

## Prevalence of alcohol consumption in woman students of a high school in Minatitlán, Veracruz, Mexico

## Prevalencia del consumo de alcohol en mujeres estudiantes de una secundaria de Minatitlán, Veracruz, México

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### Abstract

Alcohol consumption is one of the current problems that affects mostly the young population and in the case of women the effects are more harmful in smaller amounts, which makes it a more vulnerable population. Therefore, the objective of this research is to identify the prevalence of alcohol consumption in women students of a secondary school in Minatitlán, Veracruz. This is a descriptive and transversal study, the whole population was used, consisting of 89 third-grade students from high school, from all groups and both shifts (morning and evening), a personal data card, the Prevalence Questionnaire on Alcohol Consumption and the Questionnaire for the Identification of Disorders due to Alcohol Consumption (AUDIT) was used. Results: The median age of onset of consumption was 14 years (IQR = 1 year), the overall prevalence of 60.7%, the lapsica of 39.7% and it is highlighted that both the immediate and mediate prevalence maintain the same percentages of 19.1%. It is recommended to consider the results to plan strategies for prevention and reduction of alcohol consumption, considering the age groups and gender

### Prevalence, Alcohol Consumption, Woman

### Resumen

El consumo de alcohol es una de las problemáticas actuales que afecta en su mayoría a la población joven y en el caso de las mujeres los efectos son más nocivos en menores cantidades, lo cual hace que sea una población más vulnerable. Por lo tanto, el objetivo de esta investigación es identificar la prevalencia del consumo de alcohol en mujeres estudiantes de una secundaria de Minatitlán, Veracruz. Estudio descriptivo transversal, se utilizó toda la población, conformada por 89 alumnas de tercer grado de secundaria, de todos los grupos y ambos turnos (matutino y vespertino), se utilizó una Cédula de datos personales, Cuestionario de Prevalencia de Consumo de Alcohol y el Cuestionario de Identificación de los Trastornos debidos al Consumo de Alcohol (AUDIT). Resultados: La mediana de edad de inicio de consumo fue de 14 años (IQR = 1 año), la prevalencia global de 60.7%, la lápsica de 39.7% y se destaca que tanto la prevalencia mediata e inmediata conservan los mismo porcentajes de 19.1%. Se recomienda considerar los resultados para planear estrategias para prevención y disminución de consumo de alcohol, considerando los grupos de edades y el género.

### Prevalencia, Consumo de alcohol, Mujeres

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## Introduction

Alcohol consumption is one of the current problems in Public Health, which affects adolescents in a greater proportion. The World Health Organization (2018) mentions that alcohol is a psychoactive substance with dependency-causing properties that has been widely used in many cultures for centuries. The harmful consumption of alcohol carries a heavy social and economic burden for societies. Alcohol affects people and the social environment in different ways, and its effects are determined by the volume of alcohol consumed, consumption habits and, in rare cases, the quality of alcohol. In the case of women, this problem has become more relevant, due to the increase that has occurred in recent years globally in this population.

## Epidemiology

According to the report of the World Health Organization (WHO) in 2014, the percentage of deaths attributable to alcohol consumption among women amounts to 4%. In 2010, the total consumption of alcohol per capita in the whole world registered an average of 8.9 liters among this same population.

In Europe, according to the report of *Health at a Glance: Europe 2016* of the Organization for Economic Cooperation and Development (OECD), the region of the European Union (EU) between 2013 and 2014, The countries with the highest percentages of young women aged 15 years who have been drunk are Denmark (38%), followed by Hungary (34%) and the United Kingdom (33%). In Spain between 2008 and 2010, women increased their consumption from an average of 6.7 to 10.6 liters per year, which indicates that Spanish women drink almost twice the world average (Information, 2016).

In the Americas region, women consume more alcohol and more frequently, Acquiring higher prevalences of disorders due to alcohol use among women, with an estimated 12.6% of girls and women affected. According to the report of the Pan American Health Organization (PAHO), the percentage of women between 2005 and 2010, that consumes at least four or five alcoholic beverages per month increased from 4.6 to 13% (WHO & OPS, 2014).

