

## ORIGINAL ARTICLE

# Physical violence and alcohol drinking consumption among teenagers



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## Abstract

**Introduction:** Adolescence is a period of transition, between childhood and adulthood marked by biological, psychological and social changes. These changes characterize the situations of vulnerability to which these individuals are exposed.

**Objective:** The aim of this study was to examine the association between alcohol consumption and involvement in physical violence among adolescent students in the city of Olinda, Pernambuco, Brazil.

**Methods:** This was a pilot, cross-sectional, study conducted with adolescents enrolled in high school. The Youth Risk Behavior Survey questionnaire was applied in the classroom and questions were taken from the modules on alcohol consumption, violence and socioeconomic data. Analysis of associations was performed using the Chi-square test, or Fisher's exact test when the Chi-square parameters were not met.

**Results:** Involvement in physical altercations was associated with male gender ( $p = 0.001$ ), alcohol consumption in the last 30 days ( $p = 0.019$ ), binge drinking ( $p = 0.022$ ) and higher maternal education ( $p = 0.037$ ).

**Conclusion:** There was an association between the consumption of alcohol by adolescents and physical violence. These results are an indication of the vulnerability to which this population is exposed and is a warning of the need for further studies to investigate this issue.

**Keywords:** alcohol drinking, violence, adolescent

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## ■ INTRODUCTION

Adolescence is a transition period between childhood and adult life marked by biological, psychological and social changes<sup>1</sup>. These changes highlight the position of vulnerability to which these individuals are exposed<sup>2</sup>.

Interpersonal violence is considered a public health problem. It is defined as the use of physical force or power over another individual and can result in injury, death, psychological damage and developmental problems<sup>3</sup>. One of manifestations of interpersonal violence is fighting<sup>4</sup>. In North America and Europe, the prevalence of involvement in fights among adolescents ranges from 37% to 69% for boys, and from 13% to 32% for girls<sup>5</sup>. In Brazil these percentages can vary between 17% and 32% for boys and 8.9% and 13% among girls<sup>6,7</sup>. Many factors may be considered to be determinants of their involvement in situations of violence, such as the consumption of alcoholic beverages and other drugs<sup>8</sup>.

The prevalence of alcohol consumption in the last 30 days among Brazilian adolescents is high, varying between 19% and 26%<sup>6</sup>. This percentage reaches 66.6% when considering at least once instance of alcohol consumption in their lives<sup>5-7</sup>. Considering that alcohol is the drug most consumed by adolescents and physical aggression is the main cause of mortality due to external factors in Brazilian adolescents, the objective of this study was to analyze whether there was an association between consumption of alcoholic beverages and physical violence among adolescents.

## ■ METHODS

This was a cross-sectional study, which was part of the larger project titled "Integral Attention to Adolescent Health in Public Services in Olinda".

The selection of participants was carried out randomly, using 2 stratified stages; in the first stage, the schools were drawn and in the second, the classes. Five schools and twelve classes were selected for this study, in order to guarantee heterogeneity of data. The draw of schools and classes was carried out using the Randomizer program.

A 95% confidence interval, a power of 80%, an odds ratio of 1.5, a delineation effect of 1.2 and a frequency of 50%, were considered for the sample calculation of the larger project, as a result of the various risk conduit variables involved, and a 10% increase in losses, resulting in a final sample of 1,077 adolescents. For this pilot study, 16% of the total sample of high school students of the state public network of the city of Olinda, in the state of Pernambuco, Brazil, was enrolled.

**Table 1:** Consumption of alcoholic beverages among the adolescents participating in the pilot study stratified by sex. Olinda, Pernambuco, Brazil 2014.

(n=175)		Total (%)	Male (%)	Female (%)	p-value
Alcohol Consumption	Current alcohol consumption	27.9	31.1	25.5	0.420
	Binge drinking	19.9	21.9	18.4	0.565
Age at 1st ingest	Before 12 years old	24.5	29.5	29.5	0.312
	After 12 years old	75.5	70.5	79	
Violence Situations	Weapon charge in the last 30 days	5.8	10.9	2.1	<b>0.020</b>
	Involvement in Body Fight	23.3	35.2	14.3	<b>0.001</b>
	Involvement in body fight with serious injury	3.5	5.5	4.1	0.701

Pearson's Qui-square test

Data collection took place in April 2014 by administering the validated version of the Youth Risk Behavior Survey in the classrooms<sup>9</sup>. The questionnaires were applied by previously trained researchers. Participants were informed that their written responses were guaranteed to be anonymous. The time for application of the questionnaire was between 30 and 60 minutes, and it occurred without the presence of the teacher.

Alcohol consumption was analyzed based on the age of first consumption, alcohol consumption in the last 30 days and binge drinking, defined as the act of ingesting  $\geq 5$  measures of alcohol on a single occasion. According to the V National survey on the use of psychotropic drugs among primary and secondary school students in 7 Brazilian capitals, the average age of onset of alcohol use is close to 12 years, so this was the age adopted for this variable<sup>10</sup>.

