



## ORIGINALES

### Perceived Stress and Alcohol Consumption in Indigenous

#### Estrés Percibido y Consumo de Alcohol en Indígenas

Jasmin Urania Camacho-Martínez<sup>1</sup>  
Matilde del Carmen Fría-De la Cruz<sup>1</sup>  
Karla Selene López-García<sup>2</sup>  
José Roberto García-Jiménez<sup>1</sup>  
Pedro González-Angulo<sup>1</sup>  
Jose Juan Lopez Cocotle<sup>1</sup>

<sup>1</sup> Juárez Autonomous University of Tabasco, Multidisciplinary Academic Division of Jalpa de Méndez. Mexico. [jasmin.camacho@ujat.mx](mailto:jasmin.camacho@ujat.mx)

<sup>2</sup> Autonomous University of Nuevo León, Faculty of Nursing. Mexico.

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#### ABSTRACT:

**Introduction:** In Latin America, alcoholic beverages consumption is a main reason of problems related to physical, mental and social health. The National Commission for the Development of Indigenous Peoples states that indigenous populations are vulnerable problems related to alcohol consumption because a set of characteristics such as extreme poverty and educational backwardness. Our objective was to determine the effect of perceived stress on alcohol consumption in an indigenous population.

**Method:** Study design was descriptive, correlational, and predictive.

**Results:** Perceived stress was positively and significantly related to the number of drinks consumed in a typical day ( $r_s = .211, p < .01$ ), it's also related with alcohol consumption (AUDIT) ( $r_s = .328, p < .01$ ), however, it was negatively and significantly related to age ( $r_s = -.135, p < .05$ ). The final Model presented a significant effect in the whole model ( $F_{(1,110)} = 20.126, p = .001$ ), explaining 39.3% of the variance of alcohol consumption. Perceived stress was found to have a positive and significant effect on alcohol consumption ( $B = .229, p < .001$ ).

**Conclusions:** Perceived stress is a factor influencing excessive alcohol consumption in indigenous populations, drug use is considered a coping strategy to deal with stressful problems in daily life. The population presented problems with heavy episodic drinking, past year drinking with high prevalence and harmful drinking.

**Keywords:** Physiological Stress; Psychological Stress; Indigenous Culture; Alcohol Drinking; Alcohol Drinking Habits.

#### RESUMEN:

**Introducción:** En Latinoamérica el consumo de bebidas alcohólicas es causante de problemas relacionados con la salud física, mental y social. La Comisión Nacional para el Desarrollo de los Pueblos Indígenas señala que las poblaciones indígenas son vulnerables a presentar problemas con el consumo de alcohol derivado de algunas características como pobreza extrema y rezago educativo,

nuestro objetivo fue conocer el efecto del estrés percibido sobre el consumo de alcohol en una población indígena.

**Material y método:** El diseño del estudio fue descriptivo, correlacional, predictivo.

**Resultados:** El estrés percibido se relacionó positiva y significativamente con el número de copas consumidas en un día típico ( $r_s = .211, p < .01$ ), y con el consumo de alcohol AUDIT ( $r_s = .328, p < .01$ ), sin embargo, se relacionó negativa y significativamente con la edad ( $r_s = -.135, p < .05$ ). El Modelo final presentó un efecto significativo en la totalidad del modelo ( $F_{(1,110)} = 20.126, p = .001$ ), explica el 39.3% de la varianza del consumo de alcohol. Se encontró que el estrés percibido tuvo un efecto positivo y significativo sobre el consumo de alcohol ( $B = .229, p < .001$ ).

**Conclusiones:** El estrés percibido es un factor que influye en el consumo excesivo de alcohol en las poblaciones indígenas, se considera que el consumo de drogas es una estrategia de afrontamiento para hacer frente a problemas estresantes en la vida diaria. La población presentó problemas con el consumo de alcohol excesivo episódico, prevalencias altas en consumo en el último año y consumo dañino.

**Palabras clave:** Estrés fisiológico; Estrés psicológico; Cultura de las Poblaciones Indígenas; Consumo de Bebidas Alcohólicas; Hábitos de Consumo de Bebidas Alcohólicas.

## INTRODUCTION

According to the World Health Organization [WHO], alcohol is the number one substance consumed in society, due to its accessibility, acceptance, and legality in the population aged 18 years and older. Alcohol has reported more than 3 million deaths in the world and 5.3% of deaths due to excessive consumption, related to various diseases, injuries and accidents; considered as a global public health problem. Which is related to the quantity, quality and frequency in which alcoholic beverages are consumed <sup>(1)</sup>.

