

Depression and psychoactive substances consumption in Mexican college undergraduates

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Abstract

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Subvenciones y ayudas: artículo derivado de la investigación "Síntomas depresivos y el consumo de drogas en jóvenes universitarios de ciudad Victoria", realizada entre mayo de 2008 y diciembre de 2009 y financiada por las Universidades, Autónoma de Nuevo León y Autónoma de Tamaulipas de México.

Conflicto de intereses: ninguno a declarar.

Objective. To explore the relationship between risk of depression and psychoactive substances consumption in college undergraduates. **Methodology.** Cross sectional descriptive study in which an instrument that included a) sociodemographic variables, b) Beck depression inventory II (BDI-II) and c) questions about psychoactive substances consumption in life, in the last year and in the last month, was applied to 32 college undergraduates. **Results.** 52.9% of the students had drunk alcohol and other 33.6% had smoked in the last month. For illicit substances: 3.7% used cocaine, 3.4% marihuana and 0.5% amphetamines. The risk of depression for the sample was: 6.6% had low risk, 3.4% moderate and 1.8% severe risk. Significant differences were found between consumers and non consumers DBI-II means in regards to: alcohol, tobacco, marihuana, and any illicit drug. **Conclusion.** College undergraduates who have consumed alcohol or marihuana at least once in their life have a higher risk of depression compared to non consumers.

Key words: students; education, higher; depression; drug users; prevalence; alcohol; smoking; street drugs.

Depresión y consumo de sustancias psicoactivas en universitarios mexicanos

Resumen

Objetivo. Explorar la relación entre el riesgo de depresión y el consumo de sustancias psicoactivas en universitarios. **Metodología.** Estudio descriptivo de corte transversal en el que se aplicó a una muestra representativa de 432 universitarios un instrumento que incluía: a) variables sociodemográficas, b) Inventario de Depresión de Beck II (DBI-II) y c) preguntas sobre el consumo de sustancias psicoactivas en la vida, en el último año y en el último mes. **Resultados.** En el último mes el 52.9% de los estudiantes ha bebido alcohol y otro 33.6% ha consumido tabaco; en cuanto a las sustancias ilícitas: 3.7% cocaína, 3.4% marihuana y 0.5% anfetaminas. El riesgo de depresión para la muestra fue: 6.6% leve; 3.4% moderada y 1.8% grave. Se encontraron diferencias

significativas entre las medianas del DBI-II de consumidores y no consumidores en: alcohol, tabaco, marihuana y alguna droga ilícita. **Conclusión.** Los universitarios que han consumido alguna vez en la vida alcohol, tabaco o marihuana presentan riesgo de depresión más alto comparado con no consumidores.

Palabras clave: estudiantes; educación superior; depresión; consumidores de sustancia psicoactivas; prevalencia; alcohol; tabaquismo; sustancia psicoactivas ilícitas.

Risco de depressão e consumo de substâncias psicoativas em universitários mexicanos

■ **Resumo** ■

Objetivo. Explorar a relação entre o risco de depressão e o consumo de substâncias psicoativas nos universitários. **Metodologia.** Estudo descritivo de corte transversal, realizado numa mostra representativa de 432 universitários aos que se lhes aplicou um instrumento que incluía: a) variáveis sócio-demográficas, b) Inventário de Depressão de Beck II (DBI-II) e c) perguntas sobre o consumo de substâncias psicoativas na vida, no último ano e no último mês. **Resultados.** No último mês o 52.9% dos estudantes bebeu álcool e um 33.6% consumiu fumo; para substâncias ilícitas o consumo mensal foi: 3.7% cocaína, 3.4% maconha e 0.5% anfetaminas. O risco de depressão para a mostra se classificou em: 6.6% leve, 3.4% moderada e 1.8% grave. Encontraram-se diferenças significantes entre as médias do DBI-II de consumidores e não consumidores para as substâncias: álcool, fumo, maconha e drogas ilícitas. **Conclusão.** Os universitários que consumiram fumo ou maconha apresentam risco de depressão mais alto comparado com não consumidores.

Palavras chave: estudantes; educação superior; depressão; usuários de sustancia psicoactivas; prevalência; álcool; tabagismo sustancia psicoactivas ilícitas.

