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Analysis of physicians' statements on electronic cigarettes in YouTube videos in Türkiye: a thematic content analysis

Ersan Gürsoy[1*] and Mehmet Vatansever[2]

Abstract

Background Electronic cigarettes (e-cigarettes) have become increasingly popular among both adults and young people seeking to quit smoking and have sparked significant debates regarding their health effects. The current study aims to analyze how physicians' opinions in Türkiye address public health risks by examining the most-watched electronic cigarette videos on YouTube.

Methods The 16 most-watched YouTube videos in Türkiye featuring physicians discussing e-cigarettes were analyzed using thematic content analysis. The videos were chosen from searches conducted between April 2024 and December 2024 with the keywords "electronic cigarette," "electronic cigarette use," "harm of e-cigarettes," "are e-cigarettes harmful," "e-cigarette benefits," "e-cigarette doctor" and "e-cigarette Physician." Videos over 1 min with physicians as primary speakers and at least 1,000 views were included. The verbal content of physicians' opinions in the videos was transcribed verbatim, and the analyzed videos were categorized into four main themes and eight sub-themes.

Results The analysis of the videos revealed that physicians emphasized the physical and psychological health risks of e-cigarettes, particularly their detrimental effects on the respiratory and cardiovascular systems. Nicotine addiction was highlighted as a persistent issue, with e-cigarettes perpetuating dependence rather than serving as a smoking cessation tool. Additionally, marketing strategies targeting younger demographics, such as flavored products and appealing advertisements, were identified as a significant factor in shaping misconceptions about the relative safety of e-cigarettes. While some physicians acknowledged a reduction in certain harmful substances compared to traditional cigarettes, the majority emphasized the long-term health effects of e-cigarettes and warned against assuming these products are less harmful.

Conclusion The findings reveal that physicians on YouTube predominantly adopt a cautious approach toward e-cigarettes, emphasizing their health risks and potential to perpetuate nicotine addiction. Marketing strategies targeting younger audiences were identified as a significant factor influencing public perceptions. These insights highlight the importance of health professionals engaging on digital platforms to address misconceptions and promote accurate, evidence-based information about e-cigarettes.

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Keywords Electronic cigarette, YouTube, Physician perspectives, Thematic analysis, Public health

Introduction

Electronic cigarettes (e-cigarettes) are battery-powered devices that heat a liquid—commonly containing nicotine, propylene glycol, glycerin, and various flavorings—to produce an inhalable aerosol [1]. These devices come in various forms, including cig-a-likes, vape pens, pod systems, and box mods [2]. In recent years, e-cigarettes have rapidly gained popularity and have been offered as alternatives to conventional cigarettes [3, 4]. Their use has notably increased and has been marketed among individuals seeking to quit smoking and among younger generations [5, 6]. However, the marketing strategies, health implications, and public perceptions associated with e-cigarettes mirror the debates observed when traditional cigarettes first entered the market [7]. Tobacco use remains a leading cause of preventable mortality globally, accounting for approximately 8.71 million deaths annually, with the highest age-standardized rates observed in low- to middle-income countries [8]. In Türkiye, recent data indicate that between 28% and 31% of adults engage in tobacco use, with a marked gender disparity—prevalence among males reaching up to 44.8%, significantly higher than that of females [9]. Early in their introduction, traditional cigarettes were promoted as harmless, and even purported health benefits were attributed to them [7, 10]. Subsequent scientific research, however, revealed the severe health risks posed by smoking, leading to its recognition as a major global public health concern [7, 11]. Similarly, recent studies on e-cigarettes indicate that these devices also carry multiple short and long-term health risks, adversely affect the respiratory and cardiovascular systems, and perpetuate nicotine addiction [12–14].

In Türkiye, recent studies indicate that e-cigarette use has become increasingly common among youth [15, 16]. A recent study indicated that 15.2% of high school students in Türkiye had tried e-cigarettes at least once, with 1.02% reporting current use [15]. Moreover, the majority of adult e-cigarette users in Türkiye are male, frequently citing smoking cessation or harm reduction from conventional cigarettes as their primary motives [17]. Recent legal frameworks in Türkiye, electronic cigarettes are officially banned for sale, marketing, and distribution, including online platforms and physical retail, and their use in enclosed public spaces is prohibited by law. Despite these restrictions, individuals commonly obtain e-cigarettes and related products through unofficial online sellers or by importing them for personal use, often circumventing customs control [18, 19]. This legal ambiguity and ease of access continue to pose significant challenges for enforcement and public health.

