Environment and Social Psychology (2026) Volume 11 Issue 1 ISSN: 2424-8975 (O)
doi: 10.59429/esp.v11i1.4428 2424-7979 (P)

RESEARCH ARTICLE

Alcohol consumption as a predictor of aggression in young Peruvians: Evidence from an explanatory model

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ABSTRACT

Youth aggressiveness is a growing psychosocial problem in Latin American contexts, and alcohol consumption is a predictor factor associated with the increase in aggressive behaviors. It was proposed to explain to what extent alcohol consumption acts as a predictor of aggressiveness in young Peruvians, incorporating the analysis of sociodemographic variables to identify significant differences between the groups evaluated. 600 young people selected through non-probabilistic sampling participated; the AUDIT instruments were applied to measure alcohol consumption and the BPAQ to assess aggressiveness and its dimensions. The study employed quantitative, explanatory design, using descriptive analyses, nonparametric tests, and linear regression. The results showed that alcohol consumption significantly predicts levels of aggression (R= .504; R2 = .254; p< .001). Significant differences were found according to sex, occupation and cohabitation; Men, young people who work and those who live with a partner or family members have higher levels of both aggression and alcohol consumption. Likewise, the dimensions of physical and verbal aggressiveness showed greater variability, while anger and hostility were more homogeneous. It is concluded that alcohol consumption is a relevant predictor of youth aggressiveness, and that sociodemographic factors play an important role in the expression of these behaviors.

Keywords: Alcohol consumption; aggressiveness; youth; sociodemographic variables; predictor; explanatory model

1. Introduction

Aggressiveness in youth associated with alcohol consumption is a psychosocial problem of relevance to public health and citizen safety; worldwide, the World Health Organization (WHO) estimates that alcohol consumption is related to more than three million deaths per year and numerous social damages, especially among young people [1].

In the Americas, there is a high prevalence of excessive episodic consumption and negative behavioral consequences, such as aggression and interpersonal violence. These patterns are maintained by easy accessibility, publicity, and low risk perception in adolescents and young people [2].

In Peru, the services of the Ministry of Health (MINSA) attended 43207 cases of alcohol use disorders in 2024 (9.4% compared to 2023), a growing trend of demand in the public network; in addition, technical

ARTICLE INFO
Received: 08 December 2025 | Accepted: 15 January 2026 | Available online: 23 January 2026

CITATION
Ticona IPM,Zegarra RIQ,Calizaya-López J.Alcohol consumption as a predictor of aggression in young Peruvians: *Evidence from an explanatory model*. 11(1) :4428.doi:10.59429/esp.v11i1.4428

reports from the Pan American Health Organization (PAHO) and national reviews warn that young people (17-29 years old) concentrate significant fractions of dangerous consumption, especially in social situations and leisure activities on weekends, these data inform about the problem and justify explanatory studies focused on aggressive behavior in young people [3].

From the theory, the alcohol-aggression relationship is explained through the General Model of Aggression, which combines associative-cognitive aspects, social learning, scripts and excitation transfers, proposing that situational (alcohol intoxication) and personal (impulsivity) factors influence aggression through internal states (cognition, affection and activation) and evaluation/decision processes [4].

On the other hand, the theory of alcoholic myopia states that alcohol reduces attention and inhibition resources, focusing on prominent signals (provocation) and minimizing the consequences, increasing impulsive and aggressive behaviors. This psychosocial context explains why in a state of drunkenness, young people react more quickly to physical or verbal aggression in frustrating situations or interpersonal conflicts [5].

Likewise, from neuropsychology, models of executive disinhibition have been proposed (alcohol affects frontal functions such as inhibition, supervision, flexibility) and this executive deficit moderates the relationship with aggression, so that people with less executive control or greater irritability are more likely to react aggressively to drinking; this line, proposed by Giancola et al., complements both the general model of aggression and alcoholic myopia with viable neurocognitive mechanisms [6].

Likewise, psychosocial theories such as learning and social identity agree that in the social environment and reference groups they play a determining role in the adoption of risky behaviors, on the one hand, young people learn to behave aggressively or consume alcohol by observing close models; on the other, they internalize group norms that can legitimize these behaviors. Therefore, alcohol consumption and aggressiveness are not only due to personal factors, but also to social processes that influence its acquisition, maintenance and intensity [7,8].