In Latin America, the consumption of alcoholic beverages causes serious problems related to physical, mental and social health, with negative effects on the economy of numerous countries that integrates it. Mexico, for its part, occupies one of the first places in alcoholic beverages consumption in North America <sup>(2)</sup> and third place in deaths due to alcohol consumption within the most populated countries <sup>(3)</sup>.

Alcohol consumption, it is intertwined with indigenous populations and it has been associated with traditional practices, religious traditions and ways of subsistence. The National Commission for the Development of Indigenous Peoples [CDI], through the General Report of the Consultation on Alcoholism and Indigenous People <sup>(4)</sup>, highlights that indigenous populations are considered minorities and vulnerable due to various characteristics such as extreme poverty, difficulty in accessing food, housing, educational backwardness and discrimination, which makes the indigenous population more likely to have problems with alcohol consumption.

Mexico is a country with a great cultural legacy, where there are various ethnic groups and indigenous populations that keep the essence of culture within them. However, these groups are removed from rural areas, keeping their distance from them and further protecting certain beliefs, habits and customs present in ancient times that identify them as indigenous peoples <sup>(5)</sup>.

Regarding the consumption of alcoholic beverages among various population groups, this can be determined by various components, such as contextual and cultural components <sup>(6)</sup>; according to the meaning attributable to the moment of ingestion of alcoholic beverages. In relation to culture, such as the ease of social relationships,

coexistence between peers, with family or adaptation to the environment, as well as a means of escape from unpleasant situations or emotional outbursts. In various indigenous groups of the country, the consumption of alcoholic beverages has a sociocultural approach, derived from various beliefs attributable to its consumption, used in commemorative and celebratory moments, as well as in rituals, being used as a mediator of connection with the ancestral world, social bond, exchange and support networks <sup>(7)</sup>.

As for alcohol consumption, in itself it has a multifactorial origin <sup>(8)</sup>, which has previously been related to situational stimuli in people, triggering a reaction in response to what is perceived as stressful in various areas or environments, such as work, school, family, society and the personal sphere <sup>(9)</sup>, where responses to everyday situations are considered exhausting, unpredictable, uncontrollable and unbearable <sup>(10)</sup>, which is related to the harmful consumption of alcoholic beverages <sup>(11)</sup> and with a greater desire to consume alcohol <sup>(12)</sup>, incited by perceived stressful situations, which excessively and uncontrollably increases the consumption of intoxicating beverages <sup>(13)</sup>. In a specific population of indigenous Australians, they obtained positive scores of perceived stress in the last month, which was associated with alcohol consumption problems <sup>(9)</sup>.

It is relevant to consider that for the indigenous population, the consumption of alcoholic beverages is part of their means of celebration, gratitude, petition and protection, related to culture and tradition, of which they have been a part since childhood, sharing a bond with past generations, being part of their lifestyle, which has caused a pattern of excessive alcohol consumption to occur <sup>(7)</sup>. However, this has not been studied in depth in vulnerable populations such as the indigenous population, which is rooted in consuming alcoholic beverages, considerably affecting individual, family and collective health in this sector of the population <sup>(4, 9)</sup>.

Among the precursors that according to the literature are linked to the consumption, avoidance or non-consumption of alcoholic substances in the indigenous population are ineffective responses to various factors or stimuli, such as stress. A fundamental article in the study was the one developed by Cohen et al. <sup>(14)</sup>, in which stress is defined as the feeling of the level at which the usual situations in life are considered difficult, or uncontrollable, in this sense people consume alcohol with the aim of feeling well-being and reducing the pressure on their problems <sup>(15)</sup>, which is why it is relevant to identify how stress behaves in indigenous populations.

Therefore, the objective of this research was to know the effect of perceived stress on alcohol consumption in an indigenous population. In which the hypothesis proposed it that if there is greater stress, greater is alcohol consumption.

## **MATERIALS AND METHODS**

Study design was descriptive, correlational and predictive; descriptive because the description of the study variables was made, correlational because the relationships between the variables perceived stress and alcohol consumption were examined; predictive because the effect of the perceived stress variable on alcohol consumption was measured <sup>(16)</sup>.