In Türkiye and worldwide, social media platforms serve as the primary source of information on e-cigarettes for the public [18, 20]. However, much of this content lacks a robust scientific foundation and may lead to misconceptions [20] Conversely, video-sharing platforms such as YouTube, although they may attract fewer viewers, offer a significant opportunity for physicians to share evidence-based perspectives on e-cigarettes with the public [21].

The examination of this phenomenon in Türkiye holds substantial importance for increasing public awareness. Within the existing literature, there is a limited number of studies addressing how e-cigarettes, accompanied by physicians' opinions, are presented on digital platforms and how they influence the public [22]. Consequently, analyzing physicians' opinions on e-cigarettes through the most-watched YouTube videos in Türkiye can foster meaningful public awareness and promote the dissemination of accurate information from a public health standpoint. In this study, only videos featuring physicians' opinions were analyzed, aiming to reveal how physicians convey scientific information about e-cigarettes to the public. Additionally, Türkiye was selected as the study setting due to its high tobacco use prevalence, evolving tobacco control efforts, and sociocultural dynamics where smoking remains relatively normalized. These characteristics provide a unique lens to examine physician perspectives, offering insights that may inform broader global discussions on tobacco harm reduction and digital health communication.

In this study, the messages delivered by physicians regarding e-cigarettes in the most-watched electronic cigarette videos on YouTube in Türkiye were examined. The primary objective of this research was to examine how the public is informed through these videos and how physicians guide public understanding.

Materials and methods

Analytical framework and study design

This study employed a cross-sectional, video-based content analysis approach using thematic analysis to examine physicians' perspectives on e-cigarettes as presented in YouTube videos. Although the methodology draws from qualitative analytical techniques, no direct interaction or recruitment of participants was involved. This approach was considered appropriate for systematically identifying key themes and patterns in the physicians' public statements on the platform.This analysis was conceptually informed by public health communication and risk perception frameworks, which consider how expert discourses on health issues are framed and understood in digital media environments. These theoretical lenses

supported the interpretation of physicians' statements, particularly in assessing how health risks, addiction, and product safety were communicated to the public.

Research context and sampling strategy

Data were gathered from the most-viewed YouTube videos in Türkiye between April 2024 and December 2024, focusing on electronic cigarette–related content. Searches were performed using specific keywords (and their Turkish equivalents), including "electronic cigarette," "electronic cigarette use," "electronic cigarette harms," "is electronic cigarette harmful," "electronic cigarette benefits," "electronic cigarette doctor," and "electronic cigarette physician." The keywords were selected based on a preliminary review of existing literature on e-cigarette–related content and user search behavior on YouTube. Common phrases frequently appearing in video titles and metadata were also taken into account. A purposive sampling method was employed, and the data collection continued until no new videos meeting the inclusion criteria were identified. To qualify, videos had to (a) be longer than one minute, (b) feature physicians as the primary speakers, and (c) have garnered at least 1,000 views. Videos produced by other YouTube channels were included if a physician served as the main speaker. Videos centered exclusively on user experiences or lacking informative value were excluded. Ultimately, 16 videos were included and analyzed. Table 1 provides details on these videos—such as links, professions, view counts, like counts, and lengths—as of January 2025.

Data collection methods and data analysis

Data collection was conducted online. Between April 2024 and December 2024, the verbal content from the YouTube videos identified via the above search parameters was captured using a voice recorder and subsequently transcribed verbatim using the Microsoft Word dictation feature. The transcribed texts were then

Table 1 Analysis of YouTube videos containing physician opinions on electronic cigarettes