Kuntsche et al. [9] point out that youth alcohol consumption is a pattern characterized by rapid and high intakes, especially in social contexts, influenced by motivational factors and group norms, being a predictor of multiple negative outcomes, including aggressive behaviors and mental health problems.

For their part, Allen and Anderson [10] define aggressiveness as a pattern of intentional behaviors aimed at harming or intimidating, modulated by emotional, cognitive, and social factors.

According to recent meta-analyses and reviews, they confirm positive relationships between excessive consumption and aggression in young people, with evidence of direct effects and pathways mediated by cognitive-affective processes (hostility, anger) and experimental and laboratory executive functions confirm that intoxication increases aggression in paradigmatic tasks, and characteristics such as impulsive or irritability modulate this effect. in accordance with psychosocial models (social learning) that normalize aggression in certain peer groups [4].

In Peru, the existing literature shows a high prevalence of consumption in young people and in transition to adult life, with differences according to sex and context, evidence shows that approximately 68% of university students consume alcohol and 21% have harmful consumption, figures that although they specifically point to young people with studies, give an idea of the trends in samples of young people. Likewise, studies of dynamics in late-stage adolescents in the country have characterized the trajectory of consumption and its correlation, reiterating the need to investigate aggressiveness as a relevant behavioral outcome [11].

Although there are local studies on alcohol and other outcomes (resilience, social skills) and some reports that relate violence and consumption in young people [12], there are no quantitative studies in out-of-school Peruvian youth on aggressiveness as a multidimensional construct (physical, verbal, anger, hostility) under moderating frameworks. This theoretical-empirical gap limits the formulation of preventive strategies based on mechanisms, beyond simple correlations.

In summary, international evidence supports models where alcohol consumption increases the probability of aggression through cognitive/affective disinhibition and executive deficits, considering that the Peruvian context presents high levels of consumption in young people and a growing demand for health care.

However, it has not been specified exactly how consumption (frequency, excesses, problems) influences aggressiveness in young Peruvians and what psychosocial mechanisms (self-control or impulsivity) would explain this relationship in the youth population in general.

Therefore, it was proposed to explain to what extent alcohol consumption acts as a predictor of aggressiveness in young Peruvians, incorporating the analysis of sociodemographic variables to identify significant differences between the groups evaluated.

2. Method

2.1. Type of study

The study was quantitative, explanatory, non-experimental cross-sectional, with a predictive approach, regression models were used to estimate the effects of alcohol consumption on aggressiveness.

2.2. Participants

600 young people between 18 and 29 years of age residing in a town in Peru, belonging to different urban and rural areas, participated; The sample was selected by non-probabilistic sampling considering sex, age and area of residence. Likewise, young people who agreed to participate voluntarily, who adequately understood the instructions of the instruments and were able to complete them without additional assistance, and young people who reported alcohol consumption at least once a month (according to AUDIT indicators) were included, since the variable is central to predictive analysis.

The sample size was estimated using the G*Power software, selecting a linear regression test with a single predictor, effect size of 0.133, significance level of .05, and reliability of .95, recommended parameters for explanatory studies, ensuring high power and stability in the statistical analyses performed.

2.3. Instruments

The AUDIT (Alcohol Use Disorders Identification Test) instruments were applied [13], with 10 items that evaluate risky consumption, dependence and negative consequences. The scale has high reliability α= .85 and adequate confirmatory validity within the parameters CFI= .96 and RMSEA= .05). And the Buss and Perry Aggressiveness questionnaire (BPAQ) [14], the structure presents 29 items distributed in four dimensions (physical and verbal aggressiveness, anger and hostility), with a 5-point Likert response; Construct validity and reliability have been widely documented since its original publication, demonstrating adequate validity indices and high superior reliability α= .80.

2.4. Procedure

For data collection, local authorization was obtained through their local institutions, the field team was trained in the standardized application of the instruments, selection criteria, confidentiality management, and orientation to the participants.

Subsequently, young people were contacted in educational institutions, community, sports and religious spaces; The objective of the study was explained to each one and informed consent was obtained. The application was carried out in person, starting with a sociodemographic file and continuing with AUDIT and BPAQ, guaranteeing privacy and autonomy in the responses.

