Consumption of addictive substances, tobacco, alcohol and marijuana by students of North Portugal
Consumo de substâncias aditivas, tabaco, álcool y marijuana, em estudantes do Norte de Portugal
Consumo de sustancias adictivas, tabaco, alcohol y marihuana, en los estudiantes del Norte de Portugal

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ABSTRACT:
Introduction: The consumption of addictive substances is a public health problem likely to precipitate other risk behaviours in youngsters, including physical aggression.
Aim: To evaluate the consumption of tobacco, alcohol and marijuana in a student population of a city in the north of Portugal.
Methods: A quantitative study, descriptive and cross-sectional. The study involved 1,066 young students, from a city in the north of Portugal, enrolled in nine high school and higher education institutions, with an average age of seventeen years. A self-administered questionnaire was applied in paper and digital format.
Results: Results showed that the consumption of addictive substances began in early adolescence, that the current consumption of alcoholic beverages is high and the consumption of tobacco, alcohol and marijuana is often interrelated.
Conclusions: The consumption of addictive substances is influenced by individual and contextual factors affecting these research results. Thus, it is crucial to plan an intervention strategy encompassing social, educational and health policies appealing for young students' adherence.

Keywords: Alcoholic beverages; Adolescent; Illicit drugs; Tobacco.
RESUMO:
Introdução: O consumo de substâncias aditivas é um problema de saúde pública e potencia outros comportamentos de risco, entre os quais o envolvimento em agressões físicas, nos jovens.
Objetivo: Avaliar o consumo de substâncias aditivas (tabaco, álcool e marijuana) numa população estudantil de uma cidade do Norte de Portugal.
Métodos: Estudo quantitativo, descritivo e transversal. O estudo envolveu 1.066 jovens, de uma cidade da região Norte de Portugal, que estudavam em nove instituições de ensino secundário e uma de ensino superior e idade média de 17 anos. Utilizou-se um questionário, de auto preenchimento e fornecido em suporte papel e digital.
Resultados: Verificou-se que o consumo de substâncias aditivas se iniciou em idades precoces da adolescência, que o consumo atual de bebidas alcoólicas é elevado e o consumo de tabaco, álcool e marijuana se potenciam entre si.
Conclusões: O consumo de substâncias aditivas tem como base fatores individuais e contextuais que influenciam os resultados desta investigação, considerando-se importante que a intervenção com jovens deve incluir uma estratégia de aproximação concertada de políticas sociais, educativas e de saúde apelativas da adesão pelos jovens estudantes.

Palavras-chave: Bebidas Alcoólicas; Adolescente; Drogas Ilícitas; Tabaco

RESUMEN:
Introducción: El consumo de sustancias causantes de dependencia es un problema de salud pública y potencia otros comportamientos de riesgo, entre los cuales, la agresión física, en los jóvenes.
Objetivo: Evaluar el consumo de sustancias adictivas (tabaco, alcohol y marihuana) en una población estudiantil de una ciudad del Norte de Portugal.
Métodos: Estudio cuantitativo, descriptivo y transversal. La muestra estuvo compuesta por 1.066 adolescentes, de una región del norte de Portugal, que estudiaban en nueve centros de enseñanza secundaria y universitaria de esa región y con una edad media de 17 años. Los participantes respondieron a un cuestionario tipo test en soporte papel y digital.
Resultados: Se deduce que el consumo de sustancias que causan dependencia tiene lugar a edades precoces de la adolescencia, que el consumo actual de bebidas alcohólicas se ha elevado y que el consumo de tabaco, alcohol y marihuana se potencian entre sí.
Conclusiones: Como el consumo de estas sustancias tiene como base factores individuales y de contexto, y afecta a los resultados de esta investigación, se considera que la intervención con los jóvenes debe incluir una estrategia concertada de políticas sociales, educativas y de salud y que simultáneamente apelen a la adhesión de los jóvenes estudiantes.

Palabras clave: Bebidas Alcohólicas; Adolescente; Drogas Ilícitas; Tabaco.

