






Risk factors associated with tobacco consumption in adolescence

Factores de riesgo asociados al consumo de tabaco en la adolescencia

Fatores de risco associados ao consumo de tabaco na adolescência

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ABSTRACT

Introduction: the World Health Organization (WHO) has classified smoking as a chronic non-communicable and addictive disease, with possibilities of treatment and cure. Adolescence constitutes a risk stage in acquiring the habit; according to some authors, the age at which smoking begins is increasingly younger. **Objective:** to determine the main risk factors that influence tobacco consumption in adolescents belonging to the Family Medical Office No. 45 of the Policlínico Docente Universitario “René Vallejo Ortiz”, in Bayamo, Cuba. **Method:** it was carried out an observational, analytical, case-control study. The universe was made up of 73 adolescents and the sample was represented by 16 cases and 32 controls with a (1:2 ratio), in the period from January to December 2022. To calculate the sample, the Epidemiological Analysis of Tabulated Data (EPIDAT) statistical program

was applied with the simple random method. **Results:** the most significant factors in adolescent tobacco consumption were obtained: having smoking friends (OR 21.6564 95% CI 2.0502-228.7595; $p=0.0106$), lack of family support (OR 10.6242 95% CI 1.1156-101.1748; $p=0.0399$) and the presence of smokers in the family (OR 8.0845 95% CI 1.3167- 49.6380; $p=0.0240$). **Conclusions:** the lack of family support, the presence of family and friends who smoke were the main risk factors that influenced tobacco consumption in adolescence and suggests the need to intervene as soon as possible to transform addictive behavior.

Keywords: adolescents; risk factors; consumption; tobacco



RESUMEN

Introducción: la Organización Mundial de la Salud (OMS) ha catalogado el tabaquismo como una enfermedad crónica no transmisible y adictiva, con posibilidades de tratamiento y cura. La adolescencia constituye una etapa de riesgo en la adquisición del hábito, según algunos autores la edad de inicio de fumar cada vez es más temprana. **Objetivo:** determinar los principales factores de riesgo que influyen en el consumo de tabaco en los adolescentes pertenecientes al Consultorio Médico de Familia No. 45 del Policlínico Docente Universitario “René Vallejo Ortiz” de Bayamo, Cuba. **Método:** se realizó un estudio observacional, analítico, de casos y controles. El universo lo constituyeron 73 adolescentes y la muestra estuvo representada por 16 casos y 32 controles, con una relación 1:2; en el período comprendido entre enero a diciembre de 2022. Para el cálculo de la muestra se aplicó el programa estadístico Análisis Epidemiológico de Datos Tabulados (EPIDAT) con el método aleatorio simple. **Resultados:** se obtuvieron como factores más significativos en el consumo de tabaco de los adolescentes: el tener amigos fumadores (OR 21,6564 IC 95% 2,0502-228,7595; $p=0,0106$), la falta de apoyo familiar (OR 10,6242 IC 95% 1,1156-101,1748; $p=0,0399$) y la presencia de fumadores en la familia (OR 8,0845 IC95% 1,3167- 49,6380; $p=0,0240$). **Conclusiones:** la falta de apoyo familiar, la presencia de familia y amigos fumadores constituyeron los principales factores de riesgo que influyeron en el consumo de tabaco en la adolescencia y sugiere la necesidad de intervenir cuanto antes para transformar la conducta adictiva.

Palabras claves: adolescentes; factores de riesgo; consumo; tabaco

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RESUMO

Introdução: a Organização Mundial da Saúde (OMS) classificou o tabagismo como uma doença crônica não transmissível e que causa dependência, com possibilidades de tratamento e cura. A adolescência constitui uma fase de risco na aquisição do hábito, segundo alguns autores, a idade de início do tabagismo é cada vez mais jovem. **Objetivo:** determinar os principais fatores de risco que influenciam o consumo de tabaco em adolescentes pertencentes ao Consultório Médico de Família nº 45 da Policlínico Docente Universitario “René Vallejo Ortiz” de Bayamo, Cuba. **Método:** foi realizado estudo observacional, analítico, caso-controle. O universo foi composto por 73 adolescentes e a amostra foi representada por 16 casos e 32 controles, na proporção de 1:2; no período de janeiro a dezembro de 2022. Para o cálculo da amostra foi aplicado o programa estatístico Análise Epidemiológica de Dados Tabulados (EPIDAT) pelo método aleatório simples. **Resultados:** foram obtidos os fatores mais significativos no consumo de tabaco entre adolescentes: ter amigos fumantes (OR 21,6564 IC 95% 2,0502-228,7595; $p=0,0106$), falta de apoio familiar (OR 10,6242 IC 95% 1,1156-101,1748; $p=0,0399$) e a presença de fumantes na família (OR 8,0845 IC 95% 1,3167-49,6380; $p=0,0240$). **Conclusões:** a falta de apoio familiar, a presença de familiares e amigos fumantes foram os principais fatores de risco que influenciaram o consumo de tabaco na adolescência e sugerem a necessidade de intervir o mais rápido possível para transformar o comportamento aditivo.

