

## Alcoholic beverages consumption in students: prevalence and incidence of sociocultural factors

Consumo de bebidas alcoólicas entre estudantes: prevalência e incidência de fatores socioculturais

Consumo de bebidas alcohólicas en estudiantes: prevalencia e incidencia de factores socioculturales

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## ARTICLE HISTORY

**Received:** 11-06-2024

**Revised Version:** 24-10-2024

**Accepted:** 09-11-2024

**Published:** 29-11-2024

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**Manuscript type:** Article

## ARTICLE INFORMATION

### Science-Matrix Classification (Domain):

Economic & Social Sciences

### Main topic:

Educational psychology

### Main practical implications:

Highlight the importance of addressing sociocultural factors such as family influence, school environment, and peer dynamics when developing prevention strategies for harmful alcohol consumption among high school students.

### Originality/value:

This study provides valuable original empirical evidence into the relationship between harmful alcohol consumption and sociocultural factors among high school students, an area that has been relatively underexplored in the local context.

## ABSTRACT

Adolescent alcohol consumption is a global phenomenon of increasing concern due to its detrimental effects on the physical, psychological, and social well-being of young individuals. Adolescence, a critical stage in human development, is characterized by emotional, social, and physical changes that heighten vulnerability to external influences, including social and familial pressures. The present study aimed to analyze the relationship between alcohol consumption and sociocultural factors among fourth- and fifth-grade high school students from an educational institution in Puno, Peru. The research adopted a quantitative approach with a non-experimental design and a descriptive scope. The findings revealed no statistically significant association between alcohol consumption and the four sociocultural factors—family, school, cultural, and social ( $p > 0.05$ ). Additionally, the effect sizes, as measured by Cramer's V coefficient, were below 0.300, indicating very weak to weak levels of association. In conclusion, no statistically significant relationship was observed within the specific context studied between alcohol consumption and the aforementioned sociocultural factors. The study recommends that future research explore additional variables, such as psychological, economic, or individual factors, which might influence alcohol consumption. Furthermore, it suggests employing more robust research designs or larger samples to deepen the analysis of sociocultural factors and better understand this complex issue.

**Keywords:** harmful alcohol consumption; basic education; students; family; adolescents; Peru.

## RESUMO

O consumo de álcool entre adolescentes é um fenômeno de preocupação crescente em nível global, devido aos seus efeitos prejudiciais na saúde física, psicológica e social dos jovens. A adolescência, uma etapa crucial no desenvolvimento humano, é caracterizada por mudanças emocionais, sociais e físicas que aumentam a vulnerabilidade a influências externas, incluindo pressões sociais e familiares. O objetivo do presente estudo foi analisar a relação entre o consumo de álcool e os fatores socioculturais em estudantes do quarto e quinto ano do ensino médio de uma instituição educacional localizada em Puno, Peru. A pesquisa adotou uma abordagem quantitativa, com um delineamento não experimental e caráter descritivo. Os resultados indicaram que não há associação estatisticamente significativa entre o consumo de álcool e os quatro fatores socioculturais: familiar, escolar, cultural e social ( $p > 0,05$ ). Além disso, os tamanhos de efeito, medidos pelo coeficiente V de Cramer, foram inferiores a 0,300, indicando níveis de associação muito fracos a fracos. Concluiu-se que, no contexto específico estudado, não há relação estatisticamente significativa entre o consumo de álcool e os fatores socioculturais mencionados. Recomenda-se que pesquisas futuras explorem outras variáveis, como fatores psicológicos, econômicos ou individuais, que possam influenciar o consumo de álcool. Sugere-se também a realização de análises mais aprofundadas sobre os fatores socioculturais, utilizando delineamentos mais robustos ou amostras mais amplas para compreender melhor essa problemática.