no	Link	Name	Profession	Date	Views	Likes	Duration
1	https://www.youtube.com/watch?v=q6yjrxXoccc	Harms of electronic cigarettes	Internal medicine specialist	Oct 2022	71 K	397	9:31
2	https://www.youtube.com/watch?v=JIxw3P1_ASw%26t=1s	Harms of Cigarettes and Electronic Cigarettes / Doctor, A Cure for Me - Dr. Barış Mustafa Poyraz	Pulmonologist	Jul 2024	1.9 K	90	36:02
3	https://www.youtube.com/watch?v=BFgoL5xPflc	Are Electronic Cigarettes and IQOS harmful? Smoking and Nicotine Addiction | Dr. Keramettin Sar	Internal medicine specialist	Dec 2023	19 K	191	16:26
4	https://www.youtube.com/watch?v=qgQkjZbjleg	Are Electronic Cigarettes Less Harmful?	Pulmonologist	Feb 2024	3 K	6	1:09
5	https://www.youtube.com/watch?v=wNqWIT9vGms	Are electronic cigarettes harmful?	Clinical microbiologist	Nov 2023	10 K	71	4:31
6	https://www.youtube.com/watch?v=uhQ3DHe4DzY%26t=463s	Are Electronic Cigarettes Harmful? - I Asked the Doctor - Assoc. Prof. Dr. Erkan Kaba	Thoracic surgeon	Jul 2023	58 K	208	12:34
7	https://www.youtube.com/watch?v=WwfRgOB2IAU	Effects of Electronic Cigarettes on the Lungs | Prof. Dr. Murat Aksoy	General surgeon	Jul 2023	3.1 K	3	7:55
8	https://www.youtube.com/watch?v=EI7yRKBQ4Gs	Are Electronic Cigarettes Harmful? | Should It Be Used to Quit Smoking?	General surgeon	May 2023	237 K	2.8 K	12:15
9	https://www.youtube.com/watch?v=08E9r3fwDkQ	Is Electronic Cigarette Harmless?	Cardiologist	Dec 2022	64 K	698	10:20
10	https://www.youtube.com/watch?v=IvKo1IGbDPU	Are Electronic Cigarettes Harmful to Health? Are electronic cigarettes or normal cigarettes harmful?	Psychiatrist	Mar 2023	11 K	53	14:50
11	https://www.youtube.com/watch?v=ghr9AOb-IuM	Are electronic cigarettes (e-cigarettes) harmful to health?	Hematologist	Dec 2018	108 K	733	7:30
12	https://www.youtube.com/watch?v=E6RsiNYCtI4	Dr. Aysun AKDENİZ - Harms of electronic cigarettes?	Pulmonologist	Oct 2019	43 K	201	3:19
13	https://www.youtube.com/watch?v=ZhdIjSlUzx8	Even inhaling an electronic cigarette for a few minutes causes lung damage	Pulmonologist	Oct 2019	55 K	243	6:37
14	https://www.youtube.com/watch?v=Rm7KbNkhvjc%26	Striking Facts About E-Cigarettes	Hematologist	Sep 2019	40 K	362	5:25
15	https://www.youtube.com/watch?v=PnS4KDFI_zI	Electronic cigarette, its benefits and harms. Prof.Dr.Serdar Akgün	Cardiovascular surgeon	Jul 2017	220 K	1.2 K	8:30
16	https://www.youtube.com/watch?v=2_xwcbEwycM%26t=11s	Should You Use Puff or Electronic Cigarette to Quit Smoking?	Pulmonologist	Jan 2024	5 K	43	36:47

reviewed for accuracy, and any typographical errors were corrected.

A thematic analysis was carried out on these transcribed materials. Thematic analysis was conducted following the six-phase process outlined by Braun and Clarke (2021), including familiarization with the transcribed data, initial coding, theme identification, reviewing and refining themes, defining themes, and final reporting [23]. Initially, each researcher independently examined three videos and identified potential themes and subthemes. The research team subsequently convened to reach consensus on the emerging thematic structure, which was further refined in subsequent meetings through the establishment of clear definitions for each theme.

The final data were individually coded by the researchers, guided by both predefined and emergent categories. During coding, the frequency of each theme and subtheme—i.e., the number of physicians referencing a given topic—was recorded to illustrate thematic "weight" in the dataset. This frequency-based coding facilitated a clearer understanding of which issues received the most emphasis by physicians. Once coding was completed, the researchers discussed any discrepancies in coding units and reached consensus. NVivo software was employed to systematize and facilitate the thematic analysis. During thematic analysis, after initial familiarization and coding, related codes were grouped into broader themes based on conceptual similarities. Subthemes were similarly clustered under main themes. This iterative process, supported by NVivo software, allowed systematic organization and helped to ensure that emergent patterns were grounded in the data. In the final phase, all researchers independently coded the entire video dataset. The results were then cross-checked through team discussions to ensure consistency and inter-coder reliability.

Researcher reflexivity and positionality

Given the controversial nature of e-cigarette use, researcher reflexivity was an important consideration in this study. The research team consisted of health professionals with academic and clinical experience in tobacco control and public health. While no member had a commercial or institutional stake in the outcomes, we acknowledge that personal views toward e-cigarette regulation may have shaped our initial perspectives. To mitigate interpretive subjectivity, the thematic coding process was conducted collaboratively, with each researcher independently coding all videos and resolving discrepancies through discussion until consensus was reached. This approach was designed to enhance analytical rigor and reduce individual bias in theme development.

