



## New Dangers: Oral Manifestations Related to Smoking

*Novos perigos: manifestações orais relacionadas ao tabagismo*

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### ABSTRACT

**Objective:** To assess young people's perception of the impact of new forms of smoking on oral health. **Methods:** The present study is of the descriptive-quantitative type, where the primary research was used to obtain the data. Data collection took place in April 2022 with young people aged between 18 and 30 who live in the North of Minas Gerais.

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**Results:** The main results showed that young people are aware of the harmful effects of tobacco and marijuana but continue to use them. Conventional cigarettes were the most used by young people (36%), followed by electronic cigarettes (18%). Regarding oral manifestations, 54% of users reported a dry mouth sensation and 36% nicotine stains. **Conclusion:** It is concluded that young people are aware of the harmful effects of new forms of smoking. However, they continue to use it. New strategies for raising awareness of oral manifestations related to new forms of smoking are suggested, which may culminate in the cessation of the habit.

**Keywords:** Smoking habit; Electronic cigarette; hookah; Marijuana use; Oral health.

## RESUMO

**Objetivo:** Avaliar a percepção dos jovens sobre o impacto das novas formas de fumo na saúde bucal. **Métodos:** O presente estudo é do tipo descritivo-quantitativo, onde foi utilizada a pesquisa primária para obtenção dos dados. A coleta de dados aconteceu no mês de abril de 2022 com jovens de 18 a 30 anos que residem no Norte de Minas Gerais. **Resultados:** Os principais resultados mostraram que os jovens têm consciência dos malefícios do tabaco e maconha, mas continuam utilizando. O cigarro convencional foi o mais utilizado pelos jovens (36%), seguido do cigarro eletrônico (18%). Em relação às manifestações bucais, 54% dos usuários relataram sensação de boca seca e 36% manchas de nicotina. **Conclusão:** Conclui-se que os jovens possuem conhecimento dos malefícios das novas formas de fumo. Entretanto, continuam utilizando. Sugere-se novas estratégias de conscientização das manifestações bucais relacionadas com as novas formas de fumo, o que poderá culminar na cessação do hábito.

**Palavras-chave:** Hábito de fumar; Cigarro eletrônico; Narguile; Uso de maconha; Saúde bucal.

## INTRODUCTION

Tobacco originated in the United States in the mid-15th century. The Indigenous people used it by rolling it in leaves and inhaling it through straws. After this period, tobacco use spread across Europe and around the world<sup>1</sup>. It is possible to consider smoking as an epidemiological disease, as it causes behavioral, physical, and psychological dependence in users. The prevalence of smokers in the world is 1.3 billion, and it is said that in Brazil the rate may be 27.9 million. It is known that, even with prevention campaigns and information

sharing carried out, tobacco use is still expressive, so it is important to discuss its effects and the harm caused by it, regardless of its form of use<sup>2</sup>.

Tobacco has approximately 4000 substances, three of which can potentiate its harmful effects. When nicotine acts on the Central Nervous System, it will bring the individual a feeling of pleasure, stimulate emotional changes and cause dependence. When it affects the Cardiovascular System, it elevates heart rhythms and blood pressure<sup>3</sup>.

It is known that young people go through transitions, especially regarding psychological issues. The cause for starting the habit of smoking can occur due to several aspects, among them: nervousness, social influences, and curiosity<sup>4</sup>. As a result, new smoking practices, such as electronic cigarettes, hookahs, and marijuana, have increasingly reinforced their use among young people, as they are more attractive and provide different sensations than conventional cigarettes<sup>5</sup>.

Electronic cigarettes are a new mechanism that came to market in an innovative way. It came with the objective of assisting in the cessation of the smoking habit, as it is less harmful than conventional cigarettes, due to the absence of combustion. However, its consumption began to be indiscriminate due to its technology of colors, flavors, shapes, and other variations, becoming a more attractive way for young people to use tobacco<sup>6</sup>.