**Palavras-chave:** consumo nocivo de álcool; educação básica; estudantes; família; adolescentes; Peru.

## RESUMEN

El consumo de alcohol en adolescentes es un fenómeno de creciente preocupación a nivel global debido a sus efectos perjudiciales en la salud física, psicológica y social de los jóvenes. La adolescencia, una etapa crucial en el desarrollo humano, se caracteriza por cambios emocionales, sociales y físicos que incrementan la vulnerabilidad a influencias externas, como la presión social y familiar. El objetivo del presente estudio fue analizar la relación entre el consumo de alcohol y los factores socioculturales en estudiantes de cuarto y quinto grado de secundaria de una institución educativa localizada en Puno, Perú. La investigación se desarrolló con un enfoque cuantitativo, bajo un diseño no experimental y de tipo descriptivo. Los resultados indicaron que no existe una asociación estadísticamente significativa entre el consumo de alcohol y los cuatro factores socioculturales: familiar, escolar, cultural y social ( $p > 0,05$ ). Asimismo, las magnitudes del efecto, medidas mediante el coeficiente V de Cramer, fueron inferiores a 0,300, lo que evidencia niveles de asociación entre muy débil y débil. En conclusión, en el contexto específico estudiado, no se identificó una relación estadísticamente significativa entre el consumo de alcohol y los factores socioculturales mencionados. Se recomienda que futuras investigaciones exploren otras variables que puedan incidir en el consumo de alcohol, como factores psicológicos, económicos o individuales. También se sugiere profundizar en el análisis de los factores socioculturales mediante el uso de diseños de investigación más robustos o con muestras más amplias, para una mejor comprensión de esta problemática.

**Palabras clave:** consumo nocivo de alcohol; educación básica; estudiantes; familia; adolescentes; Perú.

## INTRODUCTION

Collective activities symbolizing joy often involve alcohol consumption (Medina et al., 2000). This is reflected in gatherings, birthdays, and local festivals, where alcohol consumption increases significantly. Indiscriminate alcohol consumption represents a risk to various societies worldwide, as it leads to injuries, disabilities, comorbidities, social and economic losses, and deaths in a large number of individuals globally (Estrada et al., 2024; WHO, 2022). This is illustrated in global statistics, where the Pan American Health Organization - PAHO (2018) reported that 3 million deaths were caused by harmful alcohol consumption. Similarly, 5.2% of cases of morbidity and injuries are attributed to alcohol consumption (WHO, 2022). Among young populations (15-29 years), alcohol consumption is highest in Europe at 43.8%, followed by the Americas at 38.2% (PAHO, 2018).

In this context, the aforementioned argument gains relevance by focusing on adolescence, a stage characterized by significant physiological and psychological changes (Palacios, 2019). In Peru, alcohol is the most consumed drug among adolescents, with 259,642 youths consuming it annually, while tobacco is consumed by 142,797 (DEVIDA, 2019; INEI, 2025). This activity has negative effects, increasing the likelihood of involvement in criminal activities, reduced academic performance, accidents, brain development issues, and future alcohol dependence disorders (Hayatbakhsh et al., 2011; Higson et al., 2006; Mason et al., 2010; Spear, 2018).

For individuals under the age of 18, the family plays a pivotal role as the primary socialization agent, shaping both personal and social development (Gaete, 2015). During adolescence, a crucial period of identity formation, the family environment significantly impacts the attitudes, values, and behaviors of young individuals (Mora Aviche, 2024). Family habits, particularly those related to alcohol consumption, serve as a powerful model for adolescents. If alcohol is normalized or even encouraged within the household, it can lead to higher likelihoods of early experimentation or habitual consumption among teenagers. Studies suggest that adolescents tend to mimic their parents' drinking behaviors, and excessive alcohol use within the family can increase the risk of harmful drinking patterns during adolescence (Bronfenbrenner, 1987; Mathews & Pilon, 2004). In recent decades, there has been a scarcity of Peruvian articles on this topic; however, international research efforts stand out. In Asia, particularly in China, Wang et al. (2018) found that severe or excessive alcohol consumption (>5g/l) is associated with poor academic performance, high levels of physical activity, excessive screen time, loneliness, insomnia, suicidal attempts, smoking, fights, being bullied, and sexual experiences. In Peru, Maximiliano et al. (2016) concluded that alcohol consumption is high, at 54%, among adolescents in the first to fifth grades of high school in Ventanilla district, with family and peer groups being the most associated factors.

