

Awareness and Prevalence of Electronic Cigarettes Among Adults in Pakistan: An Appraisal



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OBJECTIVE: To assess awareness and prevalence of e-cigarette among adult in Pakistan.

METHODOLOGY: More than 30 articles searched through Google Scholar and PubMed in July of 2023 using keywords e-cigarette, electronic cigarette, vaping, vaper, and vapor. There were 50 articles reviewed. These review articles focused on utilization of e-cigarette among adult using keywords e-cigarette, electronic cigarette, vaping, vaper, and vapor.

CONCLUSION: In Pakistan, e-cigarettes are hugely popular among adults and teenagers.

KEYWORDS: Vaping, Electronic nicotine, electronic cigarette

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INTRODUCTION

The tobacco pandemic has stood as a formidable challenge to global public health and classifies as one of the most significant threats encountered by humanity¹. Not only is it the leading cause of preventable deaths², but it is responsible for causing more deaths than HIV, and illegal drug and alcohol use combined.³ Tobacco can be smoked (cigarettes, bidis), chewed (snuff, dip), and sniffed. Recently, battery-operated devices known as electronic cigarettes, also known as Electronic Nicotinic Delivery Systems (ENDS) or E-cigarettes, have entered the market and deliver nicotine along with flavorings and other compounds to the lungs in vapor form rather than smoke.⁴ Because they don't burn tobacco, e-cigarette firms frequently promote them as being safer than traditional cigarettes. However, since these devices contain nicotine which comes from tobacco, they are still classified as tobacco products according to the Food and Drug Administration in the United States.⁴

There has been a slow but steady rise in the use of electronic -cigarettes among the public with different justifications for their motivation, such as in aiding smoking cessation efforts and providing a means to consume nicotine in smoke-free environments.^{5,6}

Currently, the prevalence of tobacco uses among the youth (ages 13-15 years) in Pakistan is estimated to be 10.7% use any form of tobacco (boys 13.3% girls 6.6%).²⁵ Tobacco control policies in the country at present, Smoking is prohibited in all places of public work or use, and on all public transport. Ban on advertising and promotional activities from tobacco manufacturers and retailers, however, a breeches in the law permits advertising activities to consenting adults. In addition, except in designated smoking areas (hotel guest rooms), all forms of smoking are prohibited in indoor public places and outdoor social venues, buses, trains and restaurants. Similarly, young Taiwanese men exhibited an upward trend in current e-cigarette use, with rates climbing from 2.5% in 2014 to 6.4% in 2017.⁸ European countries also displayed varying levels of ever e-cigarette use, ranging from 17% to 62%.⁹ This is somewhat alarming as recent studies have shown the adverse effects of e-cigarette use on human health which are known to cause respiratory and cardiovascular disease.¹⁰

Examining the frequency of e-cigarette utilization will help in understanding the track of this matter while recognizing the association to e-cigarette use will facilitate for aiming the high utilization of e-cigarette. Therefore, his

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paper will aim to systematically analyze and present the levels of perceptions and knowledge of e-cigarettes with subjects of multiple age groups and professions in order to understand the different levels of beliefs at each level.

PREVALENCE AND ASSOCIATED FACTORS

Studies in Pakistan revealed that most of the people were have less information of what E- cigarettes are there was no proper knowledge along with negative feedback towards e-cigarette use in Pakistan due to cultural and social disgraces and lack of publicity. Males and females had significant differences in their views regarding e-cigarette use due to such social practices being measured offensive by females and males having greater freedom due to familial and cultural systems.²⁵ Several studies have examined the frequency of vape and electronic cigarette in Saudi university use among diverse people. In a Saudi Arabian university, a study conducted among medical students revealed a more frequency of electronic cigarette and vape use at 12.2%.¹¹ This study also found that males were more likely to engage in vaping compared to females.¹² It is value observing that maximum partakers in this research not agree with belief that electronic nicotine are not so much hazardous than traditional cigarettes or effective in helping in quitting smoking.^{11,12}

In Malaysia, the overall frequency of electronic cigarette practice was reported to be 3.2%.¹³ A research conducted Malaysia emphasized that prevailing electronic nicotine smokers were more likely to be youth and teenager, male, of higher education which concluded that elements and demographic factors strongly involved to the likelihood of e-cigarette use.

