## ANALYSIS OF THE ALCOHOL CONSUMPTION PHENOMENON AMONG ADOLESCENTS: STUDY CARRIED OUT WITH ADOLESCENTS IN INTERMEDIATE PUBLIC EDUCATION

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This study aimed to evaluate the alcohol consumption phenomenon in public schools in Coimbra, Portugal (7th, 8th and 9th grades) for the implementation of a preventive program of alcohol use/abuse. This is a quantitative, descriptive and correlational study. The sample included 654 students (51.5% female) between 12 and 18 years of age. The Alcohol Expectancy Questionnaire – Adolescent form (AEQ-A) and the Questionnaire of Knowledge on Alcohol were used for data collection. Results show that positive expectancy on alcohol is discriminative of consumption and occurrence of intoxication. Positive expectancy exists even before adolescents have significant experiences with alcohol consumption and increases with age, which reinforces the need for early preventive effort. These results permitted to improve the prevention program included in the school curriculum of the 7th grade students.

DESCRIPTORS: adolescent; alcoholism; health promotion

## ANÁLI SI S DEL FENÓMENO DEL CONSUMO DE ALCOHOL ENTRE ADOLESCENTES: ESTUDI O REALI ZADO CON ADOLESCENTES DEL 3º CI CLO DE ESCUELAS PÚBLI CAS

Este estudio tiene como objetivo evaluar el fenómeno del consumo de alcohol en las escuelas públicas de la ciudad de Coimbra (7°,8° y 9°) para implementar, en la práctica, un programa de prevención del uso/abuso del consumo alcohólico excesivo. Es un estudio del tipo cuantitativo, descriptivo y de correlación. La muestra incluyó 654 estudiantes (51.5% del sexo femenino), con edades entre 12 y 18 años. El Cuestionario de Expectativas referentes al Alcohol de estudiantes - Formato Adolescentes (CEA-A) y el cuestionario del conocimiento referente al alcohol fueron utilizados para obtener los datos. Los resultados demostraron que las expectativas positivas referentes al alcohol hacen una diferencia entre el consumo de alcohol y la ocurrencia de la embriaguez; inclusive, esta discriminación existe entre los adolescentes antes de tener experiencias significativas con el consumo de alcohol y aumentan con la edad. Reforzando la necesidad de desarrollar precozmente esfuerzos preventivos. Estos resultados permitieron el perfeccionamiento del programa de prevención que fue integrado al plan de estudios de la escuela de los estudiantes del 7° año.

DESCRIPTORES: adolescente; alcoholismo; promoción de la salud

# ANÁLI SE DO FENÔMENO DO CONSUMO DE ÁLCOOL EM ADOLESCENTES: ESTUDO REALIZADO COM ADOLESCENTES DO 3º CICLO DE ESCOLAS PÚBLICAS

Este estudo teve como objectivo a avaliação do fenómeno do consumo de álcool em escolas públicas da cidade de Coimbra (7°, 8° e 9°) para a implementação de um programa de prevenção de uso/abuso de álcool. É um estudo do tipo quantitativo descritivo-correlacional. A amostra incluiu 654 estudantes (51,5% do sexo feminino), com idades compreendidas entre 12 e 18 anos. Utilizou-se para a colheita de dados o Questionário de Expectativas acerca do Álcool - Formato Adolescentes (AEQ-A) e o Questionário de Conhecimentos acerca do Álcool. Os resultados mostraram que as expectativas positivas acerca do álcool são discriminativas do consumo e da ocorrência de embriaguez. Essas existem nos adolescentes mesmo antes de experiências significativas com o consumo de álcool, e aumentam com a idade. Reforçando a necessidade de os esforços preventivos terem que ser desenvolvidos precocemente. Esses resultados permitiram o refinamento do programa de prevenção que foi integrado ao curriculum escolar dos estudantes do 7° ano.

DESCRITORES: adolescente; alcoolismo; promoção da saúde

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## INTRODUCTION

**A**Icohol is one of the most consumed psychoactive substances in the world and the one that causes the most severe consequences to public health, currently considered the main life style-related determinant of health<sup>(1)</sup>. The burden of diseases and morbidities attributed to alcohol varies between 8 and 10% in countries in the European Union<sup>(2)</sup>.

Portugal is one of the largest alcohol consumers in the world and has recently changed its consumption patterns. These new patterns are very concerning because they refer to a population group of particular vulnerability and of traditional low consumption: adolescents<sup>(3)</sup>. In fact, research has showed that the percentage of adolescents who consume alcohol progressively increases with age and that the onset age is 12 years old<sup>(4)</sup>.

