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ARTÍCULO ORIGINAL/*ORIGINAL ARTICLE*

Characteristics of alcoholic drinks consumption and consumption pattern among Dental students

Características del consumo de bebidas alcohólicas y patrón de consumo en estudiantes de Odontología

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Resumen

Objetivo: *Describir características del consumo de bebidas alcohólicas e identificar patrón de consumo en estudiantes de odontología de la Universidad San Sebastián, sede Concepción.*
Materiales y métodos: *Estudio exploratorio, descriptivo, transversal, no experimental. La muestra estuvo constituida por 601 alumnos (65% del total). Se aplicaron dos cuestionarios durante el segundo semestre del año 2015. El primero: cuestionario estructurado diseñado para recolectar datos sobre el consumo de alcohol y sus características. El segundo: cuestionario autoadministrado de"Identificación de Trastornos Relacionados con el Consumo de Alcohol". Los datos fueron analizados mediante estadígrafos descriptivos. La asociación de la variable dependiente "alcohol" con las variables independientes "edad", "género", "ubicación geográfica de origen" y "semestre académico" fueron evaluados mediante una prueba de regresión logística binomial. Sólo los datos de los sujetos que consumían alcohol fueron evaluados. El nivel de significación empleado en todos los casos fue de $\alpha \leq 0,05$.*
Resultados: *El 15% de los estudiantes es consumidor de riesgo y 18% presenta consumo perjudicial o posible dependencia. En estudiantes que consumen alcohol, la variable ingreso familiar, en relación con las variables época del año en que consumen y la presencia de problemas derivados del alcohol, están asociadas.*
Conclusión: *Existe mayor prevalencia de consumo en el género masculino y un alto consumo de bebidas alcohólicas en ambos géneros en cualquier época del año. El consumo de bebidas alcohólicas es independiente del ingreso familiar.*

Palabras claves: Bebidas alcohólicas, Odontología, Estudiantes.

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Abstract

Aim: *To describe characteristics of alcohol consumption and to identify patterns of consumption among dental students from University San Sebastián, Concepción.*
Method: *This is an exploratory, non-experimental, descriptive and cross sectional study with a sample of 601 students (65 % of students). Two questionnaires were applied during the second semester of 2015. The first: A structured questionnaire designed to collect data on alcohol consumption and its characteristics. The second: the Alcohol Use Disorders Identification Test. The data was analyzed using descriptive statistics. The association of the dependent variable "alcohol" with the independent variables "age", " gender", "geographic location of origin" and "semester" were evaluated by a binomial logistic regression. Then, the data observed in subjects who reported drinking alcohol were evaluated. The significance level used in all cases was $\alpha \leq 0.05$.*
Results: *15 % is a risk consumer, and 18% is a harmful consumer or have a possible dependence. In students who drink, the variable family income is associated with the time of year of consumption and alcohol-related problems.*
Conclusion: *There is a higher prevalence of male consumption and a high consumption of alcoholic beverages in both genders at any time of the year. Consumption of alcoholic beverages is independent of family income.*

Keywords: Alcoholic beverages, Dentistry, Students.

INTRODUCTION

In Chile, excessive alcohol consumption is a health problem (1) (2). According to the latest report from the World Health Organization (WHO), the annual consumption of pure alcohol per capita is 9.6 liters. Men consume 13.9 liters and women 5.5 liters (3). Therefore, the situation is alarming in Chile and the most critical in Latin America (3).

There are individual, environmental and social factors that facilitate the initiation and maintenance of alcohol consumption in certain age groups, such as young people entering the university (4). According to the National Service for Prevention and Rehabilitation of Drug and Alcohol (SENDA), the age group between 19 and 25 years, presented a prevalence of alcohol consumption of 65.4 % of the total population (year 2012) (5).

Studies about alcohol consumption in Chilean university students have been conducted (6) (7); however, so far, there are no studies in Chile to assess alcohol consumption in dental students and there are not enough reasons to mechanically extrapolate the findings of these studies to the student population of such undergraduate.

Therefore, the aim of this study is to describe characteristics of alcohol consumption and to identify patterns of consumption among dental students from University San Sebastián (USS), Concepción.

MATERIALS AND METHODS

This was an exploratory, non-experimental, descriptive and cross sectional study whose hypothesis was: "Dental students have an excessive alcohol consumption". The study was approved by the Ethics Research Committee (ERC), Faculty of Dentistry, University San Sebastian (USS), Chile, with resolution number 07/2015. The study population was constituted by dental students of the USS in Concepcion during 2015 (N = 920). Their ages

ranged from 19 to 36 years. Two questionnaires were applied from first to fifth year during the second half of 2015. The participation of students was voluntary in nature and they had previously signed the informed consent (approved by the ERC). The sample consisted of 601 subjects (n = 601) (65 % of the population).