The Encuesta Nacional de Consumo de Drogas, alcohol y Tabaco (ENCODAT) 2016-2017, indicates that in Mexico the consumption of alcohol is high, in particular the pattern of excessive consumption.

This pattern occurs not only in the population of legal age, but also in a large proportion of minors, and it is in adolescent women that the greatest proportional growth has occurred, until they reach prevalences similar to those of men. Excessive consumption and customary consumption rates represent the main problem in the field of addictions, which has grown particularly due to the integration of more women into alcohol consumption (INPRFM, 2017).

The prevalence of alcohol consumption in women aged 12 to 17 years is 39.8% "sometime in life", 27.2% in "the last year", 7.7% in "the last month" and indicates a possible dependence on alcohol in 0.7% of women. Comparing 2011 results, excessive consumption in the last month showed a significant increase in women, from 2.2% to 7.7%. Regarding the beginning of consumption, women reported having started at 19.2 years old (INPRFM, 2017). In the South Central Region of Veracruz, Mexico, the drug with the greatest impact on women was alcohol with 53%, of which the characteristics of this population were highlighted, being that 71.4% were single, 49% were under 18 years old, in terms of schooling, 53.7% had secondary education and 21.7% had a high school diploma (National Survey of addictions, 2011). On the other hand, in the same Region, according to the National Survey of Alcohol Consumption in Students 2014, 8.8% of high school students have a problematic consumption and it increases significantly in high school students (16.6%). Even so, these percentages of consumption in the state are below the national prevalence, except for secondary that is within (National Commission Against Addictions, National Institute of Psychiatry Ramón de la Fuente Muñiz, Secretaría de Salud & Secretaría de Educación Pública, 2015)

## Effect of ethanol on women

There is evidence that women could be more vulnerable to the harmful effects of alcohol compared to men. Due to the greater sensitivity of women to the effect of ethanol, because in them, compared to men, reach higher concentrations in plasma for the same intake. This is because they have less activity of the enzyme alcohol dehydrogenase in the stomach mucosa, which makes the first-pass effect of alcohol (intestine-liver) in them less intense, resulting in higher plasma concentrations. Another factor is its lower volume of body and plasma water compared to man. Therefore, the risk of alcohol-related injuries is higher in women (WHO, 2016, Vecchione, Vásquez & Bermúdez, 2011).

A study by Bríñez (2001) confirms with its results that women are more at risk of manifesting physiological signs of intoxication than men. It was also observed that the higher the level of consumption, the higher the proportion of women who showed the signs of intoxication, in the following order from highest to lowest: dysarthria, physiological, altered state of consciousness, cognitive, motor and emotional, having been the most significant physiological alterations. The Nutrition Guide points out that, for women, consuming more than one alcoholic beverage per day can increase the risk of having a car accident, other injuries, raising blood pressure, suffering strokes, committing or being the victim of an act of violence or suicide, in addition to developing certain types of cancer (US Department of Health and Human Resources, 2005).

Epidemiology has shown that alcohol consumption is causally related to a higher risk of cancers of the upper aero-digestive tract, liver, colon and rectum, and female breast. Especially worrisome is the case of the promotion of breast cancer due to chronic alcohol consumption. Indeed, breast cancer is a cause of disease and death extremely important in women and alcohol consumption is one of the few modifiable risk factors for this cancer (Castro, 2015).

In addition, alcohol can interact with a wide variety of medications, both prescription and over-the-counter. Reducing effectiveness or increasing side effects. In case of pregnant women, it can cause fetal alcohol syndrome. Another risk of drinking is that the woman could, at some point, abuse alcohol or be dependent on said substance. Consuming more than seven drinks per week increases the risk that a woman will abuse alcohol or become dependent. Even women who drink less than seven drinks per week are at greater risk of developing such dependence or abuse, if they occasionally drink four or more drinks on any given day (US Department of Health and Human Resources, 2005).

