

ORIGINAL ARTICLE

FACTORS ASSOCIATED WITH TOBACCO EXPERIMENTATION AMONG ADOLESCENTS STUDENTS*

FATORES ASSOCIADOS À EXPERIMENTAÇÃO DO TABACO ENTRE ESCOLARES ADOLESCENTES

FACTORES ASOCIADOS A LA EXPERIMENTACIÓN DE TABACO ENTRE ESTUDIANTES ADOLESCENTES

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ABSTRACT

Objective: to identify factors associated with tobacco experimentation among elementary school adolescents. **Method:** this is a quantitative, descriptive and exploratory study, with 186 participants between 11 and 19 years old from a public elementary school. A self-administered structured questionnaire was filled out with items from the “California Tobacco Survey 2015-2016” instrument, adapted to the Brazilian context. The data was organized in a Microsoft Excel 2010 spreadsheet for further descriptive and statistical analysis, with the help of SPSS. **Results:** it was reported, by the majority, to have friends who smoke and that smoking is not allowed in their homes. It was found that age, school year and the number of friends who smoke were aspects significantly associated with experimenting with tobacco products. **Conclusion:** it is emphasized that these results can constitute elements that subsidize educational anti-smoking programs in schools, and contribute to the promotion of public policies aimed at preventing the contact of adolescents with tobacco products, in order to positively impact health of young people and decrease the possibility of experimenting with illicit drugs. **Descriptors:** Adolescent; Tobacco; Adolescent Behavior; Risk Factors; Schools; Public Health.

RESUMO

Objetivo: identificar os fatores associados à experimentação do tabaco entre adolescentes do Ensino Fundamental. **Método:** trata-se de estudo quantitativo, descritivo e exploratório, com 186 participantes entre os 11 aos 19 anos de idade de uma escola pública do Ensino Fundamental. Preencheu-se um questionário autoaplicável estruturado, com itens do instrumento “California Tobacco Survey 2015-2016”, adaptado para o contexto brasileiro. Organizaram-se os dados em planilha eletrônica do Microsoft Excel 2010 para posterior análise descritiva e estatística, com o auxílio do SPSS. **Resultados:** relatou-se, pela maioria, ter amigos que fumam e que não é permitido fumar em suas casas. Evidenciou-se que a idade, o ano escolar e o número de amigos que fumam foram os aspectos significativamente associados à experimentação de produtos do tabaco. **Conclusão:** salienta-se que esses resultados podem se constituir em elementos que subsidiem programas educacionais antitabagismo nas escolas, e contribuir para o fomento de políticas públicas voltadas para a prevenção do contato de adolescentes com os produtos do tabaco, de modo a impactar positivamente a saúde dos jovens e diminuir a possibilidade da experimentação de drogas ilícitas. **Descritores:** Adolescente; Tabaco; Comportamento do Adolescente; Fatores de Risco; Escolas; Saúde Pública.

RESUMEN

Objetivo: identificar los factores asociados con la experimentación de tabaco entre los adolescentes de primaria. **Método:** este es un estudio cuantitativo, descriptivo y exploratorio, con 186 participantes de entre 11 y 19 años de una escuela primaria pública. Se rellenó un cuestionario estructurado autoadministrado con elementos del instrumento “California Tobacco Survey 2015-2016”, adaptado al contexto brasileño. Los datos se organizaron en una hoja de cálculo de Microsoft Excel 2010 para su posterior análisis descriptivo y estadístico, con la ayuda de SPSS. **Resultados:** se informó, por mayoría, tener amigos que fuman y que no está permitido fumar en sus hogares. Se descubrió que la edad, el año escolar y la cantidad de amigos que fuman eran aspectos significativamente asociados con la experimentación de productos de tabaco. **Conclusión:** se enfatiza que estos resultados pueden constituir elementos que subsidian los programas educativos contra el tabaquismo en las escuelas y contribuyen a la promoción de políticas públicas destinadas a prevenir el contacto de los adolescentes con los productos del tabaco, a fin de impactar positivamente la salud de los jóvenes y reducir la posibilidad de experimentar drogas ilícitas. **Descriptores:** Adolescente; Tabaco; Conducta del Adolescente; Factores de Riesgo; Escuelas; Salud Pública.

