Perfiles asociados al consumo de alcohol en adolescentes colombianos

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Resumen

El consumo de alcohol en adolescentes tiene una serie de consecuencias negativas desde el punto de vista de salud, comportamiento y riesgo de consumo problemático a edades tempranas. En este estudio, se aplicó un instrumento de 24 preguntas a 9348 estudiantes de ambos sexos en nueve ciudades de Colombia, de los cuales 7625 fueron incluidos en este análisis por haber consumido alcohol. Específicamente, se exploraron temas como la edad de inicio de consumo, el tipo de alcohol y las cantidades ingeridas, así como los sitios y la facilidad de adquisición, la presencia de adultos, el consumo en el colegio y las actitudes frente a las restricciones legales, entre otros. Se hizo un análisis de correspondencias múltiples que determinó inicialmente tres factores que fueron después clasificados en dos grupos y, por último, en cuatro subgrupos en función de cuatro categorías de consumo: experimental, selectivo, regular y alto, que representan dos grandes grupos: bajo y alto consumo. De este análisis surgieron perfiles bastante claros que muestran diferencias importantes, especialmente entre dos grupos: los de bajo consumo, que son los más jóvenes, no toman solos, no han estado en fiestas con alcohol, nunca toman en el colegio ni durante varios días seguidos; y los de alto consumo, que son un poco mayores, cuando toman se emborrachan, tienden a tomar todas las semanas, han tomado en el colegio y antes de entrar por las mañanas, se han metido en problemas por tomar y rechazan las restricciones a los menores de edad o que se sancione a quienes les venden.
Palabras clave: adolescentes, alcohol, prevalencias, perfiles, correspondencias múltiples.

Profiles associated with alcohol consumption in Colombian adolescents

Abstract

Alcohol abuse in adolescents has several negative consequences on health, behavior and risk of becoming involved in problematic consumption at early ages. In this study a 24-item questionnaire was answered by 9,348 school adolescents of both sexes in nine Colombian cities. 7,625 students were included in this analysis due to their consumption of alcohol. The questions inquired about age of first intake, kind and amounts of alcohol consumed on each occasion, places and availability, presence of adults, alcohol use at school and attitudes toward legal restrictions, among others. A multiple correspondence analysis was carried out, generating four factors which were condensed later into two groups, and finally in four sub-groups based on categories of alcohol use: experimental, selective, regular and high, representing two categories: low and high use. The analysis produced identifiable profiles, quite different especially for two categories: the 'low consumption' group, that is younger, never drinks alone, does not attend parties where alcohol is offered to minors, has never drunk at school or during several days. In the 'high consumption' group are those over 16 years of age, who generally get drunk when they drink, have taken alcohol while at school and before arriving to school, have been in trouble because of alcohol and consider as inappropriate the legal restrictions to minors and the sanctions imposed to adults who sell or offer alcohol to minors.
Key words: adolescents, alcohol, prevalences, profiles, multiple correspondences

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En el presente artículo algunos apartados del marco teórico hacen parte de una obra que ha sido objeto de divulgación previa en el informe final de Pérez-Gómez, A., Mejía-Trujillo, J., Reyes-Rodríguez, M. F., & Cardozo-Macías, F. (2015) Consumo de alcohol en menores de 18 años en Colombia: 2015. Bogotá, Colombia: Corporación Nuevos Rumbos. Disponible en: http://nuevosrumbos.org/wpcontent/uploads/2015/12/Consumo-de-Alcohol-en-menores-de-edad-en-Colombia-2015.pdf

Perfis associados ao consumo de álcool em adolescentes colombianos

Resumo

O consumo de álcool em adolescentes tem uma série de consequências negativas desde o ponto de vista da saúde, do comportamento e do risco de consumo problemático em idades precoces. Neste estudo, aplicou-se um instrumento de 24 perguntas e 9348 estudantes de ambos os sexos em nove cidades da Colômbia, dos quais 7625 foram incluídos nesta análise por terem consumido álcool. Especificamente, foram explorados temas como a idade inicial de consumo, o tipo de álcool e as quantidades ingeridas, assim como os lugares e a facilidade de aquisição, a presença de adultos, o consumo no colégio e as atitudes frente às restrições legais, entre outros. Foi realizada uma análise de correspondências múltiplas que determinou inicialmente três fatores que depois foram desclassificados em dois grupos e, por último, em quatro subgrupos em função de quatro categorias de consumo: experimental, seletivo, regular e alto, que representam dois grandes grupos: baixo e alto consumo. A partir dessa análise, surgiram perfis bastante claros que mostram diferenças importantes, especialmente entre dois grupos: os de baixo consumo, que são os mais jovens, não bebem sozinhos, não estiveram em festas com bebidas alcoólicas, nunca bebem no colégio nem durante vários dias consecutivos; e os de alto consumo, que são um pouco mais velhos, embriagam-se quando bebem, tendem a beber semanalmente, já beberam no colégio e antes de ir para a aula de manhã, já se meteram em problemas por beber e se opõem às restrições aos menores de idade ou às sanções àqueles que vendem para menores.
Palavras-chave: adolescentes, álcool, correspondências múltiplas, perfis, prevalências.