KNOWLEDGE AND PERCEPTIONS

Numerous studies have highlighted on the facts and figures of electronic cigarette among different people. In Jazan University, Saudi Arabia, it has been discovered through research that students unsuccessful to identify the hazards associated with e-cigarettes.¹⁴ This finding advocates a lack of awareness regarding the problems of e-cigarette use among this target population. Therefore, there is an essential need for targeted strategies to improve students' knowledge of Pros and cons of using e-cigarettes.¹⁴

In China, the utilization of vape and electronic smoking device among young adult was not so much in trend knowledge of harms of these devices was more prevalent.¹⁵ Furthermore, this study exposed a positive association between awareness of e-cigarettes and aim to use tobacco. These facts and figures emphasis the importance of lighting the awareness and notion of e-cigarettes as part of complete

tobacco control policies.

Amongst allied health students, research emphasized disparities of information regarding e- cigarettes.¹⁶ This suggests the need of academic drive to train healthcare professionals with correct and latest knowledge about e-cigarettes.

Papers	TL;DR	Conclusions	Summarized Abstrat	Results	Methods Used	Practical Implications
Prevalence and perceptions of e-cigarette use among medical students in a Saudi University	The prevalence of e-cigarette use among medical students in a Saudi university was found to be 12.2%, with males being more likely to vape than females.	Use of the electronic cigarettes is not uncommon amongst medical students, mostly due to their appealing flavor or variability, and further research is required to define long-term safety and side effect profiles, and to generate evidence-based guidelines concerning e-cigarette safety and efficacy for smoking cessation.	The prevalence of e-cigarette use among medical students is 12.2%. Common reasons for using e-cigarettes are flavor variability, quitting tobacco, and avoiding public smoking ban.	-Prevalence of e-cigarette use among medical students - Reasons for trying e-cigarettes and perceptions towards vaping.	Anonymous, paper-based, cross-sectional questionnaire distributed among medical students - Studied prevalence, intensity, reasons, relation to tobacco smoking cessation, and side effects	- Need for further research on long-term safety and side effects of e- cigarettes - Development of evidence-based guidelines for e-cigarette use in smoking cessation
Electronic Cigarettes among Healthcare Students at an Urban Southeastern University in US: Prevalence, Awareness and Beliefs.	The study found that 21.2% of healthcare students had used electronic cigarettes at least once, and most disagreed that they are less dangerous than traditional cigarettes or can help smokers quit.	- Most healthcare students did not use electronic cigarettes. - There is disagreement on the use of electronic cigarettes as a less harmful alternative to traditional cigarettes.	-Prevalence of e-cigarette use among healthcare students - Disagreements on e-cigarettes as a less harmful alternative to traditional cigarettes.	-21.2% of healthcare students had used electronic cigarettes at least once in their lifetime. - Most respondents disagreed that electronic cigarettes are less dangerous than traditional cigarettes or can help smokers quit.	- Cross- sectional survey - 16-item survey questionnaire.	- Healthcare students have low prevalence of e-cigarette use. - Awareness of e-cigarettes is influenced by friends and parents.
The Prevalence of E-Cigarette Use Among Adults in Malaysia.	The overall prevalence of current, ever, former, and dual users of e-cigarettes in Malaysia were 3.2%, and current e-cigarette users were likely to be younger, males, and with higher education level, respectively.	-Prevalence of e- cigarette use in Malaysia is 3.2% - E-cigarette use is common among younger adults, males, and cigarette smokers.	-Prevalence of e-cigarette use in Malaysia: 3.2% - Common among younger adults, males, and cigarette smokers.	-Overall prevalence of e-cigarette use in Malaysia: 3.2% - 74% of current e- cigarette users also smoke conventional cigarettes.	- Nationwide survey among 4288 Malaysian adults - Face-to-face questionnaire data collection method.	- Targeted interventions for younger adults, males, and smokers. - Focus on urban areas for e-cigarette regulation.
Awareness, knowledge and perception of electronic cigarettes among undergraduate students in Jazan Region, Saudi Arabia.	The prevalence of e-cigarette use was similar to that reported in the literature, however, Jazan University students failed to identify the health risks associated with e-cigarettes, and a strategy to enhance students' awareness of the benefits and harms of e-cigarettes is needed.	-Prevalence of e- cigarette use was similar to literature. - Students lack awareness of health risks associated with e-cigarettes.	- Study assessed awareness, knowledge, perception, and use of e- cigarettes among undergraduate students in Saudi Arabia. - 21.0% of participants used e- cigarettes, with 35.1% using them to quit smoking.	- 21.0% of participants used e- cigarettes - 35.1% used e- cigarettes to quit smoking.	- Observational cross-sectional study - Stratified random sampling.	- Need for strategies to enhance awareness of e- cigarette risks - Lack of knowledge about second-hand exposure to nicotine.
Knowledge about electronic cigarettes and its perception: a community survey, Egypt.	A considerable level of knowledge about e-cigarettes is found among young people aged 15-39 years and e-cigarettes were perceived as less harmful than traditional cigarettes or a smoking cessation aid.	- More than half of the population had heard about e- cigarettes but nobody reported using them. - There is a need for regulation and tobacco control strategies.	- Study on knowledge and perception of electronic cigarettes in Egypt - Majority of respondents had heard about e- cigarettes, but none reported using them.	- 57.5% of respondents had heard about e- cigarettes - None of the respondents reported using e- cigarettes.	- Observational cross-sectional study using self- administered questionnaire - Comparison between respondents who know and do not know e- cigarettes.	- Need for regulation of e- cigarette advertising and sale - Implementation of effective tobacco control strategies.
Perception and Current Use of E- cigarettes Among Youth in China.	E-cigarette use among youth in China remains low but awareness is high, and e-cigarettes use was associated with increased intentions to use tobacco, while never-smokers were more likely to use a tobacco product in the next 12 months than nonusers.	- E-cigarette use among youth in China is low. - E- cigarette use is associated with increased intentions to use tobacco.	- E-cigarette use among youth in China is low. - Awareness of e- cigarettes among youth in China is high.	- 1.2% of middle school students in China reported using e- cigarettes in the last 30 days. - 45.0% of middle school students in China had heard of e- cigarettes.	- Global Youth Tobacco Survey data analysis - Logistic regression for exploring factors and relationships.	- Enhanced prevention efforts needed targeting e- cigarette use among youth. - Chinese youth use e-cigarettes as a tobacco product.
Electronic cigarette use, knowledge, and perceptions among health professional students.	Self-reported ever-use of e- cigarettes among health professional students in this sample was 3.5-6 times higher than previously reported among medical and nursing students, and perceptions of using e- cigarettes for smoking cessation, reduced harm compared to tobacco, and reduced e- cigarette regulation were significantly associated with using e- cigarettes.	- High prevalence of e-cigarette use among health professional students - Knowledge gaps and need for improved education on e-cigarettes.	- Study evaluated e- cigarette use, knowledge, and perceptions among health professional students. - Substantial gaps in e-cigarette knowledge exist.	- 24.2% of health professional students reported e- cigarette ever- use. - Participants from certain colleges had higher knowledge scores.	- Conducted a 56-item survey - Used regressions to determine associations between variables	- Health professionals need to be educated about e-cigarettes. More research is needed to understand e-cigarette use and perceptions among health professional students.