At the same time, scientific evidence suggests that early onset is associated to future behavioral problems in adolescence, including violence related to alcohol, accidents, driving under influence, absenteeism at school and work and increased risk to use other drugs, and also future alcohol abuse<sup>(5)</sup>. Because adolescence is an important period of transition, marked by complex biological, physical, behavioral and social transformations, alcoholic behavior in this phase of life results in the developing adolescent's encounter with a substance of harmful effects in a situational and encouraging context that promotes consumption.

On the other hand, there is a relation between adolescents' critical periods of behavioral development and the possibility of implementing effective preventive measures. Thus, it is essential that these are developed before the onset of alcohol consumption<sup>(6)</sup>.

Research developed in recent years regarding the explicative factors of adolescents' consumption of alcohol and other drugs identifies several risk as well as protective factors<sup>(7)</sup>, such as: sociocultural (e.g. sociodemographic factors), family (e.g. alcohol consumption by parents, parental monitoring), involving social environment (e.g. alcohol access, connection to school, mass media influence, peer pressure), expectancy (e.g. attitudes and beliefs regarding alcohol consumption, peers' expectations and perception), social and personal competences (e.g. decision-making, stress management abilities, communication abilities, assertiveness) and psychological (e.g. self-efficacy, self-esteem). The different effects these factors can produce depend on individual characteristics, development phase and environment.

Historical analysis reveals that prevention programs on the use of substances have been developed in the last decades based on the social influence model, including the development of personal and social competences<sup>(8-9)</sup> and the use of one or more of the following components: knowledge on substances, resistance to social pressure, training of personal and social competences, correction of peers' perception on alcohol consumption, safe attitudes and expectancy regarding substances<sup>(9)</sup>.

Prevention can be developed in diverse contexts and with specific groups. An organized approach is possible in the school context, involving a large number of children and adolescents at high-risk age to initiate substance consumption.

Despite these advantages, school prevention in Portugal is still incipient, infrequent and dependent on the sensitiveness of teachers and support they ask to health local centers or other health institutions<sup>(10)</sup>.

In a country like Portugal, where there is great social and cultural permissiveness to alcohol consumption, preventive efforts should focus on hating alcohol consumption through the development of safe expectancy regarding alcohol and personal and social abilities, which are essential to resist the pressure for the inopportune consumption of alcohol and responsible decision-making<sup>(9)</sup>.

Health promotion in the school environment should be seen as an ongoing development process. For preventive interventions to be efficacious, they have to be based on scientific evidence, tailor-made to the target context and developed by professionals with specific knowledge on the health area to which education and health area relate.

This study aimed to analyze the phenomenon of alcohol consumption among adolescents from 12 to 18 years of age, students in intermediate public education in Coimbra, Portugal, with a view to improving a preventive program on alcohol use/abuse to be included in the school curricula of intermediate students.

### METHOD

This quantitative descriptive-correlational study was guided by the following questions: what are the characteristics of alcohol consumption, knowledge and expectancy of 7<sup>th</sup>, 8<sup>th</sup> and 9<sup>th</sup>-grade students at public schools in Coimbra? Are knowledge and expectancy related to students' consumption, occurrence of intoxication, age and gender?

### Sample

The sample included 654 students from the 7<sup>th</sup>, 8<sup>th</sup> and 9<sup>th</sup> grades in public schools in Coimbra, Portugal, both genders, 51.5% (n=337) was female, between 12 and 18 years old (average [SD] = 13.55 [1.13] age); 37% attended the 7<sup>th</sup> grade, 33.8% the 8<sup>th</sup> and 29.3% the 9<sup>th</sup> grade.

#### Data collection procedure

After complying with formal and ethical recommendations, the instrument was applied to 654 students from the 7<sup>th</sup>, 8<sup>th</sup> and 9<sup>th</sup> grades, intermediate public education in Coimbra, Portugal, between March and April 2006. The questionnaire was distributed in class to all students whose educational responsible provided written authorization.

#### Instruments

The data collection instrument included a set of sociodemographic questions and characterization of alcohol consumption: the Questionnaire of knowledge on Alcohol (QKA), composed of 40 dichotomous statements (true/ false) aimed to evaluate useful knowledge on alcohol (scores from 0 to 40 and 1 point is attributed to each correct statement) and the Alcohol Expectancy Questionnaire - Adolescents form (AEQ-A)<sup>(11)</sup>, a dichotomous instrument that aimed to evaluate adolescents' expectancy (12-19 years old) in seven dimensions: Factor I - global positive transformations; Factor II - changes in social behavior; Factor III - improved cognitive and motor abilities; Factor IV -sexual enhancement; Factor V - cognitive and motor impairment; Factor VI -increased arousal and Factor VII - relaxation and tension reduction.

