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Vape as a New Trend among Iraqi Students, A Cross-Sectional Study

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Abstract

Background:
The study explores the prevalence and types of smoking behaviors, explicitly focusing on vaping (electronic cigarettes) among university students in Sulaimani, Kurdistan Region, Iraq. The rising use of electronic cigarettes and their potential health implications are of particular interest in the context of students' smoking habits.

Objective:
To assess the prevalence of smoking behaviors, including electronic cigarette (vape) use, hookah, and traditional cigarette smoking, among university students and to explore the differences in smoking patterns across medical and non-medical colleges.

Methods:
A quantitative descriptive cross-sectional study design was employed. A non-probability purposive sampling method was used to select 1000 students from the University of Sulaimani. Data was collected through a self-reported electronic questionnaire (Google Forms) between October 2022 and March 2023. Descriptive statistics were used to analyze the data using SPSS 24.

Results:
The study found that 15% of the total participants were smokers, with 47.3% using e-cigarettes (vape), 28.7% using hookah, and 24% using traditional cigarettes. The survey revealed higher smoking prevalence among non-medical college students (55.3%) compared to medical college students (44.7%). A detailed breakdown of smoking habits showed that vaping was the most common form of smoking among the students.

Conclusion:
Vaping emerged as the most prevalent smoking habit among university students in Sulaimani. While the overall smoking rate among students was relatively low, vaping was notably dominant, surpassing hookah and cigarette use. These findings underscore the need for targeted public health interventions addressing vaping and its rising use among youth.

What is already known about the topic?

- *Vaping, or the use of electronic cigarettes (e-cigarettes), has rapidly gained popularity among adolescents and young adults worldwide as a perceived safer alternative to traditional smoking.*

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Vape as a new trend among Iraqi students

Introduction

Tobacco use, in its various forms, is a major public health issue, responsible for a wide range of preventable diseases and premature deaths. The global burden of smoking-related illnesses, including lung cancer, cardiovascular disease, chronic obstructive pulmonary disease (COPD), and respiratory infections, is immense. According to the World Health Organization (WHO, 2021), tobacco use causes more than 8 million deaths each year, with 1.2 million deaths attributed to non-smokers exposed to secondhand smoke. Despite the well-known risks of traditional smoking, new alternatives, particularly electronic cigarettes (e-cigarettes), have gained widespread popularity in recent years, especially among younger populations. The use of e-cigarettes has been promoted as a safer alternative to smoking, but evidence on its health risks is still emerging (Grana et al., 2014).

E-cigarettes, also known as vapes, are devices that heat a nicotine-containing liquid to produce an aerosol, often referred to as vapor, which is then inhaled by the user. Initially introduced as a smoking cessation tool, e-cigarettes have rapidly become a popular recreational product, particularly among adolescents and young adults. Studies have shown that e-cigarette use is higher among college students and young adults compared to other age groups (Schaefer et al., 2020). The appeal of vaping among youth is often attributed to the wide variety of flavors, the perception of reduced harm compared to traditional cigarettes, and social influences (Wang et al., 2016).

In Iraq, the use of electronic cigarettes has recently emerged as a growing trend, particularly among university students. However, there is limited research on the prevalence and patterns of smoking behaviors among Iraqi youth, especially in relation to e-cigarette use. While tobacco smoking has been extensively studied in the Middle East, the rise of e-cigarette use among young people has only started to gain attention in the region. Previous studies in countries such as Saudi Arabia and Jordan have highlighted an increasing use of e-cigarettes among university students, but similar studies in Iraq are scarce (Alkhalaf et al., 2021; Almutairi et al., 2020).

Given the lack of comprehensive data on smoking behaviors among Iraqi students, this study aims to assess the prevalence of vaping, cigarette smoking, and hookah use at the

University of Sulaimani in the Kurdistan region of Iraq. By examining the smoking habits of both medical and non-medical students, this research seeks to explore the distribution of smoking behaviors across different academic disciplines and provide insights into the growing trend of vaping. Understanding these patterns is essential for developing effective public health interventions and policies to address the potential risks posed by e-cigarette use and tobacco consumption among youth.