INTRODUCTION

The life cycle is characterized by stages and changes resulting from relevant transformations, which are often determined by moments of tension, contradiction, rupture or crisis(1). Adolescence is strongly marked by intense changes at physical, psychological and/or social levels. The World Health Organization (WHO) establishes the adolescence period between 10 and 19 years of age. However, for the United Nations adolescence includes the population aged between 15 and 24 years(2).

The adolescents/young people are naturally healthy, however, they can adopt risk behaviours, compromising their health, at that period of life or with future consequences. Among these behaviours, a special highlight is given to the use of psychoactive substances, bad dietary habits, reduced physical activity, unprotected sex or exposure to violence(3).

The school plays an important role in the psychosocial development of young people. In Portugal, the school age is established between 6 and 18 years(4,5) and students have to attend basic education - nine years duration, and high school - three years duration(6). In Spain, the educational system provides ten compulsory courses: primary
education (6-12 years) and high school education (13-16 years) and two non-compulsory courses: diploma of high school education or intermediate training cycle (17-18 years)\textsuperscript{(7)}.

The experience of adolescence/youth varies according to each individual. Although it is commonly characterized by a period of conflict and instability, the transition for some young people raises adaptation issues\textsuperscript{(8)}. The role of the family, school and peers is of major importance for this development process\textsuperscript{(9)}. Peers are often a source of support, security and socialization, but they can also represent a risk factor\textsuperscript{(10,11)}.

The beginning of the addictive consumption of licit or illicit substances usually occurs in adolescence/youth and within a peers group. According to the type, frequency and quantity, this consumption is often associated with behaviours of violence, suicide, accidents, unwanted pregnancy, sexually transmitted infections, amongst others.

Alcohol, tobacco and illicit drugs are amongst these addictive substances. Data from the World Health Organization (WHO)\textsuperscript{(3)} indicate that in Europe, between 2013 and 2014, the consumption of tobacco and alcohol has decreased amongst adolescents. In Portugal, statistics show that the majority of adolescents aged between 11 and 15 years have never consumed these type of substances, and only the older youngsters referred to frequent consumption\textsuperscript{(12)}. As they get older this experience becomes even more negative with the consumption of psychoactive substances, especially during higher education\textsuperscript{(13)}. The consumption of alcohol is most frequently reported in the young male population, aged 18 years, followed by tobacco and illicit drugs, with special highlight to marijuana\textsuperscript{(14)}.

In Spain, the report of the ESTUDES\textsuperscript{(15)}, stresses the reduction on the use of drugs among adolescents, although statistics reveal a greater consumption of alcohol (binge drinking and shots). The most consumed drugs were alcohol, tobacco, marijuana, followed by other as hypnotics, cocaine, ecstasy and hallucinogens.

Health care is designed to meet the needs and development of young people’s health, hence, the problem of the consumption of addictive substances is considered in policy making, strategies and health programmes\textsuperscript{(3)}. In Portugal, the General Directorate for Intervention on Addictive Behaviours and Dependencies (SICAD), alongside with the regional health administrations have established a common policy that aims to reduce the consumption of psychoactive substances and dependences and the prevention of dependency behaviours. A special highlight for the Programa Nacional de Saúde Escolar [National Program of Health Education], as a guiding instrument for the promotion of health education of the student community, from pre-school until the end of high school education\textsuperscript{(14,16)}. Similarly, Spain has implemented an action plan addressing the younger population, aiming to promote healthy lifestyles\textsuperscript{(17)}, with community outreach considering the different autonomous communities. As an example, in Andalusia, the southern region of the country, the Forma Joven Program is developed, whose priority is focused on the prevention of drug dependence and education\textsuperscript{(18)}. In addition, both countries have adopted a number of legal measures to limit the consumption of tobacco, alcohol and marijuana among adolescents/young people, such as the establishments’ restriction/prohibition and minimum age allowed for purchase and consumption\textsuperscript{(16,17)}.

