

Review

Perspectives, motivations, and experiences of adolescents and young adults using nicotine vapes: a qualitative review

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Abstract

The emergence of vaping represents a novel phenomenon, highlighting its distinctive role within contemporary society. Nevertheless, the comprehensive understanding of the cultural significance and social norms associated with vaping remains incomplete. This scoping review aimed to report the perspectives, motivations, and experiences of adolescents and young adults (10–25 years) engaging in the use of nicotine vapes. Peer-reviewed primary research published in English from 2003 to February 2024 was identified using the databases PubMed, Scopus, CINAHL, and PsycINFO. Qualitative studies reporting on the perspectives, motivations, and experiences of adolescents and young adults who currently engage in nicotine and tobacco vape use were included. Thematic analysis revealed three key themes in adolescents and young adults vaping: understanding and reasons for vaping, the challenges of addiction and withdrawal, and varied responses from families and caregivers. Adolescents and young adults are often introduced to vaping by peers and siblings, drawn by the desire to fit in and the appealing flavours. Despite awareness of potential health risks, addiction makes quitting difficult, leading to intense cravings and withdrawal challenges. Families show a spectrum of responses, from ignorance to reluctant acceptance, indicating a need for better awareness and intervention strategies to address adolescent vaping. Establishing a withdrawal pathway for vaping is imperative as an intervention strategy to address the prevalence of vaping among adolescents and young adults.

Keywords: electronic nicotine delivery systems; nicotine; vaping; young adult; adolescent behaviour; consumer behaviour; perception; social norms

Contribution to Health Promotion

- The cultural significance and social customs surrounding vaping remain poorly understood.
- Insights into young people's vaping motivations support targeted strategies to lower its prevalence among adolescents.
- Vaping signifies a novel phenomenon, underscoring its emergence as a distinctive aspect within contemporary societal dynamics.
- This review highlights key influences on adolescent vaping, offering insights for targeted health promotion strategies to curb vaping initiation and addiction inclusive of vaping cessation pathways.
- This review contributes to our understanding of the need to change the social norms of this health-related behaviour, to facilitate a reduction of vaping among adolescents and young people.

INTRODUCTION

Vaping, the behaviour and act of inhaling an e-cigarette was first developed in 2003 (Nayir et al. 2016, Greenhalgh et al. 2023) and has rapidly become one of the world's most critical public health concerns for adolescents and young adults. E-cigarettes are electronic devices that heat e-liquid from a cartridge into vapour for inhaling (Marques et al. 2021,

World Health Organization 2024). They are particularly attractive and marketed to adolescents and young people due to their cost (Feeney et al. 2022), smell, flavour (Krüsemann et al. 2021), and accessibility mainly related to negligent regulation and governance (Morphett et al. 2023).

Vaping liquids contain various harmful substances, including nicotine, toxins such as arsenic, chromium, lead,

and nickel, as well as high concentrations of propylene glycol and glycerol (known airway irritants), and diacetyl (a known cause of bronchiolitis obliterans) (Feeney et al. 2022). Although some consider it a supportive strategy for tobacco withdrawal (Nayir et al. 2016, Islam et al. 2022, Wise 2023), vaping has resulted in a 3.6 times increase in the likelihood of adult nicotine usage (Jenssen and Wilson 2019). Of concern is that over 1.3 million non-smokers also die each year due to the harmful effects of secondary smoke inhalation (Institute of Health Metrics and Evaluation 2019). It is known that second-hand vape exposure increases the prevalence of bronchitic symptoms, shortness of breath and wheeze (Islam et al. 2022). In 2022, it was estimated that 82 million people worldwide engaged in vaping, though it is unknown what percentage of these individuals are adolescents and young people (Mason et al. 2023).

There is a growing consensus that the prevalence of vaping among adolescents and young people has become widespread (Hammond et al. 2019). Global sales have seen an unexpected increase (Jerzyński and Stimson 2023), with a significant portion of this demographic gaining their knowledge about vaping through social media (Jones and Salzman 2020). Early exposure to nicotine in young people has been linked to outcomes such as cognitive deficits, impairment in executive function (Jones and Salzman 2020), cardiovascular disease (Espinoza-Derout et al. 2022), burns (Biondi-Zoccai et al. 2019, Banks et al. 2023), lung disease, hypertension, diabetes (Caponnetto 2020), behaviour changes, hyperactivity, depression, and suicidal ideation (Tobore 2019). Despite awareness of its risks, global vaping regulations remain inconsistent and fragmented. Despite the known risk of tobacco usage worldwide, the World Health Organization reports that only 34 countries have banned sales of e-cigarettes, 88 countries do not regulate the minimum age to purchase an e-cigarette, and 74 countries have no current regulations (Feeney et al. 2022). Alarming, e-cigarettes have been marketed to young people, with social media platforms advertising a range of candy flavours and designs that appeal to the younger consumer (Gaiha et al. 2022).

