Horizon Interdisciplinary Journal (HIJ). ISSN: 2992-7706
Volume 1 (3): e14. October-December. 2023.

Research Article

Anxiety and Depressive Symptoms Associated to Alcohol Consumption in Health Care Workers

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Submitted: 10/03/2023 **Accepted:** 10/25/2023 **Published:** 11/12/2023

Abstract. – Alcohol consumption in healthcare personnel is of great importance due to the impact it causes on the individual's well-being and quality of life, even generating behavioral problems such as anxiety and depressive symptoms. These situations can lead to the consumption of alcohol to cope with situations that may arise in the workplace. The objectives of the study include describing the characteristics of health personnel, identifying the prevalence of alcohol consumption by sex and age, as well as determining the relationship between anxiety, depressive symptoms and alcohol consumption in health personnel. **Methods:** Descriptive, predictive correlational study that included 420 participants. Sociodemographic information was collected, as well as data on anxiety through the GAD-7, depressive symptoms measured with the PHQ9 and alcohol consumption through the AUDIT, in compliance with the ethical aspects of the General Health Law on Health Research. **Results:** Seventy percent were women, significant difference was identified in the prevalence of last month (χ^2= 5.393, p= 0.020) and last seven days (χ^2= 4.328, p= 0.037) by sex. The age group between 18 and 33 years indicated higher consumption in all four prevalences. Positive and significant relationship was shown in anxiety and depressive symptoms (r_s= .644, p< 0.001), anxiety and alcohol consumption (r_s= 0.216, p< 0.001), depressive symptoms and alcohol consumption (r_s= 0.210, p<0.001). A significant negative relationship was identified for age and anxiety (r_s= -0.218, p< 0.001), age and depressive symptoms (r_s= -.261, p< .001), as well as age and alcohol consumption (r_s= -0.228, p< 0.001). **Conclusion:** The present study provides information on the impact of mental disorder on health personnel through associations between anxiety, depressive symptoms and alcohol consumption.

Keywords: alcohol consumption, healthcare personnel, mental disorders, anxiety, depressive symptoms.

Https://doi.org/10.56935/hij.v1i3.14

1. Introduction

Alcohol consumption represents a serious problem for public health since is a psychoactive substance that generates social and economic consequences. This substance is related to more than 200 diseases and injuries, generating three million deaths annually, causing risk in the development of mental disorders, liver cirrhosis, and cardiovascular diseases, which represents 5.1% of the global burden of morbidity and injuries attributable to the consumption of this substance[1].

According to the Report on the World Alcohol and Health Situation, the Americas region has some of the highest prevalence rates of alcohol consumption in the world; in 2016, adults over 15 years of age drank 25% more alcohol on average than the rest of the world[2]. In Mexico, consumption figures are reported for the general population between 12 and 65 years of age, where 71% have drank alcohol at some time in their lives, with a higher prevalence in men (80.1%) than in women (62.6%).

During 2016, 49.1% reported having consumed alcohol in the last year, with consumption being higher in men (59.8%) than in women (39.0%). Regarding consumption in the last month, 35.9% indicated drinking alcohol, again being higher in men (48.1%) than in women (24.4%), respectively[3].

Based on the above, a vulnerability group for alcohol consumption is healthcare personnel due to the significant impact it can have on well-being and quality of life, thus, generating behavioral problems such as stress, anxiety, and depressive symptoms[4]. These situations can lead to the consumption of substances such as alcohol, as a way of coping with the situations that usually arise on a daily basis in the workplace[5].

In this regard, healthcare personnel are responsible for providing collaborative services to the population of all ages, with the aim of achieving optimal overall functioning of the health system[6]. It has been documented that working in an environment with inadequate breaks, working more than eight hours, rotation of schedules and scarcity of resources can negatively affect the health of the healthcare personnel[7,8]. Although stress, lack of education and lack of knowledge about alcohol abuse are some factors that may influence the ingestion of this substance[9].