Ethical approval

Ethical approval for this study was obtained from the Clinical Research Ethics Committee of Erzincan Binali Yıldırım University (21.03.2024, No: 2024-04/1). Given that the data derived from publicly accessible YouTube videos, explicit consent from the individuals involved was not required. However, the researchers strictly complied with YouTube's terms of service and data privacy regulations throughout the study.

Results

Thematic analysis of the physician-led YouTube videos resulted in the identification of four main themes: (1) The Health Effects of E-Cigarettes, (2) Comparison of E-Cigarettes and Traditional Cigarettes, (3) Social Dynamics of E-Cigarette Use, and (4) Medical and Public Opinions on E-Cigarettes. Each of these themes contained two subthemes, which were defined and finalized through consensus meetings during the coding process (Fig. 1).

The analysis of the selected YouTube videos showed several recurring themes regarding the health risks, social dynamics, and public perceptions of e-cigarettes. A summary of these key findings are provided in Table 2.

The health effects of e-cigarettes

Physical health effects

The effects of e-cigarettes on physical health have been evaluated, particularly in terms of the respiratory and cardiovascular systems. Physicians generally state that e-cigarettes cause serious damage to the lungs and lead to various respiratory diseases:

> *"E-cigarettes can cause lung damage and lung cancer." (V3).*
> *"E-cigarettes have toxic effects on the lungs and can lead to conditions such as pneumonia or alveolitis." (V6).*
> *"It has been observed that the use of e-cigarettes increases free radicals, leading to tissue damage and potentially causing lung damage."(V10).*
> *"Free oxygen radicals and nitric oxide imbalance pave the way for cardiovascular diseases." (V11).*

On the other hand, a few participants reported more nuanced opinions, suggesting that while the harms remain noteworthy, there might be a relatively lower cancer risk compared to conventional cigarettes:

> *"E-cigarettes may carry a lower risk of cancer compared to traditional cigarettes, but they do not eliminate the risk of airway diseases due to the harmful chemicals present in the vapor." (V4).*