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INTRODUCTION

It is known that adolescence represents a period of transition to adult life and is characterized by physical, psychological and social changes influenced by the experiences and information acquired in daily life. It is noteworthy that, in this stage of life, the attitudes and habits of young people are changing and the experimentation of new practices, characteristic of this process, makes them vulnerable to risky behaviors.¹

It is understood that risk behaviors among young people can negatively impact current and future health and their occurrence may be related to factors such as age, ethnicity, socioeconomic and cultural condition.² It was found, in a research carried out in Brazil, that 58.5% of the adolescents had, simultaneously, two or more health risk behaviors, such as physical inactivity and smoking, and that these were more common with the increase in the age range age.³

The experimentation with tobacco products stands out among the risk behaviors that can be adopted by young people during adolescence. It is observed that the greatest chance of experimenting with tobacco occurs in adolescence and tends to perpetuate during adulthood, characterizing young people as a risk group to start consuming products of this substance.⁴ It is also pointed out that tobacco use may predispose to greater chances of using psychoactive drugs among adolescents, such as alcohol and illicit drugs.⁵

It was shown, in estimates by the Centers for Disease Control and Prevention of the United States of America (USA), that 1,600 young people under the age of 18 smoke their first cigarette every day and 200 of these become daily smokers.⁶ It is estimated that globally at least one in ten adolescents aged 13 to 15 uses tobacco.⁷

It is shown, through data from the National Youth Tobacco Survey, carried out in the North American context, that the consumption of tobacco products by adolescents did not change significantly between the years 2011 and 2018. It was observed, specifically between the years of 2017 and 2018, that this consumption increased 28.6% among elementary school students and 38.3% among high school students.⁸ It was found that, in 2019, almost one in four elementary school students (24.3%) and more than half (53.3%) of high school students said they had already tried a tobacco product.⁹

It was identified, in Brazil, according to the National School Health Survey (PeNSE), 2015 edition, carried out in capitals and other Brazilian municipalities, that, among the 13 to 15 year old age group, tobacco experimentation was 19% and just over 29% among schoolchildren aged 16 to 17

years. It was shown that, among those aged 16 to 17, 10% of the students tried cigarettes before the age of 14, with just over 8% declaring their current use of tobacco products.¹⁰

It should be noted that, among the main factors related to the experimentation with tobacco by adolescents, are social environments and other factors such as curiosity, advertising, erroneous perceptions about the harm of use and positive associations with this practice.⁶

It is known that the consumption of tobacco products is a risky behavior for the health of adolescents, and early initiation is an important prognostic factor for illness.¹¹ It is noteworthy that, in Brazil, the publication on factors associated with the use of tobacco and other products in adolescence is scarce¹² and, in spite of anti-smoking policies, currently, tackling smoking initiation among adolescents is still a global challenge.⁶⁻⁷

This research was guided by the following question: "What factors are associated with tobacco experimentation by adolescents from an elementary school?"

OBJECTIVE

- To identify the factors associated with tobacco experimentation among elementary school adolescents.

METHOD

This is a quantitative, descriptive and exploratory study. As a research scenario, a public elementary school located in the western region of a city in Minas Gerais, Brazil, which represents the largest absolute population of the city, characterized by socioeconomic vulnerabilities, was used. It is said that the school is in the same physical space as a Basic Health Unit (BHU) with a mixed team (Family Health Strategy and traditional model) and is a field for extension and research activities by local public and private universities.

A non-probabilistic, intentional sample was chosen, based on the following criteria: adolescents present in the classroom at the time of data collection; of both sexes; who attended the 6th to 9th years of elementary school; aged 10 to 19 years old;¹³ who have tried tobacco or not. The inclusion criteria were followed, obtaining the participation of 186 adolescents in the study. It is noteworthy that no form was excluded and no adolescent or guardian requested the withdrawal from participation in the research.

Adolescents from all elementary school classes, including Youth and Adult Education (YAE), were invited to participate in the research, after an approach made by the researchers through educational activities developed in the school

context. For the students, the objectives and ethical aspects of the research were clarified.

A structured self-administered questionnaire was filled out with items from the “California Tobacco Survey 2015-2016” instrument, adapted to the Brazilian context,¹⁴ under supervision of classroom researchers, with an average duration of 20 minutes. It is noteworthy that the instrument contains questions related to the socio-demographic characteristics of adolescents, consumption and access to tobacco products, passive exposure to smoking, friends who smoke, in addition to access to information about smoking in the school context.

The data were organized in a Microsoft Excel 2010 spreadsheet for later descriptive and statistical analysis, with the aid of the Statistical Package for the Social Sciences (SPSS). The data was treated descriptively with a view to characterizing the participants and tobacco consumption. Tobacco experimentation was considered a dependent variable so that the results were presented in relation to the exposure or not to smoking. The chi-square test was used for statistical analysis.

