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## EFFECT OF SOCIODEMOGRAPHIC VARIABLES AND VULNERABILITY IN ALCOHOL USE IN UNIVERSITY WOMEN

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### ABSTRACT

**Objective:** to determine the effect of sociodemographic and vulnerability variables on the alcohol use of university women.

**Method:** it is an exploratory study composed for 301 college women. Sociodemographic and vulnerability data were obtained through electronic questionnaire (CAGE, AUDIT-C, sociodemographic and vulnerability to alcohol questionnaire). The data analyze, were used the chi-square test and logistic regression.

**Result:** this results showed that 80.4% of women showed moderate use and 19.6% showed harmful use of alcohol. The variables that showed effect in use pattern were: age of first use, socioeconomic level, kind of drink, and social network.

**Conclusions:** we can conclude that the vulnerability factors, destiled alcohol drinks, social networks that promote beverage consumer, and onset the use between 14 and 16 years are characteristics that can promote the nocive consumption.

**DESCRIPTORS:** Women. Alcohol drinking. Vulnerability. Young adult. Student.

## EFEITO DAS VARIÁVEIS SOCIODEMOGRÁFICAS E DE VULNERABILIDADE NO PADRÃO DE USO DE ÁLCOOL EM MULHERES UNIVERSITÁRIAS

### RESUMO

**Objetivo:** determinar o efeito das variáveis sociodemográficas e de vulnerabilidade no uso de bebidas alcoólicas em mulheres universitárias.

**Método:** estudo transversal, composto por uma amostra de 301 mulheres universitárias. Os dados sociodemográficos e de vulnerabilidade ao consumo foram obtidos pelos formulários eletrônicos CAGE, AUDIT-C, questionário sociodemográfico e de vulnerabilidade ao uso de álcool. Para análise dos dados foram usados o teste qui-quadrado e a regressão logística.

**Resultados:** 80,4% das mulheres apresentaram uso moderado e 19,6 %, uso nocivo de álcool. As variáveis que mostraram ter efeito sobre o padrão de uso foram: idade de início do consumo, nível socioeconômico, tipo de bebida e redes sociais.

**Conclusão:** os fatores de vulnerabilidade, preferência por bebidas alcoólicas destiladas, ter redes sociais que promovem o consumo, ter iniciado o uso entre 14 e 16 anos de idade são características que podem favorecer o consumo nocivo de álcool.

**DESCRIPTORIOS:** Mulheres. Consumo de bebidas alcoólicas. Vulnerabilidade. Adulto jovem. Estudante.

# EFFECTO DE LAS VARIABLES SOCIODEMOGRÁFICAS Y DE VULNERABILIDAD EN EL PATRÓN DE USO DE ALCOHOL EN MUJERES UNIVERSITARIAS

## RESUMEN

**Objetivo:** determinar el efecto de las variables sociodemográficas y de vulnerabilidad en el uso de bebidas alcohólicas en mujeres universitarias.

**Métodos:** investigación transversal, compuesto por una muestra de 301 mujeres universitarias. Los datos sociodemográficos y de vulnerabilidad al consumo fueron obtenidos por los formularios electrónicos (CAGE, AUDIT-C), cuestionario sociodemográfico y de vulnerabilidad al uso del alcohol. Para análisis de los datos fueron usados el teste chi cuadrado y la regresión logística.

**Resultados:** 80,4% de las mujeres presentaron el uso moderado y 19,6%, uso nocivo de alcohol. Las variables que mostraron tener efecto sobre el patrón de uso fueron: edad de inicio del consumo, nivel socioeconómico, tipo de bebida y redes sociales.

**Conclusión:** los factores de vulnerabilidad, preferencia por bebidas alcohólicas destiladas, tener redes sociales que promuevan el consumo, haber iniciado el uso entre 14 y 16 años de edad son características que pueden favorecer el consumo nocivo de alcohol.

