Originales

Sex differences in alcohol and tobacco use in Ecuadorian college students

Diferencias por sexo en el consumo de alcohol y tabaco en estudiantes universitarios ecuatorianos

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Abstract

This study aims to report levels, sex differences, and sex as a risk factor in alcohol and tobacco use among Ecuadorian college students. A descriptive and comparative method was employed. The sample consisted of 546 college students (69.1% women), aged between 17 and 41 years, from four universities located in the cities of Ambato and Quito. The results indicated low levels of alcohol and tobacco use, with significant sex differences showing higher consumption among men. Men were found to be 2.1 times more likely to consume alcohol and 3 times more likely to use tobacco compared to women. In conclusion, alcohol and tobacco use is a common behavior among the sample, with sex being a key factor in both the increase in consumption and the development of risky consumption patterns.

Keywords

Alcoholism; comparative analysis; drug abuse; sex differences; smoking.

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Resumen

Los objetivos del trabajo son reportar los niveles, las diferencias de sexo y al sexo como factor de riesgo en el consumo de alcohol y tabaco en estudiantes universitarios ecuatorianos. Para ello se utiliza un método descriptivo y comparativo. La muestra estuvo compuesta por 546 estudiantes universitarios (69,1% son mujeres), entre 17 y 41 años de cuatro universidades ubicadas en las ciudades de Ambato y Quito. Los resultados indicaron bajos niveles de consumo de alcohol y tabaco y la presencia de diferencias significativas por sexo, con mayor consumo entre los hombres. Los hombres tienen más probabilidades que las mujeres de consumir alcohol (2.1 veces) y tabaco (3 veces), respectivamente. Finalmente, se concluye que el consumo de alcohol y tabaco es una conducta común entre la muestra y el sexo es un factor clave tanto en el aumento del consumo como en el desarrollo de consumos de riesgo.

Palabras clave

Alcoholismo; análisis comparativo; abuso de drogas; diferencias de sexo; tabaquismo.

INTRODUCTION

According to the World Health Organization (WHO, 2018; 2019), both alcohol and tobacco remain the most consumed substances among humans, including teenagers and young adults (Castro-Sánchez et al., 2017; Moreta-Herrera et al., 2023). These stimulants are considered risk factors in the development of serious diseases such as breast, colorectum, liver, esophagus, and head and neck cancer (Zang et al., 2015). Alcohol alone is responsible for more than 60 diseases, including liver, heart, and gastrointestinal diseases, strokes, and mental disorders (Connor et al., 2016). Tobacco, on the other hand, is associated with ischemic heart disease, chronic obstructive pulmonary disease, and premature death and disability, causing 11.5 million deaths in 2015 alone (WHO, 2020).

Alcohol and tobacco use not only have a deep impact on human health, but it also affects the economy of countries due to the high costs of treatments for alcohol use disorders (AUD) and tobacco addiction, which is especially problematic in developing countries (Goodchild et al., 2017). Therefore, there is a growing need to understand addictive behavior, especially in Latin America where research tends to be limited and epidemiological studies are scarce (Cremonte et al., 2016; Moreta-Herrera & Reyes-Valenzuela, 2022). Consequently, it is essential to identify the status of this phenomenon both in the Ecuadorian context and within vulnerable populations.

Alcohol and Tobacco prevalence

In 2016, 2.348 billion people worldwide aged 15 years and above were current drinkers, representing 43% of the global population within this age group. The prevalence of alcohol consumption exceeds half of the population in three WHO regions: the European Region (EUR) with 59.9% of current drinkers, the Region of the Americas (AMR)

with 54.1%, and the Western Pacific Region (WPR) with 53.8% (WHO, 2018).

The American continent has one of the highest prevalence rates of alcohol consumption in the world. For example, in the United States, 59.9% of the population aged 15 years and over consume alcohol, and this figure has increased by 0.3% annually from 2000 until 2017 (Grucza et al., 2018). Countries such as Uruguay, Argentina, and Chile also display high rates of alcohol use among people 15 years or older, with prevalence rates of 57.1%, 54.5%, and 54.4%, respectively (WHO, 2018). In Ecuador, the prevalence of alcohol consumption in the same age group is around 32.2% (Castro-Ochoa et al., 2024; Moreta-Herrera et al., 2020; Aponte-Zurita & Moreta-Herrera, 2023). Among Latin American college students, alcohol use tends to increase, reaching a prevalence of 80%, compared to previous life stages (Gómez-Cruz et al., 2018; Mora & Herrán, 2019). Risky use also increases, with a prevalence of 11.4% (Mekonen et al., 2017).