Ethical aspects in research with human beings were considered in accordance with Resolution No. 466, of December 12, 2012, of the National Health Council. It is mentioned that adolescents

agreed to participate in the research, by signing the Free and Informed Consent Term (FICT) and the Free and Informed Consent Term / Witness, signed by the teacher of the school responsible for the teenager at the time of data collection. It should be noted that the research was approved by the Research Ethics Committee with Human Beings at the Federal University of Juiz de Fora on 10/26/18, according to Opinion No. 2,984,843 and CAAE No. 00781918.0.0000.5147.

RESULTS

In this study, 186 adolescents were added, aged between 11 and 19 years old, who attended Elementary School and Elementary School. A similar percentage was found regarding gender, with a predominance of blacks and browns. It should be noted that most adolescents have a family income of a minimum wage or less and that they live with three or more people. Sociodemographic characteristics are shown in table 1.

Table 1. Sociodemographic characteristics of the participants. Juiz de Fora (MG), Brazil, 2019.

Variable	Category	n	%
What year are you in school	Sixth year	35	18.8
	Seventh year	42	22.6
	Eighth year	45	24.2
	Ninth year	19	10.2
	YAE Elementary	45	24.2
	Total	186	100
Age	11 to 13 years	79	42.5
	14 to 16 years	79	42.5
	17 to 19 years	28	15.0
	Total	186	100
Sex	Female	91	48.9
	Male	95	51.1
	Total	186	100
Color	White	31	16.7
	Black	73	39.2
	Brown	77	41.4
	Other	5	2.7
	Total	186	100
Family income	Less than one minimum wage	85	45.7
	1 minimum wage	70	37.6
	3 minimum wages	29	15.6
	More than 3 minimum wages	2	1.1
	Total	186	100
People who live at home	One or two	26	14.0
	Three or four	70	37.6
	Five or more	90	48.4
	Total	186	100

Table 2 shows the results related to the experimentation with tobacco products and the factors predisposing to smoking. It is noteworthy that the industrialized cigarette and the

aromatized cigarette were the most tried tobacco products, being mentioned by 39.3% of the adolescents. It was found that the use of the hookah was mentioned by 16.1%. It was observed

that the majority mentioned that the stores would sell cigarettes to children and adolescents and almost a third of the participants had been exposed to smoke in a closed environment in the

last month. It was identified that the majority reported having friends who smoke and that smoking is not allowed in their homes.

Table 2. Responses of adolescents regarding experimentation with tobacco products and factors predisposing to smoking. Juiz de Fora (MG), Brazil, 2019.

Variable	Category	n	%
Industrialized cigarette	No	147	79.0
	Yes	39	21.0
	Total	186	100
Flavored cigarette	No	152	81.7
	Yes	34	18.3
	Total	186	100
Hookah	No	156	83.9
	Yes	30	16.1
	Total	186	100
Stores would sell cigarettes to someone your age	No	87	46.8
	Yes	99	53.2
	Total	186	100
In the last month, how many days have you been indoors with a smoker?	None	118	63.4
	1 to 9 days	43	23.1
	10 to 19 days	25	13.5
	Total	186	100
How many of your friends smoke?	None	56	30.1
	Some	79	42.5
	Many/All	51	27.4
	Total	186	100
Which best describes the rules about smoking in your home?	There are no rules in my house	33	17.7
	Smoking is not allowed in my house	129	69.4
	Smoking is allowed in some places / Sometimes in my house/ Anywhere in my house	24	12.9
	Total	186	100

It is pointed out that, of the total number of participants (n = 186), 55.4% of the adolescents reported that, in the last 12 months, the harmful effects of cigarettes were mentioned in school and 62.9% reported that the approach was carried out during science classes.

Table 3 highlights the association of significant variables related to tobacco experimentation among adolescents. It was identified that, of the 186 participants, 31.7% reported having already smoked an entire cigarette at some point in their lives, and of these, 32.2% tried cigarettes between 13 and 14 years of age.

It was evident that age, school year and the number of friends who smoke were aspects that had a strong association (p <0.001) with the experimentation with tobacco products by the participants.

A positive association was found between the age of the adolescent and the fact of having used tobacco products or not. When comparing the age group between 11 and 13 years, it was observed

that adolescents between 14 and 16 years used twice more and, between 17 and 19 years, tobacco use was more than triple, considering the reference category (11 to 13 years).

