



Prevalence of Alcoholism in Adolescents in Durango City, México; And the Stages of the Transtheoretical Model of Change

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Abstract

Objective: To estimate the prevalence of alcoholism in adolescents between 15 and 19 years old, who attend a high school educational institution in the city of Durango, Mexico; as well as Identify the levels and intensity of consumption according to gender and evaluate the behavioral change related to the consumption of alcoholic beverages, using the Transtheoretical Model of Change (MTC).

Material and Methods: The design of the study is descriptive, cross-sectional, prospective, the Questionnaire of Stages for the Modification of Alcohol Abuse was applied with modifications.

Study Group: 320 adolescents from 15 to 19 years of age, who attend a high school educational institution in the city of Durango, Mexico.

Results: The general prevalence of adolescent consumers of alcoholic beverages was 80.31%. The starting age of consumption is at 12 years of age. Adding the high and medium categories, the consumption intensity is greater in men, although the difference is not statistically significant. 33.85% of adolescents are in the pre-contemplation stage and only 29.57% of adolescents are in the action stage. The satisfactory level of self-liberation scores observed in those who are in the preparation and action stages, is 3.87 times more frequent, when compared to those who continue in the pre and contemplation stages. Unsatisfactory management of contingencies is 3 times more frequent, when compared to those who are in the preparation and action stages.

Conclusions: The prevalence of consumers of alcoholic beverages in the study group is 3 times higher than that reported at the national level in Mexico for the year 2002. The observed prevalence was similar in men and women. In the stratification by stages of the MTC change, 53% of consumers were found in the precontemplation and contemplation stage and 47% in the preparation and action stage.

Keywords: Adolescents; Alcoholism; Public Health; Transtheoretical Model of Change

Introduction

Alcoholism is a public health problem worldwide, which significantly affects the adolescent group, causing high levels of psychosocial distress, a condition that as such represents an important public health problem [1]. Alcoholism is also associated with family disintegration, economic problems, traffic accidents and health problems. In studies carried out on adolescents who present risky behaviors, the immoderate consumption of alcoholic beverages ranks as one of the most dangerous and important behaviors. Alcoholism is a universal phenomenon and is due to various reasons. For example, in Europe, prevalences ranging from 9 to 32% are reported in young people between 13 and 15 years of age, and a greater frequency is reported in men than in women. The explanations given for consumption allude to reasons that can be associated with psychoactive effects, situations of social coexistence or coping with difficulties [2]. In adolescents in the United States, the social aspects associated with an individualistic culture and the perspective of a change in status in adulthood represent conditions that favor the onset of alcoholism in the adolescent population [3]. There are other conditions that favor the increase in alcoholism, these conditions refer to the levels of cultural stressors that groups of migrant adolescents have to face when they face the situations caused by inserting themselves into cultural groups that are not their own, and that they represent the dominant culture, the perception of aggressive attitudes, discrimination and contempt, mean an important trigger for the initiation of alcoholic beverages and other types of drugs [4].

With the contribution of the Transtheoretical Model of Change (MTC) proposed by Prochaska and DiClemente [5,6], we may know which are the attitudes, temptations, feelings and perceptions that are associated with the change process in behaviors related to the consumption of alcoholic beverages. The Transtheoretical Model of Change is the resulting fusion product of different theories, made to explain the behavior of drug and cigarette dependent people; its name is due to the integration of principles and theoretical components of the various intervention systems analyzed.

The prevalence of alcoholic beverage consumption in the general population reaches 35% in men and 25% in women, with a ratio of 1.4 men for every woman. Among males, the number of adolescents who reported drinking five or more drinks per consumption occasion increased [7].

Among the adolescent population of Mexico, it was found that 42.9% has consumed alcoholic beverages at some time in their lives, of which 46.0% are men and 39.7% are women according to the National Health Survey, 2012.

It is important to underline that the alcoholic adolescent women group is the one that has increased the most in recent years, especially in cities [8,9], perhaps due to greater freedom, the availability of money and the ease to obtain it by means different from those of traditional work or that granted by parents, therefore, women social behavior has approximated to the traditional one of men. In adolescent female alcoholism, associated risk factors that influence its development tend to be more serious disturbing family elements than in male alcoholism. In general, we have that the act of drinking is associated with traumatic events and the onset of their physical problems related to the ingestion of alcoholic beverages would occur at an earlier age than in men and with lower consumption.

A strong association of female alcoholism with a history of having suffered abuse and family violence has been found, also the history of alcoholism of the father and the adolescent's partner show association with the alcoholism observed in them.