Involvement in situations of violence was analyzed based on carrying of weapons in the last 30 days, involvement in fighting in the last 12 months and involvement in fighting with serious injury (health care needed) in the last 12 months.

Data were tabulated with double input using Epidata 3.1 software. Descriptive and inferential statistical analyses were performed. Pearson's Chi-square test or Fisher's exact test were used for association analysis when the Chi-square parameters were not met. For both tests, significance was considered for values of  $p < 0.05$ . Data analysis was performed using the Statistical Package for the Social Sciences program (SPSS) for Windows, Version 19.0 (IBM Corp., Armonk, NY, USA).

This study was approved by the Ethics Committee of the University of Pernambuco under the opinion n<sup>o</sup> 568.996.

## ■ RESULTS

For this pilot study, participants were 175 adolescents regularly enrolled in high schools of the state education network, in the city of Olinda, Pernambuco, Brazil. The majority of adolescents were enrolled in regular schools (80.7%), were between the ages of 14 and 17 (71.9%), had a family income of up to 2 x the minimum wage (59.1%) and were female (57.0%).

Regarding gender, there was no statistical difference in the consumption of alcoholic beverages, although the boys presented with a higher percentage of consumption than the girls. As to involvement in violence, male gender was associated with the carrying of a weapon ( $p = 0.02$ ) and involvement in physical altercations in the last 12 months ( $p = 0.001$ ; Table 1).

Adolescents who had consumed alcohol in the last 30 days or had at some point consumed by binge showed almost twice the prevalence of involvement in physical altercations compared to those who did not consume alcohol (Table 2).

Of the adolescents whose mothers had a higher level of schooling, 39.1% who consumed alcohol in the

last 30 days were involved in a physical altercations, which represented a significant association ( $p = 0.037$ ). Despite a similar percentage of adolescents who had consumed alcohol in the last 30 days among those whose maternal schooling was of a lower level (34.8%), a similar association was not found (Table 3).

**Table 2:** Factors related to alcohol consumption associated with involvement in situations of violence in the last 12 months. Olinda, Pernambuco, Brazil 2014.

Variables (n = 175)	Weapon charge		Involvement in Body Fight		Involvement in body fight with serious injury	
	%	p	%	p	%	p
Current alcohol consumption	8.3	0.468	35.4	0.019	6.2	0.350
Binge drinking	5.9	0.992	38.2	0.022	8.8	0.094
1st ingest before 12 years of age	7.7	0.634	34.6	0.281	3.8	1.000

Pearson's Qui-square and Fisher's Exact tests

**Table 3:** Consumption of alcoholic beverages and involvement in physical violence, according to maternal schooling. Olinda, Pernambuco, Brazil, 2014.

	Involvement in body fight in the last 12 months		
	n	(%)	p-value
Maternal schooling (up to 8 years of schooling) n=85			
Current Consumption (n= 23)	8	34.8	0.257
Binge Drinking (n=13)	6	46.2	0.080
Higher maternal education (more than 8 years of schooling) n=74			
Current consumption (n=23)	9	39.1	0.037
Binge Drinking (n=18)	7	38.9	0.104

## DISCUSSION

In general, alcohol consumption in the last 30 days and binge drinking are associated with involvement in teenage fights. Individually these risky behaviors also showed alarming percentages.

Alcohol consumption among adolescents from Olinda was high (27.9%), and higher still among boys (31.1%), although the gender association was not statistically significant ( $p = 0.420$ ). These percentages are in agreement with the findings of the National School Health Survey (PeNSE)<sup>6</sup>, where 25.4% of adolescents in schools in the city of Recife had consumed alcoholic beverages in the last 30 days; the levels among males and females were 26% and 24.9%, respectively<sup>5</sup>. Souza *et al.*<sup>11</sup> showed that 71% of adolescents had consumed alcohol at some point and 13.4% could be classified as having some degree of alcoholism.

Binge drinking was not associated with gender, demonstrating that high amounts of alcohol were consumed by both girls and boys. In the present study, one in 5 adolescents reported having taken part in binge drinking, which was less than half that found by Donath in a study of German adolescents, where one in 2 exhibited this behavior<sup>12</sup>. By comparison, binge drinking in Australian adolescents was much lower, at around 4.8%<sup>13</sup>. This finding is alarming, excessive drinking can lead to intoxication, which in turn can increase the participation in risk taking, which can extend to behavioral problems with family, school and friends<sup>14</sup>.

Although alcohol in Brazil is prohibited for children under 18 years of age, 61.6% of the adolescents in this study had already had their first contact with alcoholic beverages, with 24.5% having consumed before the age of 12 years. This result showed that experience with alcohol consumption was occurring earlier than observed in the National Survey on the Patterns of Alcohol Consumption in the Brazilian Population that found that the first contact with alcohol occurred on average at 13.6 years of age<sup>15</sup>. The prevalence of alcoholic beverage consumption tends to increase linearly with age<sup>11</sup>. Adolescents are drinking alcohol prematurely and the age of 10 - 13 years has been shown to be the most common time for the first experience with alcohol<sup>16</sup>.