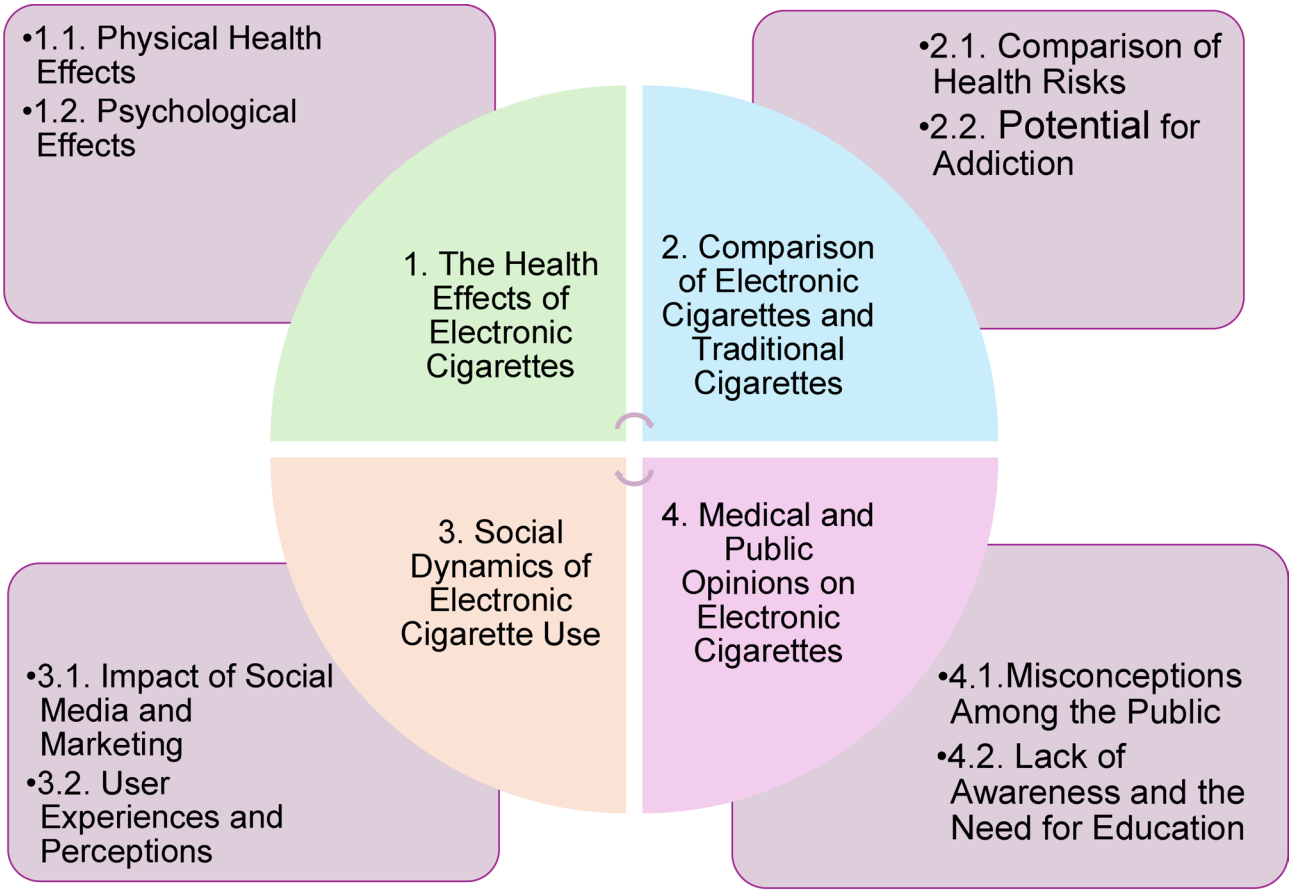

Fig. 1 Main Themes and sub-themes

Psychological effects

The psychological effects of e-cigarettes stand out, particularly their addictive effects. While users state that e-cigarettes make them feel relaxed, physicians emphasize that this is an illusion:

> *"Nicotine is seriously addictive, it can be even more effective than drugs." (V3).*
> *"Feeling good after using e-cigarettes or vaping is entirely a psychological effect. Using e-cigarettes to quit smoking is not a solution, and the addiction persists." (V6).*
> *"The addictive flavours of e-cigarettes reinforce addiction rather than making it easier to quit smoking." (V12).*

Comparison of E-cigarettes and traditional cigarettes

Comparison of health risks

Although e-cigarettes are often marketed as less harmful, physicians say that e-cigarettes are harmful to health and are not different from traditional cigarettes:

> *"E-cigarettes are repeated as harmless compared to regular cigarettes, but this is not true." (V1).*
> *"The differences between e-cigarettes and cigarettes are not great, both cause serious damage to the lungs. ...The long-term harms of the chemicals in e-cigarettes are not yet known, but the known harms are similar to those of traditional cigarettes." (V6).*
> *"The chemicals and compounds contained in e-cigarettes have toxic effects that can be as harmful as traditional cigarettes." (V9).*

In addition, several physicians warned against dual use, where individuals consume both e-cigarettes and conventional cigarettes. They noted that this practice could increase overall exposure to toxic substances, thereby heightening health risks rather than reducing them:

> *"E-cigarette users tend to use both electronic and traditional cigarettes simultaneously, which is known as dual use. This pattern of dual use was described by physicians as especially dangerous." (V8).*

Table 2 Summary of key findings based on physician opinions in analyzed YouTube videos

Main Themes	Sub-Themes	Key Findings*
1. The Health Effects of Electronic Cigarettes	1.1. Physical Health Effects	Harmful to the respiratory system (16), concerns about cancer (9), cardiovascular problems (6), harm to oral and dental health (3), negative effect on the nervous system/brain development (3), uncertainty about long-term effects (3), negative effect on fertility/reproduction (2),
	1.2. Psychological Effects	Continues/perpetuates nicotine addiction (10), particularly strong/addictive potential among young people (5), nicotine's effect on dopamine fosters dependency (3), flavored e-cigarettes intensify addiction (2), switching to e-cigarettes does not solve addiction (2)
2. Comparison of E-cigarettes and Traditional Cigarettes	2.1. Comparison of Health Risks	As harmful or similarly harmful as normal cigarettes (8), less harmful but still harmful (6), uncertainty about long-term effects (4), no conclusive data proving lower harm (2), dual use increases overall health risks (2), as much or more nicotine than a regular cigarette (2)
	2.2. Potential for Addiction	Continues or perpetuates nicotine addiction (6), potentially beneficial for quitting smoking (3), not recommended for cessation by some physicians (3), risk of youth initiation/addiction (2)
3. Social Dynamics of Electronic Cigarette Use	3.1. Impact of Social Media and Marketing	Targeting youth (6), use of sweeteners/flavors to attract young consumers (5), presenting e-cigarettes as harmless/beneficial (3), celebrity/movie endorsements (1), rebranding as "vaping" to avoid negative connotations (1)
	3.2. User Experiences and Perceptions	Continues/perpetuates addiction (4), perceived or marketed as less harmful (2), questioned as an effective cessation strategy (2), concerns over Big Tobacco involvement (1), parental worry due to odorless use (1), underage initiation/usage (1).
4. Medical and Public Opinions on E-cigarettes	4.1. Misconceptions Among the Public	Continued nicotine addiction—not a genuine cessation solution (3), tobacco industry involvement raises skepticism about motives (2), misconception of harmless "water vapor" persists among the public (2)
	4.2. Lack of Awareness and the Need for Education	Described as a "trap" or misleading solution (3), need for stricter regulation/awareness campaigns (2), concerns about unregulated liquids (1), potential secondhand exposure (1)