The AEQ-A global score in the sample under study (n=654) revealed Kuder Richardson value of .90, which shows the instrument's good consistency. However, a great variability was found in the analysis of the instrument factors. Factor V presents good internal consistency (K20=.80), Factor I (K20=.78), Factor II (K20=.73) and Factor VII (K20=.76) presented acceptable consistency, although Factors III (K20=.64) and IV (K20=.65) revealed low internal consistency and Factor VI (K20=.33) very low internal consistency.

#### Statistical processing and used software

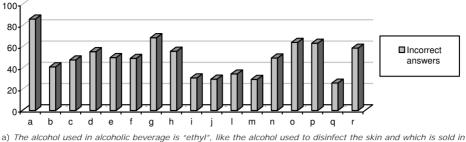
Data analysis was carried out with SPSS (Statistical Package for Social Sciences) version 14.0. The following analyses were carried out: descriptive analyses that involved description of distribution of the study variables; Chi-square of the difference of proportions to evaluate association of categorical variables; Student's t-test to compare averages of continuous variables and because the AEQ-A is a dichotomous instrument, Kuder Richardson coefficient was used to evaluate its internal consistency.

### RESULTS

Most adolescents had already consumed alcohol (65.1%). Of those who reported consumption of alcohol, 67.1% were female, though there were no significant differences between boys and girls (Chi-square=1.13, 1df, p=.29). Regarding consumption patterns: 7.7% reported habitual consumption (at least once a month) of beer, 7% habitual consumption of hard liquor and 1.2% habitual consumption of wine; 46.9% reported occasional (once in a while or rare) consumption of beer, 73.2% occasional consumption of hard liquor and 26.9% occasional consumption of wine. Considering those who had already consumed alcohol, we verified that 81.6% reported drinking one or two glasses per occasion, 18.4% reported drinking more than three glasses per occasion and 18.8% reported the occurrence of intoxication.

The circumstance of the first consumption was a festive occasion for 47.7%, while 46.2% drank for the first time with relatives, 18.2% with colleagues and/or friends and 0.8% by themselves. The place of their first-time consumption was at home for 39.9%, a café or a restaurant for 7.5% and a pub for 17.9%.

As observed in Figure 1, regarding adolescents' knowledge on alcohol, we verified that a high percentage of students incorrectly answered from 17 to 40 items in the questionnaire evaluating knowledge.



pharmacies (C1)

b) Alcohol consumption is only harmful if people drink everyday (C4)

c) When alcohol is consumed during meals, it is not harmful because it aids digestion (C9)

d) Alcohol is digested together with foods (C11)

e) When alcohol passes into the blood it first goes to parts of our organism with the highest concentration of water (C12)

f) When water or soft drinks are mixed with alcohol, the quantity of alcohol consumed is smaller (C15)

g) The effect alcohol causes on people depends only on the quantity consumed (C16)

h) Drinking moderately means drinking so as to not feel dizzy or sick (C23)

i) Beer is good to kill your thirst (C24)

j) The alcohol contained in alcoholic beverages is "burned" in your liver (C25)

I) Alcohol effects depend on the person's age (C26)

m) When alcohol passes into the blood, it rapidly goes to the brain (C27)

n) Alcohol encourages people and makes them feel always well-disposed (C28)

o) Alcohol warms (C34)

p) Alcohol effects vary according to gender (C37)

q) After alcohol is consumed, it rapidly passes from stomach to blood (C38)

r) One can drink the same quantity of alcohol drinking different alcoholic beverages (C39).

Figure 1 - Percentage of incorrect answers related to knowledge on alcohol

In the evaluation of knowledge on alcohol, a statistically significant difference was found (t=3.57)652gl, p=.00) according to the age range. The average knowledge on alcohol of the youngest (from 12 to 14 years of age) was superior to the average knowledge of the oldest students (more than 15 years of age). Statistically significant differences were not found in the level of knowledge on alcohol among adolescents who reported having already consumed alcohol and those who had never drunk (t=.74, 652gl, p=.46). Statistically significant differences were found in relation to the occurrence of intoxication; adolescents who reported intoxication were those who presented the lowest average knowledge (t=2.50, 102.05gl, p = .01).