In Australia, for example, disposable vapes were only officially banned for the general population as of 1 January 2024. Starting 1 July 2024, vapes can only be legally sold in pharmacies. Any non-pharmacy sales are illegal. Nicotine vapes will require a prescription until 30 September 2024, and minors must always have a prescription. The UK has cited plans to ban disposable vapes by April 2025 (McMurray 2024), while the USA and Canada have restricted the use of flavours that may be more enticing to the younger consumer (Gravely et al. 2020). While legislation worldwide slowly moves to protect

end users, it is imperative to understand the motivators behind usage, and therefore the aim of this scoping review is to cultivate an expansive knowledge repository to explore the perceptions, motivating factors, and experiential dimensions surrounding the utilization of nicotine vaping among youth. This scoping review incorporates extant qualitative literature concerning the perspectives, experiences, and motivations of adolescents and young adults currently engaging in the use of nicotine vapes.

METHOD

Design

In order to identify and map the available evidence, key concepts, and knowledge gaps addressing what is known about the perceptions, motivations, and experiences of adolescents and young adults engaging in the use of nicotine vapes, a scoping review approach was adopted using Arksey and O'Malley (2005) framework. The framework consists of five stages: identifying the research question, identifying pertinent studies, selecting the studies, charting the data, and organizing, condensing, and reporting the findings accordingly. The reported findings identified in this scoping review reflect the Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA) extension for scoping reviews (Tricco et al. 2018).

Eligibility criteria

The inclusion and exclusion criteria are articulated in Table 1. This scoping review focused on studies related to nicotine vapes only. The parameter of 2003 was set as the starting point for the search strategy as this was when the first commercialized e-cigarette product was developed and became commercially available in China (Grana et al. 2013, Greenhalgh et al. 2023).

Search strategy

In February 2024, a comprehensive search was conducted using the online databases PubMed, Scopus, Cumulative Index to Nursing and Allied Health Literature (CINAHL), and PsycINFO. Boolean terms AND/OR facilitated combining medical subject headings terms and keywords. Table 2 is an example of the search strategy performed using PubMed.

After the removal of duplicates, 931 records were identified. Independently, the titles and abstracts of all records were screened for suitability for inclusion (by J.B., R.K., A.S., M.S.B., and M.C.). Following this, the same authors conducted a review of full-text articles (see Fig. 1 for a PRISMA flow diagram of decisions). Discrepancies encountered were

Table 1. Inclusion and exclusion criteria

Inclusion criteria	Exclusion criteria
Peer-reviewed primary qualitative research published in the English language and retrieved from 2003 to February 2024.	Editorials, theoretical papers, reviews, theses, and papers published in languages other than English.
Research where the focus was on perspectives, motivations, and experiences of adolescents and young adults' nicotine vape use.	Quantitative and mixed-method research articles where the focus was not on adolescents, young adults, and non-vaping, non-nicotine drugs.
Adolescents and young people aged between 10 and 25 yrs who currently identify as vapers and are currently engaging in the act of vaping.	Research where the focus was on evaluating flavours of vapes.
Articles where 80% of usable data is included in the study.	Research that investigated perceptions of marketing campaigns, social media, and/or prevention interventions related to vapes.

discussed, and a resolution was sought by consulting with all authors. From this systematic process, eight studies were included in this scoping review.

Author, year, country, study aims, study type, participants, data collection, data analysis, and key findings were extracted (by J.B. and R.K.) that represented the characteristics of included studies (see Table 3). Included papers were thematically analysed (by J.B. and A.S.) using the [Braun and Clarke \(2006\)](#) framework. This involved two researchers (J.B. and A.S.) independently reading and rereading the results of each paper. Points of meaning were highlighted and shared in a research discussion, which led to initial systematic inductive coding. Coding was semantic in that it sought to understand through the interpretation of the data in relation to our

review question ([Braun and Clarke 2006](#)). A second research meeting supported the clustering of initial codes into preliminary themes. Themes were reviewed by the team to support reflexivity, and consider confirmability, and trustworthiness, resulting in three major themes.