*The numbers in parentheses indicate the number of participants who mentioned the respective finding

> *"People who start with e-cigarettes may end up using both, and this increases health risks significantly." (V11).*

Some participants acknowledge that there may be a reduction in certain harmful substances when compared to traditional cigarettes, yet they remain cautious:

> *"Yes, they may be somewhat less harmful than cigarettes to some degree. Why? Because when you smoke a traditional cigarette—especially once the paper and tobacco start burning—you inhale the chemicals they produce. Still, there are nearly 200 chemicals in e-cigarettes." (V7).*

Potential for addiction

The addictive potential of electronic cigarettes, especially due to their nicotine content, is quite high, just like conventional cigarettes:

> *"Nicotine is addictive by increasing the release of serotonin and dopamine." (V1).*
> *"E-cigarettes are produced to create addiction." (V3).*
> *"10% of adolescents who have never smoked before become addicted to nicotine through the use of electronic cigarettes. We do not yet know the long-term consequences this might lead to in 20 or 30 years... You are still consuming nicotine, and your addiction persists. Our observations align with this as well." (V16).*

Some physicians propose that e-cigarettes can support smoking cessation programs in certain countries:

> *"Yes, there is evidence for this, because it is known to help people quit smoking by reducing the nicotine level, and it has been shown to be successful in some countries, including England." (V15).*

Others, however, remain skeptical, stressing that using e-cigarettes does not address the underlying nicotine dependence:

> *"An e-cigarette is one of the tools we use to quit smoking. But when we say it is one of these tools, it is not an agent intended for regular use." (V4).*

Social dynamics of electronic cigarette use

Impact of social media and marketing

E-cigarettes target young people, especially through social media and advertisements. Companies market these products with flavorings and attractive designs, thereby increasing their appeal:

"Flavourings and flavours make e-cigarettes attractive and are marketed very effectively." (V6).
"E-cigarettes are becoming popular with youth-oriented marketing strategies." (V8).

Some physicians emphasize that these strategies can draw in younger users and foster addiction:

"It is very attractive… there are a total of 550 different flavors… cherry, mango, cinnamon, strawberry, whatever comes to your mind… This is also in fact an important indicator of why e-cigarettes are consumed so much among young people." (V14).

User experiences and perceptions

Physicians stated that electronic cigarette users believe that these products are a solution to quit smoking. However, many users become addicted to e-cigarettes while trying to quit smoking:

"Electronic cigarette smokers initially think that these products are less harmful than cigarettes. Users turn to e-cigarettes to quit smoking, but they remain addicted." (V1).
"Electronic cigarette users say that it is difficult to quit smoking and they are looking for an alternative." (V3).
"When smokers use e-cigarettes, they do not actually quit smoking completely." (V5).

Medical and public opinions on E-cigarettes

Misconceptions among the public

There is a widespread public perception that e-cigarettes are less harmful or that they can help people quit smoking. These misperceptions often arise as a result of marketing strategies:

"Claims that e-cigarettes are harmless are untrue. E-cigarettes are a trap, not a cure." (V1).
"People prefer e-cigarettes because they find them safer." (V3).
"E-cigarettes are used as a smoking cessation tool, but this is misleading." (V3).
"The cigarette industry's initial advertising promotional work was like this… But the e-cigarettes you see in our hands also contain nicotine. It is not possible to stay away from cigarettes and quit smoking with e-cigarettes." (V10).

Several participants reiterated that assuming e-cigarettes are entirely safe can be problematic:

"Defining e-cigarettes as substances that have no harm or are less harmful than cigarettes with very limited and limited experience is too early and a real case of self-deception." (V14).
"The known misconceptions about e-cigarettes are that the smoke is a water vapour. However, this is not the case." (V15).

