ORIGINALES

Family dynamics and school social environment as protective factors for alcohol consumption in Mexican university students

La dinámica familiar y el clima social escolar como factores protectores del consumo de alcohol en universitarios mexicanos

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ABSTRACT:
Introduction: Alcohol consumption carries a heavy social and economic burden on society, government, overall health, and health systems.
Objective: Determine the relationship and effect of family dynamics and school social environment on alcohol consumption in young university students.
Methodology: This was a descriptive, correlational and predictive study with a sample of 367 undergraduate students from a university in the state of Tabasco, Mexico, selected by stratified random probability sampling. The 63.2% were women, with a mean age of 21.6 years (SD=2.82). A Personal Identity Card and Prevalence of Alcohol Consumption Questionnaire, the Family Apgar, the Questionnaire to Evaluate the Social Environment within the School and the AUDIT were used. The study complied with the provisions of the Regulations of the General Health Law on Research.
Results: Family dynamics and school social environment were negatively and significantly related to alcohol consumption and to the three types of consumption: low-risk, dependent and harmful. Family

dynamics (B= -.040, p<.05) and school social environment (B= -.096, p<.001) were identified as predictors of alcohol consumption in university young people.

Conclusion: Family dynamics and school social environment as predictors of alcohol consumption may help to prevent this harmful behavior in young university students. These results can contribute to the inclusion of these variables in the understanding of alcohol consumption behavior.

Key words: Family dynamics; school social environment; university students; alcohol consumption; protective factors.

RESUMEN:
Introducción: El consumo de alcohol conlleva una pesada carga social y económica para la sociedad, para el gobierno, para la salud global, y para los sistemas de salud.
Objetivo: Determinar la relación y efecto de la dinámica familiar y el clima social del centro escolar con el consumo de alcohol en jóvenes universitarios
Metodología: Se trata de un estudio con diseño descriptivo, correlacional y predictivo, con una muestra de 367 estudiantes universitarios de una universidad del estado de Tabasco, México, seleccionados por un muestreo probabilístico aleatorio estratificado. El 63.2% fueron mujeres, con una media de edad de 21.6 años (DE=2.82). Se utilizó una Cédula de Datos Personales y de Prevalencia de Consumo de Alcohol, el Apgar Familiar, Cuestionario para Evaluar el Clima Social dentro del Centro Escolar y el AUDIT. Se apegó a lo dispuesto en el Reglamento de la Ley General de Salud en materia de Investigación.
Resultados: La dinámica familiar y el clima social escolar se relacionaron negativa y significativamente con el consumo de alcohol y con los tres tipos de consumo, de bajo riesgo, dependiente y perjudicial. Se identificó que la dinámica familiar (B= -.040, p<.05) y el clima social escolar (B= -.096, p<.001) son predictores del consumo de alcohol en jóvenes universitarios.
Conclusión: La dinámica familiar y el clima sociales escolar al ser predictores del consumo de alcohol pueden ayudar a prevenir esta conducta nociva en los jóvenes universitarios. Estos resultados pueden contribuir a la inclusión de estas variables para la comprensión de la conducta del consumo de alcohol.

Palabras Clave: Dinámica familiar, Clima social escolar, Universitarios, Consumo de bebidas alcohólicas, Factores protectores.

INTRODUCTION

Alcohol consumption is a behavior that has been present in various cultures throughout time, and has been part of social and religious festivities. It has also been used as a vehicle for socialization in various age groups, from adolescents, young university students, working adults to older adults [1]. It has also been used as a negative coping mechanism in the face of stress and various family, economic or even academic problems [2].

Alcohol consumption carries a heavy social and economic burden on society, government, global health, and health systems. It is estimated that alcohol consumption causes three million deaths worldwide each year, accounting for 5.3% of all deaths. Worldwide and in all WHO regions, the past-month prevalence of heavy episodic drinking peaks at the age of 20-24 years, when it is higher than in the total population [3].

In Latin America, three countries indicated a trend in increasing prevalence of alcohol consumption in the last month: Argentina, which in 2008 reported a prevalence of 46.8% and in 2017 a prevalence of 52.9%, Chile increased six percentage points from 40.4% to 46% (1994-2016) and Mexico increased from 19.1% to 35.9%, increasing 17 percentage points in the period from 2002 to 2016. Likewise, the age group that indicated a higher proportion (60%) of this prevalence was 18 to 34 years, exceeding adults aged 35 to 64 years by 10% [4]. Regarding the prevalence of alcohol

consumption in Mexico, young people aged 18 to 25 years are those who report a higher proportion (22.1%) of prevalence of consumption during the last month [5].