To estimate the occurrence of physical violence among the respondents, 2 situations were examined. The carrying of a weapon was used as a measure of likely incitement to violence. The prevalence of gun possession was associated with males, with 10.9% of the boys reporting carrying a gun in the last 30 days. According to PeNSE<sup>6</sup>, 6.4% of Brazilian adolescents were involved in a violent situation where one person carried a firearm and 7.3% had a white weapon<sup>5</sup>. These data highlight the vulnerability to which these adolescents are exposed, reinforced by the fact that homicides represent an important percentage in the morbimortality of this group.

Involvement in fights was also a situation associated with male gender, consistent with the study by Coutinho *et al.*<sup>7</sup>. Boys are roughly twice as likely to engage in fights

with physical violence, compared to girls<sup>8</sup>. These findings suggest that boys use violence as a way of resolving conflict and it reflects our cultural norms, where fighting is seen as acceptable behavior for boys<sup>17</sup>.

The association between alcohol consumption and fighting was also found in other studies conducted in South America<sup>2,7-9</sup>. Drinking alcohol can trigger violence and escalate violent situations among adolescents<sup>2</sup>. Adolescents who consume alcohol are on average twice as likely to engage in a fight as those who do not consume<sup>3,18</sup>. A study conducted in Mato Grosso, Brazil, found that this value could be higher than 4 times<sup>19</sup>. Among adolescents who did not consume alcohol in the last month, 18.5% became involved in fights. Among those who consumed alcohol, this percentage was approximately double (35.4%), and this relation was significant ( $p=0.019$ ). Similar percentages were found in a study of Malaysian adolescents, where 40.8% of those who consumed alcohol became involved in a fight, while among those who did not drink the percentage it was 25.7%<sup>3</sup>. These results reinforce the need for better targeting of public policies aimed at this population, including discussion of this issue in schools, aiming at health promotion and prevention of alcohol consumption and physical violence.

The patterns of alcohol consumption and involvement in situations of violence are influenced by socioeconomic factors. In the present study, the

association between fighting and alcohol consumption was significant for adolescents whose mothers had more years of academic study. Historically, adolescent boys, those with darker skins, and those from low socioeconomic levels are the most vulnerable to risk behaviors related to violence<sup>3</sup>. However, studies have already shown a change in this pattern, where alcohol consumption is high in all social strata and has a significant association with violence among adolescents, including middle-upper-class adolescents<sup>12,13</sup>.

The results of this study demonstrated that adolescent alcohol consumption was independent of gender, though males were more likely to be involved in fights. Current alcohol consumption and binge drinking were factors associated with involvement in fights. The existence of this association with these diseases is an indication of the vulnerability to which adolescents are exposed when they adopt risky behaviors.

The National Policy on Health Promotion has among its points of reference the reduction of morbimortality due to the use of alcohol and other drugs, and the prevention of violence and the encouragement of a culture of peace. Therefore, studies that seek to explain the association between conditions such as alcohol abuse and aberrant behaviors, such as violence, help in determining direct action that can be taken to promote the health of adolescents.

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## Resumo

**Introdução:** A adolescência é um período de transição, compreendido entre a infância e a vida adulta marcado por alterações biológicas, psicológicas e sociais. Essas alterações caracterizam as situações de vulnerabilidade as quais esses indivíduos estão expostos.

**Objetivo:** Analisar a existência de associação entre o consumo de bebidas alcoólicas e envolvimento em situações de violência física entre adolescentes escolares do município de Olinda, PE.

**Método:** Trata-se de um estudo piloto, do tipo transversal, realizado com adolescentes matriculados no ensino médio. O questionário Youth Risk Behavior Survey foi aplicado em sala de aula e foram adotadas questões referentes aos módulos consumo de bebidas alcoólicas, violência e dados socioeconômicos. Para análise de associação foi utilizado o teste Qui-quadrado de Pearson ou o teste de Exato de Fisher quando os parâmetros de utilização do Qui-quadrado não eram atendidos.

**Resultados:** O envolvimento em luta corporal esteve associado ao sexo masculino ( $p=0,001$ ), ao consumo de álcool nos últimos trinta dias ( $p=0,019$ ), ao binge drinking ( $p=0,022$ ) e a maior escolaridade materna ( $p=0,037$ ).

**Conclusão:** Houve associação entre o consumo de bebidas alcoólicas por adolescentes e o envolvimento em brigas. Esses resultados são um indício da vulnerabilidade a qual a esta população está exposta e faz um alerta à necessidade de estudos que aprofundem a temática abordada.

**Palavras-chave:** consumo de bebidas alcoólicas, violência, adolescente.

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