Lack of awareness raising and need for education

Lack of awareness about e-cigarettes is an important problem in terms of public health. Statements indicating that there is insufficient information among the public about the harms of these products and that regulatory measures are inadequate:

"There is a lack of awareness about e-cigarettes. In the public opinion, these products are thought to be harmless, but this is not the case." (V11).
"There is not enough information about the health hazards of e-cigarettes. Most people think that these devices are safe." (V8).
"More campaigns and regulatory measures are needed to raise public awareness about e-cigarettes." (V12).

Additional testimonies highlighted the urgent need for stronger controls and ongoing education:

"We need to fight against tobacco. We should not fall into those traps of the tobacco industry." (V2).

Discussion

In this study, a thematic analysis was conducted on videos containing physicians' opinions on e-cigarettes, representing what an ordinary user in Türkiye would likely encounter on YouTube. The findings indicate that physicians predominantly issue cautionary messages regarding both the physical and psychological health risks associated with e-cigarettes. In particular, they frequently emphasize potential harm to the respiratory and cardiovascular systems, underscoring that e-cigarettes are not harmless and that they perpetuate nicotine addiction.

The findings indicate that the majority of popular physician opinions emphasize the negative health effects of e-cigarettes, particularly on the respiratory and cardiovascular systems. This observation aligns with existing literature, which similarly underscores the adverse impact of e-cigarettes on these systems [12, 24]. Furthermore, the cautious stance prominent in most physician commentaries mirrors other studies that highlight the necessity of thoroughly evaluating the safety and effectiveness of e-cigarettes [14, 18]. This alignment with current research adds credibility to the prevailing

understanding of e-cigarette risks. Nonetheless, given the rapid evolution of e-cigarette technology, marketing strategies targeted at younger demographics, and the limited knowledge regarding long-term health outcomes, continued research is warranted. Such investigation is critical for keeping pace with industry developments and safeguarding public health. Beyond individual physician perspectives, it is important to situate these findings within broader international public health discussions. When compared with international guidelines, our findings reveal both convergence and divergence. While some physicians acknowledged the potential harm reduction benefits of e-cigarettes, similar to perspectives cautiously supported by Public Health England [25], the majority emphasized the health risks and addiction potential associated with e-cigarette use, aligning more closely with the World Health Organization's restrictive stance [26]. Furthermore, the results underscore the significant challenge of combating misinformation, as physicians strive to provide scientifically grounded information amid widespread social media narratives that often downplay the risks associated with e-cigarettes. The psychological effects and addictive properties of e-cigarettes are prominently addressed in physicians' commentaries. According to these videos, many physicians explicitly assert that the addictive potential of nicotine-containing e-cigarettes is comparable to that of conventional cigarettes. Indeed, nicotine addiction can be as potent as narcotics, and when sweeteners and flavorings—which exacerbate dependency—are incorporated, the rapid proliferation of these products becomes inevitable [27, 28]. Furthermore, the videos frequently highlight a prevalent misconception that e-cigarettes' function effectively as smoking cessation tools. While the current study did not directly measure public engagement with physicians' opinions, the findings underscore that physicians often express concern over such misconceptions, attributing them, in large part, to marketing strategies.

Our study's findings align closely with previous national and international research exploring physicians' perceptions of e-cigarettes. Similar cautionary perspectives have been documented regarding the safety, efficacy, and harms of e-cigarettes, emphasizing concerns around their role as potential gateway products to tobacco use, and highlighting significant apprehension about dual use patterns [5, 18]. Studies conducted among family physicians have demonstrated a prevailing skepticism towards e-cigarettes as harm reduction strategies, noting their continued nicotine dependence and dual-use risks [3, 19]. Qualitative investigations have also reinforced the notion that physicians frequently view e-cigarettes as insufficient cessation aids, raising concerns about their addictive potential and unclear long-term health implications [18]. International reviews similarly report ambivalence among general practitioners about recommending e-cigarettes, primarily due to uncertainties regarding safety and long-term efficacy [29]. Collectively, these findings corroborate our results and emphasize the necessity for careful consideration by health professionals when addressing e-cigarette use. Consistent with existing literature, the findings of this study underscore the importance of marketing strategies—such as the use of flavorings and visually appealing designs—in promoting e-cigarettes, particularly among younger users [30]. While the thematic analysis highlighted marketing tactics aimed at youth, it did not yield conclusive evidence regarding social media's precise role in this promotion. Nevertheless, research indicates that younger demographics spend a significant amount of time on digital platforms, thereby increasing their exposure to advertising content [31].

