obstetrics in Guanajuato, Mexico. Students' parents and/or relatives were asked to sign the free and informed consent term to proceed with data collection. All students from both schools were invited to participate in the study and those whose parents voluntarily sign the free and informed consent term were included in the study. The self-administered questionnaire was filled out in the classrooms with the presence of the researcher only. After its completion, it was directly deposited in an urn and students were not identified.

Data collection was carried out with the questionnaire Drug Use Screening Inventory (DUSI), adapted to the Brazilian population⁽⁶⁾. This version was used because it presents ten complete areas, while the Spanish version does not. First, two experts, who spoke

both Spanish and Portuguese, translated it from Portuguese to Spanish, then from Spanish to Portuguese. Additionally, the Spanish preliminary version was evaluated by a drug expert in Mexico and finally tested by a group of adolescents with characteristics similar to those of the sample.

The average time spent to answer the questionnaire was from 30 to 40 minutes. The vocabulary was simply and clearly presented so it could be self-administered in group. Sociodemographic information was explored from item one to seven with questions (one open question, one dichotomic and five multiple choice) on age, gender, school history, persons adolescents lived with, education level of the family head and family relationships. Items eight to ten quantify the consumption of drugs in the last month and evaluate the type of drug used and its frequency, in addition to motives to consume drugs or not through multiple-choice questions.

The second part of the instrument is composed of 149 items, distributed in ten areas where risk factors are evaluated: substance use, pattern of conduct, health condition, emotional condition, social competence, family system, academic situation, work situation, relation with peers and leisure/recreation.

Average and standard deviation of age were obtained, as well as the frequency and percentage of the variables gender, school history, whom they lived with, family relations, the father's or responsible adult's education level, consumption of substances (type and frequency) and motives for using or not using drugs. To determine statistical significance, Chi-square was calculated through the statistical package SPSS version 8. To quantify the association between the variables of interviewed students in relation to drug use, a logistic regression model was used. Odds ratios (variable answer compared to a covariate) and adjusted odd ratios for all co-variables were computed through SAS 9.0. Evidence of association at 0.05 significance level can be observed if the confidence intervals did not include the value 1. The following variables were used, as control, to estimate adjusted OR: grade, whom they lived with and relationships.

RESULTS

The study population was composed of 1618 (100%) students of two secondary schools in Comofort, Guanajuato, Mexico. The answers of 695 (42.9%)

adolescents were considered because of not answered or incomplete questionnaires. Of these, 325 (52.8%) were women and 290 (47.2%) men. Among them, 62 (44%) female and 79 (56%) male students had already used drugs, with $p=0.011$. The average age was 13.03 years ($SD=0.99$ years), with variation from 11 to 20 years. The average age was higher (13.41 years old) among students who had already used drugs ($p>0.005$). With regard to the grade students were attending, 240 (34.6%) attended the first grade, 256 (36.9%) the second and 199 (28.5%) the third. Of the drug-using students, 72 (45.6%) attended the second grade and 60 (38%) the third, both grades with a higher percentage of drug use ($p=0.000$, $X^2=30.01$).

Five hundred and two (76.9%) adolescents lived with both parents and only 87 (13.3%) lived with other relatives; 572 (83.9%) evaluated their family relation as good and very good. Comparing drug users and non-users on the variables: 'whom they lived with' and family relationships, a higher percentage of non-users lived with both parents (78.5%) and reported a very good family relationship (60%) when compared to drug users who lived with relatives (15.6%) or only with the mother or father (12.3%) ($p<0.005$). Fifteen (10.2%) drug-using students and 36 (7.3%) non-users had already failed school ($p>0.005$). Of these, 37 (72.5%) reported it happened only once. With regard to family heads or responsible adults, 270 (41.3%) had complete or incomplete primary school, 209 (32%) had complete or incomplete secondary school and 85 (13%) had a bachelor's degree. Parents of non-user students predominantly had primary or secondary school and parents of drug users had higher education, preparatory or professional education ($p>0.005$).