Palavras-chave: adolescentes; fatores de risco; consumo; tabaco



INTRODUCTION

The World Health Organization (WHO) has classified smoking as a chronic, non-communicable, addictive, treatable and curable disease.⁽¹⁾

Tobacco use is considered a cross-cutting risk factor for six of the eight leading causes of death worldwide, as well as for the four most preventable and prevalent non-communicable diseases: cardiovascular disease, diabetes, cancer and chronic respiratory diseases. All forms of tobacco are harmful and there is no safe level of exposure to tobacco smoke. This makes the tobacco epidemic one of the greatest public health threats the world has ever faced, and the response must be equally forceful.⁽²⁾

Adolescence is a risk stage in the acquisition of the habit; according to some authors, the age of smoking onset is increasingly younger and this important risk factor is associated with the presence of parents or other family members who smoke.^(3,4-7)

The World Health Organization (WHO) defines adolescence as the stage between 10 and 19 years of age, which is divided into 2 phases: early adolescence: 10 to 14 years and late adolescence: 15 to 19 years.^(5,6)

During the Report on Tobacco Control in the American Region, 2022 for the adolescent population, of the 35 PAHO Member States, Brazil reported the lowest prevalence (6.9%), while Dominica reported the highest prevalence (25.3%). According to the fourth edition of the WHO's 2021 global report on tobacco use prevalence trends 2000-2025, the average proportion of the population that uses tobacco in the Region of the Americas is 11.3%, compared to the global average of 10.3%.^(1,2,7)

In our country, the consumption of tobacco by the adolescent population is 11.5%. according to sex: 13% in males and 9.7% in females.^(1,2) Among the factors present in adolescents who smoke are also the following: influence of peer group (friends who smoke), parents and cohabitants who smoke, parents' profession of lower social consideration and remuneration, low degree of family cohesion, climate and school performance.^(3,5,7)

In the meetings of the Basic Working Group (GBT) and with community leaders, it has been stated that smoking habit among adolescents is a health problem in Family Doctor's Office No. 45.

Scientific problem: What are the main risk factors of tobacco consumption in adolescents belonging to the Family Medical Clinic No. 45 of the University Teaching Polyclinic "René Vallejo Ortíz", Bayamo, Cuba?

Therefore, the objective of this study is to determine the main risk factors that influenced tobacco consumption in adolescents belonging to the Family Medical Clinic No. 45 of the University Teaching Polyclinic "René Vallejo Ortíz" of Bayamo, Cuba.



METHOD

An observational, analytical study of cases and controls was carried out in adolescents belonging to the Family Medical Clinic #45 of the University Teaching Polyclinic “René Vallejo Ortiz”, in the period from January to December 2022.

The total number of adolescents belonging to this clinic constituted the universe of 73 persons, and the sample was represented by 16 cases and 32 controls, that in this study period resided in this health area. The case/control ratio was 1:2. To calculate the sample, the Epidemiological Analysis of Tabulated Data (EPIDAT) statistical program was applied using the simple random method.

Criteria used for participation in the study conducted:

Inclusion criteria:

- Willingness and voluntariness to participate in the study
- Belonging to the population of the clinic during the time of the research
- To have physical and mental conditions that allow participation in the study

Exclusion criteria:

- Those adolescents who present illnesses that make it impossible for them to cooperate with the study.
- Adolescents whose parents prevent them from participating in the process
- Adolescents who move to another health area during the study

Exit criteria:

- Refusal on the part of the adolescents to continue participating in the research
- Adolescents who, while participating in the study, need to leave the area for an undetermined period of time

Selection of cases: adolescents who have developed a smoking habit or who reported smoking at least one cigarette were selected as cases.

Selection of controls: adolescents who, being subject to the same risk factors, were not found to be registered as smokers or who declared that they had never tried a cigarette.