Alcohol consumption has been identified in healthcare personnel in various countries[10,11]. For example, in Mexico 41.2% of all nurses reported drinking alcoholic beverages[8], and in the United States a prevalence of 79.7% was reported in nursing personnel[9]. Likewise, in European countries such as France, consumption of alcoholic drink was reported by 35.7% of physicians[11], while in Germany 29.0% showed this consumption behavior, of which men (32.0%) had higher prevalences

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of alcohol consumption than women (13.0%)[10].

The consumption of this substance can be related to aspects such as increased workload, physical and mental exhaustion and vital decision making in patient care, generating harmful effects on healthcare personnel which can lead to anxiety disorders or depressive symptoms[12], the latter two are the most prevalent disorders worldwide, estimating that one in ten people are affected[13].

Regarding the first disorder, anxiety is characterized by an excessive concern in which healthcare personnel do not have self-control during some situation, allowing the development of behaviors that favor alcohol consumption in an attempt to self-regulate the symptoms[4,14]. While depressive symptoms, these can have repercussions on thinking and the performance of activities such as sleeping, eating, losing up to 20.0% of working time, in addition to having a greater exposure to having an accident at work[13].

Recent studies have identified proportions of anxiety disorders and depressive symptoms, identifying that health personnel show anxiety between 49.5% and 72.1% respectively, being higher in women (52.5%) than in men (24.2%), while depressive symptoms are between 13.5% and 58.8%, being women (62.8%) who show greater disorder compared to men (24.2%)[12,15,16].

Likewise, recent published literature has focused on the results of anxiety disorders and depressive symptoms in research conducted in the context of the COVID-19 pandemic, identifying an increase in these disorders. In this respect, addressing this issue is necessary due to the impact of complications, which can generate inadequate service, accidents, high employee turnover and suicidal thoughts[17].

This paper aims to describe the mental disorders of anxiety, depressive symptoms and their relationship with alcohol consumption in healthcare personnel. Quantitative results are also shown in the study population with the purpose of evidencing possible risk factors that have an impact on the optimal health of healthcare personnel.

Objective: For this reason, the aim of this study was to describe the characteristics of healthcare personnel, to know the prevalence of alcohol consumption by sex and age, and to identify whether anxiety and depressive symptoms predict alcohol consumption in healthcare personnel working in two tertiary care hospital institutions.

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2. Method

2.1 Study design and participants

The present study is descriptive and predictive correlational. The study population consisted of 865 healthcare personnel of both genders, belonging to two tertiary care hospital institutions in the metropolitan area of the state of Nuevo León, Mexico, from April to July 2023.

The sampling was of the systematic 1 in 3 type, with random start. The sample size was obtained through the statistical package n'Query Advisor V4.0[18], with a confidence level of 95%, estimation error limit of 0.05 and a power of 90%. The total sample of participants selected was 420.

2.2 Measurement instruments

The Personal Data and Alcohol Consumption History Card (CDPHCA by its acronym in Spanish) was used. It included questions related to sociodemographic characteristics, as well as the prevalence of alcohol consumption.

Generalized Anxiety Scale [GAD-7][19] assessed generalized anxiety disorder, where the questionnaire consists of seven items through a 4-point Likert-type rating (0= Not at all, 1= Several days, 2= More than half of the days, 3= Almost every day), with a minimum score of 0 and a maximum score of 21 points.

A score between 0 and 4 indicates "nothing", i.e. no anxiety symptoms, a score between 5 and 9 indicates "several days" and above this score there is the presence of anxiety symptoms, a score between 10 and 14 indicates "more than half of the days" and scores between 15 and 21 indicate "almost every day". The scale has been validated in Spanish and has shown acceptable internal consistency with a Cronbach's Alpha of 0.92[20] and for the present study a value of 0.89 was seen.