Regarding tobacco consumption, the global prevalence in 2018 was around 23.6% among adults aged 15 years and older. Levels of tobacco use have been declining since the year 2000 when the global prevalence was 33.3% for people aged 15 years and above. This trend is expected to continue until 2025 when it is estimated that the global prevalence will be around 20.9% for people in the same age group. The global decrease in tobacco consumption is attributed to the efforts of the WHO and its Framework Convention on Tobacco Control (FCTC) campaign (WHO, 2019).

In the AMR, levels of tobacco consumption among people aged 15 years and older are remarkably low compared to other regions. For example, the Southeast Asia Region (SEAR) has the highest prevalence in the world at 29.1%, whereas the Americas region has a prevalence of 18.4%, only above the Africa Region (AFR), which has the lowest prevalence in the world at 12.7% (WHO, 2019). Despite this low prevalence, tobacco use is responsible for around one million deaths every year in the Americas. Additionally, due to the constant growth of the world population, the absolute number of smokers continues to increase (Pan American Health Organization [PAHO], 2018). The prevalence of tobacco use among college students is around 43% and 56% in countries such as Colombia (Castro-Sánchez et al., 2017), which is higher compared to other countries such as Mexico, with a prevalence of 26.7% (Gómez Cruz et al., 2018). Both tobacco and alcohol consumption among college students is associated with multiple factors, ranging from cognitive and emotional aspects to sociodemographic elements such as sex (Castro-Ochoa & Moreta-Herrera, 2023; Intarut, 2017; Mayorga-Lascano et al., 2019; Moreta-Herrera et al., 2019). Sex is an important variable due to its relevance in current scientific and social debates around the consumption of alcohol and other drugs, as current trends and considerations differ significantly from historical ones.

Importance of Sex Differences Research

In the last five years, the importance of research on sex differences has increased exponentially, due to the mandate of the U.S. National Institutes of Health (NIH) to include sex as a biological variable (SABV) in all its studies (NIH, 2015). This decision has

improved scientific knowledge, particularly in women's health, by incorporating SABV into research designs, large databases, and data analyses (Arnegard et al., 2020). However, there has been some resistance to this methodology, primarily due to the belief that achieving acceptable results requires doubling the sample size (Galea et al., 2020). Evidence suggests that exploratory studies on sex differences do not need sample augmentation, and confirmatory analysis can be performed with only a 33% increase in the sample size (Buch et al., 2019; Canadian Institutes of Health Research, 2018).

Research on sex differences has provided valuable information about various diseases. For example, stress-induced cardiomyopathy is more prevalent in women, but men present a more severe clinical onset of cardiovascular diseases (De Bellis et al., 2020). Females face a greater risk of multiple sclerosis (MS), but men experience worse disease progression (Golden & Voskuhl, 2017). Sex also impacts treatment efficacy; some therapies for malignant brain tumors are more effective in women than in men (Yang et al., 2019), but women respond worse to surgery (Giustino et al., 2019) and are more prone to suffer side effects from pharmacological agents (Haack et al., 2009).

Mental illnesses also exhibit sex-related differences. For instance, anxiety and fear-related disorders are more prevalent in women than men (Maeng & Milad, 2015). The incidence of epilepsy is higher in men, but only women experience catamenial epilepsy, where seizures are related to the menstrual cycle (Reddy, 2017). The onset of certain mental illnesses also shows significant sex differences; obsessive-compulsive disorder (OCD) typically occurs in early adolescence

in males but appears during the perinatal period in females (Mattina & Steiner, 2016). In schizophrenia, males are more likely to develop the disease between 21 and 25 years old, whereas females tend to develop it a few years later or around middle age, approximately 45 years old (Gogos et al., 2019; Li et al., 2016). This evidence demonstrates that sex as a variable has a quantitative and qualitative impact on various physical and mental diseases, including alcohol and other substance use disorders, which demands thorough research.

Sex Differences in alcohol and tobacco use and disorders associated

Since the NIH's mandate, important research on sex differences has been published. For example, it is known that worldwide, females are less often current drinkers and they drink fewer liters of alcohol on average when compared to men (WHO, 2018). Likewise, the global number of male smokers is not decreasing, whereas the number of female smokers has declined in recent years (WHO, 2019). Historically, researchers have acknowledged a gap in substance use disorder (SUD) prevalence, with men having a higher prevalence of SUD. Nevertheless, evidence shows that this gap is narrowing (McHugh et al., 2018; Salvatore et al., 2017) and some important differences in the experience of the disorder between men and women have emerged. This underscores the importance of sex differences research, eliminating the lack of interest in this field, and driving science toward the development of treatments for all sexes (Rich-Edwards et al., 2018).