Regarding affect in the emotional field, a study by Cortaza y Villar (2008), in which women reveal their own experience as it makes them feel like drinking alcohol, highlighting that although it makes them feel good, there is an ugly side, in which they perceived the losses that occurred by the act of consuming alcohol, at that time they became aware of the ugly side, which includes the raw, suffering, hangover, leading to guilt, sadness, bitterness, return to reality, emptiness and lack of control, aggressiveness and feeling death.

In general, the consumption of alcohol is harmful to the body and more at an early age, any amount of alcohol is considered excessive and harmful, because between 11 and 19 years there is physiological, metabolic and hormonal immaturity, which increases the severity of the consequences produced in this consumption, also reduces self-control and increases risk behaviors. It can even cause health problems at a later stage of life and influence life expectancy (Sadock & Sadock, 2005; López, Villar, Alonso, M & Alonso, T, 2013). These circumstances have caused it to be considered as a priority public health problem of preadolescence and adolescence, in addition to which behavioral habits are formed at this stage and socialization models are adopted, which can become a facilitator of the beginning of consumption of alcohol, and therefore, should be known and take measures to prevent it. (Rebolledo, Medina & Pillon, 2004, Alfaro, Vázquez, Fierro, Muñoz, Rodríguez & García, 2014).

### **Importance of timely detection**

Information on the amount and frequency of alcohol consumption can help establish a diagnosis of the patient's current status, as well as alerting clinicians to the need to warn patients whose use may adversely affect their medication and other aspects of your treatment.

The detection also offers the health person the opportunity to adopt preventive measures that have demonstrated their effectiveness in reducing the risks related to alcohol, considering the Test of Identification of the Disorders Due to the Consumption of Alcohol, (AUDIT), for said evaluation of effective way (Babor et al., 2001).

### **Public policies on alcohol consumption**

The Health Law of the State of Veracruz of Ignacio de la Llave (2014), which is of public order and social interest and its provisions, is of mandatory application in the State; regulates the right to health protection. Therefore, it indicates in TITLE TENTH, CHAPTER 1, ARTICLES 155, that the Government of the State will coordinate with the federal sanitary authorities for the execution in the State of the program against alcoholism and the abuse of alcoholic beverages, which highlights the actions II to provide education on the effects of alcohol on health and social relations, especially aimed at children, adolescents, workers and farmers, through individual methods, social or mass communication (Secretaria de Gobierno del Estado de Veracruz, 2014).

Likewise, said study is based on ARTICLE 156, which mentions that obtaining the information that guides the actions against alcoholism and the abuse of alcoholic beverages, the health authorities of the State, in coordination with other agencies and public entities, will carry out research activities where stands out aspect III.- Habits of alcohol consumption in different population groups (Secretaria de Gobierno del Estado de Veracruz, 2014).

On the other hand, the Government of the State of Veracruz, with the purpose of promoting and strengthening actions in the field of prevention and care of addictions to improve the quality of life of Veracruz citizens, the National Commission against Addictions and the government of that entity signed a collaboration agreement in order to work together on the subject, to allow the strengthening of prevention programs y del Consejo Estatal and the State Council Against Addictions (SCAA), as well as promoting the integration of Municipal Committees Against Addictions (MCAA) and promoting preventive citizen participation (Secretaria de Salud, 2017).

For its part, the government of the State, recognized the need to face the threat of addictions, therefore, stressed the importance of prevention in relation to this problem refers. He highlighted the role of the family and the school in preventive work. He warned that in Mexico, consumption rates are increasing at a younger age, and the use of drugs has increased, mainly among young people. (Secretaria de Salud, 2017)

Therefore, it is important to know the prevalence of consumption of this substance, identifying the age of onset of women, as a starting point for health personnel to plan activities focused on prevention or reduction of consumption, considering the most vulnerable population, regarding gender and age. Therefore, with the aforementioned, the following research question was asked: What is the prevalence of alcohol consumption in female students of a secondary school?