INTRODUCTION

Different studies (Ministerio de Justicia y el Derecho et al., 2011, Ministerio de Justicia y el Derecho, Ministerio de Salud y Protección Social & Observatorio Colombiano de Drogas, 2014; Pérez-Gómez & Scoppetta, 2009) show that the consumption of alcohol in adolescents is a real problem in the Colombian culture. The first study on alcohol consumption in children enrolled in seven departmental capitals and two small municipalities was carried out in 2008 (Pérez-Gómez & Scoppetta, 2009). The results showed very high rates of alcohol consumption as well as the presence of a large number of risk behaviors associated with drinking, such as drinking liquor at school, or before arriving at it, drinking several days in a row, having problems with the police, at home or with acquaintances for that reason. That first study also revealed an indifferent or openly irresponsible behavior of adults, who provided alcohol, sold it or tolerated its use.

The Second Study of Alcohol Consumption in Minors, completed in December 2015 (Pérez-Gómez, Mejía-Trujillo, Reyes-Rodríguez & Cardozo-Macías, 2015), sought to examine whether changes had occurred in those seven years, and what type they were. The comparison was possible and relevant because an identical methodology was used in the two studies, and data were collected in the same cities.

Adolescent alcohol consumption

The continuous pressures of the environment, together with the "psychological" crises of age, make the adolescent vulnerable and exposed to alcohol consumption. The reasons associated with the consumption are very different, but for several years, enjoyment has been given a particular importance. Fry (2011), for example, affirms that young people consume alcohol as a way to obtain pleasure, in a world in which hedonism is considered as the supreme goal and where advertising sells liquor consumption associated with welfare states, happiness and joy. In Colombia, as in many other countries in the Western world, the enjoyment of leisure and social relationships is strongly associated with the use of alcohol, which is consumed during the weekends in recreational and leisure contexts. In European countries, young people consume an average of three drinks on Thursday night, four on Friday and five or six on Saturday night (Kuntsche & Labhart, 2012). In Colombia, young people usually drink on Fridays and Saturdays, and 31% take more than two drinks, 24% take four drinks at most, and 9% get drunk (Pérez-Gómez & Scoppetta, 2009).

The reasons for starting consumption as a minor are varied; in addition to the availability of the substance, there is the generalization and normalization as a characteristic of our culture, favorable attitudes towards consumption, a low perception of risk, inadequate normative influences and social representations or positive beliefs regarding the consumption of alcohol (Becoña, 1999; Fagan, Hanson, Briney, & Hawkins, 2012; Martínez, 2006).

It is important to bear in mind that, as has been demonstrated in many countries, those who begin to consume alcohol before the age of 14 are up to 10 times more likely to have problems with alcohol in adulthood or to consume other substances, than those who begin to drink after 18 years of age (Pérez-Gómez, Scoppetta, & Flórez-Alarcón, 2011).

Alcohol Consumption in Adolescents

In all the countries of the American continent the legal age of alcohol consumption is 18 years, with the exception of the United States, where (in most states) it is 21 years. Today, there is scientific evidence that alcohol consumption in adolescence can have serious consequences on different systems, but especially on the nervous system, as will be shown below.

One of the most serious consequences of alcohol consumption is the possible damage of several brain areas and functions, which makes intellectual performance inappropriate (Jacobus & Tapert, 2013). Numerous studies (Fein et al., 2013, Jacobus & Tapert, 2013, Pascual, Pla, Miñarro, & Guerri, 2014, Ward, Lallemand & De Witte, 2014) have shown that these functions are affected to some degree: learning through reinforcement; the motor control of the body; the development of the cerebral cortex responsible for the processing and storage of information, which intervenes in decision making, planning, reasoning, problem solving and impulse control; long term memory; the effectiveness in the connections with the parietal and temporal lobes, the limbic regions, among others; and communication between both cerebral hemispheres. All of this is a consequence of the decrease in the thalamus, putamen and density of the gray matter (Fein et al., 2013; Jacobus & Tapert, 2013); of the prefrontal cortex, the hippocampus and the diffusion capacity of the corpus callosum (De Bellis et al., 2005). The intermittent abuse of ethanol can produce inflammatory phenomena in the hippocampus and in the prefrontal cortex, especially in the stage of active neurogenesis in adolescence, and this can result in cognitive deficits (Pascual, Pla, Miñarro & Guerri, 2014; Ward, Lallemand & De Witte, 2014). Since the brain only reaches its maximum development until 21 years of age, drinking alcohol before that age affects the maturational progress of the brain. The studies conducted at Duke University (White & Swartzwelder, 2006) and the University of San Diego (Brown & Tapert, 2008) clearly show that in young adults who as adolescents were frequent consumers of alcohol there is poor performance in verbal and non-verbal memory tests, difficulties in focusing attention and in the handling of spatial abstractions, such as reading maps.

In addition to the brain, other organs and systems are highly affected by chronic alcohol intake; there are at least 25 diseases directly attributable to excessive alcohol consumption, and many more have an indirect relationship or aggravate the condition (Shield, Parry & Rehm, 2014). In the autoimmune system, alcohol apparently predisposes or increases the severity and appearance of a large number of infections due to the difficulty of white cells to fight bacteria (Barr, Helms, Grant & Messaoudi, 2015, Szabo & Mandrekar, 2009); the probability of diabetes increases considerably in young adults who, as adolescents, consumed large amounts of alcohol (Liang & Chikritzhs, 2014).