Electronic cigarette use among adolescents and young adults in Nigeria: Prevalence, associated factors and patterns of use	The study found a prevalence of 7.9% for e-cigarette ever-use, and 0.93% for current use (past 30-day). Factors such as increasing age, males, current alcohol users, concurrent poly tobacco and substance users, and respondents with friends who use e-cigarettes were associated with higher odds of e-cigarette use. However, there was no significant association between anxiety levels and e-cigarette use. The study recommends policies to limit the access and use of e-cigarettes among adolescents and non-smokers.	The paper aims to determine the prevalence, associated factors, and patterns of electronic cigarette use among adolescents and young adults in Lagos, Nigeria. The study found that the prevalence of e-cigarette ever-use was 7.9%, and factors such as older age, being male, alcohol use, friend's use, and other tobacco product or substance use were associated with higher odds of e-cigarette use. There was no association between anxiety levels and e-cigarette use.	The study found that the prevalence of e-cigarette ever-use was 7.9%, and 0.93% for current use (past 30-day). Factors such as increasing age, males, current alcohol users, concurrent poly tobacco and substance users, and respondents with friends who use e-cigarettes were associated with higher odds of e-cigarette use. However, there was no significant association between anxiety levels and e-cigarette use. The study recommends policies to limit the access and use of e-cigarettes among adolescents and non-smokers.	The paper used an online cross-sectional study design to collect data from in-school adolescents and young adults within Lagos State aged between 15 to 35 years. A multi-stage sampling technique (a combination of simple random and cluster sampling techniques) was used to select schools (secondary schools and Universities) within Lagos State and the cluster sampling for class groups within the selected schools. A 7-item Generalized Anxiety Disorder (GAD-7) scale.	The practical implications of this paper are that it provides evidence of the prevalence and patterns of e-cigarette use among adolescents and young adults in Lagos, Nigeria. The study identifies factors associated with e-cigarette use, such as increasing age, males, current alcohol users, concurrent poly tobacco and substance users, and respondents with friends who use e-cigarettes. The study recommends policies to limit the access and use of e-cigarettes among adolescents and non-smokers. The findings from this study can help inform health policymakers about the magnitude and characteristics of e-cigarette users. The study highlights the need for further research on the long-term effects of e-cigarette use on the physical and mental health of users.
What drives public perceptions of e-cigarettes? A mixed-methods study exploring reasons behind adults' perceptions of e-cigarettes in Northern England.	The study found that negative perceptions of e-cigarette harm relative to cigarettes were driven by concerns about a perceived lack of research and safety issues. Negative perceptions about e-cigarettes effectiveness for smoking cessation were guided by fears that e-cigarettes would perpetuate nicotine addiction. The paper suggests that collective efforts with governments, health professionals, and charities are needed to communicate the relative harm of different nicotine products to adults who smoke, allowing them to make informed decisions about their use of e-cigarettes. Communication that addresses the concerns and fears identified in the study may be most effective at promoting well-informed perceptions.	The paper explores the reasons behind adults' perceptions of e-cigarettes in Northern England. The study identifies the most common reasons behind adults' perceptions of the relative harm of e-cigarettes compared with cigarettes and the effectiveness of e-cigarettes for smoking cessation.			