Ethical aspects

The Medical Ethics Committee of the University Teaching Polyclinic “René Vallejo Ortiz” of Bayamo approved the study. The information was provided to the participants regarding the objectives and procedures for the study. Participation in the study was voluntary with the requirement of their consent. Taking into account that the patients were minors, informed consent was also obtained from their parents or legal guardian, based on the same ethical guidelines and principles.



Operationalization of the variables:

- Dependent variables: adolescent smokers
- Independent variables:

a) Sociodemographic factors: age <15 years and male sex. They were operationalized dichotomously present (P) or absent (A). Age: refers to early adolescence from 10 to 14 years when present and late adolescence from 15 to 19 years when absent. According to Gender it is expressed as male, when present and female when absent.

b) Risk factors: the Global Youth Tobacco Survey (GYTS) or Global Youth Tobacco Survey (GYTS)⁽⁸⁾ was applied to the main items related to the following risk factors: Tobacco use by family and friends, lack of parental support, easy access, learning disability, no self-esteem, exposure to tobacco advertising, no physical exercise and stress. They were operationalized dichotomously present (P) or absent (A).

Statistical analysis

First, a univariate study was performed, for which the Odds Ratio (OR) was determined for each of the hypothetically influential risk factors in the appearance of tobacco use in adolescents, with a 95% Confidence Interval (95% CI). For each of the risk factors, the hypothesis that the population OR was significant greater than 1 was approved.

A multivariate analysis was then performed using the variables that were shown to be a risk factor according to the data generated from the univariate analysis, in order to identify which of these factors had an independent relationship with the risk of adolescent smoking. Those that presented significance level $p \leq 0.05$ were chosen.

The information obtained was processed computerized using the statistical program Epi Info version 7.0 and MedCalc version 22.09 and a database was created. Tables were drawn up where the data were emptied for a better analysis and understanding of the results.

RESULTS

In Table 1 related to sociodemographic factors and tobacco use in adolescents, in the univariate analysis it was observed that male sex was the one who stood out with (OR 2.8286 95% CI 0.7967-10.0423) and that age was not a risk factor (OR 1.0000 95% CI 0.2983-3.3526).



Table 1 Sociodemographic factors and tobacco use in adolescents of CMF #45. Univariate analysis

Variable		Cases N=16	Control N=32	Odds Ratio	IC: 95%	P
Age < 15 years	P	7	14	1,0000	0,2983-3,3526	1,000
	A	9	18			
Sex Masculine	P	11	14	2,8286	0,7967-10,0423	0,1077
	A	5	18			

Legend: P: present, A: absent.

Sources: family and individual health histories

Table 2 shows by univariate analysis that the risk factors that stood out were: smokers in the family (OR 4.2000 CI 95% 1.1626-15.1728); smoking friends (OR 2.9649 CI 95% 0.7024-12.5146); divorced parents (OR 2.4359 CI 95% 0.7093-8.3650); lack of family support (OR 1.6531 CI 95% 0.4931-5.5421) and stress (OR 1.1616 CI95% 0.3140-4.2975).

Table 2 Risk factors for tobacco use in adolescents

Variables		Cases N=16	Control N=32	Odds Ratio	IC: 95%	P
Smoking in the family	P	11	11	4,2000	1,1626-15,1728	0,0285
	A	5	21			
Divorced parents	P	10	13	2,4359	0,7093-8,3650	0,1572
	A	6	19			
Smoking friends	P	13	19	2,9649	0,7024-12,5146	0,1391
	A	3	13			
Lack of family support	P	9	14	1,6531	0,4931-5,5421	0,4154
	A	7	18			
Easy access	P	7	14	1,0000	0,2983-3,3526	1,000
	A	9	18			
Learning disability	P	3	6	1,0000	0,2149-4,6532	1,000
	A	13	26			
Lack of self-esteem	P	4	8	1,0000	0,2501-3,9985	1,000
	A	12	24			
Exposure to advertising	P	6	12	1,0000	0,2895-3,4543	1,000
	A	10	20			
No physical exercise	P	7	17	0,6863	0,2052-2,2954	0,5411
	A	9	15			
Stress	P	5	9	1,1616	0,3140-4,2975	0,8224
	A	11	23			

Legend: P: present, A: absent.

Sources: family health records and applied survey



Table 3 presents the multivariate analysis of the significant risk factors that influenced tobacco use in adolescents: having friends who smoke (OR 21.6564 CI 95% 2.0502-228.7595; $p=0.0106$), lack of family support (OR 10.6242 CI 95% 1.1156-101.1748; $p=0.0399$) and the presence of smokers in the family (OR 8.0845 CI 95% 1.3167-49.6380; $p=0.0240$).