Patient Health Questionnaire [PHQ-9][21]. The presence and severity of depressive symptoms were evaluated, where the questionnaire consists of nine items through a 4-point Likert-type assessment (0= Not at all, 1= Several days, 2= More than half of the days, 3= Almost every day), with a minimum score of 0 and a maximum score of 27 points.

A score between 0 and 4 indicates no depressive symptoms; a score between 5 and 9 indicates minimal depression; a score between 10 and 14 indicates moderate depression; scores between 15 and 19 indicates moderately severe depression, and scores between 20 and 27 indicate severe depression. The scale has been validated in Spanish and has shown acceptable internal consistency with a Cronbach's Alpha of 0.88[22] and for the present study a value of 0.89 was seen.

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Alcohol Use Disorders Identification Questionnaire [AUDIT][23]. Alcohol consumption was measured; it is composed of ten multiple-choice items corresponding to three dimensions: frequency and amount of consumption, possibility of dependence and harmful alcohol consumption. The scale has a minimum value of 0 and a maximum of 40 points, allowing to establish cut-off points for each type of consumption; from 1 to 3 is considered risk consumption, from 4 to 7 points is a dependent consumption and from 8 to 40 points there is a harmful consumption. A 4-point Likert-type assessment is made. The scale has shown Cronbach's Alpha of 0.92[24] and for the study a value of 0.85 was seen.

2.3 Procedure

Approval was requested from the Research and Research Ethics Committees of an institution of the Public University of Nuevo León, through electronic means, after which approval was received to carry out the present study by means of registration FAEN-D-1921. After that, it was proceeded to ask for authorization from the two hospital institutions using letterhead printed documents. A list of the personnel (medicine and nursing) by area or department and shift was requested in order to ask for the participation in the study and clarify any doubts.

Support personnel were trained in the collection of data for the study, obtaining two groups, one for each hospital institution. The person in charge of teaching was contacted to request authorization to carry out the study, after which the participants were selected through systematic sampling of 1 in 3 until the sample size was completed.

An invitation to participate in the study was sent out, and if the participant agreed to participate, an appointment was scheduled for the application of the Informed Consent, once it had been read and signed, a copy of it was given to the participant and a sealed envelope containing the battery of instruments, which were answered in pencil and paper in approximately 50 minutes.

The researcher was aware of doubts in filling out the instruments, mentioning that, if a question caused them discomfort, they could suspend for a while and then continue answering it, they also had the freedom to leave the study at any time they wanted, they were informed that they would not receive any gratification or benefit for participating in the study.

At the end of the filling, they were instructed to put the instruments in the envelope and place it in a lined container that was strategically placed, at the end of the filling of the battery they were thanked for their participation in the study, reminding them that the information provided was private and confidential.

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2.4 Data analysis

Data were registered and analyzed in the Statistical Package for the Social Sciences (SPSS®) version 24. Descriptive statics were used using frequencies and percentages, in addition to inferential statistics to respond to the objectives set out in the study.

The internal consistency of the instruments was determined using Cronbach´s Alpha Coefficient. Similarly, the Kolmogorov-Smirnov normality test with Lilliefors correction was calculated to determine the distribution of numerical and continuous variables to determine the use of parametric or non-parametric statistics.

2.5 Ethical considerations

Present research followed the provisions set forth in the Regulations of the General Health Law on Research for Health[25].

3. Results

3.1 Sample characteristics

Table 1 shows the sociodemographic characteristics of the participants, where it can be noted that more than 70% of the participants are women, with the group aged 18 to 33 years presenting the highest proportion (61.4%). Most of the participants belong to the nursing profession (93.1%). Regarding the level of education, 48.3% have a bachelor's degree and 35.7% are general nurses.

Table 1. Sample Characteristics.