It is important to consider that electronic cigarettes do not have a standardized form regarding the substances involved, making the public's knowledge of its harmful effects lesser<sup>5</sup>. Despite being less harmful, electronic cigarettes still contain toxic substances found in steam, such as nicotine and other carcinogenic elements, which cause problems in the oral cavity when used excessively, causing changes in the periodontium, compromising healing, and decreasing of bleeding<sup>7</sup>.

It is known that the incidence of tobacco use has only increased in the population and this consumption is highly prevalent among young people. It is believed that, because they are allowed to be used in public places and their separate ways of using them, they may be a reason to attract this public to their consumption<sup>8</sup>.

Cannabis, popularly known as marijuana, is an herb from Central Asia, which has become the most used in the world, and can be ingested or smoked, with tetrahydrocannabinol as its active ingredient, which causes changes in the central nervous system and weakens the

immune activity cellular and humoral<sup>9</sup>. Therefore, it can cause delusions, hallucinations, relaxation, relaxation and even loss of sense of time and space<sup>10</sup>.

It is known that young people make up a significant percentage regarding the use of marijuana, hookah, and electronic cigarettes, and therefore run a greater risk of developing oral diseases, since they start this habit in adolescence, according to the Secretariat of Health Surveillance<sup>11</sup>. It is understood that users of several types of tobacco and marijuana do not have the necessary knowledge regarding the harm caused by this habit in the oral cavity, since the severity of smoking is enhanced when exposure becomes early, increasing the probability of the habit continuing in adult stage<sup>11</sup>.

Currently, oral diseases caused by tobacco and marijuana use are being manifested more frequently among young people. Its indiscriminate use increases the risk of periodontal diseases, carious lesions, staining of dental structures, xerostomia, erosions, halitosis, and mouth cancer<sup>12</sup>.

Given the above, the present work aims to verify the knowledge of young people regarding the impact of new forms of smoking in the oral cavity.

## METHODS

The present study is of the descriptive-quantitative type, where the research primary source for obtaining data. Individuals aged between 18 and 30 years old, of all genders, residing in the North of Minas Gerais and using conventional cigarettes, electronic cigarettes, hookah, or marijuana were interviewed.

The questionnaire was made available in April/2022 via *Google Forms*® platform with multiple-choice questions relevant to the knowledge of tobacco and marijuana users. After data collection, it was stored in the *Google Drive*® database, automatically tabulated in electronic spreadsheets in the *Microsoft Office Excel*® from *Windows*® program and subsequently carried out for data transport. The research project was sent to the Research Ethics Committee of the Associação Educativa do Brasil - CEP/SOEBRAS for consideration and was approved by the same with protocol number 5.343.615.

## RESULTS

The present study had a sample of 50 participants, 56% of whom were female, with a predominance (22%) aged between 18 and 21 years and all residents in cities in the north of the state of Minas Gerais – Brazil (Table 1). Still within the socio-demographic data, it is observed that 96% of these young people report having a single marital status (Table 1).

**Table 1.** Socio-demographic data (gender, age group and marital status) of young smokers in the North of Minas Gerais - Brazil.

Variables	%
<b>Gender</b>	
Masculine	44.0
Feminine	56.0
<b>Age group</b>	
18 to 21 years old	44.0
22 to 25 years old	34.0
26 to 30 years old	22.0
<b>Marital status</b>	
Single	96.0
Married	0.0
Divorced	4.0
Widower	0.0

Source: Own authorship, 2022.

Regarding the habit of going to the dentist, 32% of young people reported going once a year. The type of tobacco most used (36%) by the participants is conventional cigarettes. In addition, it was found that 66% of young people were unable to identify changes in the oral cavity after starting to smoke (Table 2). However, they report some oral manifestations such as dry mouth feeling often (54%), yellowish nicotine stains (36%) (Table 2).