Although studies on sex differences in substance use disorders remain limited, some important findings have been reported. Male adolescents are at greater risk of binge drinking and making riskier decisions (Hammerslag & Gulley, 2016), while women experience a greater health impact due to SUD (Agabio et al., 2016). Evidence also indicates that sex, particularly being male, is a risk factor in the development of SUD (Moreta-Herrera et al., 2018). Similar patterns are observed among college students; men tend to consume more alcohol (Gómez Cruz et al., 2018), tobacco (Castro-Sánchez et al., 2017), and engage in polydrug use (Fernández-Castillo et al., 2016) compared to women. Sex is also a key component in aspects such as frequency, intensity, and risky use (Mekonen et al., 2017; Pedrelli et al., 2018), making being male a risk factor for SUD (Peltzer & Pengpid, 2018).

To achieve a deeper understanding of SUD, studies must disaggregate their data by sex and analyze potential sex effects. Men apparently consume more than women, which likely becomes a risk factor that exacerbates the severity of consumption and future physical and psychological consequences (Salvatore et al., 2017; Yang et al., 2019). Despite the importance of research on sex differences and the efforts of the NIH to address the lack of it, there are few contributions on this topic in Ecuador, particularly in the field of psychology (Ruisoto et al., 2016, 2017). Therefore, researching sex differences in SUD in the Ecuadorian population is crucial, not only to shed light on this topic but also to improve psychological treatments by considering the specific needs of individuals based on their sex.

Objectives and hypotheses

Based on this background, the objectives of this study are: a) to describe levels of alcohol and tobacco use among a sample of Ecuadorian college students. We hypothesize (H_1) that consumption of these substances will be low among the sample, but with a significant presence of risky use; b) to identify sex differences in alcohol and tobacco consumption. Our hypothesis (H_2) is that there are sex differences, with men showing more consumption than women; and, c) to determine if sex is a risk factor in the development of alcohol and tobacco risky use. We hypothesize (H_3) that being a man increases the probability of developing risky consumption.

METHOD

Design

Our study includes a descriptive, cross-sectional, and comparative design (Ato et al., 2013) to examine sex differences and sex as a risk factor, in alcohol and tobacco use, in a sample of Ecuadorian college students.

Participants

The study was conducted with 546 college students (69.1% women), whose ages ranged from 17 to 41 years (M = 21.3 years; SD = 2.6). Among the sample, 95.4% identified ethnically as mestizos (combined European and Indigenous American ancestry), and the remaining 4.6% identified as Indigenous, Afro-Ecuadorian, and White. Similarly, 81.1% lived in urban areas and 18.9% in rural areas. Additionally, 34.4% reported economic vul-

nerability. Participants were students from four universities (45.1% public) in the cities of Ambato (82.2%) and Quito (17.8%) in Ecuador, attending undergraduate programs in psychology, medicine, administration, and education. Among them, 2.9% reported academic problems due to low achievement, 11.7% were repeating a course in the current academic year, and 20.9% combined their studies with work. The sample was selected through non-probabilistic sampling with the following inclusion criteria: a) currently studying at one of the participating universities; b) voluntary participation; c) regular class attendance; d) written informed consent to participate in the research.

Instruments

- ***Alcohol Use Disorders Identification Test*** (AUDIT; WHO, 1992; Saunders et al., 1993). We used the Spanish version adapted by García Carretero et al. (2016) and validated in the Ecuadorian context (Moreta-Herrera et al., 2021). It is composed of 10 questions on a Likert scale that assess hazardous consumption, harmful consumption, and dependence symptoms. It establishes two diagnostic categories based on sum scores: hazardous consumption (8 to 14 points) and harmful consumption (15 points or more). Regarding its psychometric properties, this test has acceptable reliability, with previous studies in Ecuador finding values of $\alpha = .84$ (Mayorga-Lascano et al., 2019). In the present study, reliability was $\omega = .85$; CI 95% [.83 - .88] equivalent to acceptable.