Once the application was concluded, the questionnaires were reviewed to verify the complete status of the responses, coded and typed in a database with double registration to minimize errors; finally, quality controls and internal reviews were carried out to ensure the consistency and reliability of the information obtained.

2.5. Ethical considerations

The study was conducted in accordance with the Declaration of Helsinki [15], informed consent was obtained from the participants; the confidentiality and anonymity of the data was guaranteed in accordance with Law 29733 on the protection of personal data [16], using codes and secure storage. As well as the ethical guide for research with human beings in Peru (Ministerial Resolution 233-2020) [17].

Since risk behaviors were evaluated, a referral protocol was implemented for participants who may require psychological or health support. The data was used only for scientific purposes, safeguarding the dignity and well-being of the participants.

2.6. Data analysis

Statistical processing began with the evaluation of the normality of the data by means of the Shapiro-Wilk test, finding values of $p < .001$, indicating non-normal distributions. Therefore, comparisons between groups were made with non-parametric tests, using the Mann-Whitney U for contrasts between two groups and Kruskal Wallis for more than two groups, complemented by effect sizes (biserial correlation and epsilon squared).

For the explanatory analysis, the linear regression model was applied to determine alcohol consumption as a predictor of aggressiveness; All analyses considered a significance level of .05 and included interpretation of the magnitude of the effects to ensure a comprehensive reading of the results.

3. Results

Normality tests were performed with the Shapiro-Wilk test, finding a score of $p < .001$ for both variables, indicating that their distributions do not conform to normality (and should be considered non-parametric statistical tests).

The sociodemographic variables of the participants were analyzed, the sample was mostly made up of women (59%), while men represented 41%; Regarding economic dependence, most young people depend on their parents (57.3%), while a third have economic autonomy (33.3%) and other relatives (9.3%). 53.3% were working and 46.7% were studying; In addition, 52% live with their parents, while 21% live alone, 18.3% with other relatives, 6% with their partner and 2.7% with friends, demonstrating a diversity of demographic characteristics, making it appropriate to explore the differences in alcohol consumption and aggressiveness between different youth groups.

Table 1. The numerical descriptive analysis of aggressiveness was carried out, the distribution of scores allows us to conclude that the sample presents a general level of aggressiveness classified as moderate, with a considerable group that tends towards higher levels, especially in the behavioral dimensions. This implies that most young people do not exhibit extreme aggressiveness, however, there are relevant patterns of physical, verbal and emotional behaviors that may constitute a risk in certain social or relational contexts.

Table 1. Numerical descriptive analysis of aggressiveness

	Aggressiveness	Physical aggression	Verbal aggression	Wrath	Hostility
N	600	600	600	600	600
Missing	0	0	0	0	0
Mean	112	41.5	36.8	20.1	14
Median	119	44	39	21	15
Standard deviation	27.2	11.4	9.3	4.81	4.31
Minimal	40	15	13	7	5
Maximum	171	67	58	30	25

Table 2. The observed values demonstrate the presence of a moderate level of alcohol consumption with a tendency to high consumption, with a relevant proportion of young people who show increased risk, initial symptoms of dependence and associated negative consequences. Showing that alcohol consumption is not only a recreational situation, but that for some participants it begins to generate problematic patterns that can be related to behaviors such as aggressiveness.

Table 2. Numerical Descriptive Analysis of Alcohol Consumption

	Alcohol consumption	Risk consumption	Symptoms of dependence	Negative consequences
N	600	600	600	600
Missing	0	0	0	0
Mean	20.6	6.43	6.57	7.57
Median	21	6	6	8
Standard deviation	5.97	1.96	2.46	2.4
Minimal	10	3	3	4
Maximum	33	12	12	13

Table 3. The linear regression model that predicts aggressiveness based on alcohol consumption shows an adequate adjustment; the correlation coefficient (R= .504) indicates a moderate and positive relationship between both variables (the higher the alcohol consumption, the higher the levels of aggressiveness).

The coefficient of determination (R^2 = .254) reveals that 25.4% of the variability in aggressiveness can be explained by alcohol consumption, demonstrating that consumption is a significant predictor, and there are other factors that can also influence aggressiveness (impulsivity, family context, peers, emotional and behavioral factors).