This study is briefly described with the following sections: Methodology, which details the type of study, the population, the instruments, the data analysis strategies and the ethical considerations, Results and Conclusion, which frames the important findings of the study, as well as some recommendations.

## Objective

To identify the prevalence of alcohol consumption in women students of a secondary school in Minatitlán, Veracruz, Mexico.

## Methodology

This study was of a cross-sectional descriptive type, in which all the population that fulfilled the inclusion criteria was studied, which consisted of women who were enrolled in the third grade of secondary school in the selected educational institution, therefore, the final population consisted of 89 third-year students, from all groups of both shifts (morning and evening) who wished to participate and attended the day of data collection, without discriminating against anyone.

## Instruments

For data collection, a personal data card and a questionnaire on the prevalence of alcohol consumption were used, which made reference to questions about the frequency and amount of consumption as well as the age of onset of consumption. Likewise, the Questionnaire for the Identification of Disorders due to Alcohol Consumption (AUDIT) was applied, which was developed by the WHO and adapted in Mexico by De la Fuente and Kershenovich (1992).

The AUDIT was developed to detect excessive alcohol consumption and in particular to help health personnel to identify those people who could benefit from the reduction or cessation of consumption. This helps to identify if the person presents a risk consumption, harmful consumption or alcohol dependence, is composed of 10 multiple choice items (with a score from 0 to 4) that correspond to three domains. So when adding the scores of the 10 items the scale ranges from 0 to 40.

Its cut point is 8 and with more than 8 points there are problems with the way of drinking. The scores for the type of alcohol consumption are as follows: 0-7 points, low risk consumption; from 8 to 15 points of risk consumption, from 16 to 19, harmful consumption and from 20 to 40 is considered dependent consumption (Babor et al., 2001).

Regarding the data analysis, previously histograms were made with their respective curvatures, and also the Kolmogórov-Smirnov test was performed to see the distribution of the data, which did not comply with a normal distribution, therefore tests were performed nonparametric, in which central tendency and dispersion measures were obtained, as well as frequencies and percentages, according to the scope of the study. It is worth mentioning that this research was attached to the General Law of Health on Research.

## Results

Of the population studied, it was found that their ages ranged from 17 to 14 years, with a median of 14 years (IQR = 1 year), with respect to their marital status, 100% reported being single, in terms of their occupation 94.4 % study and 5.6% mention study and work. In addition, they were asked if they performed any recreational activity in their free time (outside the school), so 41.6% answered yes and 58.4% said they did not.

Regarding the consumption of alcohol, 60.7% are consumers and 39.3% have not consumed. The age of onset of consumption was between 5 and 16 years with a median of 14 years (IQR = 2 years), what can be inferred that the adolescents of this region are beginning to consume at younger ages, than at the national level according to the ENCODAT 2016-2017, which reports that the age of initiation in women is 19.2 years (Instituto Nacional de Psiquiatría Ramón de la Fuente Muñiz [INPRFM]).

Type of Prevalence	Frequency	%
Global (Once in a lifetime)	54	60.7
Lapsica (In the last year)	35	39.3
Mediata (In the last month)	17	19.1
Immediata (In the last week)	17	19.1

**Table 1** Prevalence of alcohol consumption of high school students

Source: Constructed from data obtained by the Prevalence Questionnaire of alcohol consumption

Regarding the prevalence of alcohol consumption, Table 1 is observed, which shows that the overall prevalence is 60.7%, the lapsica is 39.7%, and it is highlighted that both the immediate and mediate prevalence maintain the same percentages 19.1%. Result inferred that there is a percentage of students who were consuming in the last seven days before applying the study, data that has increased compared to the study of Tegoma and Cortaza (2016), conducted in a secondary school in the region of Veracruz, which indicates percentages 16.9% in the immediate prevalence, and 6.5% in the immediate.