It was observed, as for the school year, that the adolescents enrolled in YAE Fundamental, whose age is between 15 to 19 years old, used tobacco four times more than those who attended the sixth or seventh year; likewise, the use of some type of tobacco by those in the eighth or ninth year was almost three times higher than those who were in the reference category (sixth or seventh year).

There was also a strong association between the variable “how many friends smoke” and the experimentation with tobacco by adolescents. It was observed that the greater the number of friends who smoke, the greater the experimentation with cigarettes among students; the group that responded that all their friends smoke showed that tobacco use was twice as high as in the group that claimed to have no smoking friends.

Table 3. Association of significant variables related to tobacco experimentation in adolescence. Juiz de Fora (MG), Brazil, 2019.

Variable	Category	Used some kind of tobacco		p ^a	PR ^b	Sig. ^c
		No	Yes			
Age	11 to 13 years	66	13		1	-
	14 to 16 years	49	30	<0.000	2.308	0.004
	17 to 19 years	12	16		3.473	0.000
	Total	127	59	-	-	-
Gender	Female	63	28	0.785	-	-
	Male	64	31			
	Total	127	59	-	-	-
Year at school	Sixth or seventh year	67	10		1	
	Eighth or ninth year	41	23	<0.000	2.767	0.003
	YAE Elementary	19	26		4.449	0.000
	Total	127	59	-	-	-
Color	White	25	6			
	Black	45	28	0.118	-	-
	Brown	55	22			
	Other	2	3			
	Total	127	59	-	-	-
How many people live in the house	One or two	14	12		1	-
	Three or four	44	26	0.041	0.805	0.408
	Five or more	69	21		0.506	0.017
	Total	127	59			
How many friends smoke	None	53	3		1	-
	Some	56	23	<0.000	1.268	0.001
	Many	15	19		1.657	0.000
	All	3	14		2.160	0.000
	Total	127	59	-	-	-

^ap = significance probability; ^bPR = Prevalence Ratio; ^cSig = Significance

DISCUSSION

It appears that, differently from the result found in this research (similarity between tobacco experimentation by girls and boys), a Brazilian study pointed out in a population of 370 adolescents, a higher percentage of tobacco experimentation by men. It was noted that boys had more than twice the chance of using cigarettes when compared to girls.¹⁵

It was evident that blacks and browns represented the majority of the total of participating students and among those who had already consumed tobacco, however, no significant association was found between experimentation and color, which was corroborated by a study conducted with adolescents between 15 and 17 years in the USA.¹⁶ However, it was identified in a survey of 864 schoolchildren in Porto Alegre, Brazil, that the prevalence of smoking initiation in the brown population was more than double in relation to the white population (p = 0.012).¹⁷

It was pointed out, through the findings, that the majority of adolescents had a family income of a minimum wage or less, despite the fact that the economic character did not show significance with the experimentation with tobacco. In a survey conducted in Germany, it was observed that adolescents with low social status had an

increased risk of smoking daily or of being regularly exposed to secondhand smoke compared to their peers with high economic status.¹⁸ It is known that social and environmental issues can place poorer young people in a vulnerable situation for experimentation and use of tobacco. Among these aspects, lesser social support, greater pressure for consumption among friends and family, lesser ability to resist tobacco advertising and greater social stress are mentioned.¹⁹

It was found that the percentage of experimentation with tobacco products by adolescents found in this study (31.7%) was lower than the experimentation rate found in the PeNSE Survey (48.1%).¹⁰ In the literature, a result similar to that of this research was found in relation to the age of experimentation with cigarettes (13 and 14 years old) in Peru (40% started using tobacco at 14 years old)²⁰ and Sweden, where the average age for tobacco experimentation was 14.7 years.²¹

In the findings, it was observed that, in addition to experimentation, the consumption of tobacco products increased with age, establishing, among themselves, a significant association. It is noteworthy that this result points to the possibility that habits initiated in youth remain during adulthood, especially when present in late adolescence. The importance of strengthening

strategies aimed at preventing tobacco experimentation in adolescence is perceived in order to avoid transition to frequent use and nicotine addiction.²²

It was found that the use of industrialized cigarettes was the most experienced tobacco product by adolescents, including flavored tobacco. It is noteworthy that cigarettes can stimulate the consumption of other tobacco products among adolescents, figuring as one of the first products tried among adolescents.²³ It was identified, in an investigation carried out with 1,506 young people and adults (18 to 30 years old) in the USA, that 47.7% of current electronic cigarette smokers used industrialized cigarettes during adolescence.²³