REASONS FOR USE AND PERCEPTIONS

Considering the reason about use of vape and the observations enclosed is critical for scheming active public health involvements. Studies have recognized common causes reveals by individuals for using e-cigarettes, including variable taste essence, quitting tobacco, and relaxation in public smoking rules and regulations.^{11,13,14} Which reveals for the trend of electronic smoking device as a substitute to traditional smoking and as a possible to stop smoking cessation.

However, conflicting perceptions exist regarding the comparative adverse effect of e- cigarettes and traditional cigarettes and their effectiveness for smoking cessation. A study conducted in Northern England aimed to explore adults' perceptions of e-cigarettes.¹⁷ These perceptions effect

Summarized Abstract	Practical Implications
The prevalence of e-cigarette use among medical students is 12.2% - Common reasons for using e-cigarettes are flavor variability, quitting tobacco, and avoiding public smoking ban.	- Need for further research on long-term safety and side effects of e-cigarettes - Development of evidence-based guidelines for e-cigarette use in smoking cessation
- Prevalence of e-cigarette use among healthcare students - Disagreements on e-cigarettes as a less harmful alternative	- Healthcare students have low prevalence of e-cigarette use. - Awareness of e-cigarettes is influenced by friends and parents.
- Prevalence of e-cigarette use in Malaysia: 3.2% - Common among younger adults, males, and cigarette smokers.	- Targeted interventions for younger adults, males, and smokers - Focus on urban areas for e-cigarette regulation.
- Study assessed awareness, knowledge, perception, and use of e-cigarettes among undergraduate students in Saudi Arabia - 21.0% of participants used e-cigarettes, with 35.1% using them to quit smoking.	- Need for strategies to enhance awareness of e-cigarette risks - Lack of knowledge about second-hand exposure to nicotine
- Study on knowledge and perception of electronic cigarettes in Egypt - Majority of respondents had heard about e-cigarettes, but none reported using them.	- Need for regulation of e-cigarette advertising and sale - Implementation of effective tobacco control strategies
- E-cigarette use among youth in China is low. - Awareness of e-cigarettes among youth in China is high.	- Enhanced prevention efforts needed targeting e-cigarette use among youth - Chinese youths use e-cigarettes as a tobacco product.
- Study evaluated e-cigarette use, knowledge, and perceptions among health professional students - Substantial gaps in e-cigarette knowledge exist.	- Health professionals need to be educated about e-cigarettes - More research is needed to understand e-cigarette use and perceptions among health professional students.
The paper aims to determine the prevalence, associated factors, and patterns of electronic cigarette use among adolescents and young adults in Lagos, Nigeria. The study found that the prevalence of e-cigarette ever-use was 7.9%, and factors such as older age, being male, alcohol use, friend's use, and other tobacco product or substance use were associated with higher odds of e-cigarette use. There was no association between anxiety levels and e-cigarette use.	The practical implications of this paper are that it provides evidence of the prevalence and patterns of e-cigarette use among adolescents and young adults in Lagos, Nigeria. The study identifies factors associated with e-cigarette use, such as increasing age, males, current alcohol users, concurrent poly tobacco and substance users, and respondents with friends who use e-cigarettes. The study recommends policies to limit the access and use of e-cigarettes among adolescents and non-smokers. The findings from this study can help inform health policymakers about the magnitude and characteristics of e-cigarette users. The study highlights the need for further research on the long-term effects of e-cigarette use on the physical and mental health of users.
The paper explores the reasons behind adults' perceptions of e-cigarettes in Northern England. The study identifies the most common reasons behind adults' perceptions of the relative harm of e-cigarettes compared with cigarettes and the effectiveness of e-cigarettes for smoking cessation.	