Therefore, the overall test of the model was highly significant (F (1, 598) = 204, p< .001), confirming that the model has explanatory capacity and that alcohol consumption is a statistically relevant predictor of aggressiveness in the sample studied.

Table 3. Linear Regression Model

			Global Model Testing			
Model	**R**	**R²**	**F**	**GL1**	**GL2**	**p**
1	.504	.254	204	1	598	<.001

Note. *R = Correlation; R^2 = Regression; F = Anova; gl = degrees of freedom; p = level of significance.*

Table 4. The results of the comparison show that there are significant differences in the levels of aggressiveness according to sex. Men obtained higher scores than women (p< .001), with small effect sizes, demonstrating that men have greater aggressiveness compared to women. For the variable alcohol consumption, the results show similarity in both groups (there were no significant differences).

For the occupation variable, significant differences were found in both variables (p< .001), observing that young people who work tend to show greater aggressiveness and greater alcohol consumption than young people who only study (small effect sizes), the differences are significant, indicating that work activity could be a factor associated with risk behaviors and more intense consumption patterns due to economic disposition.

Table 4. Comparison of results in two independent groups

Variables	Group	N	M	Median	SD	p	ES
			Sex				
Aggressiveness	Man	246	119.4	121	25.45	<.001	0.2493
	Woman	354	107.4	116	27.32		
Alcohol consumption	Man	246	20.7	22	5.59	0.617	0.0239
	Woman	354	20.5	21	6.23		
			Occupation				
Aggressiveness	Studies	280	107.5	116	29.44	<.001	0.174
	Works	320	116.6	120	24.33		
Alcohol consumption	Studies	280	19.3	18.5	6.13	<.001	0.227
	Works	320	21.7	23	5.62		

Note. *N = Sample; M= Mean; SD = Standard deviation; p = Level of significance; ES= effect sizes.*

Table 5. The comparative analysis found significant differences in both variables according to the coexistence of the young people (p< .001), observing that coexistence significantly influences both aggressiveness and alcohol consumption.

Therefore, young people who live with their partner or family members have the highest levels in both variables, while those who live alone or with friends have the lowest values. Indicating that the context of coexistence can function as a relational or environmental factor that increases or reduces behaviors associated with risk and conflict.

Table 5. Comparison of results in more than two independent groups

Variables	Cohabitation	N	M	SD	p	ES
Aggressiveness	Only	126	97.3	30.6	<.001	0.0608
	Parents	312	116.3	25.06		
	Couple	36	118.5	26.37		
	Other Family Members	110	116.8	20.73		
	Friends	16	109.5	38.59		
Alcohol consumption	Only	126	19.3	5.81	<.001	0.0441
	Parents	312	20.6	5.83		
	Couple	36	23.3	6.13		
	Other Family Members	110	21.7	6.14		
	Friends	16	16.3	3.99		

Note. *N = Sample; M= Mean; SD = Standard deviation; p = Level of significance; ES= effect sizes.*

4. Discussion

The findings of this study provide empirical evidence of a consistent and meaningful association between alcohol consumption and aggressiveness in Peruvian youth. The regression analysis indicates that higher levels of alcohol consumption are associated with increased aggressiveness, supporting explanatory models that link substance use with behavioral disinhibition and impaired self-regulation.

The empirical evidence obtained in the present study shows a consistent pattern, as alcohol consumption increases, levels of aggressiveness in young people increase; The regression model indicates a positive relationship of moderate magnitude, where alcohol consumption explains about a quarter of the variability in aggressiveness.

These results are related to reviews that indicate that alcohol not only disinhibits behavior, but also alters social cognition processes (emotional recognition, empathy and stress) facilitating hostile responses and reducing the ability to consider the consequences of aggressive acts [18]. Likewise, the sample presents levels of aggressiveness with moderate values, however, a subgroup reaches high scores, indicating the presence of psychosocial risk factors.

The finding of alcohol use related to aggression aligns with recent meta-analyses documenting significant effects of alcohol on different forms of violence, including physical, sexual, and intimate partner violence in young adults [19].

Likewise, neurobiological studies have shown that alcohol intoxication increases the reactivity of the amygdala and striatum to provocation, especially in people with high basal levels of aggressiveness, enhancing impulsive responses even in situations of low provocation [20].