Introduction

Psychoactive substances consumption among young people has expanded lately, to the point that literature considers it a public health problem.^{1,2} Regardless of the consequences psychoactive substances cause, the results of the 2008 Addictions National Survey in Mexico³, reveal that the number of Mexicans who have tried psychoactive substances anytime in their life, went from 5% in 2002 to 5.7% in 2008. Regarding alcohol consumption, the typical pattern is of great amounts consumed per occasion. In total, almost 27 million of Mexicans, between 12 and 65 years of age, drink great amounts per occasion and have consumption frequencies between less than once a month to daily.

Fecha de recibido: 24 de junio de 2010.

Fecha de aprobado: 16 de agosto de 2011.

Cómo citar este artículo: Guzmán-Facundo FR, Ramos-Luna S, Alonso-Castillo MM, Esparza-Almanza SE, López-García KS, Ibarra-González C. Depression and psychoactive substances consumption in Mexican college undergraduates. Invest Educ Enferm. 2011;29(3): 442-450.

Another phenomenon that has increased in the general population is depressive symptoms which have been associated to psychoactive substances consumption. It is estimated that depression is currently located among the five causes of disability worldwide and it is projected that it will be the first or second in the following ten years.⁴ In Mexico, data from the health secretary indicate that 8.8% of the population have had at least one episode of depression in their life.² The diagnostic and statistical manual of mental disorders (DMS-IV) indicates that depressive symptoms are characterized by deep sadness and loss of interest or pleasure that lasts for at least two weeks and are present for most of the day.⁵ There is another dimension of depressive symptoms experienced by a great number of people who express anxiety, irritability, agitation and worry.⁶

During youth, mood ups and downs can be seen as depressive symptoms, as a result of existential and personality structure transformations, and challenges of their environment. Depressive symptoms that lots of young people can have, are characterized by fluctuating mood, sometimes sadness or unhappiness, depressed mood, hopelessness, guilt, psychomotor retardation, fatigue, lack of appetite and sleeping disorders. These symptoms cause low performance in the activities, both school and leisure activities, at home and work, affecting interpersonal relationships directly and their future perspectives in life.⁷

Sanitary authorities in Mexico report that both psychoactive substances consumption and depression are among the ten first causes of healthy years lost in men.² Studies document a relationship between depressive symptoms and psychoactive substances consumption in the young population, it is seen that while depressive symptoms increase, psychoactive substances consumption is higher.⁸⁻¹⁰ These substances can be a mechanism for coping dysphoric mood, such as sadness, anxiety and irritability among young people.¹¹

However, studies haven't been concluding in the young population, due to holes in knowledge about if depressive symptoms report significant differences regarding psychoactive substances consumption or not, also, if by gender there are differen-

ces reported in both variables, reason why it is considered that there is a necessity of continuing boarding this relationship specifically in university youth. The natural social environment and self psychobiological development of university youth can influence the acquisition of risk conducts as psychoactive substance consumption due to the inability of healthily coping situations that can be seen as threatening or challenging in daily life.¹² It is really important for the nursing and health staff to have information regarding the relationship between depressive symptoms and psychoactive substances consumption in the young population, with the possibility of characterizing populations at risk and prioritizing interventions.

The results of this study contribute to the nursing scientific knowledge in the line of prevention of psychoactive substances consumption and can be the foundation for the creation of controlled interventions guided to the prevention of psychoactive substances consumption in the university youth. The objective of this study was to explore the relationship between the prevalence of depressive symptoms and psychoactive substances consumption in undergraduates.

Methodology

Cross sectional descriptive study.¹³ The studied population consisted of 6313 college undergraduates from a multidisciplinary campus of a public university of Victoria, Tamaulipas. To determine the size of the sample representativeness in this context the n'Query Advisor Vr. 4.0 was used considering the following criteria: Probability of occurrence of the phenomenon of 0.50, with a maximum error of estimate of 0.04 and confidence level of 95%, considering a population of 6313 people. A final sample of 437 students was extracted through a simple stratified randomized sampling by academic unit: 60 from agronomy (13.7%), 45 from veterinary (10.2%), 90 from psychology and social (20.5%), 65 youths from the health fields (14.8%) and 177 from law (40.5%).