- ***Questionnaire to Classify the Level of Tobacco Consumption in Young People*** (C4,

Londoño et al., 2011). This questionnaire assesses cigarette use behavior according to frequency and intensity of consumption, associated problems, intention to quit consumption, and signs of dependence. It is a self-administered scale of 15 items with values ranging from 0 to 50 points, with cut-off points between 1 to 5 for low consumption, 6 to 17 for moderate consumption, 18 to 29 for high consumption with signs of dependence, and 30 to 50 for nicotine dependence. Regarding its psychometric properties, this questionnaire presents high reliability with $\alpha = .90$. In the present study, reliability was $\omega = .93$; CI 95% [.92 - .94] equivalent to very acceptable.

Procedure

After obtaining authorization from the deans of the four educational centers, we introduced the project and its objectives to the participants. The selected candidates were asked to sign an informed consent form before entering the evaluation process. The instruments were then administered in groups within classrooms, taking approximately 30 minutes. Once this phase was concluded, the data obtained was refined for subsequent systematization, digitization, and statistical analysis. Based on the results, the proposed hypotheses were tested, and this scientific paper was written.

Data Analysis

This research involves three blocks of data analysis. The first block comprises a descriptive analysis of the data collected on alcohol and tobacco use. The means of the total values were analyzed to compare them with the cut-off points of the tests and estimate

the general characteristics of consumption among the sample. The second block corresponds to a comparative analysis by sex. The homoscedasticity assumption (F) was verified, finding that this assumption was not met; statistical differences ($p < .05$) were calculated with the Student's t-test (t) and the effect sizes with the adjusted Hedges' g test (g). Finally, an Odds Ratio analysis was conducted to calculate the probability of risky consumption occurring in the group of men compared to the group of women. The statistical analyses were carried out using R (R Core Team, 2019), a free statistical software.

RESULTS

Descriptive Analysis

Table 1 shows levels of alcohol consumption among the sample. Alcohol consumption is below the cut-off point (<8 points) therefore, there is a generalized presence of alcohol consumption among participants, but at a harmless level. The same occurs with tobacco consumption, where the sample shows low levels of consumption (<5 points).

Within diagnostic categories, participants present a risk-free consumption (69.2%), hazardous consumption (22.2%), harmful consumption (5.7%), and dependence symptoms (2.9%). Only 16.3% of the sample abstain from consuming alcohol, while 84.7% report alcohol consumption at least once a month (item 1). The mean of drinks consumed on a typical day (item 2), is $M = 1.47$ drinks; while 47.3% of the sample report episodes of intense consumption (binge drinking) at least once in their lifetime, and 4.5% at least once a week.

Regarding tobacco consumption, the majority of the participants do not use tobacco (69.6%), while the rest present low (4.2%), moderate (16.1%), and high (9%) consumption, finally 1.1% of the participants display probable nicotine dependence. In addition, 98% of the participants who report tobacco use, consume less than 10 cigarettes per day and 70.6% started consumption about a year ago.

Sex Differences in Alcohol and Tobacco Use

As seen in Table 2, the t-test for independent samples was found to be statistically significant for sex differences ($p < .05$), both in alcohol and tobacco consumption. On average, men have higher alcohol (risky)

Table 1. Descriptive Analysis of Alcohol and Tobacco Consumption

Categories	Min-Max	M	SD	Skewness	Kurtosis
Hazardous Consumption	0.00 – 11.00	2.46	2.09	1.17	1.42
Dependence Symptoms	0.00 – 12.00	1.06	1.65	2.59	9.08
Harmful Consumption	0.00 – 16.00	2.24	3.00	1.78	3.03
AUDIT	0.00 – 32.00	5.76	5.78	1.54	2.50
C4	0.00 – 32.00	4.45	7.86	1.60	1.37

Note. *AUDIT: Alcohol Use Disorders Identification Test*; *C4: Cuestionario para la clasificación de consumidores de cigarrillo (C4)*; *Min-Max: Minimum y Maximum; M: mean; SD: standard deviation*.

and tobacco (moderate) consumption when compared to women (non-risky alcohol and low tobacco consumption). The effect size for this analysis was found to be small for alcohol consumption ($g \leq .05$), and moderate ($g > .05$) for tobacco consumption.

Diagnostic categories of alcohol use show statistically significant differences by sex $\chi^2 = 17.02$; $p <.01$, with women reporting higher levels of non-risky consumption while men have higher levels of harmful consumption with probable dependence. The number of alcoholic beverages consumed on a typical day is greater in men than in women with $\chi^2 = 16.66$; $p <.01$, and finally, there is a greater presence of binge drinking in men rather than in women with $\chi^2 = 20.99$; $p <.001$.