**DESCRIPTORES:** Mujeres. Consumo de bebidas alcohólicas. Vulnerabilidad. Adulto joven. Estudiante.

## INTRODUCTION

Excessive consumption of alcohol is a recurrent pattern among college students,<sup>1,2</sup> which may lead to many losses, including: decreased academic performance; impaired development of cognitive-behavioral and emotional skills; damage to public property; and risk exposure. Additionally, alcohol consumption may lead to the development of chronic diseases<sup>3</sup> and associated psychiatric comorbidities. The Colombian Drug Observatory<sup>4</sup> reports that 40% of individuals aged between 11 and 18 years old consumed alcohol in the last month. The prevalence is similar between men (40.1%) and women (39.5%).

Studies show<sup>5-6</sup> that entering college coupled with transformations inherent to the period of adolescence, often make it a critical phase with greater vulnerability to beginning and maintaining the consumption of alcohol and other drugs. Motivated by this evidence, a study<sup>7</sup> is being conducted to address the attitudes and behaviors linked to alcohol consumption and drug use in universities, in order to collect information on the behavior of this group of individuals. Findings indicate that risk behaviors tend to be manifested by youths with specific characteristics, such as behaviors and lifestyles that negatively affect health, which may be related to a low level of education predominantly among the parents of female individuals.<sup>7</sup>

In regard to sex, the consumption of alcohol has increased among women.<sup>8-9</sup> Pre-established social dynamics have changed with women's increased social participation and insertion into the job market,<sup>10</sup> which lead to increased levels of stress and a search for momentary relief. Additionally, there are biological issues related to the metabolization of alcohol and other psychoactive substances, which is slower in women, making them more susceptible to

damage associated with the consumption of alcohol, even if consumption is low.<sup>11</sup>

In regard to consumption patterns, studies<sup>12</sup> indicate there is a relationship among some socio-cultural factors, suggesting that, compared to men, young women have easier access to free alcohol, which favors bingeing, that is, drinking more than four portions on the same occasion, which increases the risks posed to the health of this population.<sup>13</sup>

Fachini and Furtado<sup>14</sup> note that there are few studies that address alcohol consumption among undergraduates using screening instruments validated by the World Health Organization (WHO), especially studies discriminating between the consumption of men and women. It makes an interesting topic to be researched, as a deeper exploration of these differences may support the development of policies and intervention strategies based on specific needs.<sup>14</sup> Therefore, this study's aim was to verify the effect of sociodemographic and vulnerability variables on the alcohol consumption of female undergraduates.

## METHOD

This cross-sectional secondary study with a quantitative approach was approved by the Institutional Review Board at the College of Nursing, National University of Bogotá (UGI-133-2010). The primary study's sample was composed of college students who were contacted by email and invited to participate through a text explaining the study; they received a link to access the forms if they consented to take part in the survey. A total of 9,315 e-mails were sent in 2011; 1,211 (13%) of these received replies. Of these, 1,010 individuals completely filled out the questionnaires. For this study, we selected female participants who obtained a score equal to or

higher than 2 on the CAGE test and a score higher than 3 on the AUDIT-C test (hazardous drinking); or a score lower than 2 on the CAGE test and a score lower than 3 on the AUDIT-C (moderate drinking), which resulted in 301 women.

Data were collected through a form that addresses sociodemographic and vulnerability data.<sup>15</sup> This form is composed of factors that take into account the context in which alcohol is consumed (age of first alcohol consumption; access to alcohol at home and at the university; type of drink; and place where consumption takes place) and personal factors that mediate consumption (age, ethnicity, education, socioeconomic status, employment, origin, and religion).