Two instruments and a personal ID were used to look for the sociodemographic data. The first instrument was the psychoactive substances consumption history, asks about the use of illicit psychoactive substances (alcohol and cigarette) and illicit (Marihuana, cocaine, heroin, inhaled and others) sometime in their life, in the last year, in the last month, as well as the number of days of consumption in the last thirty days, this instrument corresponds to the Official Mexican Rule for prevention, treatment and Control of addictions.¹⁴

The second instrument was the Beck Depression Inventory II (BDI-II),⁶ that allow identifying depressive symptoms. It is a self report instrument compound by 21 items whose goal is to measure depressive symptoms in adults and teenagers from 13 years of age. BDI-II score is determined by adding the score of the chosen answers for the 21 items. Each item was evaluated using a scale from zero to three for a maximum score of 63. The BDI-II objective is to quantify the symptoms and depression intensity/severity, it can be adjusted as follows: 0-13=minimum or no depression, 14-19=low, 20-28= moderate and 29 or more= severe. In this study the BDI-II showed a high inner consistency with a Cronbach alpha of 0.90.

The participants were randomized from the lists given by each of the academic institutions. To collect the data the selected students were located, asking them for voluntary and informed participation, afterwards they were invited to go to a place in each academic unit that allowed enough privacy to answer the instruments. Before beginning the study, permission to the corresponding authorities of each of the academic units was requested, aiming to apply the instruments in class schedules.

The study was approved by the ethical research committee of the nursing faculty of the Autonoma University of Nuevo Leon. Before starting the data collection from the participants, the objectives of the study were explained, informed consent was carefully read, letting them decide to participate or not in the study, and the people who voluntarily accepted to participate, signed the informed consent. There was a team of three nursing professionals who worked as interviewers; they were trained to solve any doubt students could have.

For the statistical analysis data were analyzed through the SPSS Vr. 17. statistical package. BDI-II sums were obtained. The inner consistency of the instrument was determined through the Cronbach's alpha. Kolmogorov-Smirnov test was obtained to know the distribution of the variables where most of the variables didn't keep a normal distribution, reason why it was decided to use non parametric statistics. To describe the prevalence of depressive symptoms and psychoactive substances consumption, descriptive statistics were obtained through frequencies and proportions, likewise punctual estimations were calculated to the 95% reliability.

To describe the relationship between psychoactive substances consumption with age, gender and employment, the Square Chi test was applied and the strength of association was evaluated with the Odds Ratio. Finally to verify the research hypothesis, university youths who had consumed drugs show higher depressive symptoms compared to the ones that had never consumed drugs, the U of Mann-Whitney non-parametric test was applied.

Results

437 college undergraduates participated in the study. Some of the sociodemographic characteristics of the studied sample were: 51.7% were females, most of them single (98.6%), close to a quarter (22.7%) of the surveyed ones, refer to have a remunerated job. The average age of the participants was 20.22 ± 3.6 years of age (minimum=18, maximum=22).

Depressive symptoms with higher prevalence in undergraduates were changes in their sleeping habit (55.4%), self criticism (40.7%), loss of appetite (37.8%), concentration difficulties (31.7%), loss of energy and tiredness or fatigue (31.1%). According to the BDI-II the risk of depression in the surveyed students was low in 6.6% (CI_{95%}:4.2%-9.1%), moderate in 3.4% (IC_{95%}: 1.7%-5.1%) and severe in 1.8% (IC_{95%}: 0.5%-3.1%).

In this study, 52.9% (CI_{95%}: 48.1%-57.5%) of the students referred having consumed alcohol in the last month, followed by cigarette with 33.6% (CI_{95%}: 29.1%-38.0%). Table 1 shows the preva-

lence of illegal psychoactive substances consumption sometime in the life, in the last year and in the last month, showing that 14.6% of the participants have consumed any psychoactive substance sometime in their life, 9.2% mentioned having con-

sumed in the last year, and 6.4% in the last month. It is important to highlight that the preferred illegal substance among undergraduates is marihuana, followed by cocaine and amphetamines, with a life prevalence of 10.8%, 9.6% and 1.6% respectively.