Transtheoretical model of change

The Transtheoretical Model of Change is the fusion product of different theories to explain the behavior of drug and cigarette dependent people, its name is due to the integration of theoretical principles and components of the various intervention systems analyzed [10]. Prochaska and DiClemente, creators of the model, analyzed the change processes in smokers who had quit smoking on their own free will, as well as in people who sought help through groups that managed psychotherapeutic programs to quit smoking. The stages of the Transtheoretical Model of Change represent the evolutionary dimension of the situations that are being changed, and allow us to understand when changes occur at a cognitive, affective or behavioral level and are the following:

- **Precontemplation:** At this stage, people do not intend to change or make any changes to their health risk behavior in the next six months.
- **Contemplation:** In this stage, individuals have an intention to change and make a formal attempt to change their behavior in the next six months.

- **Preparation:** This stage is characterized by individuals' intentions to do and take immediate action in the near future (next thirty days) and by small behavioral changes.
- **Action:** It is at this stage that people make objective and externally observable changes in their behavior.
- **Maintenance:** In this stage there are continuous long-term changes, at least six months after the observable change, people actively work on relapse prevention, have fewer temptations to return to the previous behavior and increase their self-confidence to maintain the behavioral change. People return to the stages in a cyclical manner, before reaching maintenance, for which the model posits that the pattern of change is usually more circular than linear.
- **The objective of this study was:** To estimate the prevalence of alcoholism in adolescents of both genders between the ages of 15 and 19, who attend a high school educational institution in Durango City, Mexico; and identify the stages of the Transtheoretical Model of Change in which this group of adolescents find themselves, and their association with different psychosocial and behavioral factors.

Materials and Methods

A descriptive, cross-sectional and prospective study was carried out. The participant group was made up of 320 adolescents between the ages of 15 and 19 of both genders, who are studying at a high school level in an educational institution in the Durango City, Mexico.

Sample size

According to the formula to estimate finite proportions proposed for a descriptive study of a dichotomous variable:

Where:

$$n = \frac{N Z^2 P(1 - P)}{d^2 (N - 1) + Z^2 P(1 - P)}$$

N = 1114 (Adolescents from 15 to 19 years old in the educational institution)

Z = 1.96 (95% confidence level)

P = 0.5 (Prevalence unknown)

d = 5% (Study precision error)

n = 286 +34 (No response rate = 0.12)

The final sample size was 320 adolescents.

The administrative procedures in the collection of information were: Meeting with the director and staff of the Department of Educational Guidance to publicize the research protocol and request permission and facilities to apply the questionnaire. Training of 6 people (4 social workers and 2 physicians) to apply the instrument. Random selection of 12 groups of 30 adolescents each, who were in their fourth and sixth semesters, from the morning and evening shifts.

Study instruments

An instrument adapted to the Questionnaire of Stages for the Modification of the consumption of alcoholic beverages, elaborated by Flórez Alarcón [11], was constructed, validated and applied. The final instrument was made up of 87 items with the following sections: sociodemographic data, characterization of consumption, abuse and availability of alcoholic beverages, decisional balance, motivation, assertiveness, contingency management and counter conditioning. The questionnaire was applied randomly to the study participants.

Ethical considerations

The authorities of the Educational Institution where the study was conducted, as well as its participants, were verbally informed in detail about the study, as well as the confidential and anonymous nature of the information. Consent was obtained from both parties to participate. The project was reviewed and approved by the Review Committee of the Master's Program in Public Health of the Scientific Research Institute of the Juárez University of the State of Durango.

Results

The study population consisted of 320 adolescents aged 15 to 19 years, (mean=17.28 years, ± 0.89); 186 men and 134 women. The prevalence of alcohol consumption was 80.65% in men (150/186), and 79.85% in women (107/134).

Adding the high and medium categories, the consumption intensity is greater in men (Table 1), although the difference is not statistically significant (OR=1.30, 95% CI= 0.76 - 2.22).

	Men		Women		OR	CI 95%	p
	n = 150		n = 107				
*Consumption intensity	n	%	n	%			
High	9	6.0	10	9.2			
Medium	82	54.7	48	45.1	1.30	0.76-2.22	0.300
Low	59	39.3	49	45.7			
Consumption last week							
High	42	27.8	40	37.7			
Medium	63	41.7	48	45.3	2.14	1.12-4.21	0.013
Low	46	30.5	18	17.0			
Place of consumption							
House	15	10.0	14	13.1			
Party	117	78.0	74	69.1			
School	18	12.0	19	17.8	1.67	0.77-3.60	0.153
Stage of change							
Precontemplation	51	34.0	36	33.6			
Contemplation	28	18.7	22	20.6	1.06	0.63-1.80	0.807
Preparation	24	16.0	20	18.7			
Action	47	31.3	29	27.1			

Table 1: Intensity of consumption in the study group.