The cardiovascular and digestive systems are also highly involved in this process, because the chronic intake of alcohol, in addition to raising blood pressure, leads to alterations in the heart rate and problems of dilation and loss of the heart's contraction force (Vicente -Herrero et al., 2015).

For more than two centuries it has been known that the liver, responsible for the metabolic processing of alcohol, can suffer from serious ailments associated with the abuse of this substance. The inability to absorb nutrients in the small intestine can cause health problems in the bones and in the endocrine system (Parés & Caballería, 2006).

The repercussions of alcohol consumption can also be seen in terms of mental health; for example, it has been observed that adolescents who drink are four times more likely to suffer symptoms of depression than those who do not drink (Briones & Woods, 2013; Pilatti et al., 2014). In turn, depressive symptoms can exacerbate or trigger other problematic behaviors, such as oppositional and challenging behaviors, aggressiveness, learning difficulties and the consumption of other psychoactive substances. Alcohol consumption makes learning much slower compared to other young people of the same age, since attentional, memory and thinking processes are affected (Briones & Woods, 2013, Ward et al., 2014).

The relationship between alcohol and violent behavior has been recognized in the literature on the subject (Pérez-Trujillo, Reyes, Cabrera & Pérez-Gómez, 2016, Schofield & Denson, 2013). Thus, the behaviors that have been registered under this relationship refer to quarrels (Pridemore & Grubesic, 2012), crimes of harassment, violent crime and criminal damage (Bromley & Nelson, 2002). Although this relationship between crimes and alcohol consumption is valid mainly for the general population, it is also observed in adolescents and young people (Parker et al., 2011). And it is precisely the adolescents who are most likely to participate or be victims of violent crimes, such as sexual abuse, aggravated assault and robberies in state of drunkeness.

Often, adolescents who drink large amounts of alcohol compared with those who do not drink exhibit more risky behaviors for themselves and others (Hingson, Heeren & Winter, 2006, Miller, Naimi, Brewer & Jones, 2007). In a study by the World Health Organization (2011), alcohol is a factor in about 10% of deaths among young people. This figure is confirmed by observing the three most common causes of adolescent mortality, which are associated with alcohol consumption: accidents, homicide and suicide (Balogun, Koyanagi, Stickley, Gilmour & Shibuya, 2014). It has been shown that adolescents with abusive alcohol use

are more exposed to unprotected sex, which leads to teenage pregnancy and sexually transmitted infections (Stickley, Koyanagi, Koposov, Razvodovsky & Ruchkin, 2013).

Alcohol Consumption in Colombian Minors

The last national study of psychoactive substance use in school students (Ministerio de Justicia y el Derecho, 2011), indicates that 63% of students in grades 6 to 11 of public and private schools in Colombia have consumed alcohol at least once in their life, that is, two out of every three school students in the study have tried it at some time; 57% did it in the last year and 40% did it in the last month. The latter prevalence increases with age and with school grade: students in the last school grades consume more compared to those in lower grades. No differences were observed with respect to sex, but with respect to the regions: Caldas, Bogotá, Risaralda, Antioquia and Boyacá occupied the first places, while the cities of the Atlantic Coast occupied the last places in alcohol consumption by teenagers.

With respect to lifetime, year and month prevalence, the results of the 2015 study (Pérez-Gómez et al., 2015) are very similar to the official data: 70%, 56% and 39% respectively. In addition, a last week prevalence of 19% was found; the age of onset of consumption was around 12 years and the substance most frequently associated with the start was beer; 31% have been intoxicated, and while 41% take two drinks at most, and 20% a maximum of four, 38% say that when they drink, they have five or more drinks; 65% consider it easy or very easy to get alcohol, usually in neighborhood stores; 46% drink in the presence of parents and 62% have been at parties where alcohol is served to minors; 30% think that "party without alcohol is not a party", 11% have drunk for several days in a row, 7% have taken it before arriving at school and 11% have done it in school. Although in general these figures are lower than those observed in the 2008 study, they are still very high and place Colombia as the country with the highest alcohol consumption in Latin America.

The aim of this study is to identify profiles that characterize young consumers of alcohol through a multiple correspondence analysis (MCA), in order to help define the focus of preventive programs.

METHOD

Type of research

A descriptive cross-sectional study using a multiple correspondence analysis (MCA) for data management was employed. The multivariate exploratory methods, as is the case of multiple correspondences, allow representing the relationships between large sets of variables and large groups of individuals, simultaneously. They are called exploratory because they do not use formal expressions that establish relations between variables, such as "dependence" or "independence". In fact, this type of analysis does not seek to model the relationships between the variables, nor to establish a probability value for the appearance or change in the condition of a dependent variable.

What is sought with these methods is to use as many variables as possible simultaneously. They are also called factor analysis methods and they include the analysis of principal components, the analysis of simple correspondences and the analysis of multiple correspondences. All of them have, as a common feature, the rapid extraction of information from a set of data that would otherwise be very costly.

What is proposed here is the complementary use of multivariate exploratory methods, with the purpose of illustrating their power as instruments to establish subgroups (segments) within the groups studied, and to show distributions of variables that can be useful as keys to obtain the best knowledge of the problems related to alcohol consumption and the prevention therof.