Adolescent alcohol consumption remains a persistent public health challenge, with significant implications for physical, mental, and social well-being. Despite declining trends in some regions, Smith et al. (2024) emphasize that the reduction rates remain uneven globally, particularly in low- and middle-income countries, where adolescent drinking often correlates with limited access to preventive interventions. Similarly, Ma et al. (2018) highlight the variability of drinking patterns influenced by sociodemographic and cultural factors, yet these studies often generalize findings without accounting for regional idiosyncrasies. Sandoval et al. (2020) underscore this gap, calling for localized analyses to better understand the nuanced relationships between alcohol use and social determinants, particularly in Latin American contexts. However, existing studies, such as those by Freitas Ferreira et al. (2018), frequently focus on family or economic predictors, leaving sociocultural influences underexplored. This article addresses these gaps by examining the prevalence and predictors of alcohol consumption among adolescents within a specific regional context, offering insights into the role of sociocultural factors in shaping drinking behaviors.

Furthermore, recent research has explored alcohol consumption intentions (Moreta-Herrera et al., 2024) and acculturation-related influences (Escobar-Agreda et al., 2021), yet these studies often yield inconsistent findings or focus narrowly on specific subgroups. Sicher et al. (2024) expand this discussion by questioning the long-term impact of adolescent alcohol exposure on adult drinking patterns, suggesting that broader social and environmental dynamics require deeper examination. Despite these advances, standardized methodologies and culturally specific analyses remain scarce, as highlighted by Ma et al. (2018), leaving critical gaps in the literature on adolescent alcohol behaviors in diverse sociocultural contexts. This study contributes to bridging these lacunas by applying a localized and culturally nuanced lens to explore adolescent drinking patterns, providing a more comprehensive understanding of the factors influencing alcohol consumption in Latin America. By doing so, it not only complements existing literature but also sets a foundation for future research aimed at designing targeted interventions.

Given the magnitude and context of the issue, schools play a crucial role in shaping adolescents' behaviors, as they spend a significant portion of their time there, developing influential and long-lasting friendships. The school environment not only facilitates academic learning but also contributes to social development and peer influence, which are crucial during adolescence. Since peer pressure and social dynamics can strongly impact behaviors such as alcohol consumption,

understanding these factors within the school setting becomes essential. Additionally, schools serve as important platforms for early intervention, where teachers, counselors, and healthcare professionals can work collaboratively to identify and address risky behaviors like harmful alcohol consumption. By exploring the sociocultural factors—such as family background, school environment, cultural norms, and social influences—that contribute to alcohol use among high school students, more targeted and effective prevention programs can be developed.

This study specifically aims to analyze the prevalence of these sociocultural factors and their relationship to harmful alcohol consumption among fourth and fifth grade students at José Carlos Mariátegui high school in Puno, Peru, offering insights that could inform the development of intervention strategies at the secondary level.

## **METHODS**

### **Study design**

The research followed a quantitative paradigm, utilizing a non-experimental, cross-sectional design as data were analyzed at a single point in time (Hernández et al., 2014). This approach allowed for the systematic collection and analysis of numerical data, providing a clear understanding of the relationships between the studied variables. The non-experimental design was particularly suited for this study, as it enabled researchers to observe and measure the variables in their natural context without manipulating any of them. By employing a cross-sectional design, the research was able to capture a snapshot of the participants' experiences and behaviors, facilitating the identification of patterns and correlations among the variables at a specific moment

### **Sample**

The sample consisted of 87 male students in the fourth and fifth grade at José Carlos Mariátegui high school in Puno. Inclusion criteria were voluntary participation and age range of 15 to 18 years, while exclusion criteria involved irregular attendance. The sample size was non-probabilistic, based on convenience (Gómez-Castrillón et al., 2023).

### **Data collection and procedure**

As an instrument, a survey was designed with two dimensions: alcohol consumption and sociodemographic factors. The first dimension was composed by five items, items 1 and 4 used a dichotomous scale, and the items 2, 3, and 5 used a Likert scale (0-4). The second dimension had 13 items, all with a dichotomous scale. The subdimensions were based on Bronfenbrenner's ecological theory (1987), categorized as cultural, school, social, and family. The cultural subdimension included items 6, 10, and 14; school items 7, 11, and 15; social items 8, 12, and 16; and family items 9, 13, 17, and 18. Quartile cut points (pc 25, 50, 75) were used for the survey categories, labeled as "High," "Medium," and "Low."