*Sum of the score obtained by measuring frequency and amount of consumption: 2 to 3 low, 4 to 5 medium, 6 to 7 high.

The medium and high level of alcoholic beverages consumption during the week prior to the interrogation is significantly more frequent in women, up to 2.14 times (CI 95% = 1.12 to 4.21), with a p value =0.013.

The school is the place where women consume, up to 1.67 times more than men, this difference is not statistically significant. No differences are observed between men and women, it can be appreciated that their frequency varies according to the stage of change in which they are located.

The states of pre-contemplation and contemplation have in common the absence of actions aimed at change; even though those in the contemplation stage may have accepted that their

consumption pattern is a problem that should be addressed, they do not; while those who are in pre-contemplation have not even considered that they are facing a problem.

The common characteristic of the states of preparation and action is the manifest intention to carry out actions to modify the current consumption condition; During the preparation, short-term actions or ineffective actions may be developed, but the interest in initiating the change is already shown. When objective changes of longer duration are observed in the action stage, it is important to reduce the risk of relapse. The possibility of moving to these stages seems to be associated with the ability of young people to integrate cognitive and behavioral aspects in making decisions that they consider convenient, as shown in table 2.

	Pre-y Contemplation		PreparationAction		OR	CI 95%	p
	n = 137		n = 120				
	n	%	n	%			
Consumption intensity							
High	14	10.2	5	4.2	3.01	0.93-11.3	0.04
Medium	71	51.8	59	49.2			

Low	52	38.0	56	46.6			
Consumption last week							
High	47	34.3	35	29.2	1.26	0.62-2.56	0.488
Medium	57	41.6	54	45.0			
Low	33	24.1	31	25.8			
Self-liberation							
Unsatisfactory	89	65.0	49	40.8			
Regular	33	24.1	39	32.5			
Satisfactory	15	10.9	32	26.7	3.87	1.82-8.44	0.000
Contingency management							
Unsatisfactory	111	81.0	67	55.8	3.01	1.27-7.38	0.005
Regular	15	10.9	33	27.5			
Satisfactory	11	8.1	20	16.7			

Table 2: Stages of the change process.

Self-liberation is the personal commitment, where the adolescent is able to decide and choose when it is convenient to stop consuming alcoholic beverages. The satisfactory level of self-liberation scores observed in those who are in the preparation and action stages, is 3.87 times more frequent, (CI 95% = 1.82 – 8.44), with a p value =0.000, when compared to those who continue in the pre and contemplation stages (Table 2).

Contingency management is the association that the individual establishes between behavior and its consequences; among adolescents who are in the pre-contemplation and contemplation stages, the declaration of unsatisfactory management of

contingencies is 3 times more frequent (CI 95% = 1.27 – 7.38), with a p value =0.005, when compared to those who are in the preparation and action stages, they do not recognize that the consumption of alcoholic beverages has repercussions on health and social relations.

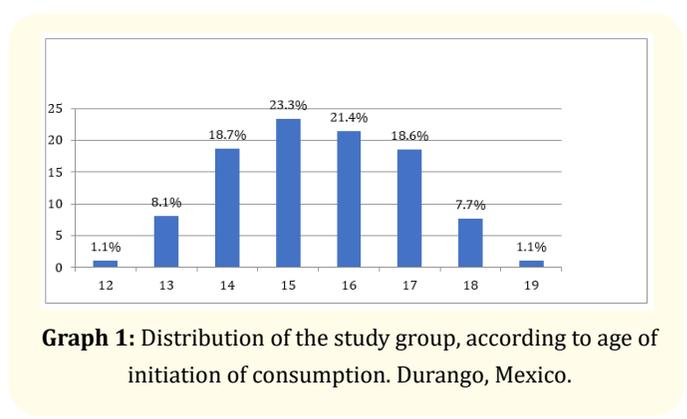
It is observed in the table 3 that the number of women prevails over the group of men in the contemplation and preparation stages (16% and 18.69%, respectively), although without statistically significant differences. The number of men exceeds the group of women in the action stage. The values observed in the precontemplation stage are practically the same in both genders.

Gender	Pre contemplation		Contemplation		Preparation		Action	
	N	%	N	%	N	%	N	%
Male	51	34	28	18.67	24	16	47	31.33
Female	36	33.64	22	20.56	26	18.69	29	27.10

Table 3: Distribution of the group studied by gender and according to the stages of the transtheoretical model of change. Durango, Mexico.