In this age group, young university students have reported different types of consumption, which can begin as low-risk consumption and progress to dependent or harmful consumption. This behavior, which is more frequent on weekends, increases the risk of physical, psychological and social consequences, in addition to increasing the possibility of becoming dependent on this substance [4,6,7].

This problem of alcohol consumption represents an opportunity for nursing to identify those factors that can have a protective effect on this behavior from an integral approach, centered on the individual and the different levels of influence that participate in the construction of the individual's behavior. For this, ecological models can be an answer for the study of this problem that affects young people and its subsequent preventive intervention, because they consider five levels of influence (intrapersonal, interpersonal, institutional, community and public policies), where the person is part of these and they influence each other [8].

Ecological models are addressed in the definition of public health policies and programs, because they propose the conceptualization of health as the result of an interaction of environments and individual factors; likewise, the Center for Disease Control and Prevention (CDC) indicates the need to adopt a social ecological perspective in the design of research and preventive programs [3, 9].

The theoretical basis of the present study is the McLeroy's Socio-Ecological Model[8], particularly at the institutional level, which focuses on organizations, collectives and institutions of different kinds. Generally, people spend one-third to one-half of their lives in organizational settings from very early ages in educational institutions and later in work settings, so these organizations can have a substantial influence on people's health and health-related behaviors. These factors include social institutions with organizational characteristics, formal (and informal rules and regulations for operation) such as family functionality, and work and educational institutions such as school social environment.

Family dynamics is considered as the perception of young university students on the level of family functioning in a global way where adaptation, cooperation, development (physical and emotional maturity), affection and resolution capacity are valued, characteristics that favor a positive family environment [10]. In young university students it plays a significant protective role, especially in those young people who continue to live with their parents during this stage [11-12]. It is considered that when family dynamics are perceived as negative in the young person's life, this can favor the development of unhealthy behaviors such as alcohol consumption [13]. On the contrary, when this family dynamic is perceived as positive and there is greater communication within the family, this can generate healthy behaviors in young people, such as abstaining from alcohol [14,15].

Regarding the social environment of the school, this is one of the institutions where most of the life of young people takes place, whether in academic activities, socialization, sports and cultural activities [16,17], which is why it is important within the institutional level according to McLeroy's model [8].

The school environment that develops and is perceived in these institutions or schools can be a protective factor, to the extent that it prevents or limits the early onset of harmful behaviors such as alcohol consumption and, on the other hand, promotes healthy behaviors [18,19]. This school environment can be developed in the same way in virtual environments, in which students receive their classes and interact with their classmates and teachers [20,21].

In addition, it can be linked to school organization; an element of school organization is the proportion of students per teacher or instructor, since small groups have better interaction promoting healthy environments and limiting risk behaviors such as alcohol consumption [17]. Therefore, the social environment is considered as the perception that young university students have about the school institution, with respect to the environment in which they carry out their usual academic activities (physical or virtual), which favors healthy behaviors [20].

In the light of the previous paragraphs, the interest in analyzing the relationship between family dynamics and school social environment and alcohol consumption behavior in the population of young Mexican university students arises. The knowledge obtained from this study is considered to be a contribution to the nursing discipline that will contribute to the definition of strategies and actions for the promotion of health and prevention of alcohol consumption, since these variables have been studied in a limited way in this population.

OBJECTIVE

The objective of this study was to determine the relationship and effect of family dynamics and the social environment of the school on alcohol consumption in young university students.

MATERIAL AND METHODS

Study design

This is a descriptive, correlational and predictive study, which was conducted at a university level educational institution in the state of Tabasco, Mexico.

Population, sample and sampling

The sample was selected by stratified random probability sampling. The participants were 367 young university students (63.2% female) belonging to two engineering and two health science programs, with an age interval of 18 to 35 years (M=21.64, SD= 2.82) and studying from the second to the eighth semester of their professional career.