Results	*n*	%
Sex		
Female	296	70.5
Male	124	29.5
Age		
18-33 years	258	61.4
34-49 years	136	32.4
50-64 years	26	6.2
Profession		
Nurse	391	93.1
Physician	29	6.9
Level of education		
Technician	83	19.8
General	85	20.2
Bachelor´s Degree	203	48.3
Specialty	36	8.6
Mastery	13	3.1
Doctorate	0	0.0
Category		
Nursing Assistant	81	19.3
General Nursing	150	35.7
Bachelor´s Degree	128	30.5
Specialist Nursing	37	8.8
General Physician	20	4.8
Specialist Physician	4	1.0

n: Frequency, %: Percentage

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3.2 Alcohol consumption prevalence

In Table 2 the prevalence of alcohol consumption by sex was assessed, showing that men have drank more alcohol than women at some time in their lives (90.3% vs. 88.5%) and in the last year (79.8% vs. 72.6%). Regarding the prevalence in the last month, a significant difference was identified in the prevalence of consumption by sex (χ^2= 5.393, p= .020), with men reporting higher consumption than women (63.7% vs. 51.4%), in the prevalence of the last seven days a statistically significant difference was found (χ^2= 4.328, p= 0.037), showing that men had a higher proportion of consumption compared to women (38.7% vs. 28.4%).

Table 2. Alcohol consumption prevalence by sex.

Prevalences	Sex				χ^2	p
	Female		Male			
	Yes	No	Yes	No		
Some time in their lives	88.5	11.5	90.3	9.7	0.293	0.588
Last year	72.6	27.4	79.8	20.2	2.403	0.121
Last month	51.4	48.6	63.7	36.3	5.393	0.020*
Last seven days	28.4	71.6	38.7	61.3	4.328	0.037*

(*) Statistically significant at level 0.05 (bilateral), χ^2: Pearson´s chi-square, n: 420

3.3 Alcohol consumption prevalence by age

Table 3 shows the alcohol consumption prevalence by age, highlighting the age group between 18 and 33 years with the highest proportion of sometime in life consumption prevalence (89.9%), followed by the group aged 34 to 49 years (89.7%) with similar figures; consumption in the last year was higher in the group aged 18 to 33 years (76.7%), followed by the group aged 34 to 49 years (74.3%). Similarly, the group aged 18 to 33 years showed a higher proportion of consumption in the last month prevalence (58.1%) and the last seven days (33.3%). However, there was no significant difference by age (p>0.05).

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Table 3. Alcohol consumption prevalence by age.

Prevalences	Age						χ^2	p
	18-33 years		34-49 years		50-64 years			
	Yes	No	Yes	No	Yes	No		
Some time in their lives	89.9	10.1	89.7	10.3	76.9	23.1	4.182	0.124
Last year	76.7	23.3	74.3	25.7	57.7	42.3	4.570	0.102
Last month	58.1	41.9	50.7	49.3	46.2	53.8	2.849	0.241
Last seven days	33.3	66.7	30.1	69.9	19.2	80.8	2.333	0.311

χ^2: Pearson´s chi-square, n: 420

3.4 Correlation of sociodemographic variables, anxiety, depressive symptoms and alcohol consumption

Table 4 shows the correlation coefficients revealing the associations between sociodemographic variables, anxiety, depressive symptoms and alcohol consumption. Positive and significant relationships were identified between anxiety and depressive symptoms (r_s= .644, p< 0.001), anxiety and alcohol consumption (r_s= 0.216, p< 0.001), as well as depressive symptoms and alcohol consumption (r_s= 0.210, p< 0.001). This interprets that the greater the anxiety and depressive symptoms, the greater the alcohol consumption among healthcare personnel. There were also significant negative relationships between age and anxiety (r_s= -0.218, p< 0.001), age and depressive symptoms (r_s= -0.261, p< 0.001), as well as age and alcohol consumption (r_s= -0.228, p< 0.001).

Table 4. Correlation of variables.

