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# NURSING INTERVENTION THROUGH PEERS FOR SELF-EFFICACY AND ALCOHOL CONSUMPTION IN ADOLESCENTS

INTERVENCIÓN DE ENFERMERÍA A TRAVÉS DE PARES PARA LA AUTOEFICACIA Y EL CONSUMO DE ALCOHOL EN ADOLESCENTES

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### Abstract

**Introduction:** Alcohol consumption is a problem closely related to adolescence. At first, it tends to be established as a habit and after that as an addiction, when the individual in question still is an adolescent. **Objective**: The study sought to determine the effect caused by nursing intervention through "interconnected" peers on self-efficacy and alcohol consumption. **Results**: Statistically significant difference was shown post-intervention (z = -4.86; p = .000) and at follow-ups at three months (z = -4.78; p = .000) and six months (z = -4.78; p = .000); this is also activate in alcohol consumption at the post-intervention measurement (z = -4.74; p = .000) and at follow-ups at three months (z = -4.74; p = .000). **Conclusions**: Based on the objective of the study, it is possible to conclude that it is feasible to decrease alcohol consumption and favor self-efficacy in adolescents through "interconnected".

#### Resumen

**Introducción:** El consumo de alcohol es un problema muy relacionado con la adolescencia en un principio tiende a establecer como un hábito y luego como una adicción, cuando el individuo es un adolescente. **Objetivo:** El estudio buscó determinar el efecto en la autoeficacia y consumo de alcohol de la intervención de enfermería a través de pares "interconectados". **Resultados:** Se mostró diferencia estadísticamente significativa posterior a la intervención (z = -4.86; p = .000) y en los seguimientos de tres (z = -4.78; p = .000) y seis meses (z = -4.78; p = .000), esto también se activa en el consumo de alcohol en la medición posterior a la intervención (z = -4.74; p = .000) y en los seguimientos de tres (z = -4.74; p = .000). **Conclusiones:** En base al objetivo del estudio es posible concluir que es factible disminuir el consumo de alcohol y favorecer la autoeficacia en los adolescentes mediante "interconectados".

#### **Keywords**

Self-efficacy; alcohol consumption; adolescents; intervention.

## **Palabras clave**

Autoeficacia; consumo de alcohol; adolescentes; intervención.

### Introduction

Adolescence is a period of adaptation with respect to biological, psychological, social and spiritual areas, where diverse interests are explored, greater independence is sought and behaviors of adult life are defined (Ángeles, 2011; Herrera-Chávez, 2018). However, it is a vulnerable period, since there are factors that can negatively impact the individual during this process where mental maturity has not been reached to make decisions that can have an impact (Alderman & Breuner, 2019; Fleary et al., 2018). Among these behaviors are imitation due to the need for approval and acceptance by society, which increases the likelihood of engaging in risky behaviors such as alcohol consumption (Bandura, 1997; Glozah, Takyibea & Komesuor, 2015; Alonso et al., 2016).

Because it represents the cause of 5.3% of annual deaths and about 9% of mortality between 15 and 29 years of age (Pan American Health Organization [PAHO], 2019; Alonso et al., 2016), alcohol consumption is considered a worldwide problem. Alcohol consumption causes significant health problems in the short and long term such as injuries from car accidents, unwanted pregnancies, increased likelihood of non-communicable diseases such as cardiovascular diseases and liver cirrhosis, in addition to communicable diseases such as Acquired Immunodeficiency Syndrome (AIDS; WHO, 2018; PAHO, 2019). Likewise, it is related to the development of addictive behaviors, so it is considered a legal drug that promotes excessive alcohol consumption and increases the likelihood of illicit drug use (Gámez-Medina et al., 2017; Villatoro-Velázquez et. al., 2017).

Nevertheless, it is a culturally accepted and standardized behavior, which is why there is an increasingly earlier onset between 12 and 14 years of age, as well as an increase in the prevalence of consumption (Alonso et al., 2016; Gámez-Medina et al., 2017; Villatoro-Velázquez et al., 2017). In Mexico, it has been reported that 41.9% and 39.4% of males and females, respectively, between 12 and 17 years of age, have consumed alcohol once in their lifetime (Villatoro-Velázquez et. al, 2017). Particularly, the state of Coahuila ranks third in consumption at national level with a prevalence of 40.7%, a figure above the national average which is 19.8% (Villatoro-Velázquez et. al, 2017).