Instruments

a) Personal Identity Card and Prevalence of Alcohol Consumption, which included age, sex, schooling, career, marital status and occupation, as well as data on prevalence (use sometime in life, in the last year, in the last month, and last week) and quantity of alcoholic beverage consumption.

The Family Apgar [10] was used to evaluate family dynamics. Its purpose is to assess family functioning in a general and simple way, through the degree of satisfaction that family members have with their family life and the perception they have of their family functioning. It is composed of 5 items that evaluate five areas: adaptability, cooperation, development, affectivity and resolution capacity. The responses are a five-alternative Likert-type scale, scored between 0 (never) and 4 (always), with a maximum possible score of 20 and a minimum of 0. It has reported Cronbach's Alpha reliability of 0.85 in young adults from the United States [10] and a Cronbach's Alpha of 0.78 in Mexican adolescents [13]. In this study it reported an Alpha of a= .92.

b) Questionnaire to Evaluate the Social Environment within the School Center [22] developed to evaluate the interpersonal relationships of students and teachers interacting in an educational institution in Chile. It is composed of 14 items that are integrated into two dimensions: school environment and teacher's environment. The answers have a Likert style format with a score from 1 to 5 where 1 is never and 5 is always. For the scoring of each dimension a sum of their respective items is made, with a minimum score of 8 and a maximum of 40 in the school environment dimension and a minimum score of 6 and a maximum of 30 in the teacher environment dimension. It has reported in Chilean adolescents a Cronbach's Alpha reliability of 0.84 for the school social environment dimension and 0.78 for the teacher's environment [23]. In this study, it reported an Alpha of a= .91 for the entire questionnaire and .86 for the school environment dimension and .81 for teacher environment.

c) Alcohol Use Disorders Identification Test (AUDIT) was used in its Spanish version [24] to evaluate alcohol consumption in the last year. It consists of 10 multiple-choice items. The overall score varies between zero and 40 points. For the classification of the consumption pattern it used the scores: from 1 to 3 is considered a low-risk alcohol consumption, from 4 to 7 points a dependent alcohol consumption, from 8 points and more when there is the presence of harmful alcohol consumption. It reported Cronbach's Alpha reliability of 0.89 [25] in young Mexican university students. In this study it reported an Alpha of a= .90.

Procedure

This research had the approval of the Research and Research Ethics Committees (FAEN-D-1704) of the Universidad Autónoma de Nuevo León, Mexico, and the authorization of the person in charge of the academic unit where the study took place. Due to the health restrictions imposed by Covid-19, data collection was carried out virtually, using Google Forms software, which included the informed consent form, the personal data form, and the instruments. The data collection was carried out from June to August 2021, using the Microsoft Teams platform, with access to the class groups, where the objective of the study, the informed consent and what their participation consisted of were explained to the students. Students who agreed to participate in the study were provided with the link to access the informed consent and the instruments. Care was taken to respect the confidentiality of the data and the anonymity of each participant. During the process we were attentive to clarify doubts and at the end we thanked them with a thank you card.

Ethical considerations

This research adhered to the provisions of the Regulations of the General Health Law for Medical Research Involving Human Subjects [26].

Data analysis

The data were stored in the Google Forms application and then downloaded into an Excel spreadsheet for responses coding. Subsequently, the data were exported for analysis to the IBM Statistical Package for the Social Science (IBM SPSS) version 22.0 for Windows. The reliability of the instruments was analyzed using Cronbach's Alpha Reliability Coefficient. Descriptive statistics, the Kolmogorov-Smirnov Goodness of Fit Test with Lilliefors Correction and non-parametric statistics were used to respond to the objective. Correlation of independent variables was performed by means of Spearman's Correlation Coefficient. Multiple Linear Regression Models were constructed to determine the effect of the variables studied on alcohol consumption. The models were estimated using the backward elimination method.

RESULTS

The sample consisted of 367 university students; the age of onset of alcohol consumption was 17 years (SD=2.3); in relation to the amount of alcohol consumption, a mean of 3.09 (SD=3.8) standard drinks (14 grams) per occasion was estimated. Regarding the prevalence of alcohol consumption, they reported having consumed alcohol once in their lifetime (85.3%), in the last year (64.9%), in the last month (32.7%) and in the last week (16.9%). In the differences in the scores by sex, only family dynamics reported a significant difference, with a higher proportion of females ($\bar{x}$= 74.6, SD= 80.0) compared to males ($\bar{x}$= 70.00, SD= 75.00).