individuals' behavior towards e-cigarettes and may affect their choice to use or not to use these tools.¹⁶

DISCUSSION

The findings of this literature review show that although students were knowledgeable about the existence of electronic cigarettes, their utilization was not as widespread among the surveyed groups. It has been discovered that there were some restriction regarding using e-cigarettes smokers in Pakistan Although the strength of females participating in the study in Pakistan was less, possibly due to cultural biases leading to women refusing to participate or resulting in lesser number of women smoking, the ratio of male-to-female smokers was in accordance with the general trend observed in Pakistan.²³ another study among dental undergraduate students in Jazan, Saudi Arabia showed an awareness of 91.9%¹⁴ whereas other similar studies also showed a similar high awareness score of 99.5% and 99.2% respectively.^{12,16} However, not many students reported the use of e-cigarettes. This could be attributed to the level of education. A study revealed that there was a negative correlation between e-cigarette use and educational attainment among young adults. In other words, higher levels of education appeared to act as a protective factor against e-cigarette use, even after considering other influencing factors.¹⁸

A study among medical students at Alfaisal University in Riyadh, Saudi Arabia showed a prevalence of 12.2% and another one showed a prevalence of 21.2% among healthcare students in the US.^{11,12} Furthermore, there was a slight discrepancy in determining whether e-cigarette users were mostly tobacco users. In contrast to the findings of

Cataldo et al.¹⁹ and Lotrean²⁰, which indicated that electronic cigarette users were primarily tobacco smokers, one study revealed that nearly 50% of students who experimented with electronic cigarettes were non-smokers.¹² Hence, while a prior smoking history may contribute to the utilization of e-cigarettes, it is not a definitive factor that solely determines an individual's decision to use these devices or not.

E-cigarettes have been heavily marketed as devices that can aid in smoking cessation. There was no clear consensus on whether students believed vaping can help in smoking cessation as studies showed a variable response of 46.9%, 13.9% 41.6%.^{11,12,21} This variation in results indicates that there is a pressing need for not just medical students but those of all disciplines to receive education regarding vaping patterns and their association with tobacco smoking cessation. It is important to note that the FDA has not approved these devices for the purpose of quitting smoking.¹⁴

Participants from the other than allied health sciences exhibited significantly have more clear concept than the allied health programs.¹⁶ However, the average scores within each of these groups were less than 75%, exhibiting significant gaps in knowledge regarding e-cigarettes even among the higher level of knowledge participants.¹⁷ Similarly, in another study done in Nigeria focusing on young adults, varying levels of knowledge between 57% to 79% were reported.^{22,23,24,25} Thus, it is essential to develop and implement additional educational opportunities within all forms of the professional curriculum. The poor knowledge among the study population from certain programs may be accredited, in part, to the various choice of degree programs offered within a college.

CONCLUSION

This literature review has provided insights into the prevalence, associated factors, knowledge, and concept of electronic smoking device in teenager and youth among different countries the evidences help to emphasize the need for targeted educational interventions to improve knowledge and awareness, particularly among healthcare students and the general population. Addressing misconceptions about the relative harm and effectiveness of e-cigarettes for smoking cessation are essential. Continued research and tracking of electronic device utilization evaluating the effectiveness of interventions which are essential to overcome possible public health risks related to e-cigarette use among these susceptible individuals.

CONFLICT OF INTEREST

None declared

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