This information reinforces the need to implement strategies to reduce alcohol consumption in this population. However, most of the interventions applied to address this problem focus on providing health education delivered on pencil and paper by researchers, who can be considered authority figures for adolescents, so their relationship is usually not significant (Das et al., 2016; Hernández et al., 2018; Tanner-Smith & Lipsey, 2015). In addition, mostly short-term effects have been seen with the need for monthly follow-ups; however, it is considered essential to implement interventions with long-term effects with the aim of preventing consumption from becoming established as an addiction (Hernández et al., 2018).

With that in mind, several factors have been observed that influence the development and maintenance of this behavior, among which are personal characteristics such as self-esteem and resilience, as well as the environment determined mainly by the family and people with similar biological, contextual or cultural characteristics to whom they are considered peers (Alonso et al., 2016; Bandura, 1997; McKay et al., 2016). In addition, a significant interaction of these factors with self-efficacy to refuse consumption is found, defined as the belief in one's own ability to refuse alcoholic drinks, thus it is considered a significant predictor of consumption (Tabernero et al., 2019; Stevens et al., 2016).

The relationship with peers, as well as self-esteem, resilience and especially self-efficacy can act as protective factors or consumption precursors (Gámez-Medina et al., 2017; Herrera-Chávez et, al., 2018; Stevens et al., 2016; Tabernero et al., 2019). However, in adolescence peer relationships are transcendental due to the need to form support relationships where the sense of affiliation, trust, belonging and reciprocity are obtained; so, it is considered that a support network between adolescents can have a positive impact on alcohol consumption (Jassen et al., 2014; Tabernero et al., 2019).

For this reason, the "Interconnected" intervention was developed and implemented, which was based on Bandura's social learning theory (1997) using the elements of triadic reciprocity, self-efficacy and forms of social learning, as well as the proposal of Friedberg and Mcclure (2005) to use a peer support network as a strategy to promote self-ef-

ficacy in order that the adolescent is able to refuse alcohol consumption. It is a cognitive-behavioral intervention that represents a feasible alternative for the nursing discipline, since it helps the development and establishment of protective resources through a didactic methodology in the learning-teaching process, promoting long-term effectiveness. Therefore, the objective of the present research was to determine the effect on self-efficacy and alcohol consumption of the intervention through "interconnected" peers.

#### Methodology

#### Design

The study design was quasi-experimental with pre-test-post-test follow-up, with intervention group and control group; it was worked with intact groups as established by Hernández Sampieri (2014), naturally formed before the intervention. The study was performed in four stages, namely: 1) Pre-test; 2) Intervention; 3) Post-test; and 4) Fo-llow-up measures at 3 and 6 months after the end of the intervention.

#### **Participants**

A diagnosis of alcohol consumption was previously conducted in 20 state high schools in Saltillo, Coahuila. The two institutions with the highest consumption were chosen as the intervention group (IG) and the control group (CG). The sample was estimated using mean differences, with a significance level of 0.05, power of 80% and an effect size of 0.80, leaving 26 participants per group. An attrition of 20% was considered during the execution of the project, so that each group consisted of 32 participants (Rojas et al., 2011; Tanner-Smith & Lipsey, 2015; Das et al., 2016).

Participants were selected by means of intentional sampling where male and female adolescents between 12 and 16 years of age participated; these adolescents were in middle school, reported alcohol consumption, had informed consent from their parents or guardians and consent from the participant as well; and also reported the desire to participate in the sessions.

#### Instruments

A sociodemographic data card was used, including age, sex, onset of consumption, religion, school grade and information about with whom they were living. To determine alcohol consumption, the Alcohol Use Disorders Identification Test (AUDIT) was administered in a self-applicable format, consisting of 10 items for early detection of problems related to alcohol consumption; its evaluation ranges from 0 to 40 points and has a Cronbach's alpha of 0.78 (Bador et al., 2001). Finally, to measure the ability to solve problems or stressful situations, the Mexican version of the general self-efficacy scale was used, with a Cronbach's alpha of 0.86, consisting of 10 items with a scale of four response options from 1 to 4, where 1 indicates incorrect, 2 barely true, 3 rather true, 4 true; the score ranges from 0-40 and is interpreted based on the score obtained, where the higher the score, the greater the general self-efficacy of the adolescent (Padilla et al., 2006).

### **Procedure**

"Interconnected" is a cognitive-behavioral intervention aimed at middle school adolescents applied in the school context during out-of-school hours. It aims to reduce alcohol consumption and promote self-efficacy as a protective factor to prevent complications in the short and long term. It was designed based on Sidani and Braden methodology (2011) and on an exhaustive review of the literature regarding interventions to reduce alcohol consumption in adolescents, as well as on Bandura's social learning theory (1997) and the proposal of Friedberg and Mcclure (2005) using the elements of triadic reciprocity, self-efficacy, forms of social learning and the use of a peer support group.