The first instrument, to collect data on alcohol consumption and its features, was designed in Colombia, where its validity and reliability was determined (8). In order to culturally adapt this instrument, it was reviewed by three psychologists (Criteria Judges), then, through a pilot study, the instrument was tested in a group of 50 dental students from USS (Concepción) to assess whether the questions were understandable. This survey contains 14 polynomial and dichotomous questions with only one answer and evaluates the variables: age, gender, socioeconomic status, origin, semester, alcohol consumption, frequency of consumption, preference for the type of beverage and reason to consume, among others.

The second instrument applied, adapted and validated in Chile (9), was the "Alcohol Use Disorder Identification Test" (AUDIT), developed by WHO as a simple method of screening for excessive drinking. It identifies alcohol dependence and some specific consequences of harmful use (10). It has a high internal consistency (Cronbach's alpha = 0.93) as well as its three subscales: alcohol consumption (Cronbach's alpha 0.86), symptoms of dependence (Cronbach's alpha 0.85) and negative consequences of drinking (Cronbach's alpha 0.77) (11). The self-administered version consists of 10 questions with different items and each answer has a score ranging from 0 to 4 (12).

It has been suggested that the cut-off values for the classification of consumption patterns fit the context of each country (12).In Chile, the cut-off values established are: score of 0 indicates abstinence, below 6 points classifies as consumer without risk, between 6 to 8 points refers to a risky consumption and finally, nine points or more refers to a harmful consumption or possible alcohol dependence (13). For the standardization of the application of this questionnaire, it was defined that a typical drink contains 13 gr of alcohol, which is the average in a beer can in Chile and equivalent to a cup.

Regarding statistical analysis, the primary data was analyzed using descriptive statistics. The association of the dependent variable "alcohol" with the independent variables "age", "gender", "geographic location of origin" and "semester" were evaluated by a binomial logistic regression test.

Then, the data observed in subjects who reported drinking alcohol were evaluated. The association (in this group) between gender and family income regarding frequency of consumption per week variable, day of the week of consumption, number of times a month, time of the year, favorite drink, reason for drinking, alcohol-related problems and consumption pattern according AUDIT test, was performed using the chi -square ($\chi 2$) with asymptotic significance. The significance level used in all cases was $\alpha \leq 0.05$.

RESULTS

The sample consisted of 601 students with an average age of 21.5 years (SD ± 2.595). Table 1 shows absolute and percentage value results of men and women evaluated in this work, while Table 2, shows the results of percentage and frequency of students according to alcohol preference and con-

sumption pattern according to AUDIT. Regarding semesters during which more alcohol is consumed, in descending order was the 6th, followed by the 4°,2°,8°,10°,3°,1°,7°,9° and the 5°. Table 3 shows the results of the association of the independent variables, considered in this study, with the dependent one (alcohol consumption).

The test used allowed the following regression equation: AC (alcohol consumption) = - 0697-0035 (Age) + 0.518 (Gender) + 0.165 (GO) + 0.464 (FI) - 0.07 (Semester). The Wald statistic was significant in the variable gender (male). The standard error is relatively low, which means the estimates of these factors are acceptable. The OR calculated for the gender was 1.678 with confidence interval [1.102 to 2.557] .However, even though the gender variable was significant, the value of OR was not ($p > 0.05$), whenever the same values are within the confidence interval. The gender variable (Table 4) regarding to the variables: frequency of consumption per week, day of the week of consumption, number of times a month and consumption pattern according to AUDIT were significant, very significant or highly significant ($p < 0.05$; $p \leq 0.01$; $p < 0.005$ respectively).

Finally, Table 5 shows that the family income variable, regarding the time of the year when they consume alcohol and the presence of alcohol-related problems variable, were highly significant and significant respectively ($p < 0.01$ and $p < 0.05$).

Table 1. Results from subjects who drink and do not drink alcohol divided by gender and total.