Participants

In this research the data of 7,625 students who reported having consumed alcohol at least once in their lives were analyzed, out of the 9,348 students in the total sample of the second study on Alcohol Consumption in Children under 18 in Colombia: seven capitals and two small municipalities (Pérez-Gómez et al., 2015).

For the total sample the participants were between 10 and 17 years of age (M = 14 years); the size of the sample was similar in all the municipalities and ranged between 942 and 1166 participants, distributed as follows: Barranquilla (11%), Bogotá D.C. (12%), Bucaramanga (11%), Cali (11%), Florencia (10%), Medellín (12%) and Tunja (10%) and two urban areas of the municipalities of Puerto Boyacá (10%) and Sabanalarga (11%). In the total sample, 53% of the respondents were women and 47% were men, 72% belonged to public institutions and 28% to private institutions. The main characteristics of the sample design were: (a) probabilistic: all students had a non-zero probability of being selected in the sample; (b) multistage: first, the educational institutions (UPM, p) were selected; in a second stage, grades (UPM, s) and in a third stage, students (USM, t); (c) conglomerates: institutions and courses meet the characteristics of a conglomerate and with the characteristics of identifiable and quantifiable in

the field. For more information on the design of the sample see Pérez-Gómez et al. (2015).

Instrument

A questionnaire adapted from the one applied in the first study conducted in 2008 by Pérez and Scoppetta (2009) was applied. This instrument was updated for 2015: changes were made to four questions and, to simplify the questionnaire, some response options that were considered redundant or with a low response rate in the first study were grouped. The four questions that were reformulated are described in table 1.

The questionnaire has 24 questions that collect information on sociodemographic data (age, sex, grade, type of school), patterns of alcohol consumption and age of onset, family patterns that facilitate or hinder alcohol consumption, availability and access to alcoholic beverages, consumption reasons, risk behaviors associated with the use of alcohol and beliefs and attitudes towards the consumption of alcohol in minors. The questionnaire includes response options mostly of nominal scale, for example: "Indicate what type of liquor you drank the first time you drank alcoholic beverages: wine, beer, rum / liqueurs, imported liquors, cocktails, Chirrinchi, Chicha, Other", "I've never drank alcoholic beverages". Likert-type response options were also used, for example," You like drinking: Much, Little, Nothing "; and only two questions on a quantitative scale: the age of onset of alcohol consumption and the number of units of beer ingested the last time he/she drank this beverage, which were then categorized so that they could be included in the MCA. All questions were treated on a qualitative scale. For more information on the questionnaire see Pérez-Gómez et al. (2015).

Procedure

The study began by contacting educational institutions and obtaining passive informed consent. After the educational institutions informed the parents, the students were invited to participate and gave their assent. All students were informed that participation would be voluntary and that confidentiality would be maintained at all times. After selecting the participants, the questionnaires were applied in the classrooms. The students completed the questionnaires anonymously.

Ethical considerations

All the ethical principles for investigation with minors established by Colombian law were taken into account. Voluntariness and confidentiality were guaranteed. Passive consent and assent was obtained from all participants.

RESULTS

The study revealed that 70% of the total sample had consumed alcohol at least once in their lifetime (72% men, 67% women), 55.7% in the last year (56.7% men, 54.8%); % women), 38.8% in the last month (39.5% men, 38.3% women) and 18.9% in the last week (19.5% men, 18.3% women). Significant differences were observed between men and women for the lifetime prevalence ($\chi^2_{(1)} = 25.82$, $p < 0.001$) and last year's ($\chi^2_{(1)} = 4.50$, $p = 0.034$), but not for last month and last week.

As shown in Table 2, the prevalences of consumption are very similar in all cities except Sabanalarga, where the prevalences are lower. Men tend to consume more alcoholic beverages than women, and in some cities such as Barranquilla and Cali the differences are more evident.

Table 1.
Modified questions of the 2008 questionnaire to the 2015 questionnaire

Questions	Study	
	2008	2015
1	Have you drunk alcoholic beverages (beer, wine, rum, aguardiente, brandy, whiskey or others)?	When was the last time you drank alcoholic beverages (beer, wine, rum, aguardiente, brandy, whiskey or others)?
3	If you do not drink alcoholic beverages, indicate the three main reasons:	If you do not drink alcoholic beverages, indicate the main reason:
16	What are the places where you can get alcoholic beverages? (mark the three most frequent):	What is the place where you can get alcoholic beverages more frequently?
25	The main reasons why you consume alcoholic beverages are: (mark the three most important)	The main reason why you consume alcoholic beverages is: (mark only the most important reason)

Note: Adapted from Pérez-Gómez et al. (2015) p. 198-200.