Table 3: Risk factors for tobacco use in adolescents

Variables	Odds Ratio	Confidence Interval 95%		P
		Inferior	Superior	
Male sex	3,2511	0,6040	17,4986	0,1698
Smoking in the family	8,0845	1,3167	49,6380	0,0240
Divorced parents	4,6030	0,6793	31,1907	0,1178
Smoking friends	21,6564	2,0502	228,7595	0,0106
Lack of family support	10,6242	1,1156	101,1748	0,0399
Stress	1,0733	0,1809	6,3684	0,9379

Significance level $p \leq 0.05$

DISCUSSION

Young people go through several stages before developing addiction: preparation, exposure, experimentation and habitual use. There are factors that condition the initial exposure to tobacco, which later leads to smoking; these factors are inherent to the individual, to his family and school environment or to the social context.⁽⁹⁾

In the study carried out, a predominance of the male sex can be observed, since it is mainly the males who start this bad habit, mainly to appear more adult or out of curiosity. According to the results obtained for sex and smoking practice, in Honduras by Riveros-Vázquez, males had a proportion of 120 (58.2%) of smoking and females 86 (41.8%), where it was shown that in adolescents the risk of smoking was higher in males, who were 1.5 times more likely to smoke than females; this relationship was statistically significant ($p 0.002$).⁽¹⁰⁾

The research found as important risk factors for smoking in adolescents those related to the presence of smokers in the family, lack of family support and friends who smoke. These results coincide with other studies, such as the one conducted by Rizo-Baeza, et al.⁽¹¹⁾ on 270 adolescent students from 2 public schools in Tamaulipas in Mexico, where he found that when one or both parents smoke, the risk that the adolescent is smoking is much higher (OR=30.9; 95%CI 9.1-105.4; $p<0.001$). He also obtained a relationship between adolescent smokers and friends who tend to drink or smoke as a risk factor, when trying to be liked and accepted (OR=11.5; 95%CI 4.4-29.9; $p<0.001$).



Other authors such as Zamora-Larrea, et al.⁽¹²⁾ in a study on the relationship between family, social and depressive factors which are present in the consumption of tobacco in the adolescent population of the Republic of Perú educational institution, showed that the presence of smokers in the family, divorced parents, lack of family support and that friends smoke constitute highly significant risk factors for the consumption of this toxic habit according to the Chi-square statistic for presenting a value of $p < 0.01$. Moreno-Reyes, et al.⁽¹³⁾ also found that being surrounded by friends who smoke is an important risk factor (OR 7.0 CI 95 % 3.4-14.5).

A study conducted in Spain, with 879 adolescents found that 66% of the parents of the adolescents in the study smoked and 58% were influenced by groups of friends who smoked.⁽¹⁴⁾

On the other hand, a study carried out in our country by Medina-Martin, et al.⁽¹⁵⁾ showed that one of the most common motivations for tobacco use was to have family members who were tobacco consumers.

These results correspond to the relationship between the family and adolescents and the influence exerted on them by their circles of friends. As can be seen, the main risk factors are related to the family and home environment. The family is the backbone of a society, and the study brings to light the conflicts that adolescents have with their parents, reflecting the lack of understanding of family members to the problems they face and the lack of support to face them. It should be noted that many of them have relatives who smoke, which shows that this habit in the study population is also influenced by imitation of smokers.

In the evaluation of the study carried out, it was observed that adolescence is a crucial stage for starting this habit, which is harmful to health. It is necessary to point out that when this harmful habit is installed at an early age, it is difficult to abandon and much safer for the individual to continue in adulthood. Negative family environments and the existence of smokers in the circles of friends of adolescents are the main risk factors for initiating the consumption of this toxic habit in the patients studied.

CONCLUSIONS

The lack of family support and the presence of family and friends who smoke were the main risk factors influencing tobacco use in adolescence and suggest the need to intervene as soon as possible to transform addictive behavior.



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Conflicts of interest:

The authors declare that there are no conflicts of interest.

Authors' contribution:

Yunnier Suarez Benitez: conceptualization, data curation, research, methodology, project management, supervision, validation, visualization, writing - original draft, writing - review and editing.

Beatriz Alicia Martínez Fonseca: data curation, research, methodology, supervision, writing - original draft, writing - review and editing.

Sucel Torres Cardoso: research, methodology, writing - original draft, writing - revision and editing.

María del Rosario Alarcón Macías: validation, visualization, writing - original draft, writing - revision and editing.

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