It was evaluated by experts in the field to ensure a didactic methodology through educational components for the development of knowledge and skills on alcohol consumption and self-efficacy so the adolescent could refuse alcohol consumption. For its development, the absence of the main researcher during the sessions was considered as a strategy for minimizing threats; likewise, to prevent losing participants, the importance of finishing the sessions at each meeting was emphasized, and the facilitators were approached by telephone call and reminder messages prior to each session. In order to approve the intervention, a participation rate of 80% of the total number of sessions was established.

In order to carry out this study, it was necessary to carry out some of the following activities.

#### Authorizations and Ethical Considerations.

To protect the rights of the participants, the research was subject to the ethical principles and guidelines established for the protection of research subjects in the Belmont Report, as well as in the Regulations of the General Health Law for Health Research involving Human Subjects and the Code of Ethics in Nursing. All of this, upon the approval of the Bioethics Committee of the University of Guanajuato at the Celaya campus and the Coahuila Ministry of Public Education.

After approval, a meeting was requested in each of the selected institutions with parents and adolescents to discuss both the objective and the participation of the adolescent; at the end of the meeting, doubts were clarified, and the consent of the parents or guardians and adolescents, respectively, were requested.

#### Election and training of peers (facilitators).

Ten participants from the group of nursing students against addictions (GREECA) were trained and selected after an interview in which it was ensured that they met the characteristics of proactivity, ability to manage groups, knowledge about alcohol consumption, and the AUDIT test in order to certify that they were not alcohol consumers or that they were responsible drinkers (consumption of no more than four drinks per day and no more than twelve drinks per week for men and for women no more than three drinks per day and no more than nine drinks per week; SSA, 2015).

#### Intervention application

Once the intervention group was established, the person in charge of the middle school assigned a specific area to work within the institution where the weekly sessions were held out of school hours. During the sessions, only the participants and the facilitators were present in order to create a trusted environment. The control group was treated as a waiting group, which received the "Interconnected" intervention once the project measurements were completed in week 37, thus addressing the bioethical aspects.

The intervention consisted of 12 50-minute sessions performed face-to-face on a weekly basis. The structure of each session consisted of introduction (brain gymnastics), development (playful activity) and conclusion (evaluation called "landing") the following objectives were established per session:

- 1) Determine the alcohol consumption of each participant and clarify the development of the intervention.
- 2) Identify the knowledge the adolescent has with respect to alcohol consumption through a game.
- 3) Explain the short- and long-term consequences of alcohol consumption through character narratives.
- 4) Know the elements that integrate self-esteem through characters.

- 5) Integrate the elements of self-esteem in each intervention participant as a protective factor against alcohol consumption.
- 6) Explain resilience as a protective factor to reduce alcohol consumption in adolescents.
- 7) Apply resilience as a protective factor in each participant.
- 8) Describe low-risk consumption and abuse behaviors through the use of characters so that participants can identify their own type of consumption.
- 9) Describe the characters' friends to learn about their similar preferences and determine their influence on consumption.
- 10) Describe the family of each character in the intervention to determine their influence on consumption.
- 11) Learn through the characters' environment the elements of self-efficacy for the rejection of consumption.
- 12) Establish self-efficacy as a protective factor for the participant's alcohol consumption.

#### Measurements

Measurements were taken at week 1 (first session of the intervention) as well as at week 12 (last session of the intervention) and follow-up measurements were taken at week 24 and 36.

#### **Data analysis**

Data were processed in SPPS V22, using frequencies, proportions and percentages for categorical variables; and for numerical variables, measures of location, central tendency and measures of variability. The Kolmogorov-Smirnov test with Lilliefors correction was carried out in order to test the hypothesis of normality in the distribution of continuous variables, so it was decided to use nonparametric tests; to determine equality between groups before the intervention, the Mann-Whitney U test and the Wilcoxon signed-rank test were used to test the hypothesis. To determine the significance of the statistical tests, the value of p <.05 was established.

### Results

To achieve the objective of this study, tests were first performed to characterize the sociodemographic data, as well as the variables of self-efficacy and alcohol consumption of both groups. After that, tests were applied to see the effect of the intervention in reference to the pretest, posttest and follow-ups at weeks 24 and 36, the results are shown below.