Table 2
Prevalences of consumption by municipalities and sex

Municipality	Prevalences	Men	Women	Total
Barranquilla	Lifetime	74.1	58.4	68.0
	Last year	60.6	43.3	50.4
	Last Month	36.7	26.9	30.9
Bogotá	Lifetime	70.2	69.0	69.6
	Last year	51.5	56.7	54.1
	Last Month	34.6	37.7	36.1
Bucaramanga	Lifetime	71.7	74.7	73.2
	Last year	59.3	62.9	61.2
	Last Month	42.6	44.2	43.4
Cali	Lifetime	80.3	73.6	76.7
	Last year	66.7	62.6	64.6
	Last Month	46.1	43.8	44.9
Florencia	Lifetime	66.3	68.1	68.0
	Last year	47.4	54.1	51.4
	Last Month	34.0	37.0	35.4
Medellín	Lifetime	77.9	75.4	76.7
	Last year	63.8	63.8	63.8
	Last Month	49.5	52.1	50.7
Tunja	Lifetime	76.8	71.6	74.4
	Last year	62.2	61.3	61.8
	Last Month	45.8	44.1	45.1
Puerto Boyacá	Lifetime	73.7	71.3	72.4
	Last year	57.1	53.7	55.3
	Last Month	38.6	39.6	38.9
Sabanalarga	Lifetime	57.6	43.9	50.4
	Last year	41.4	34.4	37.7
	Last Month	25.8	21.2	23.4

Note: The prevalences of last month and last week in the territorial entities should be read with caution since they are subject to events that affect the probability of recent consumption and high sampling errors. Table adapted from Pérez-Gómez et al. (2015) pp. 31-32.

Results of Multiple Correspondence Analyses (MCA)

As mentioned in the method, the MCA was conducted on a sample of 7,625 students who reported having consumed alcohol at least once in the lifetime of the 9,348 who answered all the questions in the survey. The analysis was weighted by the expansion factors of each of the cities.

Initially, age, grade, city, sex and type of school were selected as illustrative variables. As active variables, the questions related to alcohol consumption were chosen, such as: (a) the beginning of alcohol consumption, the last time alcohol was consumed, age of first consumption and initial drink; (b) current consumption: frequency alcohol use, liking for alcohol, kind of drink you are currently drinking, amount of alcohol you consume, where and with whom you drink and reasons for your consumption; (c) risk and protective factors: number of friends who drink alcoholic beverages, offering of alcoholic beverages to minors at parties, consumption of beverages in parties at home, consumption in the presence of parents, ease to get drinks, refusal to selling alcoholic beverages, preferred activities instead of drinking, consumption regulation to a friend; and, (d) problematic behaviors: purchase of alcoholic beverages, consumption before going to school, consumption at school, consequences and perceptions regarding alcohol consumption. The selected illustrative and active variables correspond to the same ones previously used by Pérez and Scoppetta (2008), and all of them were analyzed on a qualitative scale. All the above variables are introduced to an MCA and the Benzecri

criterion was applied to determine the number of axes to be retained, (three in this case), and the highest percentage of inertia is retained, thus eliminating spurious relations.

The MCA identified three factors (see Figure 1); the first and main factor separates students by levels of consumption, from students who tried alcohol sometime in the past but do not currently consume, to the students of higher consumption who said that they like alcohol very much and have been drunk. The second factor was related to the start of consumption, consumption behavior and risk behavior. This factor separates the students who said they had had "hang over", who started consuming more than a year ago, and started consuming alcohol with rum or brandy, from the students who have a regulated consumption. The third factor separates the cases by two types of consumption: a consumption at home, drinking wine, without being at parties where alcohol is served, from those participants who said they like a lot to drink, had a beginning of alcohol consumption at an early age, have consumer friends, start with rum, brandy or aguardiente and perceive that getting alcohol is more or less easy.

After establishing the factors, an analysis was carried out using the Ward method as a way to gather the individuals into homogeneous groups. The dendrogram suggested that there are two groups of alcohol consumers: a low consumption group that corresponds to 52% of the included data and another group of frequent consumption that corresponds to 48% of the sample (see Figure 2). Subgroups were identified in each of them.

Figure 2 shows that for *the low consumption group*, 80% have not been intoxicated, 58% take no more than two drinks, 45% have been at parties without liquor, 37% currently do not consume alcohol, 80% do not agree with the statement 'party without alcohol is not a party'. For the *group of frequent consumption* it was found that they are young people who consume high amounts of alcohol, have experienced risk behaviors, close to 70% consume five drinks or more, 65% have been drunk, 45% consume at parties in their houses, 93% have been at parties where alcoholic beverages are served to minors and more than half (61%) agree with the statement 'party without alcohol is not a party'.

In order to identify the subgroups, a segmentation alternative was explored which showed four groups: (a) Selective use (29%, 2,039 young people), (b) Regular use (43%, 3,400 young people), (c) High use (21%, 1,591 young people); and, (d) Experimental use (7%, 595 young people), which were ordered by frequency and consumption habits (see Figure 3).

The findings of this second segmentation identify four groups, which allow establishing four categories that describe the profiles of alcohol consumption of the minors surveyed. These categories are described below.

Experimental use. It refers to people who do not currently consume, but have consumed alcohol at least once in their