Table 1 presents the means of the study variables, which range between 64.34 and 73.05, as well as the positive correlation between family dynamics and the school environment dimension (rs= 0.436, p<0.01), with the teacher's environment dimension (rs= 0.383, p<0.01) and with the school social environment index (rs= 0.427, p<0.01).

Table 1: Descriptive data and relationships among the variables

Variable	$\bar{x}$	SD	1	2	3	4
1. Family dynamics	73.1	23.3	1	0.427*	0.436*	0.383*
2. School Social Environment	68.6	17.0		1	0.958*	0.937*
3. School environment dimension	71.8	17.2			1	0.804*
4. Faculty Environment Dimension	64.3	18.6				1

Note: n= 367, $\bar{x}$= Mean, SD= Standard Deviation, Spearman's Correlation Coefficients, * value p<.001

In Table 2, family dynamics, school social environment and its two dimensions were related to alcohol consumption (AUDIT index) and types of consumption. Family

dynamics revealed a negative correlation with alcohol consumption (rs= -0.281, p<0.01), with low-risk consumption (rs= -0.232, p<0.01), with dependent consumption (rs= -0.283, p<0.01) and with harmful consumption (rs= -0.205, p<0.01). Likewise, the school social environment index was negatively correlated with alcohol consumption (AUDIT Index) (rs= -0.203, p<0.01), with low-risk consumption (rs= -0.207, p<0.01), with dependent consumption (rs= -0.320, p<0.01) and with harmful consumption (rs= -0.157, p<0.05).

Table 2: Spearman correlation coefficients between continuous variables and alcohol consumption.

Variable	AUDIT index	Low-risk Consumption	Dependent consumption	Harmful consumption
1. Family dynamics	-0.281**	-0.232**	-0.283**	-0.205**
2. School Social Environment	-0.203**	-0.207**	-0.320**	-0.157*
3. School Environment Dimension	-0.206**	-0.203**	-0.328**	-0.174**
4. Faculty Environment Dimension	-0.181**	-0.188**	-0.275**	-0.135*

Note: n=238 students who consumed alcohol in the last year, Spearman correlation, value of *p<0.05** p<0.001.

To identify the effect of family dynamics, school environment, faculty environment and school social environment on alcohol consumption (AUDIT), a Multiple Linear Regression Model was developed, which is presented in Table 3. It was noticed that the model has a significant effect (F (238) = 10.221, p<0.001), where it is identified that family dynamics (B= -0.040, p<0.05) and school social environment index (B= -0.182, p<0.05) act as predictors of alcohol consumption, a variance of 11.6% is explained. In this first model, the school environment variable was eliminated because it exceeded the tolerance limit for co-linearity.

Given the results of the first model, a second one was calculated with the backward elimination method, which had a significant effect in its entirety (F (238) = 14.479, p<0.001). Family dynamics (B= -0.040, p<0.05) and the school social environment index (B= -0.096, p<0.05) retained their predictive effect on alcohol consumption, with an explained variance of 11.2%.

Table 3: Multiple Linear Regression Model for Alcohol Consumption

Model 1 R^2= 11.6%.					
Variable	**B**	**SE**	**t**	**p**	**95% IC**
Constant	15.58	1.78	8.74	0.001	[12.07, 19.08]
Family dynamics	-0.040	0.019	-2.13	0.034	[-0.07, -0.00]
School Social Environment	-0.182	0.074	-2.47	0.014	[-0.32, -0.03]
Faculty Environment Dimension	0.086	0.067	1.27	0.203	[-0.04, 0.21]
Model 2 R^2= 11.2%					
Variable	**B**	**SE**	**t**	**p**	**95% IC**
Constant	15.17	1.73	8.73	0.001	[11.67, 18.55]

Family dynamics	-0.040	0.019	-2.161	0.032	[-0.07, -0.00]
School Social Environment	-0.096	0.027	-3.560	0.001	[-0.14, -0.04]

Note: n=238 students who consumed alcohol in the last year, CI = confidence intervals.

DISCUSSION

This research revealed a strong relationship between the effect of family dynamics and the social environment of the school and alcohol consumption among university students. The means were higher than 60 in the family dynamics and school social environment scores, so it can be inferred that young university students perceive an optimal family functioning, as well as a favorable school environment in the educational institution where they study.