The findings of this study will contribute to the growing body of literature on the prevalence of smoking and vaping in the Middle East and provide valuable information for policymakers, health professionals, and educators in Iraq and similar settings.

Aim

The aim of this study is to assess the prevalence and patterns of smoking behaviors, including the use of electronic cigarettes (vapes), hookah, and traditional cigarettes, among university students at the University of Sulaimani in the Kurdistan region of Iraq. Additionally, the study aims to explore differences in smoking habits between medical and non-medical students, providing insight into the emerging trend of vaping and its potential public health implications in the region.

Materials and Methods

Study Design

This study adopted a quantitative descriptive cross-sectional design. The research aimed to assess the prevalence and patterns of smoking behaviors, including the use of electronic cigarettes (vapes), hookah, and traditional cigarette smoking, among university students at the University of Sulaimani, located in the Kurdistan region of Iraq. The study was conducted from October 2022 to March 2023, during which data was collected using a self-administered electronic questionnaire.

Study Setting

The study was carried out at the University of Sulaimani, a government university located in the city of Sulaimani, Kurdistan Region. Established in 1968, the university is one of the region's leading educational and cultural centers, offering a wide array of programs across various disciplines, including medical and non-medical faculties.

Study Population and Sampling Method

A non-probability purposive sampling technique was employed to select participants for the study. The target population included university students from both medical and non-medical colleges. The total sample size was 1000 students, who were selected based on their willingness to participate and their smoking habits. The inclusion criteria were as follows:

- Students enrolled at the University of Sulaimani.
- Students who either smoked cigarettes, hookah, or used e-cigarettes (vapes). The exclusion criteria included:
- Students who did not provide consent to participate.
- Students who did not report any smoking behavior.

Data Collection Instrument

A structured, self-administered electronic questionnaire was used to collect data from the participants. The questionnaire was developed based on a thorough review of relevant literature and previous studies, ensuring it captured comprehensive information on smoking habits, including types of smoking, frequency, and preferences. The questionnaire was designed to be filled out online via Google Forms, allowing for easy access and efficient data collection. The primary sections of the questionnaire included:

1. **Demographic Information**: Age, gender, and academic discipline (medical or non-medical).
2. **Smoking Habits**: Questions regarding the use of electronic cigarettes (vapes), hookah, and traditional cigarettes, including frequency of use, preferred type, and the age at which smoking began.
3. **Perceptions and Attitudes**: The students' perceptions of the health risks associated with smoking and vaping, as well as the reasons for their use of these products.

Validity and Reliability

The validity of the questionnaire was assessed by a panel of 18 experts from various fields, including public health, smoking cessation, and psychology. The experts provided feedback on the clarity, relevance, and comprehensiveness of the items. Based on their recommendations, the questionnaire was refined to ensure content validity.

A pilot study was conducted with 10 students from the university to assess the clarity and reliability of the questionnaire. The pilot study, carried out between November 26, 2022, and December 2, 2022, revealed no major issues with the instrument, but minor adjustments were made to improve clarity and the average time taken to complete the questionnaire. The students who participated in the pilot study were excluded from the main study.

Data Collection Procedure

Data collection began after obtaining ethical approval from the University of Sulaimani's Scientific Committee and formal permission from the university's presidency. Participants were invited to complete the online questionnaire through email and social media platforms. The research team provided guidance to the students on how to access and complete the questionnaire. Participation was voluntary, and all students were informed that their responses would remain confidential.

Ethical Considerations

Ethical approval for the study was obtained from the University of Sulaimani's Scientific Committee, and formal permission was granted by the university's presidency. Informed consent was obtained from all participants, who were informed about the study's purpose, procedures, and the voluntary nature of their participation. Participants were also assured that their responses would remain anonymous and that no personal identifying information would be collected. Only students aged 18 or older were included in the study. By completing the questionnaire, participants provided their informal consent.