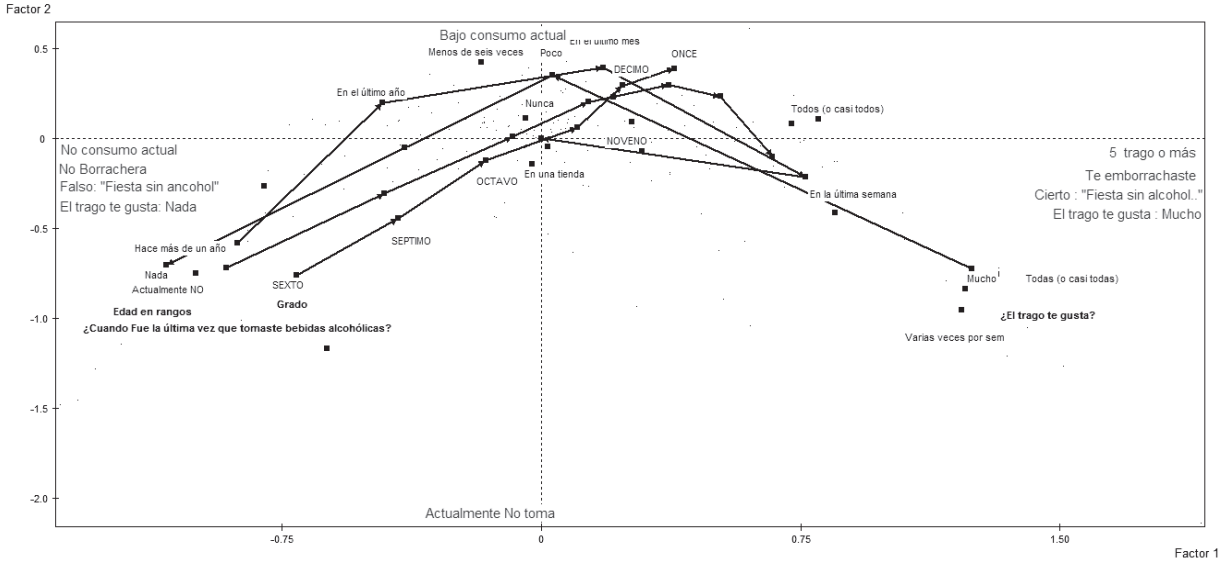

Figure 1. Main factor of alcohol consumption by school grade. Figure taken from Pérez-Gómez et al. (2015) p. 53.

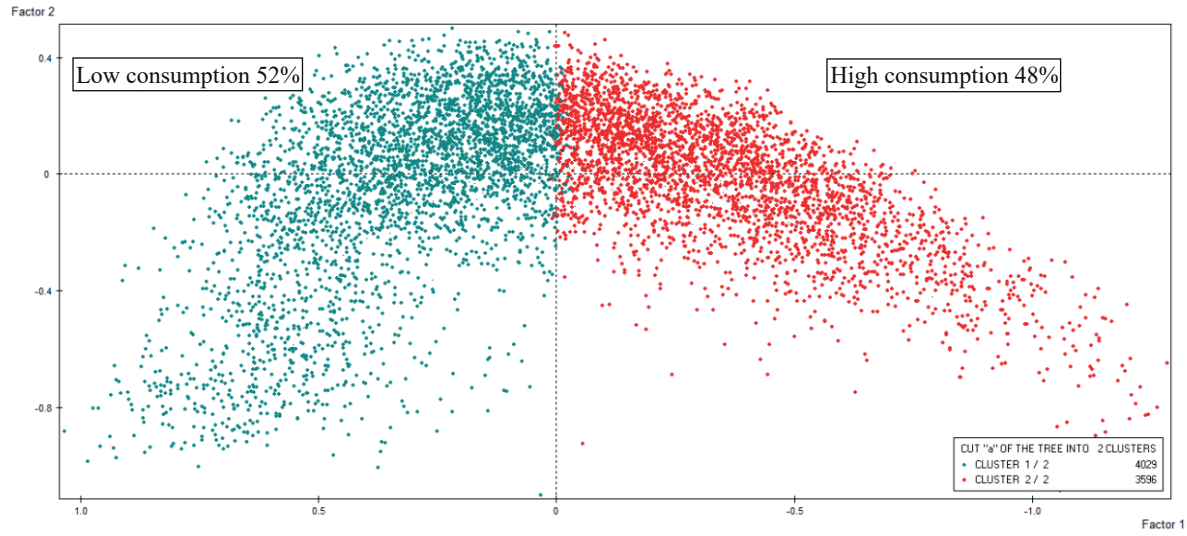

Figure 2. Distribution of the groups in the factorial map. Figure taken from Pérez-Gómez et al. (2015) p. 54.