Regarding the procedure, the study began by delimiting the population to the last two grades of high school students at IES José Carlos Mariátegui in Puno. Authorization was obtained from the institution, and male students from the fourth and fifth grades were selected. Subsequently, the instruments were administered, which included an informed consent form (Prats, 2016; Barboza, 2023; Lipari et al., 2024), a sociodemographic form (Ordóñez-Calle & Shugulí-Zambrano, 2024; Suárez-López et al., 2024), and the survey (Esteriz et al., 2024). Finally, the collected information was systematized.

### **Statistical analysis**

For hypothesis testing, the Chi-square test for statistical independence was used (Tables 1, 2, 3, and 4). As Badii et al. (2021) indicate, this test is used to determine whether to retain or reject a statistical hypothesis. Two statistical hypotheses were formulated:

H<sub>0</sub>: "The characteristics of the family, school, cultural, and social environments of fourth- and fifth-year high school students in the Puno district are not prevalent in alcohol intoxication." H<sub>a</sub>: "The characteristics of the family, school, cultural, and social environments of fourth- and fifth-year high school students in the Puno district are prevalent in alcohol intoxication." A margin of error of 0.05 ( $\alpha$ ) was used, and 9 degrees of freedom (df) were obtained.

According to the study by Badii et al. (2012), the non-parametric Wilcoxon signed-rank test was used to verify the association of the studied variables, which were nominal and ordinal. This test was employed to compare the mean rank of two related samples (harmful alcohol consumption and sociodemographic factors) and to determine if there was a difference between them to accept or reject the null hypothesis (Meléndez et al., 2020).

### **Ethical aspects**

In this research, informed consent was obtained from the parents, who were duly informed about the purpose of the study and how their children's data would be used. It was ensured that the students' participation was entirely voluntary and

that their anonymity and confidentiality were protected. The ethical principles established in the Declaration of Helsinki were followed, prioritizing the safety and well-being of minors at all stages of the study. These measures ensured the appropriate and responsible handling of the collected information.

## RESULTS AND DISCUSSION

The results show the incidence of sociocultural factors on students' alcohol consumption. In Table 1, it is shown that 22.99% of male students in the fourth and fifth grades at IES José Carlos Mariátegui in Puno have a high association with the family factor, with 19.54% consuming alcohol once per week. Similarly, the association between the variables was not statistically significant ( $\chi^2 = 1.524$ ;  $p = .957$ ) with a null effect ( $V = 0.0$ ).

**Table 1.** Prevalence of family environment on adolescents' alcohol consumption

Prevalence of family environment							X <sup>2</sup>	p.Value	V <sup>2</sup>
	Low		Medium		High				
Never	1.15%	1	2.30%	2	3.45%	3	1.524	0.957	0.0
Once	2.30%	2	19.54%	17	22.99%	20			
Twice	1.15%	1	4.60%	4	8.05%	7			
Three or more	2.30%	2	14.94%	13	17.24%	15			

Source: Database

In Table 2, the prevalence of the school environment in harmful alcohol consumption among adolescents is presented. It was found that 19.54% of male students in the fourth and fifth grades at IES José Carlos Mariátegui in Puno have a high incidence of alcohol consumption once per week. The association between categories was not statistically significant ( $\chi^2 = 9.172$ ;  $p = .164$ ) with a null effect ( $V = 0.0$ ).

**Table 2.** Prevalence of school environment on adolescents' alcohol consumption

Prevalence of school environment							X <sup>2</sup>	p.value	V <sup>2</sup>
	Low		Medium		High				
Never	1.15%	1	2.30%	2	2.30%	2	9.172	0.164	0.0
Once	13.79%	12	14.94%	13	19.54%	17			
Twice	2.30%	2	2.30%	2	14.94%	13			
Three or more	2.30%	2	8.05%	7	16.09%	14			

Source: Database

In Table 3, it is observed that 19.54% of male students in the fourth and fifth grades at IES José Carlos Mariátegui in Puno have a medium prevalence regarding the influence of the cultural environment on alcohol consumption. The association between variables was not statistically significant ( $\chi^2 = 6.477$ ;  $p = .371$ ) with a low effect ( $V = 0.272$ ).