The present study aimed at evaluating the consumption of tobacco, alcohol and marijuana in a student population of a city in the north of Portugal.
METHODS AND MATERIAL

Design and participants

A quantitative study, descriptive and cross-sectional was conducted in Vila Nova de Famalicão, a city located in the north of Portugal. A total of 8,200 young students are distributed by 11 institutions of secondary and higher education. Nine of these institutions agreed to participate in the study, also with the collaboration of the Mayor. The data were obtained during the first trimester of 2014.

The inclusion criteria were: students aged between 15 and 19 years, enrolled in secondary or higher education, and that underaged students were given authorization by their parents to participate in the study.

A convenience sample was selected. The sample calculation was estimated using a sampling error of 3%, with a confidence interval of 99%, resulting in a total of 1,505 students. Finally, a total of 1,066 students participated in the study, corresponding to 70% of the sample. Young people who did not get parent/legal guardian’s informed consent were excluded from the study.

The young people had on average 16.79 years (SD=1.2), with a mode of 17 years old, the majority (55.3%) were female, enrolled in secondary education (89.7%) and lived with both parents (63%). In addition, most parents (84.6%) were married or lived together.

Ethical-legal procedures

Ethical authorization was granted by the ethics committee of the Institute of Biomedical Sciences Abel Salazar - University of Porto, registration number 057/2013 and by the Portuguese Data Protection Authority, through resolution nr. 260/2015.

The participating institutions were previously contacted by researchers for the project presentation and were invited to participate in the study. The adolescents/youngsters were asked to sign an informed consent and in what concerned underaged students, a previous consent was requested from parents/legal guardians.

Participants anonymity was guaranteed. Self-administered questionnaires were delivered and collected by the teachers in the classroom and then sent to researchers, in sealed envelopes.

Instruments

The instrument used for data collection was a questionnaire consisting of three main parts: Sociodemographic characterization; family APGAR, adapted by Imperatori; The Youth Risk Behavior Survey adapted and validated for the Portuguese population by Santos, Silva and Meneses and called “Comportamentos de saúde, comportamentos de risco e envolvimento dos jovens com a escola e a família” [Health behaviours, risk behaviours and young people involvement with school and family].

The questions were grouped by thematic areas of closeness. A Likert scale - from zero to two points, was used to measure family functionality with an estimated sum result:
highly functional family (seven to ten), moderately functional (four to six) and dysfunctional (zero to three). Dichotomous responses or multiple-choice questions were applied for variables related to the consumption of tobacco, alcohol and marijuana. The SICAD guidelines were considered for the current definition of consumption, when the occurrence was registered in the last thirty days", prior to data collection\textsuperscript{(14)}.

**Statistical analysis**

A descriptive and inferential statistics analysis was conducted, using SPSS version 24.0. Mean and standard deviation were calculated for the continuous variables. For the inferential analysis, based on the type of variable, the chi-square test, the t-test and odds ratio were used\textsuperscript{(22)}.

**RESULTS**

The majority of participants did not report a current consumption of tobacco, alcohol and marijuana (Table 1).

Relating to participants who reported a current consumption of tobacco, male participants evidenced higher values than female participants (Table 1), showing a statistically significant association [$\chi^2(1)=6.36$, $p=.012$]. The majority of participants attended secondary education (Table 1), showing a statistically significant association between tobacco consumption and attended academic year [$\chi^2(4)=17.75$, $p=.0001$]. The highest number of consumers was registered in the 10th year of schooling (Table 1).

The young people with current consumption, are slightly older (M=16.93) than non-consumers (M=16.74), with statistically significant differences (t(1058)=2.29; $p=.015$). The current consumption of alcoholic beverages is significantly higher in male participants (Table 1) [$\chi^2(1)=4.96$, $p=.03$]. As described in table 1, the young people aged between 17 or more years have higher levels of alcohol consumption than younger groups [$\chi^2(4)=57.12$, $p=.0001$]. From the analysis of the consumption depending on the year of schooling, it is observed that the young people who attended the 10th year of schooling (Table 1) showed statistically higher consumption [$\chi^2(4)=20.56$, $p=.0001$]. Regarding the monthly frequency of consumption, it was found that 44.9% of young people engaged in consumption between one and five days, 9.4% between six and 19 days and 1.7% for more than 20 days.