RESULTS

The thematic analysis resulted in three main themes, namely, 'What they know and why they vape', 'Addiction and withdrawal', and 'Response from family and caregivers', and several sub-themes as illustrated in Fig. 2.

Theme 1: What they know and why they vape

The primary theme, *What they know and why they vape*, is a recurring motif throughout all the studies included in the review. This theme encompasses the sub-themes of *Introduced by siblings and peers*, *Sense of belonging and fitting in*, *Pleasurable taste and sensations*, and a *Substitute for healthy coping mechanism*.

Introduced by siblings and peers

Peer influence and sibling introduction appear to be the predominant pathways through which adolescents are initiated into vaping, a phenomenon that is likely driven by youthful curiosity and risk-taking behaviours. Initially, adolescents perceive vaping as a practice engaged in by others, as illustrated

Table 2. PubMed search strategy

(Qualitative study [tiab] OR attitude* [tiab] OR motivation* [tiab] OR Perception [mh] OR Interviews as Topic [mh] OR Focus Groups [mh] OR Qualitative research [mh] OR Social Perception [mh] AND (english[Filter])) AND ((Cigarette Smoking [mh] OR JUUL* [tiab] OR Tobacco Use Disorder [mh] OR vaping [mh] OR Electronic Nicotine Delivery Systems [mh] OR Tobacco Products [mh] OR Tobacco Use [mh] OR Nicotine [mh] OR vaping [tiab] OR E-cigarette [tiab] OR electronic cigarette* [tiab] AND (english[Filter])) AND (Young adult [mh] OR Adolescent [mh] OR Adolescent Behavior [mh] AND (english[Filter])) AND (english[Filter]))

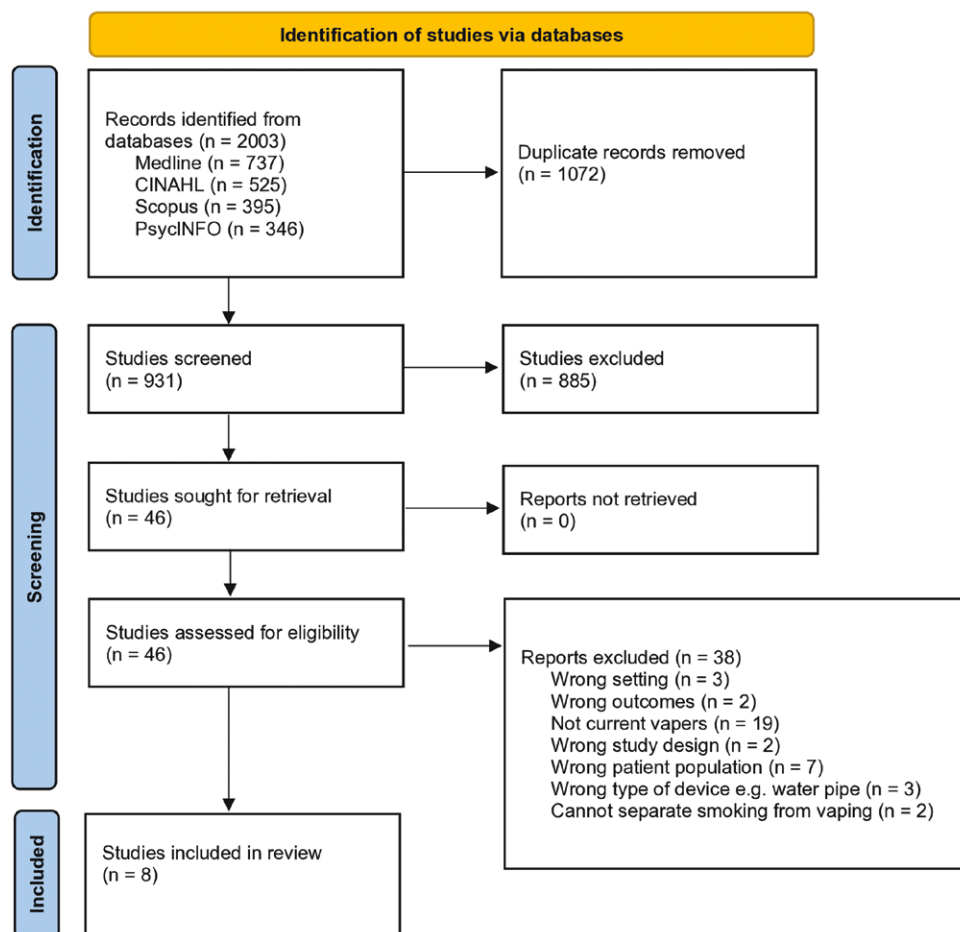


Figure 1. Flow diagram of selection of studies process ([Tricco et al. 2018](#)).