**Table 2.** Question-part 1

Variables	%
<b>What type of tobacco do you use most?</b>	
Marijuana	24.0
Hookah	3.3
Electronic cigarette	18.0
Conventional cigarette	36.0
Straw cigarette	3.3
Haystack	12.0
None	3.4
<b>Have you noticed any difference in your oral cavity after starting to use tobacco?</b>	
Yes	34.0
No	66.0
<b>What oral manifestations occur and/or occurred in you with the use of tobacco?</b>	
Yellowish nicotine stains	36.0
Presence of bleeding gums	20.0
Dry mouth feeling often	54.0
Tartarus	10.0
Caries	6.0
Gum recession	4.0
White-grey discoloration on the cheek	2.0
<b>Did you know that marijuana, hookah and cigarettes have carcinogenic substances?</b>	
Yes	88.0
No	12.0
<b>Are you aware that the habit of smoking can lead to chemical dependency?</b>	
Yes	94.0
No	6.0
<b>Did you know that cigarettes (conventional and electronic) have the potential for harm that harms health in the same way?</b>	

Yes	84.0
No	16.0
<b>In your opinion, does hookah cause less damage to health compared to conventional hookah?</b>	
Yes	32.0
No	68.0

Source: Own authorship, 2022.

With regard to the knowledge of young people in relation to carcinogenic substances present in hookah and electronic cigarettes, it showed that 88% of young people are aware of the presence of these substances (Table 2). It is noted that young people are aware of the chemical dependence that can be caused by the habit of smoking, since 94% of young people scored positive (Table 2). As for the knowledge of young people about the potential harm caused by electronic cigarettes and conventional cigarettes, both cigarettes are equally harmful, and 84% of young people are aware of these harms (Table 2). Regarding the opinion of young people about hookah causing less damage to health compared to conventional cigarettes, 68% of participants agree that hookah has the same proportion of harmful effects as conventional cigarettes (Table 2).

When questioned about the foods that are consumed after using marijuana, 28% of participants say they consume more salty foods (Table 3). In addition, another relevant data is that half of young people (52%) reported that they do not use marijuana (Table 3). Among the interviewees, 78% are aware that the lack of proper hygiene in retentive areas such as orthodontic appliances facilitate the appearance of bacterial plaque and it was also found that 56% of young people are not aware of the relationship between gastroesophageal reflux and smoking (Table 3). In table 3 shows that 58% of respondents are aware that the liquid present in cigarette Electronics is harmful to health and is associated with harm to the oral cavity.

Concerning the knowledge of the participants about the feeling of dry mouth due to the use of marijuana, it was shown that a predominance (56%) of them had this knowledge (Table 3). 60% of the participants do not have the habit of smoking and drinking coffee, and that 58% of young people are not aware that hookahs can be more harmful to oral health compared to conventional cigarettes due to the presence of nicotine (Table 3).

**Table 3.** Question-part 2

Variables	%
<b>After using marijuana, what foods do you consume?</b>	
Candy	10.0
Savory snacks	28.0
Other foods	12.0
None of the alternatives.	6.0
I am not a user	52.0
<b>Did you know that if you don't properly clean the orthodontic device and use tobacco, it can facilitate the development of bacterial plaques?</b>	
Yes	78.0
No	22.0
<b>Did you know that tobacco use can influence gastroesophageal reflux, as this acid is harmful to patients and can cause erosion and halitosis?</b>	
Yes	56.0
No	44.0
<b>Did you know that the electronic cigarette has a liquid (e-liquid) in which it is composed of substances that are harmful to health, associated with the harm of the oral cavity?</b>	
Yes	42.0
No	58.0
<b>Did you know that marijuana has a substance called THC (tetrahydrocannabinol) responsible for psychic effects, which can also cause dry mouth sensation?</b>	
Yes	56.0
No	44.0
<b>Do you have the habit of using tobacco and consuming coffee?</b>	
Yes	40.0
No	60.0
<b>Did you know that hookah has a higher concentration of carbon monoxide than conventional cigarettes, therefore it may need to burn more coal for consumption, and may have a greater amount of nicotine, which is more harmful to oral health?</b>	
Yes	42.0
No	58.0

Source: Own authorship, 2022.