**Table 3.** Prevalence of cultural environment on adolescents' alcohol consumption

Prevalence of cultural environment							X <sup>2</sup>	p.value	V <sup>2</sup>
	Low		Medium		High				
Never	4.60%	4	5.75%	5	8.05%	7	6.477	0.371	0.272
Once	4.60%	4	19.54%	17	9.20%	8			
Twice	5.75%	5	8.05%	7	9.20%	8			
Three or more	9.20%	8	8.05%	7	8.05%	7			

Source: Database

In Table 4, it is shown that 20.69% of male students in the fourth and fifth grades at IES José Carlos Mariátegui in Puno have a medium association with the social environment, with 20.69% consuming alcohol once per week and 17.24% consuming alcohol three or more times per week. The association between categories was not statistically significant ( $\chi^2 = 2.654$ ;  $p = .850$ ) with a low effect ( $V = 0.174$ ).

**Table 4.** Prevalence of social environment on adolescents' alcohol consumption.

	Prevalence of social environment			X <sup>2</sup>	p.value	V <sup>2</sup>			
	Low	Medium	High						
Never	3.45%	3	5.75%	5	3.45%	3	2.654	0.850	0.174
Once	4.60%	4	20.69%	18	4.60%	4			
Twice	4.60%	4	14.94%	13	4.60%	4			
Three or more	8.05%	7	17.24%	15	8.05%	7			

Source: Database

Alcohol consumption among school-age children is a concerning phenomenon that has captured the attention of researchers, educators, and policymakers worldwide. During adolescence, a period marked by significant physical, emotional, and social changes, young people face various pressures that can influence their substance use decisions. Early exposure to alcohol can have negative consequences on brain development, academic performance, and mental health, increasing the risk of dependence and risk behaviors in adulthood. Therefore, this research focused on analyzing the relationship between harmful alcohol consumption and sociocultural factors.

The results indicate that no statistically significant dependence was found between sociocultural factors and harmful alcohol consumption. However, relationships were observed between the frequency of alcohol consumption and the prevalence of various sociocultural factors. The highest percentages were in the family, school, and social factors, with alcohol consumption occurring once a week. Meanwhile, the cultural and social factors showed their highest percentages only in the medium prevalence (Hancock, 2019). Ansarin et al. (2020) confirm this finding, as their study of 1,177 adolescents found no relationship between harmful alcohol consumption and academic performance, despite identifying high alcohol consumption. Conversely, Orcasita et al. (2018) studied 284 adolescents aged 13 to 18 and concluded that drinking alcohol at family gatherings increases the risk of harmful consumption, with the family acting as the "gateway" to regular consumption (Laghi et al., 2012). In contrast, a study in young Italians, that investigated family functionality with different types of alcohol consumption, found that between harmful consumption (more than 8 episodes of drunkenness per month) and family difficulties, a connection between them could be present.

In alignment with the findings on medium cultural prevalence, the study by Uriol and Rodríguez (2021) analyzed cognitive models and their relationship with alcohol consumption in songs from the Peruvian highlands, finding that high (harmful) levels of alcohol consumption are often associated with religious festivities or other events. A similar study by Getachew et al. (2019) in Ethiopia examined students from 20 schools and discovered that regular alcohol consumption is linked to the culture of soccer parties. Regarding the medium social prevalence, a study of 2,768 adolescents confirmed the association between alcohol consumption and peers, among other variables (König et al., 2018).

The findings of this study align partially with other global trends that highlight varying patterns of alcohol consumption among adolescents. For instance, Smith et al. (2024) noted that while some countries report declining trends in adolescent alcohol consumption, the rate of decrease remains modest, underscoring the persistence of the issue in many regions. Similarly, Ma et al. (2018) emphasized the prevalence of drinking-related problems among adolescents in low and middle-income countries, which varied by region and sociodemographic characteristics. However, our results differ in that no statistically significant associations were found between alcohol consumption and the analyzed sociocultural factors. This divergence suggests potential limitations in the study's scope or methodological constraints, particularly in smaller or more localized samples, as supported by Sandoval et al. (2020), who reported significant associations in broader population-based analyses in Brazil. Additionally, the absence of strong predictors in our study contrasts with the predictive models proposed by Freitas Ferreira et al. (2018), which identified family violence and specific demographic factors as critical drivers of alcohol abuse among adolescents.

