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Epidemiological profile of smoking and nicotine addiction among asthmatic adolescents



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ABSTRACT

Objective: Despite the harmful effects of cigarette smoking, this habit in asthmatic adolescents continues to be a health problem worldwide. Our objectives were to determine the epidemiological profile of smoking and the degree of nicotine dependence among asthmatic adolescents.

Study design: Through a cross-sectional investigation, 3383 adolescents (13–19 years of age) were studied.

Methods: Information was collected using a previously validated questionnaire. Two study groups of adolescent smokers were formed: one composed of asthmatic adolescents and the other of healthy youths.

Results: Asthmatic adolescents were found to be more likely to smoke (21.6% vs 11.8%) and to have some degree of nicotine dependence compared with healthy adolescents (51.6% vs 48.8%).

The most important characteristic of smoking in asthmatic adolescents was found to be an onset before 11 years of age due to curiosity about cigarettes. Asthmatic youths continue smoking because this habit decreases their anxiety and stress. Adolescents know that smoking is addictive and often smoke on waking up in the morning or when they are sick. Yet, these adolescents do not consider smoking to be a problem.

Conclusion: In this study, curiosity about cigarettes was the primary reason why asthmatic adolescents smoked for the first time and developed a greater dependence to nicotine compared with healthy adolescents. Moreover, the findings show that many of the factors that favour the development of smoking are preventable, given that they are present in the family and social environment.

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Introduction

Active smoking is considered the leading cause of preventable death in the world, and its development at an early age increases the risk of experimenting with other drugs.^{1–3} According to the World Health Organization, the average age of onset of smoking is 11 years, and its worldwide prevalence in individuals over 15 years old is as high as 21.0%.¹ The undesirable effects of smoking include the following: the development of various types of cancers, physical and psychological dependence, cardiovascular diseases and asthma and other conditions.^{1,4–6}

Asthma is one of the most common chronic respiratory diseases of our time.^{7,8} According to the World Health Organization, asthma affects 334 million people globally, and its prevalence in adolescent populations ranges from 5.0% to 20.0%.⁹ The negative effects of asthma are as follows: hospital admissions, work and school absenteeism, negative impacts on family finances due to the purchase of medicines, work overload at various levels of hospital care, impaired quality of life and death.^{8–11} Moreover, studies on the aetiology of asthma show that active smoking is significantly associated with the development and aggravation of asthma symptoms.^{2,6,12} However, in the last two decades, several investigators have documented a higher prevalence of active smoking among adolescents suffering from asthma compared with healthy youths.^{13–15} As a result, it is important to design research studies on smoking whose outcomes facilitate planning health prevention programmes aimed at asthmatic adolescents.

Some studies conducted in various countries have identified certain factors that favour the development of smoking in adolescents.^{2,15–18} However, the smoking-related characteristics and degree of nicotine dependence of adolescents suffering from asthma have not been determined.

There is a clear need to determine the characteristics of the personal, family and social environments and factors that favour the development of certain risky habits and behaviours that harm health. Such knowledge will allow the design of better programmes to prevent smoking and limit the harm it causes. Accordingly, the present study was developed to determine the smoking-related characteristics of and degree of nicotine dependence in a sample of adolescents who suffer from asthma.

Methods

For this study, 3383 adolescents were invited to participate in a cross-sectional study conducted in an urban area of north-east Mexico. From the total sample, 430 adolescents who suffered from asthma were identified. The remainder of the population ($n = 2953$) was identified as non-asthmatic, and these individuals were used as the control group to compare the study variables between the groups. The methodology used in this study was similar to one used previously;¹⁵ however, the sample of adolescents included in the present study differed from that registered in the aforementioned investigation.

The adolescents, who attended secondary or preparatory schools, were recruited through one of the community service programmes under the supervision of the Faculty of Medicine. The permission of the educational authorities in the area was sought and obtained. The participating schools and students were selected by a simple random sampling technique. In each school selected, a list of enrolled students was requested, and students were randomly selected for the sample. The data were collected in 2015 and analysed in 2016.

Information collection

To collect the data, a self-administered questionnaire was constructed based on previously validated tools. These questionnaires have been used for different epidemiological studies, such as The International Study of Asthma and Allergies in Childhood (ISAAC) and The European Community Respiratory Health Survey, among others.^{19–22} The questionnaire was disseminated by staff who had previously been trained for this purpose.

To determine the level of understanding of the questions contained in the questionnaire, two pilot studies were conducted 15 days apart. In each pilot study, 20 adolescents were interviewed, and the questions contained in the instrument were closed, had two or more answer choices and were grouped into five blocks.

The responses to the questions contained in the first block allowed for the collection of information on the sociodemographic characteristics of the adolescents, their lifestyles, whether they had any habits or health-risk behaviours (e.g. smoking) and if they spent time with friends who smoked.

In the subsequent blocks, questions were included to collect information on various family-related characteristics, such as the following: whether the adolescent lived with one or both biological parents, if the relationship between different family members was good or bad, or if the father or mother smoked inside the home.

Asthma

Asthma was diagnosed in this study according to the criteria established in the questionnaire designed for ISAAC.^{11,19} The presence of wheezing and dry cough at night during the last 12 months and having received an asthma diagnosis by a physician served as the criteria defining current asthma for an adolescent. In addition, information was requested on whether any other family member, such as the father, mother, siblings or grandparents, suffered or had suffered from any allergic disease.

Smoking

The questions included in the questionnaire to determine the epidemiological profile of smoking adolescents were as follows:

1. Have you ever tried smoking cigarettes?
2. How old were you when you first smoked?
3. Why did you first start smoking?
4. Do you currently smoke?

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