The most used drugs were: alcohol (94-13.5%) and tobacco (92-13.2%), followed by analgesics (11-1.6%). The use of inhalants/solvents (10-1.4%) was also found, as well as anabolic, opiates and hallucinogens (9-1.3%), marijuana (7-1%) and, to a lesser extent, stimulants, amphetamines, cocaine and tranquilizers. The frequency of use was experimental and a higher number of adolescents reported consumption once or twice a month. The main factors identified for the use of drugs included curiosity, not knowing why, peer pressure and pleasure ($p<0.005$).

Table 1 presents the statistically significant association between drug use and adolescents older than 13 years, male, attending the second or third grade, living with some relative and experiencing a poor or very poor family relationship.

Table 1 – Logistic regression for drug use according to sociodemographic information of secondary students, Comonfort, Guanajuato, Mexico 2006-2007

Factors	Use				OR CI (95%)	Adjusted OR CI (95%)
	No N	%	Yes N	%		
Age						
≤ 13	273	81.2	63	18.8	-	-
>13	124	68.1	58	31.9	2.027 (1.338;3.07)	1.425 (0.694;2.927)
Gender						
Male	181	72.7	68	27.3	1.531 (1.016;2.307)	1.299 (0.835;2.02)
Female	216	80.3	53	19.7	-	-
School grade						
1 st grade	151	89.9	17	10.1	-	-
2 nd grade	133	70.7	55	29.3	3.672 (2.032;6.636)	3.219 (1.711;6.056)
3 rd grade	113	69.8	49	30.2	3.851 (2.107;7.039)	2.825 (1.136;7.024)
People whom they live with						
Both parents	320	78.8	86	21.2	-	-
Mother	30	71.4	12	28.6	1.488 (0.731;3.029)	1.432 (0.662;3.094)
Father	3	60	2	40	2.481 (0.408;15.082)	1.01 (0.158;6.452)
Relatives	41	67.2	20	32.3	1.815 (1.011;3.259)	1.96 (1.041;3.689)
Friends or institution	3	75	1	25	1.24 (0.127;12.074)	0.694 (0.063;7.669)
Relationship						
Very good	251	82.8	52	17.2	-	-
Good	96	69.6	42	30.4	2.112 (1.32;3.378)	2.169 (1.318;3.571)
Regular	46	66.7	23	33.3	2.413 (1.347;4.323)	2.193 (1.171;4.107)
Bad or very bad	4	50	4	50	4.827 (1.169;19.924)	2.766 (0.618;12.388)

Table 2 presents the statistically significant association between the factors that led adolescents to use drugs, such as curiosity, coping with unpleasant

situations, pleasure, family conflicts, peer pressure, solidarity, do not know why, and other non-specified reasons.

Table 2 – Logistic regression of motives to use drugs or not according to information of secondary students, Comonfort, Guanajuato, Mexico 2006-2007

Factors	Use				OR CI (95%)	Adjusted OR CI (95%)
	No N	%	Yes N	%		
Curiosity						
Yes	39	36.4	68	63.6	10.241 (6.463;16.227)	13.693 (7.488;25.039)
No	464	85.4	79	14.6	-	-
Coping with unpleasant situations						
Yes	5	31.2	11	68.8	8.056 (2.752;23.58)	6.547 (1.486;28.846)
No	498	78.6	136	21.5	-	-
Pleasure						
Yes	4	16	21	84	20.791 (7.012;61.65)	10.54 (2.185;50.836)
No	499	79.8	126	20.2	-	-
Family conflicts						
Yes	4	30.8	9	69.2	8.136 (2.468;26.818)	2.963 (0.339;25.935)
No	499	78.3	138	21.7	-	-
Peer pressure						
Yes	6	22.2	21	77.8	13.805 (5.457;34.923)	10.354 (2.786;38.482)
No	497	79.8	126	20.2	-	-
Solidarity						
Yes	2	20	8	80	14.417 (3.027;68.664)	0.277 (0.023;3.306)
No	501	78.3	139	21.7	-	-
Do not know						
Yes	8	27.6	21	72.4	10.312 (4.463;23.827)	6.009 (1.809;19.958)
No	495	79.7	126	20.3	-	-
Other reasons						
Yes	1	10	9	90	32.739 (4.112;260.635)	10.381 (0.981;109.872)
No	502	78.4	138	21.6	-	-

