

USE OF ELECTRONIC CIGARETTES BY HEALTH STUDENTS AT A PRIVATE UNIVERSITY IN ANÁPOLIS, GOIÁS

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ABSTRACT

The increase in electronic cigarette use among young people has raised concerns among health professionals and scientific communities. Given this, the objective of this study was to evaluate the use of electronic cigarettes (EC) by health students at a private university in Anápolis, Goiás. This is an observational, descriptive, quantitative study that sought to analyze the prevalence of EC use among university students. The study included university students duly enrolled in courses in aesthetics and cosmetics, physical education, nursing, pharmacy, physical therapy, medicine, nutrition, dentistry, and psychology, who were 18 years of age or older, agreed to participate in the study, and consented to the Free and Informed Consent Form (FICF). Of the 444 questionnaires analyzed, 59 individuals in the health field use ECs. Most are female (66.1%), white (66.1%), and between 21 and 24 years old (54.2%). In addition, most have a very low degree of dependence. The reasons that most lead them to use cigarettes were because they like them and find them relaxing, and the place where they are most used is in bars and at parties. It is concluded that identifying the main groups, reasons, and places where CE are used favors the promotion of more effective prevention strategies to reduce the consumption of these products.

Keywords: Electronic nicotine delivery system; Health science students; Smoking.

INTRODUCTION

ECBs were established on the market to assist in smoking cessation; however, the use of aromas and flavors attracted young people, causing a duality in the use of conventional and electronic cigarettes (BARRADAS *et al.*, 2021). This device was patented in 2003 by its creator, Hon Lik, a Chinese man. It was still a rudimentary model, but has been improved in recent years (CAHN; SIEGEL, 2011).

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The CE provides doses of nicotine and additives, and consists of a battery, a cartridge, and an atomizer (BULLEN *et al.*, 2013). The composition of the device and the amount of nicotine released in the cartridge depends on the brand of the product (GONIEWICZ *et al.*, 2014).

Regarding adverse health events, some studies claim that there is an increase in oxidative stress, apoptosis, and alteration in the function of the cilia of the respiratory mucosa, effects similar to conventional cigarettes (KNORST *et al.*, 2014). ECs do not release carbon monoxide, but they expose users to nicotine and also contain chemicals such as volatile organic compounds and aldehydes, heavy metals, and solvents, which cause oxidative stress, release inflammatory mediators, and alter endothelial function, increasing the risk of cardiovascular disease (SCHOLZ *et al.*, 2019).

Thus, due to the widespread use of this device on the market and its potential to cause health damage, it is necessary to alert the population about the risks associated with these products. This study aims to develop targeted information and prevention strategies regarding the harmful effects of ECs for this university group.

METHOD

This is an observational, descriptive, quantitative study that sought to analyze the prevalence of electronic cigarette use among university students at a private university in Anápolis. Within the sample calculation used, a sample of 368 participants to be analyzed was established (Table 1).

Within this quantity, the sample calculation was performed taking into account the statistical test for predicting electronic cigarette use (dependent variable) in relation to education (independent variable) (binary logistic regression) adjusted for gender and age, with a mean effect size of 0.5, significance level of 5%, sample power of 80%, and plus 20% losses. The calculation was performed using G*power software (version 3.1.9.7) and was considered a priori analysis, finding a result of 368 students to be analyzed in the study.

The study included university students duly enrolled in courses in aesthetics and cosmetics, physical education, nursing,

pharmacy, physical therapy, medicine, nutrition, dentistry, and psychology, whose course coordinators authorized the research, aged 18 years or older, who agreed to participate in the research and consented to the Free and Informed Consent Form (FICF). Individuals under the age of 18 years of age, incomplete questionnaires, and those who withdrew from participation at any time.

Table 1. Number of students enrolled, interviewed, and CES users, subdivided according to courses.

AREA OF KNOWLEDGE	COURSES	TOTAL NUMBER OF STUDENTS	NUMBER OF INTERVIEWS	NUMBER OF USERS (n%)
Health	Aesthetics and Cosmetics	1	16	01(1.7)
	Physical Education	159	16	01(1.7)
	Nursing	312	34	0
	Pharmacy	364	50	07(11.8)
	Physiotherapy	214	24	03
	Medicine	1028	127	20
	Nutrition	149	22	02
	Dentistry	575	61	15
	Psychology	756	94	10

Source: authors, 2024.