To assess alcohol drinking patterns, the Cutting down, Annoyance by criticism, Guilty feeling and Eye openers (CAGE) test was used in its Spanish version, adapted and validated with Cronbach's alpha equal to 0.75.<sup>16</sup> The CAGE is a questionnaire with four dichotomous items in which YES equals 1 and NO equals 0. In this study, individuals scoring between zero and one (0-1) were classified under moderate drinking, while those scoring two (2) or above were classified under hazardous drinking.<sup>16</sup> The Alcohol Use Disorders Identification Test Consumption (AUDIT-C) was adapted for Spanish by the WHO.<sup>17</sup> It aids the identification of individuals who present some alteration in their consumption of alcohol, including abuse and dependence. The test is composed of three questions that enable classifying individuals as moderate drinkers (women who scored 3 or less than 3) and hazardous drinkers (women who scored higher than 3).<sup>17</sup>

SPSS (Statistical Package for the Social Sciences) was used for data analysis and descriptive and inferential statistics were employed. To detect associations among sociodemographic and vulnerability variables, the non-parametric chi-square test was used to verify the scores obtained on both instruments, the CAGE and AUDIT-C. Once the variables with statistically significant differences between groups were established, they were analyzed using logistic regression in order to verify the direction of the relationship between drinking pattern and associated variables.

## RESULTS

According to the classification based on the scores obtained on the AUDIT-C and CAGE, 80.4% of the women presented moderate drinking, while 19.6% presented hazardous drinking. The sociode-

mographic variables were not statistically significant when compared to drinking patterns (Table 1).

**Table 1 - Relationship among sociodemographic variables and proportion of women according to drinking patterns. National University of Colombia, 2011**

Variable	Moderate	Hazardous	X <sup>2</sup> value†
Socioeconomic level*			
1-Low low	91.7%	8.3%	0.2
2- Low	75.8%	24.2%	
3-Middle low	83.0%	17.0%	
4- Middle	80.3%	19.7%	
5- High Middle	75.0%	25.0%	
6-High	33.3%	66.7%	
Age group			
18-19 years old	81.6%	18.4%	0.7
20-21 years old	80.6%	19.4%	
22-23 years old	76.4%	23.6%	
24-25 years old	85.7%	14.3%	
Semester			
1 - 3	77.0%	23.0%	0.6
4 - 6	82.1%	17.9%	
7 - 10	81.1%	18.9%	
Marital status			
Married	90.0%	10.0%	0.8
Single	80.1%	19.9%	
Separated	80.0%	20.0%	
Natural from			
Amazon region	100.0%	-	0.1
Pacific region	83.3%	16.7%	
Orinoquia region	100.0%	0.0%	
Andean region	80.3%	19.7%	
Caribbean region	100.0%	-	
International students	40.0%	60.0%	

\* Classification of residential properties of a city, carried out in accordance with domestic public services in Colombia (Law 142 from 1994); † chi-square test.

In regard to the sample's characterization, a larger number of women with moderate drinking were classified at socioeconomic levels three (83%) and four (80.3%), which corresponds to an average purchasing power; a high percentage of women with hazardous drinking pattern (66.7%) was found among those classified at socioeconomic level six (high income).

The semester students were attending at college was not statistically significant, though when compared to drinking patterns, the percentage of hazardous consumption increases the more semesters a student has attended.

Most participants were from the Andean region in Colombia; 80.3% presented moderate drinking, while 19.7% presented hazardous drinking; 60% of the international students presented hazardous alcohol consumption.

Vulnerability variables, which were found to influence the groups presenting hazardous and moderate drinking patterns, are described in Table 2. The women started drinking at the age of 13 years old, on average; consumption increased to the point of being considered hazardous between 14 and 16 years old. In regard to the type of beverage, a higher percentage of those presenting hazardous drinking preferred spirits. Additionally, in regard to peer pressure or influence from social networks, 23.7% of the women presenting hazardous consumption reported having friends who insisted on the consumption of alcohol and cigarettes during leisure times.