Table 3. Summary of included studies

Author, year, country	Aims	Sample and study population	Data collection and analysis	Key findings
Alexander et al. (2019) , USA	To target a hard-to-reach population: youth who regularly use e-cigarettes, exploring and describing patterns of use, social and familial norms, and perceptions of health effects.	Youth ($N = 43$), 14–17 yrs (mean = 15.8 yrs) who were regular e-cigarette users.	Qualitative, focus groups.	Four main themes: 1. Initiation. 2. Current and future use. 3. Nicotine. 4. Family norms and perceptions.
Cheney et al. (2021) , USA	The objective of this study was to determine the association between three types of beliefs about JUUL use (risks to individual health, control by the tobacco industry, and harm to others) and intentions to reduce or quit JUULing.	Undergraduate university students ($N = 51$), 18–24 yrs who used JUUL at least once a week.	Overall study—explanatory sequential mixed-method design. Qualitative component, semi-structured interviews.	Compared vaping to more harmful habits like cigarette smoking and downplays health risks. Aware of potential lung damage and concerns minimized by trust in the product's regulation and quality from reputable manufacturers.
Gupte et al. (2022) , India	This qualitative study explored adolescents' perceptions and practices to gain a better understanding of e-cigarette use among school-going adolescents.	Adolescents ($N = 24$), 11–16 yrs (14 male, 10 female) who were current users of e-cigarettes.	Interviews, thematic analysis.	Four main themes: 1. Knowledge about e-cigarettes. 2. Initiation of and continued use. 3. Patterns of use. 4. Harmful health effects.
Kechter et al. (2022) , USA	The current study analyses data from young adults who vape and how they describe their relationship with food and weight in the context of vaping.	Undergraduate university students ($N = 62$), 18–25 yrs (M=20.9 yrs) or vaped at least once per week.	Semi-structured interviews.	Two main themes: 1. Pairing vaping with routine. Lifestyle behaviours. 2. Vaping as a tool in appetite suppression. Young adults are relying on vaping when studying to help concentrate and using vaping as food replacement to manage weight, suppress appetite, and avoid binge eating.
Robertson et al. (2022) , New Zealand	To examine Electronic Nicotine Delivery Systems (ENDS) uptake among young adult never-smokers to develop a richer understanding of their lived experiences of ENDS use.	Young adults ($N = 16$), 18–24 yrs (9 males, 7 females) who were current ENDS users.	Semi-structured, in-depth interviews, thematic analysis.	Two psychosocial themes: 1. Connection and belonging. 2. Balancing social cachet and stigma. Three functional themes for ENDS use: 3. Stimulation and engagement. 4. Self-management. 5. Rationalizations relative to smoking.
Sandhu et al. (2023) USA	To document the social factors encouraging and discouraging e-cigarette use amongst Latino college students.	Latino college students ($N = 20$), 18–24 yrs who were current or infrequent e-cigarette users. (Mean age regular users = 21.1 yrs; Mean age infrequent = 20.9 yrs).	Semi-structured interviews, thematic analysis.	Two main themes with sub-themes: Factors that contribute to e-cigarette use in regular and infrequent smokers: 1. Repeated peer exposure to e-cigarettes. 2. Scepticism of the harmfulness of recreational e-cigarette use. 3. Disagreement with familial views of substance use. Factors that deter e-cigarette use in regular and infrequent smokers: 1. High costs. 2. Weak nicotine euphoria. 3. Evidence of health risks.
Schiff et al. (2021) , USA	To explore with young adults who vape to better understand how they obtained vaping products while underage, and their thoughts and opinions on access to vaping products for young people.	Young adults ($N = 61$), 18–25 yrs, 13 females, 48 males (Mean = 20.9 yrs).	Interviews, content analysis.	Four main themes: 1. Early experimentation of e-cigarettes with peers often occurred in a school setting. 2. Continued use of e-cigarettes commonly obtained through peer sales. 3. Inconsistent implementation of age restrictions at in-person retailers. 4. Inconsistent implementation of age restrictions at online retailers.