Assiduity in the consumption of alcohol	Frequency	%
Never	36	40.4
Once a month or less	46	51.7
2 or 4 times a month	6	6.7
2 to 3 times per week	1	1.1

**Table 2** Assiduity of alcohol consumption of high school students

Source: Prevalence questionnaire on alcohol consumption

On the other hand, Table 2 shows the assiduity in alcohol consumption, where the largest percentage of the population is consuming at least one time or less with 51.7%, it should be noted that there is a percentage of the population that you are consuming 2 or 4 times a month (6.7%) and 2 to 3 times a week (1.1%), Although it seems to be minimal, it is frequently consumed, which together with the amount of consumption places the female population at risk, according to the aforementioned literature.

As for the number of drinks, they consumed between 10 and 1 alcoholic drinks in a typical day of consumption, with a median of 2 drinks (IQR = 3 drinks). According to the National Library of Medicine of the USA (MedlinePlus) (2018), she mentions that drinking an excessive amount of alcohol implies a risk to health, that for women it would be that she ingested more than 1 drink a day, or 8 or more drinks a week. A drink is defined as 12 ounces or 360 milliliters (mL) of beer (5% alcohol content), a 5 ounce glass of wine or 150 mL (12% alcohol content) or a 1.5 ounce drink or 45 mL of liquor (80 degrees test or 40% alcohol content).

The pattern of alcohol consumption combines the number of drinks consumed with the period of time during which it is consumed, to classify the population. Distinguishing between strong consumption (Five or more drinks per occasion) and moderate consumption (less than five drinks) allows you to qualify the risk situations for the different groups (National Institute of Statistics, Geography and Informatics [INEGI], 2004)

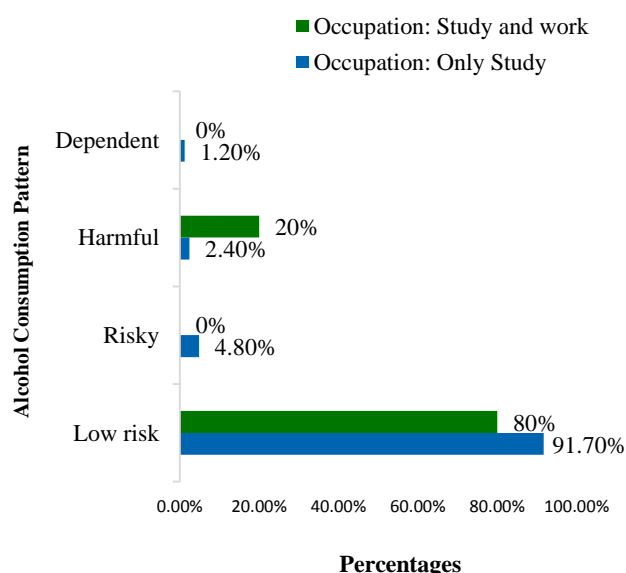
Patterns	Frequency	%
Low risk consumption	81	91.0
Risk consumption	4	4.5
Harmful consumption	3	3.4
Consumption dependence	1	1.1

**Table 3** Patterns of alcohol consumption of high school students

Source: Constructed from data obtained by the Audit Questionnaire

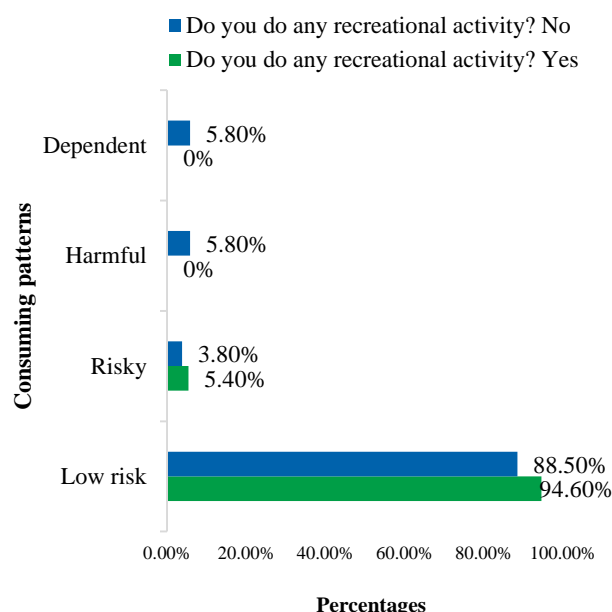
Regarding the patterns of consumption in this study, Table 3 is observed, which shows that there is a percentage of students who are in, consumption of risk (4.5%) harmful consumption (3.4%) and dependent (1.1%). An alarming fact, since according to Babor et al. 2001, the consumption of risk constitutes a pattern that increases the risk of adverse consequences for the drinker or for others.