	Men	Women	Total
Alcohol consumer	211	261	472
Non alcohol consumer	41	88	129
Number of students	252	349	601

Table 2. Results of percentage and frequency of students according to alcohol preference and consumption pattern according to AUDIT

	Item	Frecuency	Porcentage
Alcohol preference	Beer	205	34.11
	Wine	29	4.83
	Liqueur	227	37.77
	Total	472	76.71
	Drinkers	129	21.46
Total		601	100.0
Consumption pattern according to AUDIT	Abstemious	129	21.46
	Consumer without risk riesgo	267	44.43
	Consumer with risk	94	15.64
	Harmful consumer or possible alcohol dependence	111	18.47
Total		601	100.0

Table 3. Results of the association of the independent variables on the consumption of alcohol

Variable	B	E.T.	Wald	Gl	Sig.	Riesgo	I.C. 95% for risk	
							Lower	Higher
Age	-.035	,059	,352	1	0,553	,965	,859	1.085
Gender	,518	,215	5.808	1	0,016	1.678	1.102	2.557
GO	,165	,204	,652	1	0,419	1.179	,791	1.758
FI	,464	,224	3.2	1	0,055	1.590	1.024	2.468
Semester	-.070	,056	1.580	1	0,209	,932	,835	1.040
Constant	-.697	1.112	,393	1	0,531	,498		

GO= Geographical origin of the student; FI=Family income in dollars

Table 4. Results of the association between the variable gender (G) and other variables in the group of students who drink alcohol

Associated variables	χ2	Significance (p)	Interpretation
(G) and frequency of consumption per week	6.72	p = 0.01 **	One day a week is associated with female gender. More than one day is associated with male gender.
(G) and day of the week of consumption	11.2	p = 0.048*	Male consumption is associated with Friday.Female to Saturday
(G) and number of times a month	12.45	p = 0.014*	Male is associated with more than three times a month. Female to once a month.
(G) and time of the year	1.44	p = 0.487[b]	Both genders consume at any time of year
(G) and type of favorite drink	3.96	p = 0.138 [b]	Both genders consume different types of beverage.
(G) and reason to drink	5.45	p = 0.364[b]	Any reason is valid to consume.
(G) and alcohol related problems	3.45	p = 0.063[b]	Both genders have the same distribution with the presence or absence of problems caused by consumption.
(G) and consumption pattern according to AUDIT	32.21	p = 0,0001**	Abstemious and consumer without risk is associated with female gender. Harmful consumer or possible alcohol dependence, with the male consumer.

p = Probability of type I error; b = Not significant ; *= Significant ; **= Highly significant

Table 5. Results of the association between family income variable (FI) and other variables within the group of students who consume alcohol.

Associated variables	$\chi 2$	Significance(p)	Interpretation
FI and frequency of consumption per week	6.82	p= 0.146[b]	Students do not differ by their family income in the type of weekly consumption.
FI and day of the week of consumption	4.69	p= 0,32 [b]	Students do not differ by family income and the day they drink
FI and number of times a month	7.25	p = 0.123[b]	Students do not differ by their family income and number of times consuming per month .
FI and time of the year	9.78	p= 0.008**	Students from low family income consume in holidays. High family income students tend to consume at any time of the year.
FI and type of favorite drink	2.77	p= 0.25 [b]	Students drink different types of drink regardless family income
FI and reason to drink	2.95	p = 0.708 [b]	Any reason is valid to consume, regardless family income
FI alcohol-related problems	4.49	p=0.034 *	Students from high family incomes tend to have problems
FI and consumption pattern according to AUDIT	18,3	p= 0.06 [b]	Family income is not a risk factor that discriminates between students examined

p= Probability of type I error; b=Not significant; *=Significant; **= Highly significant

DISCUSSION

Studies related to alcohol use, show that university students have the highest numbers of alcohol consumption (6) (14). However, there is insufficient national and international literature, to investigate the subject in dental students.

Consistent with the results obtained (Table 1), 78% of the surveyed dental students consume alcohol, showing the existence of a high consumption. This could be explained by the effect of relaxation, disinhibition and euphoria that ethanol produce, added to the fact that alcohol is a legal and easily accessible drug (15).

Difference in the prevalence of consumption among both genders has been frequently reported in the literature. Some studies have found no gender differences (7), while others, such as the study made by SENDA (4) or Colombia (16), conclude that there is a higher prevalence of consumption in men. The results observed in this study agree with the investigations above mentioned and show a prevalence of 83% in men versus 74% in women. This vulnerability could be explained by an increased release of dopamine (neurotransmitter associated with feelings of pleasure) that occurs in men and not in women. Note that this neurotransmitter is associated with the processes that lead to addiction (17).

Both genders drink beer, wine and liquor, but the latter represent a higher percentage of consumption with 37.7% of respondents. This finding is relevant because this type of drink has a higher alcohol degree. In other countries, like Colombia, beer was the drink of choice for most consumers (58%) (18). The predilection for beer in the countries of Central America and the Caribbean may be due to its warm weather, characteristic of these entire regions, while the city of Concepción has a cold temperature during most time of the year. In the present study, this drink is second (Table 2) contrasting the studies already mentioned and a research in Hong Kong (19), which states the most consumed drink among students is beer (82%).In Mexico, beer ranks third preceded by cocktails and distilled beverages (20).