Building on this perspective, social media platforms constitute pivotal venues for the marketing and promotion of e-cigarettes. Research suggests that e-cigarette advertisements on social media—particularly on Instagram, YouTube, and Twitter—often present these products as fashionable and socially acceptable, while downplaying health risks [32]. Studies have indicated that most advertisements emphasize harm reduction, diverse flavors, and a sense of community to attract younger audiences [33, 34]. In one study, exposure to e-cigarette content on social media was associated with increased use among young adults, underscoring the influence of digital marketing on behavior [35]. Further, a text-mining analysis of Twitter conversations revealed that much of the discourse mirrors industry narratives, portraying e-cigarettes as both trendy and safe [36]. These findings highlight the urgent need for public health campaigns and regulatory measures to counter misleading narratives on these platforms.

In order to counter these marketing strategies and safeguard public health, health physicians should assume a more proactive stance on social media platforms. By disseminating scientifically grounded content, physicians can ensure that young people, in particular, have access to accurate information about these products while highlighting the adverse health effects of e-cigarettes [37]. Such initiatives may prove instrumental in reducing e-cigarette usage among youth and correcting prevalent misconceptions.

While this study offers insight into physician narratives, it is important to note that the statements analyzed were drawn from public videos and reflect personal interpretations or clinical impressions, not peer-reviewed evidence. The analysis does not imply that these opinions constitute scientific consensus. Instead, these viewpoints are contextualized as reflective of how e-cigarette-related health information is presented to the public on digital

platforms. Physicians' credibility was based on self-identification in the videos and available titles, but the clinical validity of each claim was not independently verified.

Strengths and limitations

This study has several limitations. First, it exclusively examined the most-viewed physician opinion videos on YouTube in Türkiye, which may exclude content from other countries, other social media platforms, and lesser-viewed but potentially credible videos. While this sampling approach was intended to reflect the information most commonly encountered by the public, it may introduce popularity bias. Second, although search history was cleared and a new user profile was utilized, the dynamic nature of the YouTube algorithm may not fully capture the entire range of videos users could encounter. This algorithmic effect could limit the diversity of content analyzed and, consequently, affect the scope of the study. Third, only videos in which speakers self-identified as licensed physicians were included, and their specialties were noted when available. However, due to limitations in publicly accessible YouTube metadata, independent verification of institutional affiliations or conflicts of interest was not always possible, which may influence interpretation of credibility. Lastly, the scientific rigor and objectivity of the physicians' statements within these videos are not always verifiable, potentially constraining the generalizability of the results. It is noteworthy, however, that including user-generated content or opinions lacking scientific grounding would have further affected the reliability of the study. Considering these limitations, future studies that include different platforms, broader inclusion criteria, and larger sample sizes could offer more comprehensive insights.

Conclusion

This study undertook a thematic analysis of physician opinion videos that users in Türkiye encounter on YouTube when searching for information about e-cigarettes. The analysis underscores the harmful health effects of e-cigarettes, with most physicians emphasizing the risks posed to the respiratory and cardiovascular systems, as well as the perpetuation of nicotine addiction. It is therefore crucial for healthcare professionals to adopt a more proactive role on social media platforms, disseminating scientifically grounded information to correct misconceptions and safeguard public health. These findings highlight the need to expand information campaigns related to e-cigarettes and structure them to reach a broader audience.

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Author contributions
EG contributed to the conceptualization, methodology, data gathering, data analysis, transcribing, draft preparation, reviewing, editing of the manuscript, and journal submission. MV contributed to conceptualization, supervision, data analysis, reviewing, and finalizing the manuscript. Both authors reviewed and approved the final manuscript.

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Data availability
No datasets were generated or analysed during the current study.

Declarations

Ethics approval and consent to participate
The ethical approval for this study was granted by the Clinical Research Ethics Committee of Erzincan Binali Yıldırım University (21.03.2024, number: 2024-04/1). Since the data analyzed in the study were derived from publicly accessible YouTube videos, obtaining explicit consent from individuals was not deemed necessary. Strict adherence to YouTube's terms of service and data privacy regulations was maintained throughout the research process.

Consent for publication
Not applicable. The data utilized in this study were publicly accessible YouTube videos, and no identifiable personal data were collected or published.

Competing interests
The authors declare no competing interests.

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