Participants were approached and given clarification and consent, and the virtual questionnaire was made available for access via QR code and link (Google Forms link – <https://forms.gle/v6UMJAHuB1TZ5VVu9>). User dependency was analyzed using the adapted Fargeström questionnaire.

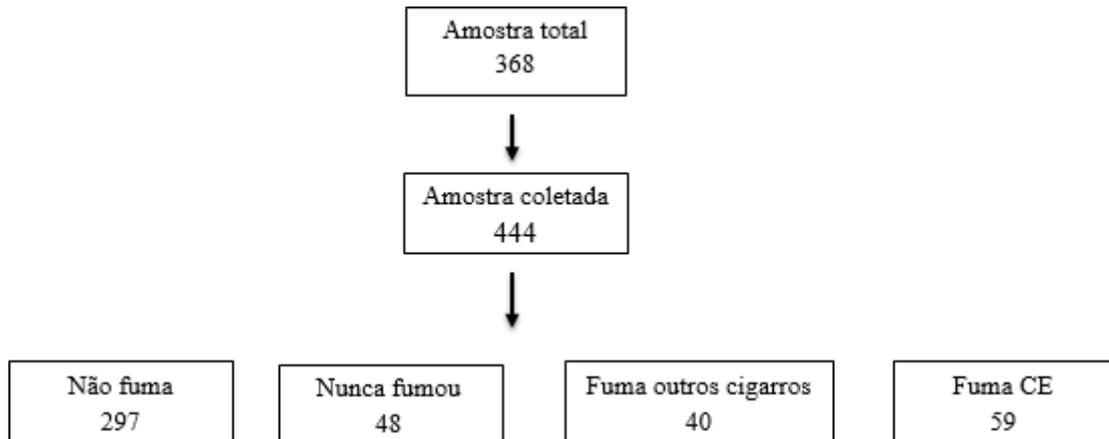
RESULTS

According to the sample calculation, it was estimated that approximately 368 students would be examined; however, it was possible to evaluate 444

completed questionnaires. Of the total, all were answered correctly, with no need to exclude any

questionnaires. Of these, 297 students do not use any type of cigarette, but have used them at some point in their lives, 48 have never smoked, 40 smoke other cigarettes, and 59 use CE (Flowchart 1).

Flowchart 1. Flowchart showing the number of participants in the study.



Source: authors, 2024.

From the data analyzed, 59 (13.3%) students from health courses were confirmed as electronic cigarette smokers and were considered the sample universe for this study. Among the 59 questionnaires analyzed, 66.1% were female, 66.1% declared themselves white, and 54.2% were between the ages of 21 and 24. In addition, most were single (50.9%), had an income greater than eight minimum wages (38.9%), and were unemployed.

Regarding the respondents' dependence, most have a very low dependence (55.9%) on electronic cigarettes. The reason for use was not disclosed by most respondents (40.7%), followed by the argument that they like it (30.5%) and to relax (11.9%). In addition, it was observed that most use them at parties and bars (62.7%) and in the company of other people (83%) (Table 3).

TABLE 3. Analysis of electronic cigarette use, socialization, and degree of dependence.

Degree of dependence (Adapted Fargeström test)	n
Very low (0-2)	33
Low (3-4)	06

Average (5)	06
High (6-7)	06
Very high (8-10)	08

Reason for use	
Addiction	05
Anxiety	04
Depression	00 (0.0)
Relaxing	07 (11.9)
Likes	18 (30.5)
Influential	01
Other	24 (40.7)

Uses CE with essence	
Yes	54
No	05

Source: authors, 2024.

CONCLUSION

Regarding the results, it can be noted that many health students use CE. Therefore, even with theoretical knowledge about the adverse effects that students in this area have, they still use this substance. In summary, this study identified the main groups, reasons, and locations where CE is used, which will make prevention and awareness measures regarding the health risks more effective.

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