Variables	1	2	3	4
1. Age	-	-0.218**	-0.261**	-0.228**
2. Anxiety	-	-	0.644**	0.216**
3. Depressive symptoms	-	-	-	0.210**
4. Alcohol consumption	-	-	-	-

(**) Statistically significant at level 0.01 (bilateral), n: 420

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3.5 Linear Regression Model for effect of anxiety, depressive symptoms and alcohol consumption

Table 6 shows that the Linear Regression Model indicates that the model as a whole was significant ($F_{(419)}$ = 9.750, *df* = 2, *p*<0.001), showing an explained variance of 4.5%. Anxiety reported a positive and significant effect with alcohol consumption (*β*= 0.033, *p*= 0.023), however, depressive symptoms showed non-significant effect with alcohol consumption (*β*= 0.021, *p*= 0.202). In the second model the Backward method (elimination of backward variables) was applied, in which it can be seen that the model as a whole was significant ($F_{(419)}$ = 17.836, *df* = 1, *p*< 0.001), showing an explained variance of 4.1%. Anxiety reported a positive and significant effect with alcohol consumption (*β*= 0.046, *p*< 0.001).

Table 5. Linear Regression Model for effect of anxiety, depressive symptoms and alcohol consumption.

	SS	***df***	**MS**	**F**	***p***
Regression	424.785	2	212.392	9.750	0.001
Residue	9084.194	417	21.785		
Total	9508.979	419			
	R^2 = 4.5%				
Model 1			**Coefficients**		
		β	**EE**	***t***	***p***
Constant		3.063	0.347	8.831	0.001
Anxiety		0.033	0.015	2.280	0.023
Depressive Symptoms		0.021	0.016	1.279	0.202
		$F_{(419)}$ = 9.750, *df* = 2, *p*<0.001			
	SS	***df***	**MS**	**F**	***p***
Regression	389.146	1	389.146	17.836	0.001
Residue	9119.832	418	21.818		
Total	9508.979	419			
	R^2 = 4.1%				
Model 2			**Coefficients**		
		β	**EE**	***t***	***p***
Constant		3.205	0.329	9.742	0.001
Anxiety		0.046	0.011	4.223	0.001
		$F_{(419)}$ = 17.836, *df* = 1, *p*<.001			

R^2: Coefficient of determination, SS: Sum of squares, *df*: Degrees of freedom, MS: Mean square, F: Statistic F, *β*: Beta, *p*: Observed significance, EE: Standard error, *t*: Test *t* statistic, n: 420.

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4. Discussion

This study made it possible to identify the prevalence of alcohol consumption by sex and age, as well as the association between anxiety, depressive symptoms, and alcohol consumption in healthcare personnel. Regarding sociodemographic data, it was observed that almost three quarters of the sample are women, having ages between 18 and 33 years, which is similar to that reported by some reviewed authors[26,27,28].

Regarding alcohol consumption by sex, this study identified higher consumption in men than in women, which agrees with some authors[13,29,30], and differs with information reported by other authors[27,31]. This could be explained because worldwide men drink alcoholic drinks more frequently and intensely than women, presenting less effect at the time of drinking alcohol, so that a higher consumption amount is required[32].

However, in the present study, similar proportions of sometime in life and last year prevalence of alcohol consumption were identified. It should be noted that in recent years there has been an increase in advertising of alcohol consumption among women in order to reduce the cultural gap, normalize consumption and empower them[33]. In this sense, the incorporation of women into the public social space has led to similar behaviors because the consumption of this substance has been positively symbolized for women in society as it has redefined their identity with respect to men through alcohol consumption exerting social pressure towards people who do not consume it[34].

Prevalences of consumption by age were similar among participants, highlighting a higher amount of consumption in healthcare personnel between 18 and 33 years of age, which is consistent with some authors[27,35]. These results could support the fact that those young people who initiate consumption at an early age present a higher probability of developing alcohol use disorders in early adulthood[33]. However, it differs from that reported by Thiebaud et al. (2021), where they identified that healthcare personnel over 40 years of age drank higher proportions of alcoholic drinks.

Since in Mexico alcohol consumption is legal at 18 years of age, starting at this age the access to the substance increases, which is also associated in part with the large number of points of sale in the community and the advertising of the substance through the media and social networks that influence people to drink this substance.