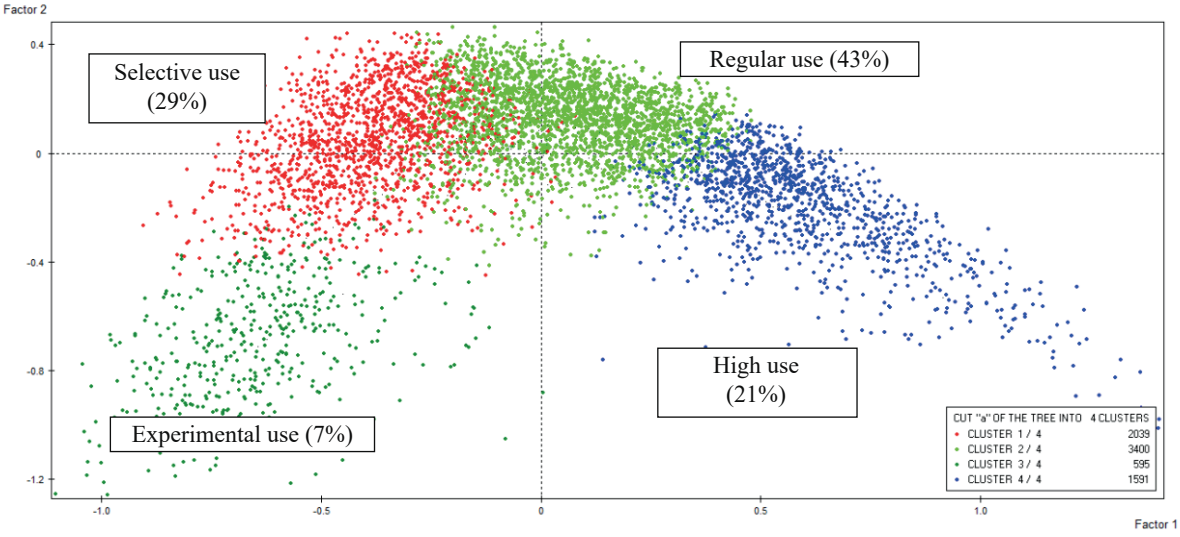

Figure 3. Proposal of segmentation of use. Figure taken from Pérez-Gómez et al. (2015) p. 54.

life. In this group 57% were women and 43% men. As shown in Figure 4, no pattern was found by grade level; those of sixth and ninth grades displayed the highest participation in that group, followed by eighth and eleven grades.

Selective use. People who use alcohol occasionally. Their consumption is limited to special celebrations. 44% were women and 56% men; this group is composed mostly of sixth, seventh and eighth grade students (see Figure 4).

Regular use. Frequent consumption, about once a month, and tend to get drunk. 49% were women and 51% men. Regarding the distribution by grade, most are in ninth, tenth and eleventh grades.

High use. People who drink weekly or several times a month, and do it in large amounts. They show a taste for alcohol and get drunk frequently. In this group, 52% were women and 48% were men. The majority of youth in this group are in ninth, tenth and eleventh grades.

The distribution of the four identified groups, according to the questions of the questionnaire related to consumption behaviors and access to alcoholic beverages, is as follows:

Regarding consumption behavior according to consumer group, it was found that 54% of the people in the regular consumption group and 92% of high consumption reported having been drunk, while in the low consumption groups

the majority has not done it. It is noteworthy that 24% of the young people in the high consumption group got drunk for the first time at age 11 or younger (see Figure 4).

Regarding access to alcoholic beverages, it was found that 97% of young people in the high use group and 84% of the regular use, have been at parties where alcohol is served to minors; while this phenomenon occurred in 55% of the experimental use group and 42% of selective use. Consistent with this finding, it was found that a significant proportion of active consumers have drunk alcohol at parties held in homes, compared to those who do not currently consume alcohol (see Figure 5).

On the other hand, it was found that the majority of active consumers have drunk alcohol in the presence of parents: 87% of people in the high use group, 75% in regular use and 65% in the selective use group; while those who do not drink alcoholic beverages currently have done so in a smaller proportion (14%).

Finally, in about half of the youth of all groups, an adult has asked him/her to buy alcohol. Although this happens frequently in all groups, it is more common in the high use group (84%) and in the regular use group (67%).

DISCUSSION

The comparison of the studies carried out by the Nuevos Rumbos Corporation in 2008 and 2015 in seven capital cities and two small municipalities (Pérez-Gómez & Scoppetta, 2009, Pérez-Gómez et al., 2015) showed that, even though there was a tendency to the decline, consumption in minors is still the highest in Latin America (CICAD / OAS, 2015),

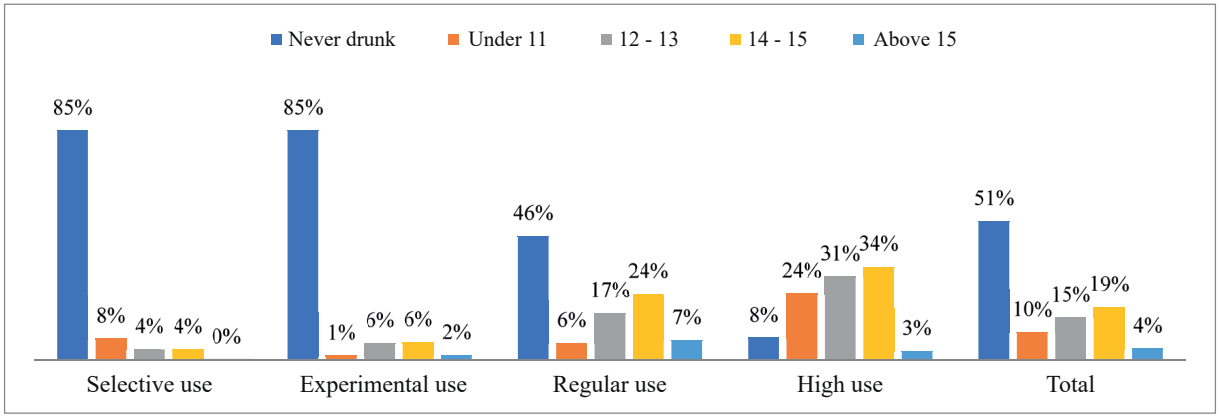

Figure 4. Age at first drunkenness. Figure taken from Pérez-Gómez et al. (2015) p. 56.