The lack of strong causal relations in this study may also reflect broader complexities in adolescent behavior and sociocultural influences. Moreta-Herrera et al. (2024) identified alcohol use intentions as moderate predictors of drinking behavior among Ecuadorian adolescents, a nuance that may not have been fully captured in this study. Furthermore, Escobar-Agreda et al. (2021) showed that acculturation surrogates, while influential in some subgroups, often lacked a consistent impact on alcohol consumption. These complexities resonate with Sicher et al. (2024), who found that adolescent alcohol exposure does not robustly increase adulthood consumption in controlled settings, suggesting a complex interplay of social and environmental factors. Lastly, Ma et al. (2018) underlined the need for standard methodologies to capture adolescent drinking behaviors more effectively, particularly in diverse sociocultural contexts. This calls for further research employing more robust and standardized measures to explore the intricate relationship between alcohol consumption and sociocultural dynamics.

To maintain continuity in the current line of research, coordination between the health and education sectors is encouraged to develop and implement guidance and student welfare programs. Likewise, creating a prevention plan during the school years would be beneficial if directed toward appropriate health education regarding the rejection of harmful alcohol consumption. It is also important to consider teachers as role models for students within a multidisciplinary team aimed at combating excessive alcohol consumption. It is hoped that this research may provide partial support for implementing the aforementioned recommendations and for future studies on the subject.

The limitations of this research include the restriction to a cross-sectional design, which prevents establishing causal relationships between sociocultural factors and harmful alcohol consumption. Additionally, while the sample size is representative, it may not fully reflect the diversity of the student population in different social and cultural contexts. Self-reported alcohol consumption may introduce biases, as participants may not be entirely honest about their habits. Furthermore, the research was conducted in a single educational institution, limiting the generalizability of the results to other institutions and contexts. Finally, the lack of a longitudinal follow-up prevents observing changes in alcohol consumption behavior over time, which could provide a deeper understanding of the dynamics involved.

## FINAL REMARKS

A treatment against alcohol consumption among students is of vital importance due to the implications that this behavior has on physical and mental health, psychosocial development, and academic performance. During adolescence, the brain is still developing, and early exposure to alcohol can alter critical neurobiological processes, increasing the risk of developing dependency disorders and other long-term health issues.

The findings show that the prevalence of alcohol consumption among fourth- and fifth-grade students is less than 30% overall across the family, school, cultural, and social factors. This relatively low prevalence suggests that, in general, a considerable majority of students are not involved in alcohol consumption, indicating the effectiveness of protective factors in preventing alcohol use among students. However, it is crucial not to underestimate the impact that alcohol consumption can have on the 30% of students who do engage in it. Although not alarming in absolute terms, this percentage suggests the need for more targeted and personalized interventions specifically addressing at-risk students.

Furthermore, there is a relatively higher prevalence of alcohol consumption among fourth- and fifth-grade students due to the influence of family and school factors. The quality of family relationships, especially the security of attachment with parents, significantly impacts adolescent behavior. Students who experience a dysfunctional family environment characterized by poor communication, inadequate supervision, or exposure to alcohol consumption models at home are more likely to start or maintain alcohol use, increasing their vulnerability to alcohol consumption. Similarly, the school factor is a critical influence in students' lives, significantly affecting their choices and behaviors. Dynamics within educational institutions, such as peer pressure, school culture, and managing academic stress, are key determinants of student behavior related to alcohol consumption. In some cases, it is evident that students experiencing high levels of academic stress or with poor academic performance may turn to alcohol as a way of coping with pressure. It is urgent to include alcohol risk education programs, psychosocial interventions aimed at improving communication and parental supervision, and the implementation of academic policies that promote a drug-free environment.

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**Contribution of each author to the manuscript:**

Task	% of contribution of each author				
	A1	A2	A3	A4	A5
A. theoretical and conceptual foundations and problematization:	20%	20%	20%	20%	20%
B. data research and statistical analysis:	20%	20%	20%	20%	20%
C. elaboration of figures and tables:	20%	20%	20%	20%	20%
D. drafting, reviewing and writing of the text:	20%	20%	20%	20%	20%
E. selection of bibliographical references	20%	20%	20%	20%	20%
F. Other (please indicate)	-	-	-	-	

**Indication of conflict of interest:**

There is no conflict of interest

**Source of funding**

There is no source of funding

**Acknowledgments**

There is no acknowledgment

**Note**

The data supporting this study are part of the completion of specialization studies in university teaching and are available at <http://repositorio.unap.edu.pe/handle/20.500.14082/13269>