**Table 2 - Relationship between vulnerability variables and proportion of women according to drinking patterns. National University of Colombia, 2011**

Variable	Moderate	Hazardous	X <sup>2</sup> value*
Age started drinking			
12 years old	100.0%	0.0%	
13 years old	92.9%	7.1%	
14 years old	80.0%	20.0%	
15 years old	76.2%	23.8%	0.03
16 years old	71.2%	28.8%	
17 years old	84.1%	15.9%	
18 years old	83.0%	17.0%	
Older than 18 years old	78.3%	21.7%	
Access to alcohol at the university			
Very difficult	78.3%	21.7%	
East	80.5%	19.5%	0.09
Very easy	80.7%	19.3%	
Access to alcohol at home			
Very difficult	84.9%	15.1%	
East	83.1%	16.9%	0.075
Very easy	72.0%	28.0%	
Peer pressure			
Yes	76.3%	23.7%	
No	89.4%	10.6%	0.008
Type of drinks			
Beer	83.0%	17.0%	
Sugarcane liquor	68.4%	31.6%	
Run	66.7%	33.3%	0.002
Wine	91.4%	8.6%	
Vodka	50.0%	50.0%	
Whisky	40.0%	60.0%	

\* Chi-square. Level of significance at  $p \leq 0.05$ .

Availability and access to alcohol was not statistically significant, though it is important to note that 84.9% of the women with moderate consumption and 15.1% of those with hazardous consumption reported having very easy access to alcohol in their homes. Additionally, 82.7% and 17.3% of each group, respectively, reported that access to alcohol within the university campus is very easy. When they were asked about treatment, 19.3% of those with hazardous consumption never sought or received any treatment for disorders associated with alcohol consumption.

The variables previously mentioned were submitted to logistic regression, to which interest variables, such as socioeconomic level, were added. The results confirmed a positive correlation between these variables and consumption patterns (moderate and hazardous), as shown in Table 3. Note that alcohol consumption when in the company of friends who insisted on substance use during times together is two times greater among women with hazardous consumption compared to women with moderate consumption, while women with high incomes were 11 times more likely to present hazardous drinking.

**Table 3 - Logistic regression of vulnerability variables according to the drinking patterns of female undergraduates. National University of Colombia, 2011**

Variables	P-value	Odds Ratio*
Age started drinking	0.047	1.080
Peer pressure	0.032	2.370
Type of beverage		
Sugarcane liquor	0.048	2.328
Vodka	0.017	4.485
Socioeconomic level		
5	0.040	3.375
6	0.015	11.557

\* Odds ratio - Logistic regression. Level of significance at  $p \leq 0.05$ .

## DISCUSSION

The pattern of alcohol consumption identified among this study's female undergraduates was higher than that reported by the National Study of Psychoactive Substances Consumption conducted in Colombia in 2013.<sup>18</sup> This is of concern since mild but frequent consumption of alcohol is viewed as a high risk activity among women, considering their body composition differs from that of men. Levels of lipids facilitate intoxication,<sup>19</sup> leaving women vulnerable to unprotected sexual practices, violence, or suicide.<sup>20</sup>

A large portion of women with hazardous consumption was identified, especially among senior students. This finding is in agreement with data reported by the WHO<sup>21</sup> that indicates that the hazardous consumption of alcohol increases with educational level and among younger students.<sup>22</sup> Hence, the university appears to be a place to socialize with peers and seems to be an environmental factor that mediates the consumption of alcohol.<sup>23</sup>

In regard to the origins of students, most women were from the country's central region (Andean region) where Boyacá and Cundinamarca are located, which are characterized by high rates of alcohol consumption. According to a study from 2013, these areas present rates above the national average.<sup>24</sup>

Analysis of marital status indicates a higher percentage of separated women presenting abusive consumption of alcohol. This result is similar to the one conducted in Mexico<sup>24</sup> with young adult women, in which the author suggests that the psychological stress that accompanies the process of spouses separating influences alcohol consumption.