The population was made up of indigenous adults from the town of Mazateupa in the municipality of Nacajuca, Tabasco, Mexico. This town has a population of 3,598 adults over 18 years of age of both sexes according to the National Institute of Statistics and Geography [INEGI], in 2010 <sup>(17)</sup>. The sample size was calculated using the statistical program n'Query Advisor® version 7.0, for a proportion with a significance level of .95 for a bilateral interval, an error of .05%, power at 90% with a coefficient of determination of .05%, considering a non-response rate of 5%, thus obtaining a final sample of 212 indigenous adults, the sampling was non-probabilistic for convenience by quota.

A sociodemographic and alcohol consumption prevalence data sheet (CDPPCA) was used; the instruments were: the perceived stress scale (PSS-14) and the alcohol use disorders identification test (AUDIT).

The CDPPCA contains sociodemographic data and four questions on the prevalence of alcohol consumption: ever in life, in the last 12 months, in the last 30 days and in the last seven days; In addition, two questions examine the age at which alcohol consumption began and the number of drinks consumed on a typical day.

The PSS-14 was created by Cohen et al. in 1983, its objective was to measure perceived stress, that is, the degree to which people evaluate how daily life situations are considered stressful. The adaptation to Spanish was carried out by Remor and Carroles in 2001 <sup>(18)</sup>, the instrument consists of 14 items.

The questions of the instrument are made up of two factors, one with a focus on stress control and the other on non-stress control. The scores range from 0 to 56, with higher evaluations indicating a higher level of stress perceived by individuals. This instrument has reported a Cronbach's Alpha of  $\alpha = .91$  in a study carried out on addicted patients in Spain <sup>(19)</sup>, in this study it presented a Cronbach's Alpha of  $\alpha = .76$ .

The AUDIT questionnaire was adapted for the Mexican population by De La Fuente and Kershenovich in 1992 <sup>(20)</sup>. This instrument explores alcohol consumption during the last 12 months, the problems that occur due to alcohol consumption, as well as identifies patterns of alcohol consumption (hazardous, dependent and harmful), composed of 10 questions that have a score that ranges from 0 to 40 points. In rural populations in Mexico, Cronbach's Alpha of  $\alpha = .78$  has been reported <sup>(21)</sup>, in this study a Cronbach's Alpha of  $\alpha = .87$  was obtained.

First, authorization was requested from the delegate of the indigenous communities and the authorities of the health center. The next step was to contact the community's health personnel, who were trained to carry out the interview. Through the health center, people who came for consultation from March to December 2021 were contacted. Those who accepted went to an office where the informed consent form was read and signed. Subsequently, the instruments were applied through direct interview, the interviewers read the questions from a blank questionnaire and the participants answered in the questionnaires that they had, they were told that if they did not understand a question, it was necessary for them to express it so that the questions could be explained to them in detail.

For the analysis of the data, the statistical program IBM SPSS Statistics® version 25 was used, descriptive statistics were used for the sociodemographic data of the

sample, for the prevalence of consumption and the AUDIT test descriptive statistics and 95% confidence intervals were used.

To determine the normality of the continuous variables, the Kolmogorov-Smirnov Test was used, which is why it was decided to use non-parametric statistics such as Spearman's correlation. Likewise, statistical inference was used with Linear Regression Models.

The study was in accordance with the provisions of the Regulations of the General Health Law on Health Research, in its latest modification. In addition, this document has the approval of the ethics and research committee of the Faculty of Nursing of a public university in the state of Nuevo León, Mexico, with No. 19-CEI-004-20180614.

## RESULTS

Regarding the sociodemographic data, it is presented in table 1, where 99.1% of the population feels that they belong to an indigenous group, 54.7% speak an indigenous language and 78.8% have a family member who speaks an indigenous language. indigenous, with regard to the age group that most predominated was 18 to 26 years old, 53.8% were female, 57.5% described themselves as having a partner, with regard to education, 31.1% described themselves as having a bachelor's degree Regarding occupation, they indicated that 36.6% are students.

**Table 1. Sociodemographic characteristics of indigenous adults**

Characteristics	F	%
Belongs to an indigenous group	No	.9
	Yes	99.1
Speaks an indigenous language	No	45.3
	Yes	54.7
Does a family member speak an indigenous language?	No	21.2
	Yes	78.8
Age	18-26 years	55.2
	27-59 years	43.9
	60-86 years	.9
Sex	Male	46.2
	Female	53.8
Marital status	With couple	42.5
	Single	57.5

Educational level

None	5	2.4
Elementary	15	7.1
Middle	15	7.1
Highschool	45	21.2
Technical career	28	13.2
Degree	66	31.1
Postgraduate	38	17.9

Occupation

Doesn't work	5	2.4
Student	77	36.3
Housewife	27	12.7
Professional	31	14.6
Farmer	40	23.6
Businessman	12	5.7
Administrative	10	4.7

Note. f = frequency, % = percentage n =212 [Own source].