On the other hand, diagnostic categories of tobacco consumption, also display sex differences with low consumption being more frequent in women, while high consumption with probable dependence is usually found in men with $\chi^2 = 47.20$; $p < .001$; the number of daily cigarettes consumed is greater in men than in women $\chi^2 = 48.40$; $p < .001$, as well as the onset of tobacco use, with a higher age average for women $\chi^2 = 24.74$; $p < .001$.

Odds Ratio Analysis

An Odds Ratio analysis was performed to determine the association between sex and risky alcohol and tobacco use (see figure 1), which shows that men had OR= 2.1; 95% CI (1.45 − 3.11) times the odds of acquiring risky alcohol use than women., While in the case of tobacco, men had OR= 3.0; 95% CI (2.01 − 4.37) times the odds of developing risky tobacco use than women. Since the confidence intervals are above unit (1), it is considered that being a man is a risk factor linked to alcohol and tobacco use disorders.

DISCUSSION

The objectives of this study were to examine alcohol and tobacco consumption levels among Ecuadorian college students, explore sex differences, and investigate whether sex acts as a risk factor for alcohol and tobacco use disorders. Our findings suggest that alcohol consumption among the sample is generally moderate in terms of frequency and intensity. However, a third of the participants meet the criteria for risky consumption, and instances of binge drinking are reported, in-

Table 2. Sex comparative analysis of alcohol and tobacco use

Categories	*Men*		*Women*		*F*		
	M	**SD**	**M**	**SD**		**t**	**g**
Hazardous Consumption	3.05	2.32	2.20	1.93	10.08**	4.15***	0.4
Dependence Symptoms	1.60	2.13	0.82	1.33	30.09***	4.37***	0.5
Harmful Consumption	3.17	3.42	1.82	2.69	16.15***	4.53***	0.5
AUDIT	7.82	6.70	4.84	5.08	20.41***	5.14***	0.5
C4	7.61	9.67	3.04	6.43	88.89***	5.60***	0.6

Note. *AUDIT: Alcohol Use Disorders Identification Test; C4: Cuestionario para la clasificación de consumidores de cigarrillo (C4); M: mean; SD: standard deviation; F: Levene test; t: t-test for independent samples; g: Hedges' g test*

Figure 1. Forest Plot
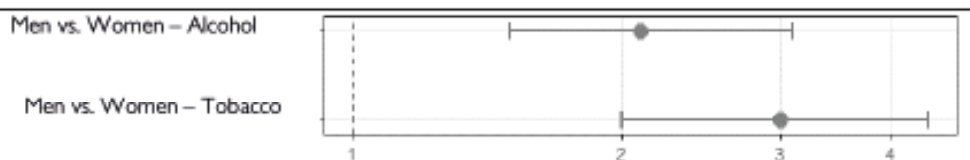
Note. Odds Ratio of Alcohol and Tobacco Use for Men and Women.

dicating a need for reflection and monitoring of alcohol consumption behaviors.

Alcohol use among college students appears to be more prevalent compared to other age groups such as teenagers (Moreta-Herrera et al., 2020) and the general population (Grucza et al., 2018), highlighting college years as a period of heightened alcohol consumption. Abstinence rates are relatively low, with approximately 85% of students reporting alcohol consumption at some point in their lives. These findings align with studies in similar Latin American contexts such as Colombia (Mora & Herrán, 2019) and Mexico (Gómez-Cruz et al., 2019), and underscore the prevalence of alcohol and tobacco use disorders (Mekonen et al., 2017).

In contrast, tobacco consumption among our sample is significantly lower than alcohol consumption, with only 30% of participants reporting smoking. The majority (70%) are abstinent from tobacco, yet moderate consumption is noted in approximately 16% of the sample, with around 1% displaying signs of nicotine dependence. These prevalence rates are comparable to general consumption trends observed in the Americas (PAHO, 2018), where alcohol use is widespread and occasional tobacco use is common. Comparisons with other Latin American populations

like Colombia (Castro-Sánchez et al., 2017) reveal lower tobacco use among Ecuadorian college students, while similarities are noted with Mexican peers (Gómez-Cruz et al., 2019). Polydrug use (alcohol and tobacco) is less prevalent in our study compared to other research showing higher rates of concurrent substance consumption (Peltzer & Pengpid, 2018).