Identifying it is important for planning intervention strategies. Harmful consumption refers to that which entails consequences for physical and mental health, although some also include the social consequences among the damages caused by alcohol. Dependence is a set of behavioral, cognitive and physiological phenomena that can appear after the repeated consumption of alcohol.



**Graphic 1** Consumption patterns according to the occupation of high school students

On the other hand, graphic 1 shows the patterns of alcohol consumption according to occupation, where it is observed that women who dedicate themselves only to study are in a higher percentage in low risk consumption (91.7%) that those who study and work (80%), even though they take their consumption to a dependent level (1.2%), data that is similar to the study by Alonso, Yañez & Armendáriz (2017) carried out in secondary school students, who mention that excessive consumption occurs in a greater percentage of those who study and work (24.1%) than in those who only study (2.7%).



**Graphic 2** Patterns of consumption according to the performance of recreational activities of high school students

Also, in graphic 2, the consumption patterns are shown according to whether they carry out any recreational activity in their free time (outside the school), where it is observed that those who do recreational activities in their greater percentage are in low risk consumption (94.6%) compared to those who do not perform any activity (88.5%) and take their consumption to the harmful (5.8%) and dependent (5.8%) pattern. Results that are similar with the study by Espejo et al. 2017, which mentions that according to the parameters of physical activity studied, it is established to a greater extent than those participants who practice collective sports have a consumption between zero and a half, while for four out of ten of those who maintain excessive consumption do not practice no type of physical activity.

Therefore, Alvaro et al (2016) states that adolescents who practice physical activity on a regular basis are induced by the non-consumption of harmful substances.

## Conclusion

In this study, it is observed that more than half of the women students of secondary school have consumed alcohol, and that this consumption started at younger ages (14 years) than those reported nationally by the ENCODAT 2017 (19 years), alarming data for health professionals, especially for those at the primary care level, such as the nursing staff, who are called to plan strategies focused on prevention and decrease in consumption at younger ages.

Regarding the prevalence of consumption, there is the same percentage of the population in the immediate and mediate prevalence, which may refer that the students who consumed in the last month, also did so in the last seven days, and contrasting it with the frequency of consumption, that there are students who consume 2 or 4 times a month and 2 to 3 times a week, increasing the risk in said population, which considering their gender is more vulnerable to the consequences of alcohol consumption.

On the other hand, according to the patterns of consumption and occupation, where a greater percentage of low consumption stood out in those who only studied. Result that can be linked to the students who study and work has greater accessibility to the purchase of this psychoactive substance, for having a remuneration for their work, also implies that the adolescent must socialize with older groups that are part of their work, sharing with these groups increases the likelihood of even excessive alcohol consumption (United Nations Office on Drugs and Crime, 2013). Regarding recreational activities, it was observed that students who work in other activities find themselves in low risk and risky consumption patterns, which may denote a path or a strategy for the prevention or reduction of alcohol consumption.

For which the recommendation is made to deepen in future research, based on ARTICLE 156, section II, CHAPTER 1, TITLE TENTH of the Health Law of the State of Veracruz of Ignacio de la Llave 2014. In addition, the use of of the AUDIT as an instrument designed to focus on the problems of alcohol consumption, obtaining short-term results, identification of consumption patterns and gives the guidelines to apply an intervention or timely treatment.

On the other hand, considering governmental strategies, it is recommended to reinforce public policies aimed at the prevention and reduction of alcohol consumption in vulnerable population such as women, considering the data of this study, as current scenario in this population of the region in particular of the South of Veracruz.

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