The influence of consumption expectancy was verified by the statistically significant difference found between two groups: those who had already consumed alcohol and those who had not. Thus, adolescents who reported having already drunk presented expectations regarding alcohol significantly higher in the global score (t=5.81, 652gl, p=00) and in all factors of positive expectancy [(Factor I t=4.51, 507.43gl p=.00); (Factor II t=10.58, 606.45gl, p=.00); (Factor III t=3.38, 564.34gl p=.00); (Factor IV t=4.35, (652gl, p=.00); (Factor VI t=4.47, 449.52gl, p=.00) and (Factor VII t=3.86, 652gl, p=.00)]. In relation to the occurrence of intoxication, the adolescents who

reported the occurrence of intoxication were those who presented significantly higher expectancy on alcohol in the global and in all factors of positive expectancy (t=-6.94, 424gl, p=.00; t=-6.27, 424gl, p=.00; t=-12.24, 424gl, p=.00; t=-4.87, 88.38gl, p=.00; t=-5.05, 424gl, p=.00; t=-3.34, 424gl, p=.00; t=-2.78, 424gl, p=.01 global and factors I, II, III, IV, VI and VII, respectively).

No statistically significant differences were found in relation to gender and positive expectancy regarding alcohol, except for Factor III - boys presented significantly higher expectancy of improved cognitive and motor abilities (t=2.64, 570.18gl, p=.01) - and Factor VII - girls presented significantly higher expectancy of relaxation and tension reduction (t=-2.54, 652ql, p=.01).

Finally, in the analysis of expectancy in relation to age groups, we found statistically significant differences between age groups for five of the six factors of positive expectancy: Factor I (t=-4.07, 652gl, p=.00); Factor II (t=-7.95, 171.94gl, p=.00); Factor III (t=-5.20, 142.44gl, p=.00); Factor IV (t=-3.18, 652gl, p=.00) and Factor VII (t=-2.22, 652gl, p=.03), the oldest students (more than 15 years of age) were those who presented the highest positive expectancy, while the youngest were those who presented the highest negative expectancy (t=2.57)176.31 gl, p=.01).

### DISCUSSION

The large majority of students from the 7<sup>th</sup>, 8<sup>th</sup> and 9<sup>th</sup> grades in the study sample, between 12 and 18 years old, average [SD] 13.55 [1.13], had already consumed alcohol and no statistically significant differences were found between boys and girls. These findings confirm results already presented in national research reports on the life styles of Portuguese adolescents<sup>(4)</sup> and also in the dissemination of research exclusively addressing adolescents' alcohol consumption<sup>(12)</sup>. In fact, not only data on general consumption seem to be consistent with these findings, but also partial data related to different variables that characterize the phenomenon, reinforcing findings of other studies<sup>(4,12)</sup>. Thus, for the majority of the participants, the first consumption occurred in the family context and/or on a festive occasion; the consumption pattern was occasional for the majority and hard liquor was the chosen beverage to the detriment of beer; one fourth of adolescents reported drinking more than three glasses on the same occasion and also the occurrence of intoxication. These results reflect changes in consumption patterns and modes, with increased consumption of hard liquor to the detriment of beer, and also increased frequency of intoxication with similar behavior among boys and girls.

Knowledge showed by adolescents in this study reflects important gaps. On the one hand, wrong ideas regarding alcohol, linked to myths and/or false concepts traditionally associated to it, still persist, namely: they believe that "alcohol warms" (64.1%), "kills your thirst" (30.7%) and "aids digestion" (47.6%). On the other hand, a lack of knowledge related to scientific knowledge, associated to the pharmacological effects of alcohol, action and consequences on the organism emerges, for example: they do not know that "the alcohol contained in alcoholic beverages is ethyl" (86.1%), or yet that "when alcohol pass into the blood it first goes to parts of our organism with the highest concentration of water" (49.8%).

This lack of knowledge, especially regarding the metabolism of alcohol and its relation with the performance of a person under its influence is particularly dangerous. In fact, mistakes like – believing that "the effect alcohol causes on people depends only on the quantity consumed" (68.5%); "when water or soft drinks are mixed with alcohol,

the quantity of alcohol consumed is smaller" (49.1%); "drinking moderately means drinking so as not to feel dizzy or sick" (55.8%), or not knowing that "alcohol effects vary according to gender" (63.3%) are mistakes that can potentially favor diminished perception of risk related to alcohol consumption.