DISCUSSION

This is the first time a DUSI - complete Spanish version - is used in Mexican students. Cultural adaptation of some of the instrument variables was necessary, such as "skipping class" (*irse de pinta*) and "drinking games" (*tomarse un hidalgo*). The instrument permitted the identification of experimental drug use in 20.3% of students.

With regard to gender, a little more than half of the sample is female, which coincides with the higher number of women enrolled in these schools. Besides, the female gender predominates in Guanajuato and Comonfort, Mexico⁽⁷⁾. Despite the predominance of the female gender, the use of drugs predominated in the male gender (22.1%), which is similar to the results of other studies carried out in Mexico^(1,4-5,8-9), where the higher number of male drug users is highlighted; male gender is considered a risk factor for drug use, entailing a threefold probability increase.

On the average, students are 13.03 years old (SD=0.99). When comparing the difference of average age among drug-using students and non-users, drug users are older (13.41 years old) than non-users (12.93 years old) and older students present three times more chance of becoming users. According to the National Survey on Drug Use⁽⁵⁾, Mexican adolescents who smoke or drink alcohol presented a little older onset age, between 15 and 17 years old (47.6 and 50.5%), though 11 years old users, especially male, were also identified. Rojas states that younger adolescent drug users are at a higher risk of mental, physical and social harm than older adolescents⁽¹⁰⁾.

In terms of school grade, a higher percentage of drug-using students attend the second and third grades. With increased schooling (years of study) the chances of drug use increase threefold because if, on the one hand, there is educative training, on the other hand, adolescents may get distant from family and link up with groups of friends, with favorable conditions to get involved with risk factors like experimenting drugs. These results do not differ from those of studies carried out in Peru⁽¹¹⁾ and Mexico⁽⁸⁾, where the use of some kind of drug increases as adolescents reach higher education levels.

With regard to relationship and family, 53.5% of students live with both parents or relatives, a fact that might be related to the Mexican culture, in which

the majority of adolescents live in their parents' home and only 26.6% leave it^(8,12). Students evaluated their relationships with those they live with as good and very good. These conditions associated to living with family, especially with both parents, constitute protection factors because the family provides individualized support to adolescents, enabling healthy development. A study carried out in Peru addressed cases of adolescents and reveals that parents' influence can reinforce values, attitudes and conducts in view of drug use. It also reports that the experimental use among adolescents generally occurs as a result of permanent family problems or of the immediate or mediate social context⁽¹⁰⁾. On the other hand, adolescents who live with relatives and report poor family relations present higher probability of drug use, which is also in accordance with the results of other studies^(1,3,5,11). Poor family relations increase the chances of drug use. Adolescents who live with relatives present higher chances of lenient treatment due to lack of clear limits and divided authority, which do not yield behavioral standards and rules. There is also a risk adolescents do not find adequate affection, receive threatening treatment, punishment and have people meddle in their private life, or yet, have their problems ignored and consequently be at a higher risk of using drugs⁽¹³⁻¹⁴⁾. This issue is widely discussed in literature^(3,13-15), which identifies that parents play a role in positively or negatively influencing their children in becoming drug users.

A relatively low index (6.3%) was found regarding school failure and, most of the times, it happened only once. When comparing drug users and non-users, a statistically significant relation is found between these two variables, that is, drug users present a higher percentage of school failure. Similar results are found in a study carried out in the South of Brazil, where adolescents who had failed school and had not attended classes presented chances of smoking twice as high as those who had not failed school and attended classes regularly⁽¹⁶⁾. Some studies emphasize that damages related to adolescents' drug use, even in experimental and recreational use, include cognitive, physiological and psychological development damages, developmental delay and acquisition of self-control capacities and self-esteem, higher susceptibility to peer pressure to get involved in risky behavior, compromising school performance, especially in the early consumption of drugs^(10,15). School failure and abandonment constitute

risk factors for drug use, in addition to the relationship adolescents have with the peer groups, positive attitudes and values conferred to drugs and to the search for sensations in this population, which demands variety and novelty⁽¹⁰⁾.