Table 1. Prevalence of illegal psychoactive substances consumption in 437 undergraduates

Psychoactive substances consumption	n	Prevalence per 100	CI _{95%} of the prevalence		
			Lower limit	Upper limit	
Any drug	Sometime in the life	64	14.6	11.3	17.9
	In the last year	40	9.2	6.4	11.8
	In the last month	28	6.4	4.1	8.7
Marihuana	Sometime in the life	47	10.8	7.8	13.6
	In the last year	25	5.7	3.5	7.9
	In the last month	15	3.4	1.7	5.1
Cocaine	Sometime in the life	42	9.6	6.8	12.3
	In the last year	21	4.8	2.7	6.8
	In the last month	16	3.7	1.8	5.4
Amphetamines	Sometime in the life	7	1.6	0.4	2.7
	In the last year	2	0.5	0.1	1.0
	In the last month	2	0.5	0.1	1.0

Table 2 shows the monthly prevalence of alcohol consumption, cigarette and illicit substances. Showing that for the three substances, consumption was higher in male, in the group age of more than 20 years of age and in the group of people who were employed. These differences were statistically significant in the variables: a) gender, where for each female consumer for each of the substances, there were 2.5 men alcohol consumers, 3.4 cigarette, and 7.0 illicit substances. And b) Employment: for alcohol, even though there was statistical significance, the OR CI_{95%} crosses the unit, reason why this finding is not reliable, and in the case of illegal substances, 15.2% of the ones who are employed, versus 7.4% of the ones who are not employed, had consumed them in the last

month for a 2.23 OR, which implies that per each undergraduate consumer who is not employed, there are 2.23 consumers who are employed.

Table 3 results show that students who have consumed alcohol, cigarette, marihuana or any other illegal substance sometime in their life had a BDI-II mean score higher than non-consumers, and this difference was statistically significant, even though any of the scores went over the minimum level or no depression.

Spearman correlation coefficient results showed that there is a positive and significant relationship between BDI-II score, the number of alcohol cups consumed in a typical day ($r_s=0.168$, $p<0.001$) and the number of cigarettes consumed in one day ($r_s=0.120$, $p=0.012$).

Table 2. Monthly prevalence of alcohol, cigarette and illegal substances consumption according to sex, age and employment in 437 undergraduates

Substance	Consume		No		χ^2	P Value	OR	CI _{95%} OR
	Yes							
	n	%	n	%				
Alcohol								
Sex								
Male	136	64.5	75	35.5	22.01	<0.001	2.50	1.67-3.75
Female	95	42.0	131	58.0				
Age								
≥20 years	112	54.1	95	45.9	0.24	0.621	1.10	0.75-1.60
<20 years	119	51.7	111	48.3				
Work status								
Work	61	61.6	38	38.4	3.93	0.047	1.58	1.04-2.50
Don't work	170	50.3	168	49.7				
Cigarette								
Sex								
Male	100	47.4	111	52.6	34.51	<0.001	3.43	2.25-5.22
Female	47	20.8	179	79.2				
Age								
≥ 20 years	74	35.7	133	64.3	0.78	0.376	1.19	0.80-1.78
< 20 years	73	31.7	157	68.3				
Work status								
Work	37	37.4	62	62.6	0.80	0.371	1.23	0.77-1.97
Don't work	110	32.5	338	67.5				
Illicit psychoactive substances								
Sex								
Male	34	16.1	177	83.9	23.7	<0.001	7.04	2.89-17.15
Female	6	2.7	220	97.3				
Age								
≥ 20 years	25	12.1	182	97.9	4.04	0.04	1.96	1.01-3.84
< 20 years	15	6.5	215	93.5				
Work status								
Work	15	15.2	84	84.8	5.53	0.019	2.23	1.12-4.43
Don't work	25	7.4	313	92.6				

Table 3. BDI-II mean scores according to alcohol, cigarette and illicit psychoactive substances consumption or not sometime in the life

Substance consumption	Median	1 and 3 quartile	U	p Value
Alcohol				
Yes (n=64)	5.0	1.0, 10.0	8369.0	<0.001
No (n=373)	2.0	0.0, 5.0		
Cigarette				
Yes (n=228)	5.0	1.2, 10.0	20058.5	0.004
No (n=209)	3.0	1.0, 8.0		
Any illicit psychoactive substance				
Yes (n=373)	6.0	2.0, 11.0	10149.0	0.054
No (n=64)	4.0	1.0, 9.0		
Marihuana				
Yes(n=390)	6.0	3.0, 11.0	7502.0	0.041
No (n=47)	4.0	1.0, 9.0		