In this research, the high consumption of hookah among adolescents is highlighted, which is in line with the findings of other studies carried out in the Brazilian and worldwide contexts. According to PeNSE data, in 2015, 71.6% (n = 102,301) of 9th grade elementary school students, who had already had contact with tobacco, reported having used the hookah, figuring it as the product most used by teenagers.²⁴ In the USA, reasons for the use of hookahs were also pointed out through a survey carried out with 257 young people between 12 and 17 years old. It is noteworthy, among others, that they believe it to be a less harmful and less addictive product than cigarettes, in addition to being a socially acceptable practice among friends.²⁵

It is noted that more than half of the students reported that the stores sell tobacco products to someone their age. It is known that the ban on the sale of tobacco products to adolescents can be an important incentive to prevent this consumption among young people, since it makes access to the product difficult. In an evaluation carried out in Switzerland and the European Union on the impacts of prohibitive policies on the sale of tobacco products to children and adolescents, there was a reduction of less than one percentage point in consumption, from 1990 to 2016. It is noteworthy that despite of being below the results expected by the authorities (reduction of five percentage points), the policy represents an important tool to tackle smoking in youth.²⁶

It was shown that among adolescents who reported that all their friends smoke, tobacco use was significantly higher. This association was also evidenced in research with 900 students in Saudi Arabia, in which 48.1% of those who declare themselves current smokers reported that most or all of their friends were smokers.²⁷

It should be noted that a worrying finding found in this study refers to the figure of one third of adolescents exposed to secondhand smoke in the last month. It was pointed out in an investigation carried out with 2,295 young Swedes that among

those who currently consume tobacco, 27.6% lived in the same environment with smokers at the age of 16, compared with 10.4% among those who were not smokers ($p < 0.001$).²¹

It was found, still on the social and family environment, that most participants reported that smoking is not allowed in their homes. It is emphasized that this can be an important factor in reducing the risk of experimenting with tobacco or being a future smoker. The importance of family members' engagement in creating a smoke-free environment is emphasized. It is emphasized that regulations in favor of smoke-free environments can also impact on consumption rules in households. It has been shown in the Philippines through an analysis of the "Asia Pacific Child and Family Health Alliance for Tobacco Control" that since the beginning of smoking bans in public places the percentage of smoke-free homes has increased from 7 % in 2004 to 40% in 2009. It is emphasized that such legislation can impact the way in which a new generation of adolescents perceives tobacco consumption, stimulating less acceptance of smoking behavior.²⁸

It is reported that the adolescents reported that the school addressed the harmful effects of cigarettes, especially in science classes. It is noteworthy that in a research carried out in India this result was also found, however, although adolescents knew that tobacco could cause diseases, the correct knowledge about which diseases were caused by tobacco use was low.²⁹ It was also observed in an investigation carried out in the South of Brazil with 798 adolescents, little knowledge about the damages caused by tobacco since 59.8% reported that smoking one to five cigarettes a day did not put them at risk to health and 35.5% reported that smoking for one to two years would be safe if they stopped after that period.¹¹

It should be noted that with regard to tobacco experimentation by adolescents, health education, especially in the school context, presents itself as an important tool to alert them about the harm of substance use in order to contribute to prevention this risk behavior among young people with a view to promoting health. It was emphasized in a systematic review of the literature that children and adolescents (n = 36,264) who participated in interventions on the consumption of tobacco products carried out in the school context were 18% less likely to have started smoking at the end of the intervention, in relation to the group control.³⁰

CONCLUSION

It was found that 39.3% of the adolescents tried industrialized / flavored cigarettes. It is noteworthy that age (17 to 19 years), school year (YAE Elementary) and the number of friends who

smoke (the greater the number of friends who smoke, the greater the experimentation of cigarette among schoolchildren) were the aspects significantly associated with experimentation with tobacco products. It is noteworthy that the majority mentioned that stores sell cigarettes to children and adolescents and almost a third were exposed to smoke indoors in the last month.

It is noteworthy that the self-filling of the structured questionnaire is a limiting factor of this study, considering that adolescents may have underestimated tobacco consumption, however, factors related to the experimentation of this substance pointed out may constitute elements that subsidize anti-smoking educational programs in schools, and to contribute to the promotion of public policies aimed at preventing the contact of children and adolescents with tobacco products. It is emphasized that the prevention of this contact may positively impact the health of young people, reducing the possibility of experimenting with illicit drugs.

It is suggested the expansion of research aimed at the adolescent public in order to facilitate, for health and education professionals, access to scientific evidence on smoking that can subsidize health education actions.

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