## DISCUSSION

It is possible to consider smoking as an epidemiological disease, as it causes behavioral, physical, and psychological dependence in users<sup>2</sup>. About this, our study showed that young people are aware that the habit of smoking can lead to chemical dependence, and even knowing the consequences, they continue to use (Table 2). The study showed that young people use conventional cigarettes more frequently (Table 2) and this is a different result from the literature, which shows us that electronic cigarettes are the most used by this public<sup>13</sup>.

Already considering this, a higher level of perception was reported regarding nicotine stains on teeth (Table 2) caused using conventional cigarettes. The literature shows that it is related to tooth staining due to the involvement of substances in the dentin<sup>3</sup>, the perception of the feeling of dry mouth was also seen frequently, coinciding with the consumption of marijuana and tobacco, which can lead to these changes in the oral cavity, including periodontal diseases, xerostomia, tooth staining and decreased salivary flow<sup>9</sup>.

Smoking is related to periodontal, dental and pulp alterations, decreased immune response, making dental care necessary<sup>14</sup>. Considering this, young people do not know and/or have not been able to identify changes in the oral cavity (Table 2), and this is related to the habit of going to the dentist (Table 2), where it was found that there was a higher prevalence of going to the dentist only once a year, this fact may have been decisive for not being aware of the possible changes that can be caused in the oral cavity.

In addition to changes in the oral cavity, it is known that the new forms of tobacco and marijuana have other harmful effects, including carcinogenic substances. Young people showed that they have knowledge about them, but choose to continue using them (Table 2, Table 3). This is possibly due to the flavors, colors, and shapes that electronic cigarettes and hookah mainly present, making them more attractive. Regarding hookah, literature studies show that young people believe that it causes less damage to health compared to conventional cigarettes, however, currently contains scientific data that disagree with this belief<sup>8</sup>.

In the survey carried out, young people agree that hookah has the same proportion of harm as conventional cigarettes (Table 2), and its way of use makes young people more

curious to try it. This fact is worrying, since this method of use has become a gateway to smoking for young people, mainly due to its modernity<sup>15</sup>.

Another fact that draws attention is that most young people are not aware that hookahs can be more harmful than conventional cigarettes to oral health (Table 3) due to the presence of nicotine. Advertising campaigns on this topic should be carried out to raise awareness of this public. Marijuana presents substances that offer sensations of relaxation, relaxation, and hallucinations, becoming an option for use and a method for refuge in the young person's life. Marijuana contains a substance called tetrahydrocannabinol, which causes changes in the central nervous system and prevents nerve impulses from reaching the salivary glands<sup>9</sup>. Therefore, young people are aware that marijuana can cause dry mouth (Table 3), this is related to table 2, where the majority reported this sign more frequently.

Most young people feel hungry after using marijuana, this is due to leptin, a substance present in marijuana that is related to increased appetite (Table 3), leaving the oral cavity more vulnerable to cariogenic foods. There are some factors that, when associated with smoking, can interfere with oral health, such as lack of cleaning of orthodontic appliances (Table 3) and gastroesophageal reflux, which is associated with a higher level of nicotine dependence, and consequently causes tooth erosion (Table 3).

Finally, coffee consumption, which may be because the individual feels anxiety and seeks both as a refuge. Coffee has a lower pH than that of the oral cavity. Being acidic, it leads to demineralization of the teeth and, if used frequently, the teeth are prone to yellowish pigmentation<sup>16</sup>. The study presents limitations that exist in research with a cross-sectional design, due to the impossibility of establishing a cause-and-effect relationship.

## CONCLUSIONS

It is concluded that young people are aware of the harm caused by new forms of tobacco and continue to use them. New strategies are suggested to raise awareness of oral manifestations related to new forms of smoking, which may culminate in the cessation of the habit.

## CONFLICTS OF INTEREST

Authors report that there are no conflicts of interest.

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