Discussion

Regarding depressive symptoms in this study, it was observed that the more frequent symptoms were: sleeping disorders, self criticism, loss of appetite, concentration difficulties and loss of energy, highlighting that 12% of the participants had a risk of depression, being the low level the more prevalent. This results are lower to what is reported in two Colombian studies where depressive symptoms were quantified using the Zung scale for depression,^{10,15} and a Mexican one,¹⁶ which showed a depressive symptoms prevalence from 28% to 50%. However they agree to mention that low depressive symptoms is the most frequent one among youth. It is important to highlight that the rates shown by our participants are higher than the reported ones in the general Mexican population in the Psychiatric Epidemiology National Survey of 2005,² where 8% of the population had depressive symptoms. Undergraduate's depressive symptoms in this study can be explained by the relationship with risk factors of their environment such as love deceptions, failing school, school performance pressures, their professional future uncertainty, in a every time more competitive environment, for the current socio economic situations, and who possibly look for an exit through psychoactive substances and alcohol consumption.^{7,17}

This study showed that 52.9% of the youth refer having consumed alcohol in the last month, these results agree with studies carried out in the young population that have reported an alcohol consumption that goes from 50% in Mexican students⁸ to 75% found in Colombian students.¹⁰ These findings show that alcohol consumption is a highly accepted behavior among young undergraduates, and it is a socializing vehicle present in diverse behaviors in the social and student life.

Also in our study 14.6% of the undergraduates have consumed any illicit psychoactive drug in their life, the preferred psychoactive substance among undergraduates in marihuana, followed by cocaine and amphetamines. Psychoactive substances consumption sometime in the life is similar to what is reported in studies carried out in the city of Guadalajara Mexico,¹⁸ and other countries such as Colombia,¹⁰ what shows that it is possible that psychoactive substances consumption in the undergraduate population is probably increasing due to its easy access. It is important to highlight that different from other populations, amphetamines are the third drug preferred by the studied population, it has been recently declared that young people have created new low perception social representations of risk, specially "extasis" its presentation as pills or candies with smiley faces or

childish shapes can influence in its magical character, fun and harmless additional effects.¹⁹

Alcohol consumption, cigarette and illicit psychoactive substances prevalence were higher in men than in women. These data are similar not only in young undergraduate groups,¹⁸ but also in the general population,³ and populations considered more vulnerable as young gangsters.^{20,21} These results are explained because among men, there are some social rules that favor alcohol and psychoactive drugs consumption, and women have socially more restrictions to perform this type of risk behaviors.²²

Alcohol, cigarette and psychoactive substances consumption prevalence was different according to age, highlighting that young men over 20 years of age have a higher consumption prevalence of these substances, confirming the findings in studies carried out in Mexico¹⁸ and Colombia.²³ The latter take us to consider the importance of implementing preventive programs starting the first years of school. The results also reveal that psychoactive substances consumption have an important social component. Substances use is linked with spare time activities, fun and social events in which other people have participated in the provocation of the consumption, It is explained that while age increases, young people are more exposed to other social networks where psychoactive substances consumption can be perceived as socially accepted.²⁴

Alcohol, cigarette and illicit psychoactive drugs consumption in our study, was higher in the participants who are employed, compared to the ones who are not employed. These results agree with what is reported in the reviewed literature^{3,16,20} it is possible that while they increase their economic independency this becomes a facilitating factor for the acquisition of substances among young undergraduates. Also consumption can be associated with the wrong perception that cocaine consumption can favor a higher performance and is probable that young people who work look for illicit psychoactive substances to get a greater job performance, as well as perceiving a higher tolerance of alcohol consumption.²⁵

Finally, in relation to the suggested hypothesis it was shown that the sum of depressive symptoms

was positive and significantly related with the number of cups and cigarettes consumed per day. Young people who have consumed alcohol, cigarette and marijuana sometime in their life, show a depressive symptom score significantly higher than young people who have not. These results agree with the reviewed literature, where a relationship between some affective and psychological disorders, among which are depressive symptoms, and psychoactive substances in the young population has been found.^{8,10,15,22,26} The latter can be explained in the way in which young people cope with emotional problems, wanting to forget problems, being one of the main reasons for psychoactive substances consumption in young people.²⁶

However it is also explained that the relationship between depression and psychoactive substances consumption can be comorbidity indicators in both conditions.²

Between the limitations of the current research, it has been pointed that, as it is a cross sectional descriptive study, its results just allow to explore the relationship between depressive symptoms and psychoactive substances consumption, which confirmation as risk factor would require of longitudinal and prospective studies.

The conclusion of this study is that undergraduates who have consumed alcohol, cigarette, or marijuana sometime in their life, have a higher risk of depression compared to non consumers.

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