Data Analysis

Data were analyzed using Statistical Package for Social Sciences (SPSS) version 24. The responses to the questionnaire were coded and tabulated for analysis. Descriptive statistics, including frequencies, percentages, and cross-tabulations, were used to

summarize the demographic data and smoking habits. Differences in smoking behavior between medical and non-medical students were analyzed using chi-square tests, with a significance level set at $p < 0.05$.

Results

Demographic Characteristics of Participants

A total of 1000 students participated in the study. The participants included both male and female students, enrolled in medical and non-medical colleges at the University of Sulaimani. Of the 1000 respondents, 85% (850 students) reported that they did not smoke, while 15% (150 students) were smokers. The sample consisted of 308 male students (30.8%) and 270 female students (27.0%).

Prevalence of Smoking Habits

Among the 1000 students surveyed, 150 students (15%) reported being smokers. Of these 150 smokers, the most prevalent form of smoking was electronic cigarette (vape) usage, accounting for 47.3% (71 students) of the smokers. Hookah smoking followed, with 28.7% (43 students), while traditional cigarette smoking was the least common, with 24% (36 students) of the smokers using cigarettes. This distribution of smoking behaviors is summarized in Table 1.

Table 1: Distribution of Students According to Smoking Type

Smoking Type	Frequency (n)	Percentage (%)
Vape (Electronic Cigarette)	71	47.3%
Hookah	43	28.7%
Cigarette	36	24.0%
Total	**150**	**100.0%**

Smoking Habits by College Type

The study also examined smoking habits by college type (medical vs. non-medical). Among the 150 smokers, 44.7% (67 students) were enrolled in medical colleges, and 55.3% (83 students) were in non-medical colleges. The breakdown of smoking habits by college type is summarized in Table 2.

Table 2: Distribution of Students According to Smoking Type in Medical and Non-Medical Colleges

College Type	Smoking Type	Frequency (n)	Percentage (%)
Medical Colleges	Vape	31	46.3%
	Hookah	22	32.8%
	Cigarette	14	20.9%
Non-Medical Colleges	Vape	40	48.2%
	Hookah	21	25.3%
	Cigarette	22	26.5%
Total	**150**	**100.0%**	

Gender Distribution of Smokers

Among the 150 smokers, 75.3% (113 students) were male, while 24.7% (37 students) were female. This indicates a higher prevalence of smoking among male students compared to female students, as shown in Table 3.

Table 3: Gender Distribution of Smokers

Gender	(n)	(%)
Male	113	75.3%
Female	37	24.7%
Total	**150**	**100.0%**

Age Distribution of Smokers

Regarding age distribution, the majority of smokers were between the ages of 18 and 22 (64%), followed by those in the 23-26 age group (26%). A smaller proportion of smokers were aged 27 and above (10%).

Prevalence of Smoking in Medical vs. Non-Medical Colleges

Medical students showed a slightly lower overall smoking prevalence compared to non-medical students. The prevalence of e-cigarette use was similar across both groups (46.3% in medical colleges vs. 48.2% in non-medical colleges), but hookah use was slightly more common among medical students (32.8%) than non-medical students (25.3%). Traditional cigarette use was also slightly higher among non-medical students (26.5%) compared to medical students (20.9%).

Discussion

The aim of this study was to assess the prevalence and patterns of smoking behaviors, including the use of electronic cigarettes (vapes), hookah, and traditional cigarette smoking, among university students at the University of Sulaimani, Kurdistan region, Iraq. The findings reveal important insights into the smoking habits of this population, with vaping emerging as the most prevalent form of smoking among students.

Prevalence of Smoking and Vaping

The results of this study showed that 15% of university students were smokers, with 47.3% of smokers using e-cigarettes (vapes), 28.7% using hookah, and 24% smoking traditional cigarettes. This is consistent with global trends, where the use of e-cigarettes has significantly increased, particularly among younger populations (Schaefer et al., 2020). The higher prevalence of vaping compared to hookah and cigarette smoking could be attributed to the widespread perception of e-cigarettes as a less harmful alternative to smoking (Grana et al., 2014). In recent years, vaping has become particularly popular among young adults, who often view e-cigarettes as trendy and socially acceptable, with many unaware of the potential health risks associated with their use (Wang et al., 2016).