Concerning sex differences, men in our study exhibit significantly higher alcohol and tobacco consumption compared to women (p < .05), with moderate effect sizes. Non-risky consumption is more prevalent among women, whereas men show higher rates of harmful consumption and probable dependence. These findings are consistent with research on college student behavior (Castro-Sánchez et al., 2017; Fernández-Castillo et al., 2016; Gómez-Cruz et al., 2018), highlighting that men generally consume alcohol and cigarettes more frequently and intensely than women, potentially leading to more visible consumption-related problems (Mekonen et al., 2017; Moreta-Herrera et al., 2018; Pedrelli et al., 2018; Salvatore et al., 2017).

Regarding sex as a risk factor for risky alcohol and tobacco consumption, men in our study are respectively two and three times more likely to engage in risky use compared

to women. These results mirror previous findings in Ecuadorian adolescent samples (Moreta-Herrera et al., 2018) and college student cohorts (Pedrelli et al., 2018; Peltzer & Pengpid, 2018), emphasizing the influence of sex on behavioral and biological differences (Arnegard et al., 2020) observed in various physical and mental health conditions (De Bellis et al., 2020; Golden & Voskuhl, 2017; Mattina & Steiner, 2016). While these findings provide evidence of sex differences in substance use behaviors, further studies are warranted to deepen our understanding of these dynamics.

Concerning the implications of the study, this research provides crucial evidence on sex differences in alcohol and tobacco consumption and identifies sex as a significant risk factor within the Ecuadorian context, where studies on this topic are notably sparse. By elucidating the reality of substance use in the country, this study enriches the scientific literature of the Latin American region. Moreover, our findings will assist mental health services in making evidence-based decisions when formulating and implementing substance use prevention and general mental health care plans. Understanding the specific needs of each sex, particularly in Latin America where evidence-based treatments and guidelines are still emerging and consolidating (Cabrera & Pardo, 2019), is essential. These results underscore the importance of developing health treatments that account for sex differences and their distinct outcomes, as advocated by authors such as Rich-Edwards et al. (2018). Given the observed differences in consumption dynamics between men and women, advancing differentiated and potentially independent treatments becomes imperative. Therefore,

implementing intervention programs for substance use disorders that can mitigate and address the effects on college students and the broader population is crucial. While a comprehensive intervention model for substance use disorders has yet to be formalized within Ecuador's higher education system, it may be beneficial to consider successful programs from other countries like the United States. For instance, The Substance Abuse and Mental Health Services Administration (SAMHSA) recommends evidence-based interventions such as Motivational Counseling and Contingency Management, which could serve as valuable frameworks for adaptation (SAMHSA, 2019, 2021).

In conclusion, our study reveals widespread alcohol and tobacco consumption among the sample, with sex playing a pivotal role in both increased consumption and risky behaviors. As one of the pioneering studies on sex differences in Ecuador, we anticipate that this research will catalyze further investigations in our country and throughout Latin American and Caribbean nations. While regional scientific production has shown growth in recent years, the integration of sex differences studies remains slow, highlighting the ongoing need for concerted efforts within the scientific community to enhance methodological advancements in this field.

Limitations and future recommendations

Several limitations should be acknowledged in interpreting the findings of this study. First, the sample consisted exclusively of college students, which may restrict the generalizability of the results to other demographic groups. Future research should

encompass diverse age cohorts including adolescents, middle-aged adults, the elderly, and the general population to provide a more comprehensive understanding of consumption patterns across different life stages. It should also be mentioned that this study focused solely on alcohol and tobacco use behaviors. Future investigations should consider integrating additional variables such as affective, cognitive, and social factors as suggested by previous research. This broader approach could elucidate the complex interplay of factors influencing substance use behaviors. Additionally, the conclusions drawn in this study are based on observational data. Future research endeavors could employ more sophisticated study designs, including longitudinal studies and experimental designs, along with rigorous statistical analyses. Such approaches would strengthen causal inferences and provide deeper insights into the dynamics of substance use among Ecuadorian populations. Finally, due to the scarcity of similar studies conducted among the Ecuadorian population, there were limitations in comparing our findings with existing scientific literature. Therefore, further confirmatory studies are essential to corroborate and extend the current understanding of substance use behaviors in this context.

Compliance with Ethical Standards Ethical Approval

Ethical approval for this study was obtained from the responsible committee on human experimentation (institutional and national), adhering to the principles outlined in the Helsinki Declaration of 1975, as revised in 2000. Informed consent was obtained from all participants before their inclusion in the study.

Conflict of Interest

The authors declare that they have no conflict of interest.

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