Regarding the association between the variables considered in the study, a positive and significant relationship was identified in anxiety with depressive symptoms and alcoholic drinks consumption, indicating that the greater

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the presence of anxiety, the greater the depressive symptoms and alcoholic drinks consumption by healthcare personnel, this is consistent with what has been reported by various authors[36,37,38]. This could be explained by the fact that the measures considered since the COVID-19 pandemic have affected aspects of daily life, from freedom of movement to the way work is organized, which has led to a greater proportion of these disorders, leading to alcoholic drinks consumption as a coping strategy[39].

This study was conducted after the COVID-19 pandemic in tertiary care hospital institutions, in which there is a possibility that healthcare personnel were active during this period, and not having a mental health support department due to work overload, among other factors, could have triggered depressive symptoms and an alternative coping strategy was the consumption of alcohol.

Similarly, there was a positive and significant relationship between depressive symptoms and alcoholic drinks consumption, revealing that the greater the presence of depressive symptoms, the greater the consumption of alcohol by healthcare personnel; these results are similar to those found by other authors[9,40]. According to the evidence it is highlighted that people who present greater depressive symptoms report greater probability of alcoholic drinks consumption[41], likewise, there is diverse literature through which the context of the pandemic by COVID-19 has been evidenced as an influencing factor in the increase in the prevalences of depressive symptoms and alcoholic drinks consumption in healthcare personnel. Some factors that have been attributed are individual aspects generated as a consequence of daily work with a high level of occupational exposure and task overload[42].

Negative and significant results were seen for age with anxiety, depressive symptoms and alcoholic drinks consumption, showing that the younger the age, the greater the presence of anxiety, depressive symptoms and alcoholic drinks consumption in healthcare personnel, which is in agreement with Monterrosa-Castro et al. (2020).

The phenomenon of alcoholic drinks consumption generates negative health consequences, including the presence of mental disorders such as anxiety, depressive symptoms and mood changes. In addition, at early ages there is a transition of metabolic, physical, and psychological changes, which can lead to the onset of these conditions if alcohol consumption takes place.

Likewise, Wijeratne et al. (2021) identified that healthcare personnel with younger age showed higher consumption of

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alcoholic drinks. It has been reported that health personnel who start drinking alcohol at a younger age are more likely to abuse or depend on it in adulthood, and may even cause damage to their health since drinking alcohol is considered part of the process of acquiring maturity[43]. However, these results disagree with Prado et al. (2022) who through their results found that older health personnel were more likely to present depressive symptoms.

5. Conclusion

In conclusion, the study provides information on the impact on the mental health of healthcare personnel based on the findings seen in the research. The findings suggest that healthcare personnel belonging to tertiary care institutions evidence an association between anxiety and depressive symptoms, as well as with alcoholic drinks consumption.

Over the years, it has been identified that alcoholic drinks consumption at some time in life and in the last year has been increasing in women, indicating greater social acceptance of this risk behavior. Therefore, such consumption is in similar proportions among adults aged 18 to 49 years in the last month and last seven days, which indicates a problem of frequent consumption that, if not treated on time, can pose serious repercussions in old age.

Anxiety and depressive symptoms are also identified as related to the consumption of alcoholic drinks. Through this study, it was detected that healthcare personnel have developed these disorders and resort to the consumption of alcoholic drinks as a way of coping with them.

Moreover, it has been shown that working conditions, excessive workload, among other factors, are triggers for the occurrence of these disorders. For this reason, the present study can identify the extent of the problem that occurs within hospital institutions among healthcare personnel, thus, highlighting the need to implement prevention strategies aimed at reducing alcoholic drinks consumption in this population, as well as monitoring mental health due to the responsibility they have in providing nursing care and assistance to the community.

6. Acknowledgments

We gratefully acknowledge the authorities and health personnel of the tertiary care institutions that participated in this study, as well as for the assistance and support provided in the course of this research.

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