These findings suggest that vaping has become the dominant smoking behavior among the student population at the University of Sulaimani. This shift towards e-cigarettes mirrors the increasing popularity of vaping globally, particularly in regions where smoking traditional cigarettes is increasingly stigmatized. Studies conducted in countries like the United States, the United Kingdom, and several European nations have similarly reported that young people are more likely to adopt e-cigarettes as a smoking alternative (Grana et al., 2014; Soneji et al., 2017).

Smoking Habits by College Type

The study also revealed that there was no significant difference in the overall smoking prevalence between students from medical and non-medical colleges, although the types of smoking varied slightly. Medical students had a higher proportion of hookah smokers compared to non-medical students, but non-medical students reported a higher prevalence of cigarette smoking. The findings align with previous research that suggests students in medical fields tend to be more knowledgeable about the health risks of smoking, which may influence their decision to choose less harmful alternatives, such as hookah or e-cigarettes, rather than traditional cigarettes (Alexopoulos et al., 2009; Chkhaidze et al., 2013).

Interestingly, both medical and non-medical students had a similar prevalence of vaping, indicating that the perception of e-cigarettes as a safer alternative to smoking is widespread across all disciplines. This observation highlights the need for more effective education and public health campaigns targeted at both groups, especially regarding the

health risks associated with vaping, which are still not fully understood (Grana et al., 2014).

Gender Differences in Smoking Habits

In terms of gender, male students were found to have a significantly higher prevalence of smoking (75.3%) compared to female students (24.7%). This aligns with the general trend observed globally, where smoking is more prevalent among men than women. Gender disparities in smoking habits have been well documented, with societal norms and cultural influences often contributing to higher smoking rates among males (Martin et al., 2019). In Iraq, where smoking is more socially acceptable for men, this trend is particularly pronounced. The study's findings further underscore the need to address smoking behaviors in a gender-sensitive manner, ensuring that both male and female students receive appropriate education and support to reduce smoking initiation and progression.

Age and Smoking Behavior

The majority of smokers in this study were aged between 18 and 22 years, which is consistent with the peak age range for smoking initiation in many countries (WHO, 2021). The transition from adolescence to young adulthood is a critical period when many individuals experiment with smoking, and interventions during this time are crucial in preventing long-term smoking habits (Wang et al., 2016). Given the prevalence of smoking behaviors in this age group, university health programs should aim to target younger students to prevent the onset of smoking and vaping.

Limitations and Future Research

Although this study provides valuable insights into smoking behaviors at the University of Sulaimani, there are several limitations to consider. The study used a non-probability purposive sampling technique, which may limit the generalizability of the findings. The use of a self-reported questionnaire may also lead to response bias, as students may underreport their smoking behaviors due to social desirability. Future studies could consider using a more diverse sample, including students from different universities across the Kurdistan region and Iraq, to obtain a broader understanding of smoking

patterns. Additionally, longitudinal studies are needed to explore the long-term effects of vaping and other smoking behaviors on health outcomes among university students.

Conclusion

In conclusion, this study highlights the rising trend of e-cigarette use among university students in the Kurdistan region of Iraq. With vaping emerging as the most prevalent smoking behavior, the findings underscore the need for targeted public health interventions to address the growing use of e-cigarettes, particularly among younger populations. These interventions should focus on educating students about the potential risks of vaping and smoking, as well as promoting healthier lifestyles through smoking cessation programs and increased awareness.

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Data Privacy: Participant confidentiality and data privacy were maintained throughout the study. Identifiable information was anonymized and securely stored, accessible only to the research team for analysis.

Data Availability Statement: Available from the corresponding author upon reasonable request.

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