The relation between knowledge on alcohol and its consumption is complex. On the one hand, we verified that adolescents who had more knowledge about alcohol were those who did not report intoxication. Thus, this knowledge is presented as a protection factor. On the other hand, no statistically significant differences were found between level of knowledge on alcohol and its consumption.

Another relevant aspect is that, while one would expect that knowledge increases with age, this fact is not confirmed since the youngest (12 to 14 years of age) are those who presented better knowledge on alcohol. This apparent loss of knowledge due to age should be considered taking into account several aspects. The reported results do not emerge from a cohort study and, even though a generational change cannot be foreseen considering the short time in which this investigation occurs, results present the possibility of other external interferences. Another explanation should consider that intoxication occurs more frequently in this age range (more than 14 years of age). Thus, there is a hypothesis that knowledge is occasionally altered based on past experiences. Hence, part of the statements chosen by these adolescents might depend on their need to construct rationales that do not devalue their behavior, so as to not cause cognitive dissonance.

The potential role - direct and indirect knowledge on alcohol plays in its consumption is an issue that has deserved considerable empirical attention of scholars and generated some conclusions, with indisputable practical relevance related to whether to include knowledge on alcohol in intervention programs. Research has showed that if, on the one hand, knowledge per se is not sufficient to ensure responsible decision-making in terms of consumption; on the other hand, it is necessary to understand the phenomenon, which should be included in any health education intervention. These conclusions highlight that failure of traditional informative strategies should not disqualify the "knowledge" component in current preventive programs.

Finally, the results of this study are very relevant because they show that expectations regarding alcohol are strong discriminative factors of consumption. Thus, adolescents who consumed alcohol and those who reported intoxication presented higher levels of expectancy on alcohol, in the global score as well as in all factors of positive expectancy. These results are in agreement with several empirical studies that show that expectancy on alcohol is a mediating factor of consumption<sup>(11-13)</sup>.

No differences were found between genders in terms of expectancy, both in the global score and in the majority of factors, which reflects the current tendency of converging behavior between girls and boys. The statistically significant differences found between genders for Factor III – improved cognitive and motor abilities – higher for boys, and for Factor VII – relaxation and tension reduction – higher for girls, reflect some developmental specificity. Some studies in the area appoint that boys have a higher tendency to externalize and girls to internalize<sup>(14)</sup>. Thus, boys tend to view alcohol as a stimulus for action, while girls see it as a component that promotes relaxation.

It is also worth mentioning that we consistently verified, except for Factor VI (increased arousal), that the oldest adolescents were those who presented the highest positive expectancy regarding alcohol, while the youngest were those who presented the highest negative expectancy. In fact, several researchers appoint the potential role age plays in expectancy regarding alcohol and highlight that expectancy on alcohol increases with age and becomes more homogeneous and stable<sup>(11)</sup>.

Over more than two decades, several transversal and longitudinal studies<sup>(11-13)</sup> evidenced clarifying results on the power of expectancy on alcohol as a predictor of alcohol consumption onset and problems related to alcohol in adolescents. Hence, in the light of these findings, we consider it essential not only to include expectancy on intervention programs in the area, but also that such programs are implemented in an appropriate developmental phase,

before expectations become stable and therefore more resistant to change.

## CONCLUSION

The results of this study reveal that the majority of adolescents in the sample had already consumed alcohol, although regular consumption is not common among adolescents from the 7<sup>th</sup>, 8<sup>th</sup> and 9<sup>th</sup> grades. However, about one fourth of the participants had already been intoxicated at least once and reported the consumption of more than three drinks in the same occasion. The majority of adolescents initiated alcohol consumption at home with family, in festive occasions. Such pattern of onset consumption in the family context is typical of Mediterranean countries.

Although the results point to a complex relation between knowledge on alcohol and its consumption, the identified "mistakes" potentially favor diminished perception of risk in relation to alcohol consumption. Moreover, results suggest altered knowledge (loss of knowledge) due to experiences with alcohol, which appoints the need to include this component in current preventive programs.

These results also reveal that positive expectancy regarding alcohol exists even before significant experiences with alcohol consumption and that positive expectancy increases with age, while no differences between genders were found in the global and in the majority of expectancy factors. The need to develop early prevention programs, including both genders, so they are successful is reinforced.

Despite the study limitations – only students whose educational responsible gave authorization to participate in the study – the high number of students involved permitted evaluating adolescents' needs, essential to improve a preventive program on alcohol use/abuse, which was later included in the school curricula for 7<sup>th</sup> grade students at a public school in Coimbra, Portugal.

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