Table 2 shows the prevalence of alcohol consumption where 70.3% consumed alcohol at some point in their lives, 52.8% in the last 12 months, 32.1% in the last 30 days and 18.9% in the last seven days, regarding the age of initiation of alcohol consumption was 8 years and the maximum age was 26 years, the average age was  $\bar{x}$  = 12.27 (SD = 8.38).

**Table 2. Prevalence of alcohol consumption**

Prevalence		F	%	95% CI	
				L.L.	U.L.
Sometime in life	No	63	29.7	24	76
	Yes	149	70.3		
In the last 12 months	No	100	47.5	46	60
	Yes	112	52.8		
In the last 30 days	No	144	67.9	26	38
	Yes	68	32.1		
In the last seven days	No	172	81.1	14	24
	Yes	40	18.9		

Note. f = frequency, % = percentage, CI = Confidence interval, n = 212 [Own source].

Table 3 shows the types of alcohol consumption according to the AUDIT, hazardous consumption occurred in 27.4%, dependent consumption in 30.2%, and harmful consumption in 42.3% of the study participants.



**Table 3. Type of Alcohol consumption according to the AUDIT**

Type of consumption	F	%	95%CI	
			L.L.	U. L
Hazardous	29	27.4	19	36
Dependent	32	30.2	21	39
Harmful	45	42.5	33	52

Note. f = Frequency, % = Percentage, CI = Confidence Interval, LI = Lower Limit, UL = Upper Limit. AUDIT= Alcohol Use Disorders Identification Test, n =106 [Own source].

Table 4 shows the Spearman correlation coefficient for the numerical variables. The results showed that the number of drinks consumed on a typical day was positively and significantly related to age ( $r_s = .161$ ,  $p < .05$ ), also with the age of initiation of alcohol consumption ( $r_s = .524$ ,  $p < .01$ ). Alcohol consumption (AUDIT) was positively and significantly related to age ( $r_s = .281$ ,  $p < .05$ ), and the number of drinks consumed on a typical day ( $r_s = .739$ ,  $p < .01$ ). However, it was negatively and significantly related to the age of initiation of alcohol consumption ( $r_s = -.265$ ,  $p < .01$ ). Perceived stress was positively and significantly related to the number of drinks consumed on a typical day ( $r_s = .211$ ,  $p < .01$ ), and alcohol consumption (AUDIT) ( $r_s = .328$ ,  $p < .01$ ), However, it was negatively and significantly related to age ( $r_s = -.135$ ,  $p < .05$ ).

**Table 4. Spearman Correlation Coefficient of Perceived Stress with Alcohol Consumption**

Variable	1	2	3	4	5
1. Age	-				
2. Age of initiation of alcohol consumption	.110	-	.		
3. Number of drinks consumed on a typical day	.161*	.524**	-		
4. Alcohol Consumption (AUDIT)	.281*	-.265**	.739**	-	
5. Perceived stress (PSS-14)	-.135*	.065	.211**	.328*	-

Note. AUDIT = Alcohol Use Disorders Identification Test, PSS-14 = Perceived Stress, \*  $p < .05$ . \*\*  $p < .01$  [Own source].

Regarding table 5, the results of the Simple Linear Regression Model are shown to observe the effect of perceived stress on alcohol consumption, which had a significant effect in the entire model ( $F_{(1,110)} = 20.126$ ,  $p = .001$ ), explains 39.3% of the variance in alcohol consumption. It was found that perceived stress had a positive and significant effect on alcohol consumption ( $B = .229$ ,  $p < .001$ ).

**Table 5. Simple linear regression for the effect of perceived stress on alcohol consumption**

	S.S.	lg	R.M.S	F	p
Regression	860,841	1	860,841	20,126	.001
Residual	4704.874	110	42,772		
Total	5565.714	111			R2 = 39.3%

  

Coefficients						
Model (n = 106)	$\beta$	AND	t	p	95% confidence interval	
					lower	Superior
(Constant)	-1,813	2,242	-.809	.420	-.6.257	2,631
Perceived stress	.229	.051	4,486	.001	.128	.330

**Note.** SS = square sum, lg = liberty grades, RMS = root mean square [Own source].

## DISCUSSION

It was found that 70.3% of the study participants have consumed alcohol at some point in their lives, 52.8% in the last 12 months, 32.1% in the last 30 days and finally 18.9% in the last week; Regarding the percentages according to the type of alcohol consumption, 27.4% presented a hazardous consumption, 30.2 a dependent consumption and 42.5% a harmful consumption.