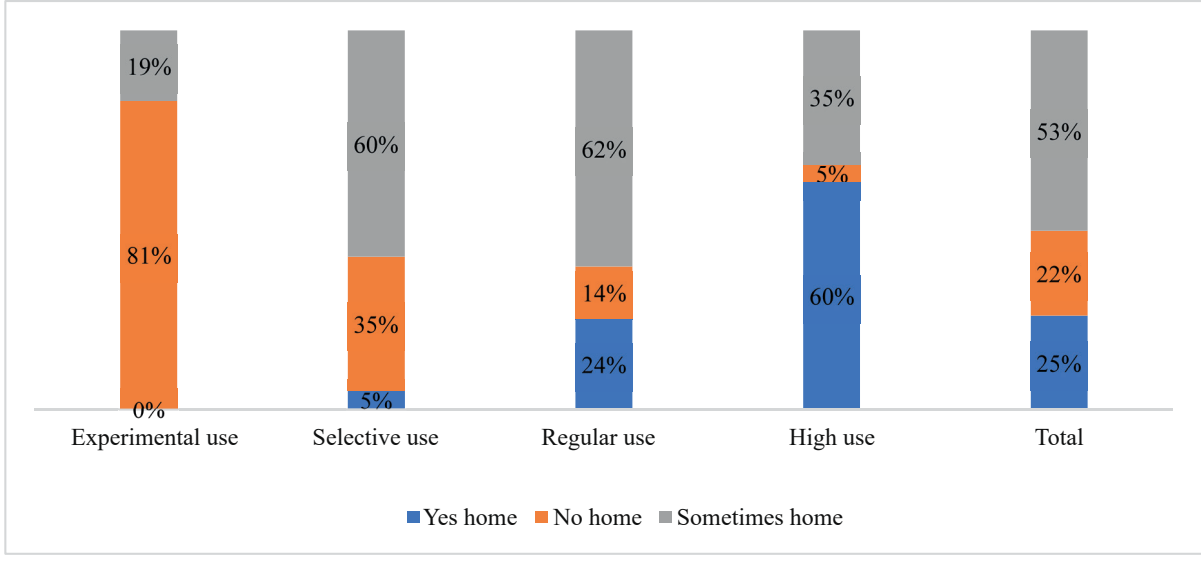

Figure 5. Have you taken alcoholic beverages at home parties? Figure taken from Pérez-Gómez et al. (2015) p. 57.

and therefore should be a subject of attention by the authorities responsible for public health programs, prevention and protection of minors. Indeed, as shown by Pérez-Gómez et al. (2011), those who begin to consume alcohol early are up to 10 times more likely to have problems associated with alcohol consumption in adulthood, and are four times more likely to have problems with other substances, than those who began after age 18. The studies cited also showed that there is an important group (about 10%) of adolescents who consume very high amounts of alcohol per occasion, and also with a very high frequency.

The analysis of multiple correspondences seems to be an excellent tool to build patterns when working with large groups of variables and large samples. Three factors were analyzed: the first separates the students by levels of consumption; the second one analyzes the age of onset, consumption and risk behaviors; and the third, separates the cases by types of consumption: one of low risk and another of high risk. On this basis, two groups were built, each with two subgroups: high use, divided into regular use and high use; and low use, divided into experimental use and selective use. The two intermediate categories present the same features but in varying proportions.

The categories mentioned allow us to propose very different profiles: (1) Those of low consumption, who have few friends who drink, they do not do it at home or in the presence of their parents, do not get drunk, tend to take only two drinks and almost never have any problems because of drinking. (2) Those of high consumption, who have the opposite characteristics: most of their friends drink, they think that "party without alcohol is not a party", get drunk frequently, drink at home and in front of their parents –usually five or more drinks–, have had problems associated with drinking such as fights, accidents, fights with their partners and conflict with their parents, and reject the punishment to adults who provide alcohol to minors. This is consistent with what was found by Fry (2011), Hingson et al. (2006) and by Pridemore and Grubesic (2012). In direct relation with these affirmations, Becoña (1999), Fagan et al. (2012) and Martínez (2006) showed that adolescents in the high consumption group have favorable attitudes towards alcohol, low risk perception and positive beliefs about their consumption, which also coincides with the findings of the present study.

Different investigations (Fein et al., 2013; Pascual et al., 2014) have shown that adolescents with high levels of consumption are more likely to have significant physical problems at the level of the central nervous system, which in turn may have psychosocial expressions such as aggressiveness, learning difficulties and oppositional behaviors. Such behaviors, also identified in this study, find support in the works of Briones and Woods (2013) and Pilatti et al. (2014) on early alcohol consumption.

One of the main values of this study is to have used, with eight years of interval, the same instrument and the same sampling system (probabilistic, multistage and by conglomerates) in populations of identical characteristics and with very similar size, which gives a greater value to the conclusions. The adapted instrument (which had few but important changes on the basis of what was observed in 2008) worked much better than the previous one.

Some behavioral aspects resulting from adolescent alcohol abuse were not explored in this study, such as sexual harassment and risky sexual behavior (Hingson et al, 2006, Miller et al., 2007, Parker et al, 2011, Stickley et al., 2013). It would be convenient to incorporate such behaviors in the instrument that is used in the future.

It would be important to expand the number of cities in which these studies are carried out, because even when the samples are representative of the cities and municipalities in which the data were collected, they are not representative at the national level. These analyzes contribute to identify risk and protective factors, and in this way they can be very useful in the design of public policies and national preventive strategies.

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