The average age of young people with a current consumption of alcoholic beverages (M=16.9) is higher than that of non-consumers (M=16.2), with statistically significant difference (t(1063)=6.807; $p=.0001$).

Of the total sample, only 173 participants have never experienced alcoholic beverages (Table 1). The age of the first experience of alcoholic beverages by young people occurred between 13 and 16 years.

Concerning the young people with a current consumption of marijuana, the majority were male, showing a statistically significant association in relation to gender [$\chi^2(1)=43.15$, $p=.0001$]. The highest percentage was recorded at 17 years (Table 1), with a statistically significant association [$\chi^2(4)=39.48$, $p=.0001$]. There was a higher
percentage of consumption in young people who attended the 10th year of schooling (Table 1), however with no statistical significance. In relation to the monthly frequency of this consumption, it occurred one to two times for 14.3% of the young people; between three and nine times for 7.6%; and more than 10 times for 10.6%; and for the majority (87.7%), this consumption occurred outside the school environment.

For the majority of young people, the first experience of marijuana consumption occurred between the ages of 13 and 16 (Table 1).

Table 1: Characterization of the consumption of addictive substances by young people

<table>
<thead>
<tr>
<th>Current consumption (last 30 days)</th>
<th>Tobacco % (n)</th>
<th>Alcohol % (n)</th>
<th>Marijuana % (n)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>22.9(285)</td>
<td>43.9(409)</td>
<td>11.3(120)</td>
</tr>
<tr>
<td>No</td>
<td>73.1(775)</td>
<td>56.1(523)</td>
<td>88.7(946)</td>
</tr>
<tr>
<td>Gender (current consumption)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>49.1(140)</td>
<td>49.1(257)</td>
<td>30.8(37)</td>
</tr>
<tr>
<td>Male</td>
<td>50.9(145)</td>
<td>50.9(266)</td>
<td>69.2(83)</td>
</tr>
<tr>
<td>Age (current consumption)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15 years</td>
<td>9.1(26)</td>
<td>13.6(121)</td>
<td>6.2(14)</td>
</tr>
<tr>
<td>16 years</td>
<td>26.3(75)</td>
<td>24.3(217)</td>
<td>18.2(41)</td>
</tr>
<tr>
<td>17 years</td>
<td>35.1(100)</td>
<td>32.4(289)</td>
<td>27.7(929)</td>
</tr>
<tr>
<td>18 years</td>
<td>21.1(60)</td>
<td>18.3(163)</td>
<td>23.1(52)</td>
</tr>
<tr>
<td>19 years</td>
<td>8.4(24)</td>
<td>11.4(102)</td>
<td>11.6(26)</td>
</tr>
<tr>
<td>Schooling (current consumption)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10th school year</td>
<td>47.2(364)</td>
<td>45.8(408)</td>
<td>48.4(109)</td>
</tr>
<tr>
<td>11th school year</td>
<td>16.5(127)</td>
<td>18.8(167)</td>
<td>17.8(40)</td>
</tr>
<tr>
<td>12th school year</td>
<td>24.2(187)</td>
<td>23.8(212)</td>
<td>26.7(60)</td>
</tr>
<tr>
<td>Higher Education</td>
<td>12.2(94)</td>
<td>11.6(103)</td>
<td>7.1(16)</td>
</tr>
<tr>
<td>Age of consumption experience</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>≤12 years</td>
<td>25.3(226)</td>
<td>12.0(27)</td>
<td></td>
</tr>
<tr>
<td>13-16 years</td>
<td>68.6(612)</td>
<td>61.3(138)</td>
<td></td>
</tr>
<tr>
<td>≤17 years</td>
<td>6.1(54)</td>
<td>26.7(60)</td>
<td></td>
</tr>
</tbody>
</table>

There was a statistically significant association between the consumption of tobacco and alcohol consumption \( \chi^2(1)=26.28, p=.0001 \) and tobacco consumption and consumption of marijuana \( \chi^2(1)=243.21, p=.0001 \).