Even though socioeconomic level does not present statistical differences between the groups, it was an important category among the sociodemographic variables: 66.7% of the women with a high socioeconomic level presented a hazardous drinking pattern. This finding has been described in the literature,<sup>25</sup> and in some cases, it is determinant for the consumption of alcohol, as it establishes a relationship between economic resources and the acquisition of alcoholic beverages. When analyzing this relationship, one should take into account the role of the media. Advertising, movies, song lyrics, among others, induce the consumption of alcohol among adolescents, as they associate alcohol consumption with pleasure, freedom, sociability and social status.

In regard to vulnerability variables, the age one starts drinking appears to be related to alcohol consumption<sup>24-26</sup> and is a predictor of alcohol dependence in young adult ages. In regard to the group of moderate drinkers, the most frequent age they started drinking was 13 years old. This figure is slightly higher than that reported by other studies, but still corroborates their results.<sup>27</sup> Even though, in Colombia, the consumption of alcohol is prohibited before the age of 18 years old,<sup>28</sup> some adolescents have easy access to alcohol, which shows there is a need to more efficiently supervise the commercialization of this product, considering that the younger one starts drinking, the greater the consumption.

Greater availability and access to alcohol within universities has been considered a risk for its consumption,<sup>29</sup> because the substance is not only more easily consumed but is also consumed in greater quantities. One epidemiological study<sup>30</sup> reports that students are more prone to experience alcohol-related problems when compared to non-students and are twice as likely to develop disorders related to alcohol and other drugs than the remaining American population. Accessibility is a complex and subjective concept that partly depends on the individuals' economic resources. The young consumers addressed in this study were classified in the middle and high socioeconomic classes, showing the influence of socioeconomic level on patterns of consumption, similar to that found by other studies.<sup>25</sup>

In regard to the type of beverages the women consumed, beer and sugarcane liquor were usually consumed because of their low cost and easy access.<sup>31</sup> Those with a hazardous drinking pattern consumed other types of beverages, such as whisky or vodka, a fact possibly explained by their greater purchasing power. This relationship indicates that women with higher incomes have easier access to imported distilled alcoholic beverages.

Entering college involves abrupt changes in an individual's lifestyle and is characterized as a time when one can act, without parental supervision, establish new friendships, and go to parties with an abundant supply of alcohol, which often make youths more vulnerable to the consumption of psychoactive substances. This study's results show that this vulnerability becomes more intense the more semesters one has attended; the number of individuals with hazardous drinking pattern increases, a fact that may be explained by the new phase these individuals are experiencing, which is marked by uncertainty of future prospects and expectations to begin professional life, generating high levels of stress.

The alcohol drinking patterns presented by the women addressed in this study seem to be strongly influenced by their social environments, especially, by peer pressure. This influence has been reported in other studies conducted in Latin America<sup>32-34</sup> and indicates that, in this region of the world, alcohol consumption is a socially-determined behavior; it may be influenced by social pressure and the individuals' extrinsic motivation to be accepted by the group.

Few studies address alcohol consumption, specifically among women, and this study identi-

fies sociodemographic and vulnerability factors influencing the consumption of alcohol in this population. The identification of factors that contribute to increased levels of alcohol consumption among young women can support the establishment of public health policies and educational policies to halt this phenomenon.

Even though this study has implications for research and health practice, it presents some limitations, such as the fact it is a secondary study based on a database with pre-established variables; that is, new variables with the potential to complement and improve understanding of the phenomenon under study could not be included.

## CONCLUSION

The conclusion is that sociodemographic factors do not influence whether an individual will present moderate or hazardous alcohol consumption; however, when the socioeconomic factors are analyzed in isolation, having a high income is shown to increase one's likelihood to develop a hazardous consumption of alcohol. In regard to vulnerability variables, having a preference for distilled liquors, accessing social networks that promote alcohol consumption, and having started drinking between 14 and 16 years old, all favor a hazardous pattern of alcohol consumption. Therefore, this study is expected to support other studies intended to deepen issues associated with alcohol consumption in the female population, in addition to the development of strategies specifically directed to this population.

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