It is observed in graph 1, that at 15 years of age is when the highest percentage of adolescents begins to consume alcoholic beverages, while in the extreme ages of adolescence, the lowest percentages of initiation to the consumption of these beverages are observed.

Table 4 shows that the consumption of participants who are part of a single-parental family exceed the members of the other types of family by 10 percentage points.



Graph 1: Distribution of the study group, according to age of initiation of consumption. Durango, Mexico.

	Nuclear		Extensive		Reconfigured		Single-parent	
	N	%	N	%	N	%	N	%
Alcoholic drinks								
Drinker	163	79.51	36	81.82	41	78.85	17	89.47
Non drinker	42	20.49	8	18.18	11	21.15	2	10.53

Table 4: Distribution of the participant group by consumption of alcoholic beverages, according to family type. Durango, Mexico.

Discussion

The National Survey of Addictions [12] (ENA 2002) reports that, in 1998, 27 out of 100 adolescents in the state of Durango consumed alcoholic beverages, the figure increased to 43%, according to what was published in the ENA 2012; In this study, almost twice as much was recorded for the same year in a public high school campus in the city of Durango, Mexico ;since the prevalence of adolescents who consume alcoholic beverages in the group studied was 80.3%.

The ENA 2012 mentions that the ratio in consumption is 1.4 men for each woman, in this study the figure observed was 1:1, that is, the prevalence between men and women is equal. When analyzing the consumption characteristics during the week prior to the time of the survey, women consume 1.55 times more than men, although they do so in fewer days.

Similarly to what was reported in the National Survey of Health and Nutrition carried out in 2012 [7], in the study group 7 out of 10 consumers started when they attended high school.

According to Martínez María [13], the nuclear family represents a protective scenario during adolescence, due to the opportunity to establish and consolidate significant bonds with parents that strengthen decision-making capacity, self-esteem and control of emotions and prevent the start of consumption of alcoholic drinks; in this study, members of single-parent families exceed consumption by 10 percentage points, compared to members of other types of families.

Flórez Alarcón [14-16] in his study "Classification of alcohol consuming Bogotá university students in stages according to the transtheoretical model" refers that 83% of young people are in the pre-contemplation and contemplation stages, it does not report that there are adolescents in the action stage and classifies consumers as weak, strong, or intermediate. In this study, the distribution of adolescents in the first two stages reaches 53.31%, 30 out of 100 consumers are in the action stage and the intensity was classified as low, medium and high.

The use of the MTC allows to identify the particular characteristics of the consumers that are in each of the stages of change, in addition to knowing the figures of frequency and intensity of consumption, it is considered important to identify the factors that favor the transition to a higher stage and a stable permanence. This would make it possible to apply more precisely and effectively interventions aimed at controlling consumption and stabilizing the intake of alcoholic beverages for longer periods, which would favor a greater recovery in less time for young consumers. According to the observed findings, we can appreciate that there are conditions of vulnerability in different dimensions of their psychosocial development, it is worth highlighting insufficient emotional development and decreased resilience, conditions that are derived to a certain extent from the lack of solidity of fundamental structures such as the school and family, which are clearly seen in the group studied. One of the challenges, based on these findings, is to build alternatives of a social, school and family nature that strengthen these dimensions [17].

It is necessary to recognize that educational environments can become risk scenarios if the strengths exhibited by those who develop in the same scenarios are not consolidated and they maintain the decision not to drink alcohol.

All this information becomes the fundamental elements to design gradual intervention strategies in which elements from different disciplines that belong to educational, behavioral sciences and social epidemiology are incorporated.

Conclusions

The results observed in this study are consistent with what is documented at the international level, regarding the increase in the consumption of alcoholic beverages in the adolescent population, both in men and women, although the reasons for this increase vary according to the different cultural attributes. The study group, 80 out of every 100 adolescents declared consuming alcoholic beverages, a figure that represents an increase 3 times higher in a

period of 14 years, compared to what was described in the National Survey of Addictions carried out in Mexico in 2002.

The prevalence is similar in men and women; however, it is important to highlight that in the female gender it has increased significantly. Alcohol consumption at school is a significant fact observed in both genders.

The early age of onset, 12 years and on average 15 years, characterizes the group we studied. In the prevalence by family types, we observed that the single-parent family presented 10 percentage points higher of consumption than the other types of family structure.

In the stages of change of the MTC, it is observed that the highest percentage of consumers are in the precontemplation stage. The use of the MTC shows its usefulness not only for the location of the stage in which the consumer of alcoholic beverages is, but also represents a tool that makes it possible to design more effective interventions to contain this health problem.

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Conflict of Interest

The authors declare that they have no conflicts of interest of any kind.

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