Relatively low educational levels were found when parents' education was evaluated: complete or incomplete primary school, and complete or incomplete secondary school (41.3 and 32%, respectively). These results are similar to a study⁽¹⁷⁾ where 51.1% had only completed primary school and reported higher difficulty in guiding their children. In this study, parents of adolescent non-users had primary or secondary school and parents of drug users had higher or preparatory education.

Regarding the frequency and types of drugs, the most frequent consumption was for alcohol and tobacco, results similar to a Mexican study⁽⁵⁾. The experimental use of drugs among students was once to twice a month, while once a month predominated, with 33.8 and 30.8% for alcohol and tobacco respectively. We highlight that these are the most socially accepted drugs and the media link them to beauty, seduction of the opposite sex and professional success among others. It is important to say that the use of licit drugs increases the risk of consuming other drugs that are considered of initial use, showing that those who have already made use of these drugs can use others more easily. Attending places where these are consumed can be a stimulus to experiment, which implies an upward tendency, result of psychological and social factors⁽⁵⁾.

In the identification of risk factors, curiosity was the most frequently reported factor among adolescents for the first-time use (38%), which increases the probability of use tenfold. Other motives that also increase the risk, up to eight times, are coping with unpleasant situations and family conflicts in daily life. Studies carried out with adolescents identified that curiosity encourages them to experiment new sensations of pleasure, as the use of drugs provides passive and immediate pleasure⁽¹⁴⁾. The pleasure these substances produce during consumption, peer pressure and solidarity are motives that increase the risk of adolescents' drug use (20, 13 and 14 times, respectively). Other motives like 'do not know' and reactions not specified in the study strongly increase probability of use, from ten to 32 times, respectively. These are all risk factors which, when present, put adolescents as potential users. Experimental use can

provide social acceptance by peers and feeling of autonomy and maturity. For some adolescents, experimenting drugs can be part of the development of their individuality and these are classified more as experimenters than consumers, because its use is occasional and they not necessarily develop dependency. However, adolescents with multiple risk factors are more susceptible to develop problems related to substance consumption. It is important to stress that knowing risk factors permits the identification of adolescents who are more exposed to accidents, early pregnancy, drug use, sexually transmitted diseases, suicide and others⁽¹³⁾. The best way to address these problems is prevention in early age and the school and family environments are the best spaces for this kind of approach.

CONCLUSIONS

The use of DUSI was adequate to identify the adolescent group that uses drugs, which presents more risk factors than non-user groups: being male, attending the second or third grade, living with relatives, presenting poor family relationship, curiosity, family conflicts and coping with unpleasant situations. The most frequently used drugs in this population were alcohol and tobacco, considered experimental use. The use of illicit drugs was found in a smaller percentage. It is important to keep in mind that, in this adolescent phase, the strong bond held with the group is a model of identification with peer acceptance, sharing common values and promoting a particular way of culture, coupled to adolescents' feeling of invulnerability and omnipotence, which are important risk factors for drug use.

The study provided knowledge about the use of drugs and adolescents' characteristics, so as to elaborate an intervention program focused on the student, with a view to diminishing risk factors in the school environment.

RECOMMENDATIONS AND STUDY LIMITATIONS

One of the limitations presented in this study is that parents' occupation and periods they are present or absent from home with the adolescent were not assessed. Adolescents need support,

guidance and orientation to facilitate their development of capacity to coping, resisting and recovering from risky situations⁽⁸⁾. It is also necessary to evaluate the use of drugs by parents and/or responsible adults. Finally, given the exposed, we

recommend the evaluation of drug use among younger adolescents and the implementation of even earlier preventive interventions at schools, since adolescents are getting into contact with and using drugs increasingly younger.

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