The results showed that the number of drinks consumed on a typical day was positively related to the age of initiation of alcohol consumption, the AUDIT was positively and significantly related to the age of the participants and the number of drinks consumed on a typical day without However, it was negatively and significantly related to the age at which alcohol consumption began.

Regarding perceived stress, a positive and significant relationship was found with the number of drinks consumed on a typical day and with the AUDIT, while it was negatively and significantly related to the age of the participants since the younger the age, the greater the stress. perceived. Regarding alcohol consumption, it was positively and significantly related to the age of the participants, which is interpreted as the older the age, the greater the consumption in this population.

Perceived stress showed a positive and significant effect on alcohol consumption, it is important to mention that stress is a social factor which is considered to contribute to the onset and establishment of addiction to different types of drugs <sup>(22)</sup>, there is no evidence of the relationship between perceived stress and alcohol consumption in Mexican indigenous populations; however, it has been reported that in non-indigenous populations, stress is a risk factor for alcohol consumption and influences harmful consumption <sup>(23)</sup>. Regarding international studies on the indigenous population of Taiwan <sup>(24)</sup>, they showed that experiencing serious stressful events can cause harmful alcohol consumption, which coincides with what was reported in the present study, finding that the population with the most stressful situations is the one that resorts to and expresses greater alcohol consumption.



It is important to note that the consumption of alcohol and drugs has been reported as an active coping strategy against stress in indigenous populations <sup>(30)</sup>, because this practice is used to face the disturbing symptoms, both physiological and cognitive, caused by undergoing situations considered stressful.

It was found that stress was negatively related to age, this is interpreted as the younger the age, the greater the perceived stress, These results coincide with what was reported by a study carried out on university students in Granada, Spain <sup>(27)</sup>, which suggests that younger people have lower abilities to cope with stress and make them more sensitive to suffering its consequences.

The results of the present study showed that the greater the stress I perceive is related to the greater number of drinks consumed in a typical day, this means that the people in this study present episodic excessive consumption, these results coincide with the results of a study carried out In the Arawak indigenous community <sup>(25)</sup> that lives in the city of Venezuela, the results showed that the focus group of the study has moved from episodic excessive consumption (Binge Drinking) to habitual excessive consumption (heavy episodic drinking), which leads to presenting cognitive deficit problems and frontostriatal abnormalities <sup>(26)</sup>.

Regarding the prevalence of alcohol consumption, all prevalences are within the national average, only the prevalence of consumption in the last year (52.8%) is above the national average (49.1%) according to the data presented in the National Survey on Drug, Alcohol and Tobacco Consumption 2016-2017 <sup>(28)</sup>.

Regarding the types of alcohol consumption, harmful consumption occurred in a higher percentage, this shows that the indigenous population has problems with alcohol consumption, which coincides with what was reported by the National Commission for the Development of Indigenous peoples through the General Report of the Consultation on Alcoholism and Indigenous Peoples in 2008 <sup>(29)</sup>, which indicates that indigenous populations are considered vulnerable to presenting problems with alcohol consumption due to common characteristics in this type of populations. such as extreme poverty, difficulty accessing food and housing, educational backwardness and discrimination.

Regarding the limitations of the study, there was difficulty in communication, due to the fact that the population was indigenous and spoke their mother tongue "Chontal", which led to the inclusion of a translator for data collection, in addition to the acceptance of the population to the participation and time to answer the surveys of the present study.

## CONCLUSIONS

It was found that the greater the perception of stress, the greater the consumption of alcoholic substances in the indigenous population, which leads us to verify our proposed hypothesis, in which the perceived stress, according to the literature and research findings, is observed as a factor that considerably influences excessive alcohol consumption in indigenous populations. Various components predispose these two variables to be involved, causing the person to use the consumption of substances produced with ethanol as a way to cope with certain situations perceived as stressful, such as work, family, economic, social and cultural, ingesting these substances in search of inhibition of the negative effect, which suggests a greater consumption in the

indigenous population, who are also faced with other cultural scenarios that predispose them to feel a certain level of stress that is not present in the population. non-indigenous and which in turn suggests that the results were presented with high percentages in episodic excessive alcohol consumption, consumption in the last year and harmful consumption.

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