In this context, the results of the present work reinforce the idea that alcohol acts as a predictor that transforms latent irritability and hostility into overt aggressive behaviors.

As for differences by sex, the study finds that men scored higher in aggressiveness, while men and women consume similar amounts of alcohol; This situation is relevant, and is supported by studies that explain that the consumption gaps between the sexes have been narrowing, men continue to concentrate most of the violence associated with alcohol, especially in physical and direct forms [21].

In addition, recent comparative research has indicated that gender norms continue to shape the way men and women express aggression under the influence of alcohol, even when consumption levels are similar [22]. Therefore, the data obtained reinforce what has been pointed out, it is not significant to measure how much men and women drink, it is more significant to analyze how gender norms modulate the way in which this consumption translates or not into aggression.

On the other hand, comparative analyses by occupation show that young people who work are more aggressive due to alcohol consumption compared to those who are only dedicated to studying; Previous studies on work, stress and consumption support this pattern, research in work contexts indicates that the combination of high demands, instability and job insecurity are related to an increase in alcohol consumption as a coping strategy and episodes of aggression at work and outside of it [23]. Likewise, early insertion into the labor market can produce stressors that increase alcohol consumption as well as the aggressive reaction, which is particularly relevant in contexts where precarious or informal jobs predominate [24].

The way of living together is a fundamental factor, living with one's partner or with other relatives is related to higher levels of aggressiveness and greater consumption, while living alone or with friends is linked to lower levels, scientific information shows that young people who come from dysfunctional families

(separation from parents, family reconfigurations, etc.). high conflict) have a higher probability of alcohol consumption, as well as a greater tendency to have behavioral problems [25].

Likewise, studies of violence related to alcohol consumption have identified that most aggression occurs in domestic contexts, where daily contact, conflict, and consumption coexist [26].

Therefore, the scientific contribution of the present study offers recent empirical evidence in a sample of young people, showing that alcohol consumption explains and predicts a relevant proportion of aggressiveness, and that this relationship is influenced by variables such as sex, occupation and coexistence; the data from Peru contribute to balancing the map of evidence and highlight that theoretical models on alcohol and violence (based on neurocognitive and psychosocial mechanisms) are also relevant in realities marked by inequality, job insecurity and complex family dynamics.

However, the results must be interpreted considering some limitations, the cross-sectional design prevents establishing causal directions (it cannot be ruled out that previous aggressiveness increases the probability of consuming alcohol, or that both support each other over time). The measurements were based on self-report, which implies the risk of underestimation of consumption or aggression due to social desirability. The use of non-probabilistic sampling, which restricts the external validity of the findings. Although the sample size was large and statistically adequate, the results should be interpreted with caution when generalizing to the broader population of Peruvian youth. In addition, the model focused on alcohol consumption, some sociodemographic variables, but did not include relevant psychological factors such as impulsivity, emotional regulation, mental health or victimization experiences, all of which are implicated in the recent literature on aggression and substance use.

From these limitations, several directions are opened for future research, it would be valuable to conduct longitudinal studies that follow young people over several years to examine how consumption, stress, and the scale of aggressive behaviors are sustained. Also, it would be ideal to incorporate more complex explanatory models that integrate emotional (anxiety, resilience), cognitive (hostile interpretation biases) and contextual variables (family violence, victimization among peers, group norms). Finally, qualitative studies could delve into the meaning that young people themselves attribute to drinking and aggression in their daily environments, particularly in work and academic contexts.

From an applied perspective, the findings point to the need for interventions that go beyond general consumption prevention messages. Suggesting the design of integrated programs for the prevention and management of aggression related to alcohol consumption, especially aimed at young people who work and those who live in contexts of high family or couple conflict. These programs should combine alcohol risk education, emotional regulation and anger training, and psychoeducational components for families and couples, drawing on the accumulated evidence on brief interventions and cognitive-behavioral programs that reduce both use and violence.

Therefore, the study confirms that alcohol does not act in a vacuum, its effect on aggressiveness depends on who drinks, in what context they live and under what social and work pressures they find themselves. Specifying these factors in young people from middle-income countries such as Peru is a necessary process to move from general diagnoses to truly situated prevention and care strategies.

Conflict of interest

The authors declare no conflict of interest

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