Dental students from USS examined in this work, unlike what is stated in the literature, prefer drinks with high alcohol content as liquor, probably by the drunk feeling it produces and, therefore, evasion of problems given by it with another very important factor consisting in facilitating the relationship and integration of individuals into a group, allowing them to build a bond of "belonging" and therefore identity, something that characterizes adolescents in our globalized world (21).

Regarding consumption pattern according to AUDIT, there is a low percentage of abstainers and 15% is a risky consumer. This cannot be ignored, because the number can increase over time. The most alarming however, is that 18% of students classify as harmful consumer or possible alcohol dependence. The number is even higher than the national reality of 7% according to a study made by SENDA (13). In that study, they also determined that 14% of the population studied is over the risk threshold, defined by the Chilean validation of the instrument. The results in the present study shows that 34% of students are above this threshold, situation that requires from simple counseling to specialist referral for diagnostic evaluation and more intensive treatment (12).

Brazil (22), also reported worrying results when they applying AUDIT test in dental students, identifying 9% of abstemious, 51% consumers without risk, 27% risk consumers, 6% harmful consumers and 7% with a possible alcohol dependence. The results obtained in the present study (18% harmful consumer or possible alcohol dependence) overcome the aforementioned and shows the existence of disturbing patterns of consumption among future dentists.

A study made in Colombia in dental students (8), (when analyzing students from urban or rural origin), found that young people from urban areas show a greater likelihood of drinking. The author attributes this finding to the difference of the social world of the young in rural areas. However, in this study, no differences were found between these areas (Table 3). One explanation for this finding could be attributed to the fact that socio-economic and cultural differences between the countryside and the city, in Chile, have fallen by the effects of demographic and agribusiness development. Therefore students from rural areas, may have accepted drinking as an integral part of the normal processes of social relationships among most young people without any stigmatization (21).

The results observed from the AUDIT test allowed finding an association between female gender with a consumption without risk and non-consumer (abstemious), while male gender is associated with a harmful consumption or possible alcohol dependence (Table 4). However, both genders consumed in any season and do not indicate reason for it, unlike other

studies in Latin America (8) (18), which noted that the cause of consumption is associated with social pressure or the search for a relaxing effect against stress or family acceptance.

This study found that higher alcohol consumption occurs in the first three academic years. The third year (6° semester) is the one with the highest consumption. This could be explained by alcohol being used of as a mean for social interaction with peers, associated with more time for social gatherings and fraternization. Also it should be considered that they still don´t have the responsibility to work with patients or the pressure to meet clinical requirements needed to approve subjects.

Regarding the timing of consumption, a study made in Bucaramanga, Colombia (23), identified that most students consume alcohol mainly on weekends which is consistent with our study: men and women prefer Friday or Saturday to drink. Similar results are reported in medical students (7).

Students consumed throughout the year (Table 5), but those with lower family incomes do so only on holidays, probably because it is the period when they have more money. On the other hand, students from higher family income tend to have more alcohol-related problems, such as fights with friends, deteriorating relationships, aggressive behavior, blackouts, alcohol poisoning, among others.

The results indicate that alcohol consumption does not depend on family income and this is consistent with another study with Colombian students (24); However, another research (25), reports that the higher the socioeconomic income, the higher the alcohol consumption. Further studies should be developed to inquire about whether socioeconomic status alone is decisive in alcohol consumption or needs to be associated with another variable.

It is worth mentioning, that the present research has certain limitations such as the sample, because it only covered dental students from first to fifth year from one campus, excluding students from sixth year coursing internship.

CONCLUSION

This study allowed to describe characteristics of alcohol consumption and to identify patterns of consumption among dental students, reporting higher prevalence of consumption in males and high alcohol consumption in both genders at any time of the year. On the other hand, consumption of alcoholic beverages is independent of family income.

Because Dentistry is a career that belongs to the health area, which stands for health promotion and prevention, it is imperative to conduct future studies in Chile to know the reality of other universities, other cities and even, other Latin American countries regarding alcohol consumption and their characteristics in dental students. This will help to timely detect cases requiring intervention, activating support networks such as referral to specialists, and adoption of educational strategies, like the creation of general education courses that enhance self-control and promote awareness of the consequences of the damage caused by alcohol.

Conflict of Interest: The authors declare that there is no conflict of interest regarding the publication of this paper.

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