A negative and significant relationship of family dynamics with alcohol consumption (AUDIT Index) and the three types of drinking patterns was identified, which is similar to that reported by Alonso [13]. These data highlight the relevance of family functioning in reducing or preventing alcohol consumption. This means that young people feel appreciated by their nuclear family, which determines the development of health-promoting behaviors and family values that will be transmitted from generation to the next generation [27].

Likewise, school social environment and its dimensions school environment and faculty environment were negatively and significantly related to alcohol consumption (AUDIT Index) and to the three types of alcohol consumption. These data coincide with those reported by Tomczyk [17]; therefore, it may be said that the school social environment generated in educational institutions is crucial, probably because they feel satisfied and safe, and this could contribute to a decrease in alcohol consumption. Although this variable has been studied more in adolescents, it is a factor that can be considered a protector of the behavior of young people even at the university level.

It should be noted that these two variables, family dynamics and school social environment, have demonstrated a negative relationship with alcohol consumption, but have also reported a positive and significant relationship between them. Therefore, family dynamics and school social environment are two elements that, when related, may have a protective effect against alcohol consumption behaviors [28].

In the literature review, only two studies were found that used the variables family dynamics and school social environment together with alcohol consumption, one carried out in the United States in Hispanic adolescents [18] and another carried out in Mexico in adolescents from the north part of the country [28]. This represents an opportunity for future research using both variables together, since they have demonstrated their effect on alcohol consumption in this sample of young university students.

In the analysis of the Multiple Linear Regression Model, it was observed that family dynamics and school social environment have a negative effect on alcohol consumption, which shows that these variables affect alcohol consumption, i.e., due to their negative effect, to the extent that family dynamics and school environment decrease, there is a greater probability that alcohol consumption will be present in a

higher proportion. These data coincide with those reported in other studies [18, 28] that indicated the same negative effect of these two variables on alcohol consumption.

A limitation of this study is its cross-sectional design, which prevents us from making considerations over time. For this reason, it would be ideal to carry out longitudinal studies to identify the effects of these variables over time. Since the sample was a representative group of young university students from a specific region of the country, the results cannot be generalized, so it is recommended that this study be replicated with larger samples and in different academic and socioeconomic contexts. Likewise, it is considered necessary to continue with the investigation of these variables jointly in this population in order to have more scientific evidence that provides new knowledge regarding the behavior of these variables in alcohol consumption.

CONCLUSIONS

According to the results of this study, it can be concluded that there is a positive and significant relationship between family dynamics and school social environment, which is relevant because few studies to date have proven this association, in addition to the fact that both variables revealed a negative relationship with alcohol consumption, which indicates that if these variables are improved jointly in young university students, optimal results can be obtained in the reduction or prevention of alcohol consumption. Therefore, it is suggested to consider them in future research, as well as in nursing or multidisciplinary interventions in this population.

The family dynamics and the school social environment are predictors of alcohol consumption in young university students, therefore the way in which the family relates to each other and the affective and supportive environment that is generated can contribute to prevent harmful behaviors for young people and if it is also added to the effect that the school environment has, in which it is highlighted that the environment generated by the educational institution as well as the contribution of faculty to this environment, its influence on the behavior of the university student will depend on this. In addition, it should be taken into account that the family is a social institution with its own structure and that its capacity to influence its members is strong, being within it where the practice of values and the formation of behavior are generated, on the other hand, when the young person enters the university, this becomes a second home where most of the time is regularly spent and where affective bonds are generated, companionship and social support with friends and faculty that can influence the development of healthy behaviors such as the no alcohol consumption.

These variables were considered at the institutional level of the Socio-Ecological Model, considering both variables as institutions, one as a social institution and the other as an educational institution, which demonstrated their effect on the behavior of young university students with respect to alcohol consumption.

The contributions of this study for nursing practice are the inclusion of family dynamics and school social environment together to explain and better understand alcohol consumption in young university students. Likewise, this new knowledge of the effect of these variables is contributed so that they can be considered in the future in the construction of nursing models or theories, in interventions or actions of prevention

and health promotion, with the aim of improving the well-being of young university students and helping to reduce and prevent alcohol consumption behavior.

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