Also, there was a statistically significant association between the consumption of tobacco and marijuana \( \chi^2(1)=52.64, p=.0001 \). The likelihood of young people who consumed alcohol also consuming tobacco \( \text{OR}=2.40, \text{CI95\% 1.86-3.11} \) was twice as high and almost three times higher for the consumption of marijuana \( \text{OR}=2.97, \text{CI95\%, 2.23-3.95} \). In addition, there are two times more likely to those young people who consume alcohol engage in physical aggression \( \text{OR}=2.18; 95\% \text{CI 1.57-3.05} \).
The majority (53%) of the young people perceived their family as moderately functional, 46% highly functional and the remaining considered having a dysfunctional family. No statistically significant association was found between current consumption of tobacco, alcohol and marijuana and family functionality.

DISCUSSION

One of the major concerns of the WHO is the consumption of addictive substances by young people, as it reduces self-control and increases risk behaviours. In Portugal, the consumption of these substances, between the ages of 13 and 18, is higher for alcohol followed by tobacco and drugs\(^{(3)}\).

The alcohol consumption, *per capita* in Portugal, has reduced since the 1990s, however, still showing relevant figures amongst OECD member countries\(^{(23)}\). The study conducted by Feijão\(^{(14)}\), shows that the current consumption of alcoholic beverages was higher in the male population, which corroborates the results of this present study. The study conducted by Feijão also revealed that consumption reached 68% of the young people aged 18 years. The results of this present study showed lower percentages. In another study\(^{(24)}\), involving a Portuguese young population, aged between 12 and 16 years, it was verified that a third of the participants had already experienced consumption of alcoholic beverages. In this present study, a quarter of the young people had this experience at the same age or were younger than 12 years and the majority were aged between 13 and 16 years.

When comparing with the results obtained by Domingues et al.\(^{(24)}\), for the current tobacco consumption, the present study scored lower values. The study by Feijão\(^{(14)}\) points out that this consumption was higher in the female population, contrarily to data gathered for this present study. In the present study, the age for this type of consumption was 18 years (32%) whilst in the present study, the results scored lower levels for the same parameter.

The percentage of adolescents who experienced marijuana varies widely among countries, but similar prevalence have been observed in both gender \(^{(3)}\), whilst the results of the present study point to a higher percentage in male participants. In the study carried out by Domingues et al.\(^{(24)}\), 8.5% of the participants had already experienced marijuana consumption and were aged in average 13.5 years. The present study shows that 12% of the young people that had experienced marijuana were aged 12 years or younger and the majority experienced it between 13 and 16 years.

This study results showed that the young people with tobacco habits are more likely to adopt other additive behaviours - alcohol and marijuana, which corroborates with the findings of Domingues et al.\(^{(24)}\) and Míguez & Becoña\(^{(25)}\).

The family role associated with family cohesion, the supervision of young people's behaviours and the perceived maternal control by the children reinforces the importance of family ties in the prevention of addictive substance consumption by adolescents/young people\(^{(26,27)}\).
CONCLUSIONS

These study results reveal that the experience of consumption of addictive substances likely to cause addiction occurs in early adolescence. It also stresses the high current consumption of alcoholic beverages, that the consumptions are often interrelated and that there is a strong relationship between consumption of alcoholic beverages and physical aggression episodes.

The study reveals certain limitations related to the cross-sectional design, which performs a single measurement of the phenomenon, hindering the cause-effect relationship. Additionally, the data collection using questionnaires is very likely to cause misinterpretation issues relating to the formulation of questions and the veracity of responses.

The consumption of addictive substances is a major public health concern particularly in what concerns the young population due to the potential lifelong effects. Effective interventions must be based on a joint strategy involving social, educational and health policies, and implemented at an early age.

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REFERENCES