With respect to the sociodemographic characteristics, the age of the participants ranged between 12 and 16 years for both groups, for the intervention group (n=32) had a x=13.19,  $\pm$  .89 and the control group (n=32) had a x=12.94  $\pm$  .98 (see table 1). The age of onset of alcohol consumption in the intervention group was between 5 and 12 years, (x = 9.81  $\pm$  1.25); while in the comparison group the age of onset of alcohol consumption ranged between 6 and 12 years (x= 9.66  $\pm$  1.09).

Variable	Intervention group		Control group		
	F	%	F	%	
Gender					
			19		
Female	18	56.3		59.4	
Male	14	43.7	13	40.6	
Who do you live with?					
Parents	20	62.5	23	71.9	
Father	2	6.3	1	3.1	
Mother	7	21.9	4	12.5	
Grandparents	3	9.4	4	12.5	
Religion					
Catholic	27	84.4	24	75	
Christian	3	9.4	6	18.8	
Mormon	1	3.1	-	-	
Atheist	1	3.1	2	6.3	

Table 1. Sociodemographic variables. Saltillo Coahuila; 2017.

Source: Sociodemographic data sheet. Note: F= Frequencies, %= percentages. n=64.

Before the intervention, the groups were homogenized, and it was found that the pre-test self-efficacy mean (p = .349) and the alcohol consumption mean (p = .622) were not significantly different between groups. Regarding the effect on self-efficacy, it can be seen how the medians increased and remained the same in the three subsequent measures for the intervention group, while in the control group the medians decreased (see Table 2).

Coandria, 2016								
Group		AUDIT Score						
	Measurement	X	DE	Min	Max	Z Value	p	
Intervention	Pre-test	24	6	12	35			
	Post-test	31	4.5	16	38	-4.86	.000	
	Three-month follow-up	31	4.5	16	38	-4.78	.000	
	Six-month follow-up	31	3.7	24	38	-4.78	.000	
Control	Pre-test	23	5.3	12	31			
	Post-test	22.5	4.7	12	31	771	.440	
	Three-month follow-up	22	5.4	12	35	337	.736	
	Six-month follow-up	21.5	4.9	13	35	401	.689	

Table 2. Effect of the	"Interconnected"	nursing interventio	n on overall self-efficacy	y in the study measur	es. Saltillo
		Coahuila;	2018		

Note: Z and p values are the result of the comparison of follow-ups with pretest. Source: General self-efficacy instrument. = Median p<.05; Min= minimum value; Max= maximum value; p<.05. n=64.

Regarding the effect on alcohol consumption for the intervention group, a decrease was seen in the medians after the intervention and maintenance in the two subsequent follow-ups. While for the control group, an increase in the medians of consumption was seen during the follow-up measures (see Table 3).

**Table 3.** Effect of the "Interconnected" nursing intervention on alcohol consumption in the Saltillo study measure-ments; Coahuila; 2018.

Group	Measurement		AUDIT Score				
		X	DE	Min	Max	2 Value	p
Intervention	Pre-test	8.5	4.8	5	27		
	Post-test	6	3.4	3	15	-4.74	.000
	Three-month follow-up	6	3.1	3	15	-4.74	.000
	Six-month follow-up	6	3.1	3	15	-4.74	.000
Control	Pre-test	9	3.2	5	18		
	Post-test	9	3.4	6	19	4.06	.000
	Three-month follow-up	10	3.7	6	20	-4.05	.000
	Six-month follow-up	9.5	3.2	6	26	-4.02	.000

Note: Z and p values are the result of the comparison of follow-ups with pretest. Source: AUDIT instrument. Note:  $\overline{X}$  = Median p<.05; Min= minimum value; Max= maximum value; p<.05. n=64.

Regarding the effect size of the intervention with respect to overall self-efficacy at the posttest measurement in both groups, the effect size was large (Cohen's d = 1.346). Likewise, at the first follow-up measurement at week 24 for both groups the effect size was significant (Cohen's d = 1.450).

Regarding the size of the effect of the intervention for alcohol consumption at the posttest measurement for both groups, a medium effect size (Cohen's d = .674) was seen. However, at the posttest measurements at week 24 and 36, the effect on alcohol consumption was of significance showing a Cohen's d = .925 and Cohen's d = .957, respectively for both groups.

## Discussion

The purpose of the study was to determine the effect on self-efficacy and alcohol consumption of the "interconnected" peer intervention, which was designed based on Bandura's (1997) social learning theory and Friedberg and Mcclure's (2005) proposal. To the best of our knowledge "interconnected" is the first study to test the effects of a peer support group intervention as a strategy for strengthening self-efficacy for alcohol refusal. The study revealed the following main findings which are discussed below: 1) Characteristics of alcohol consumption; and 2) The effectiveness of the intervention through "interconnected" peers in reducing and maintaining alcohol consumption in the long term, i.e., six months post-intervention.

First of all, an early onset of alcohol consumption was seen as a characteristic of both groups. For the intervention group it was reported between 5 and 12 years of age ( $x = 9.81, \pm 1.25$ ), while for the control group it was between 6 and 12 years of age ( $x = 9.66, \pm 1.09$ ). These data differ with those reported by the state of Coahuila, where the age of onset was established between 10 and 14 years (Centro de Integración Juvenil [CIJ], 2014); Likewise, they differ with the age of onset reported in 2016-2017 at national level, where an average age of onset in males was established at 16.7 years and in females at 19.2 years (Villatoro-Velázquez et. al., 2017). The results of the present study reported an earlier and mostly alarming age of onset, so it is of utmost importance to implement interventions not only in adolescence, but also from childhood.

Additionally, Bandura's perspective considers that self-efficacy is an important protective factor for risk behaviors such as alcohol consumption. This has been previously tested by Miller and Carey, (2019), Stevens et al., (2016) and Tabernero et al., (2019) who mention that when adolescents have a high level of self-efficacy, they are more likely to refuse alcoholic drinks. The findings of the present study are similar, since a similar mean self-efficacy was seen for both groups in the pretest. Nonetheless, the self-efficacy of the intervention group increased significantly compared to that of the control group and was maintained in the follow-up measurements at 24 and 36 weeks, while for the control group self-efficacy decreased in the measures obtained during the posttest and follow-ups.

Regarding alcohol consumption, similar means were observed in both groups during the pretest. Yet, the intervention group managed to decrease and maintain consumption in the post-intervention measurements. While the control group significantly increased the medians of consumption in the posttest and follow-up measurements at weeks 24 and 36. Therefore, the effect of the intervention showed to be moderate in the posttest measurement; however, in the follow-up measurements at weeks 24 and 36 it showed a large effect.

These findings show that by including the variable self-efficacy, the reduction of alcohol consumption in adolescents was allowed, which is why it showed a significant effect size in the long term (6 months after the intervention). This is of importance as it is different from what was seen in previous studies such as the one conducted by Deady et al., (2016) who implemented self-efficacy in an online intervention for problematic alcohol consumption, where they reported a reduction in the amount (d= 0.99) and frequency (d= 0.76) of alcohol consumption; despite this, the effect seen at 6 months post-intervention was not statistically significant between groups. A more recent intervention to reduce risky drinking in Mexican middle school students by Valadez-Garcia and Oropeza-Tena (2020) failed to see differences in self-efficacy between the control group and the intervention group at post-intervention follow-ups.

In relation to the strategy of using the peer support group in the delivery of the intervention, Teunissen et al., (2014), showed a decrease in alcohol consumption when using the peer support group as a strategy. Like Janssen et al., (2014) and Valadez-Garcia and Oropeza-Tena (2020) emphasize that, at this time, the peer support group allows reducing risk factors such as alcohol consumption, also favoring protective factors such as self-efficacy. Similarly Tabernero et al., (2019) proved that drinking behavior depended on the peer group to which the individual belongs by approximately 32%. These results are similar to those shown in the present study, as the use of the peer support group achieved a long-term intervention effect.

## Conclusion

This research evaluated the effect of the "interconnected" peer intervention on self-efficacy and alcohol use in high school adolescents. Overall, the "interconnected" intervention demonstrated that the use of a peer support group for intervention delivery has a greater impact, as it is associated with increased self-efficacy to refuse alcohol use. This is due to the characteristics of the adolescent at this stage, where peer acceptance and disagreement with authority figures are important aspects to take into account when delivering an intervention during adolescence. Therefore, it proved to be an alternative to reduce and maintain responsible consumption within 12, 24 and 36 weeks after the intervention.

Likewise, the findings are important for middle schools, since "interconnected" can be a strategy that can be imple-

mented in these institutions, and the benefits provided to adolescents have an impact on their health and on the reduction of social problems related to this behavior, such as family disintegration, violence and bullying, among others.

"Interconnected" represents a feasible option for providing innovative and creative nursing health education to adolescents in order to reduce alcohol consumption and promote self-efficacy in this stage of life. Likewise, the methodology employed in the learning-teaching process showed its benefits, since when face-to-face playful sessions were conducted, they provided the adolescent with the necessary elements to develop protective resources to counteract alcohol consumption.

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