Table 3. Continued

Author, year, country	Aims	Sample and study population	Data collection and analysis	Key findings
Simpson et al. (2021), USA	We aimed to better understand how young adults who vape experience, manifest, develop, and conceptualize symptoms of dependence in their everyday lives.	Young adults (N = 62), 18–25 yrs, (Mean = 20.9 yrs), 49 males, 13 females.	Semi-structured interviews, thematic analysis.	Two main themes: 1. Nicotine/tobacco dependence a. Cravings and urgency to use. b. Increased quantity and frequency of use to achieve desired effects. c. Unsuccessful quit attempts and withdrawal symptoms. 2. e-cigarette dependence a. Greater nicotine consumption due to ease of accessibility and lack of vaping restrictions. b. Habitual vaping: Inability to track vaping frequency. c. Immediate gratification and comfort from vaping devices d. Social acceptability and changing norms. e. Awareness of vaping dependency.

by these quotes ‘... My sister [gave me my first one]. She does it or she did it a lot in the house’ (Alexander et al. 2019, p. 96) and ‘...like when I came here to [school], I see it, everyone does it’ (Sandhu et al. 2023, p. 1559). This suggests that vaping enjoys a level of social acceptability that traditional combustible cigarettes do not. This perception is further reinforced by a general lack of knowledge about the potential harms associated with vaping. Many adolescents rely on their peers: ‘Well, I actually don’t know. My friend, she said there wasn’t any [harmful effects]’ (Alexander et al. 2019, p. 95) or social media for information when deciding to initiate vaping: ‘I was [in] high school, working out, and there was some guy online who was saying like...This is good if you have cravings for dessert. You get a chocolate flavor, and instead of having to eat a whole chocolate cake, you can take like 2 puffs, and you’ll be fine’ (Kechter et al. 2022, p. 3).

Sense of belonging and fitting in

The initiation sub-theme is heavily mediated by young people seeking a sense of belonging and desire to fit in, which became an additional motivator for young people to try and keep using vapes ‘I guess I just saw some of my friends doing it, and I hit theirs’ (Sandhu et al. 2023, p. 1559) and ‘I only do it because my friends do it’ (Alexander et al. 2019, p. 95). The psychosocial dynamics of adolescence can create an environment where vaping is perceived as a means of fostering connection and achieving a sense of belonging and fun ‘...it is best to vape with friends... when using alone it is not fun; with friends it is comedy’ (Gupte et al. 2022, p. 2994).

The initial passive exposure to vaping among adolescents eventually succumbs to their inherent curiosity, leading them to experiment with it ‘Yeah, just regularly seeing it. Like nobody ever forced me to do it. It [repeated exposure] just built interest’ (Sandhu et al. 2023, p. 1559). The pleasant smell of the vapours also aroused curiosity and contributed to adolescent interest in trying vaping ‘It just has a really nice smell which is, I think, the reason why people want to try it because it just smells so good’ (Robertson et al., 2022, p. 6).

Furthermore, the propensity for risk-taking, a characteristic trait during adolescence, not only contributes to the initiation of vaping but also sustains it. This is evidenced by the frequent instances of adolescents violating legal age restrictions to procure vapes, as illustrated by the following quotes: ‘Super easy. I was definitely underage when I bought it, but I went to the local store by my high school that everyone went to and I [asked], Can I get an e-cig? And [the store clerk] [asked], Are [you] 18? And I [said], Yeah but don’t have my driver’s license [with me]’ (Schiff et al. 2021, p. 839). It is also noteworthy that adolescents often circumvent the law to provide vapes to their younger peers: ‘People get [vapes] shipped from Arizona [a state where you purchase vaping products at 18 years instead of 21], so they get [a vape] for \$20 [from Arizona] and sell [the vape] to their friends for \$24 [in California]’ (Schiff et al. 2021, p. 838). Vaping is a social bonding activity, used as a group bonding activity: ‘and then we’ll just pass it around kind of thing’ (Robertson et al. 2022, p. 4).

Pleasant flavours and sensations

The flavours and scents of vapes increased their appeal: ‘when it went in my mouth it tasted like strawberry, it felt as if I ate a strawberry’ (Gupte et al. 2022, p. 2993) and ‘I’ve got a black one. Just because it was a sleek looking kind of thing... it’s just my kind of style’ (Robertson et al. 2022, p. 5). Some young people acknowledged that the diverse flavours are a key factor that keeps them engaged in vaping:

... there’s lots of flavours out there, which I’m looking to try... lots of blends of fruits and menthol and everything... there’s lots of, like, really interesting flavours, like custard pie and there’s a Turkish delight one, which looks really nice, and, um...just all these different desserts you can get (Robertson et al. 2022, p. 6).

Vaping is used to seek external validation by doing tricks with the exhaled vapour ‘when we post photos or videos of

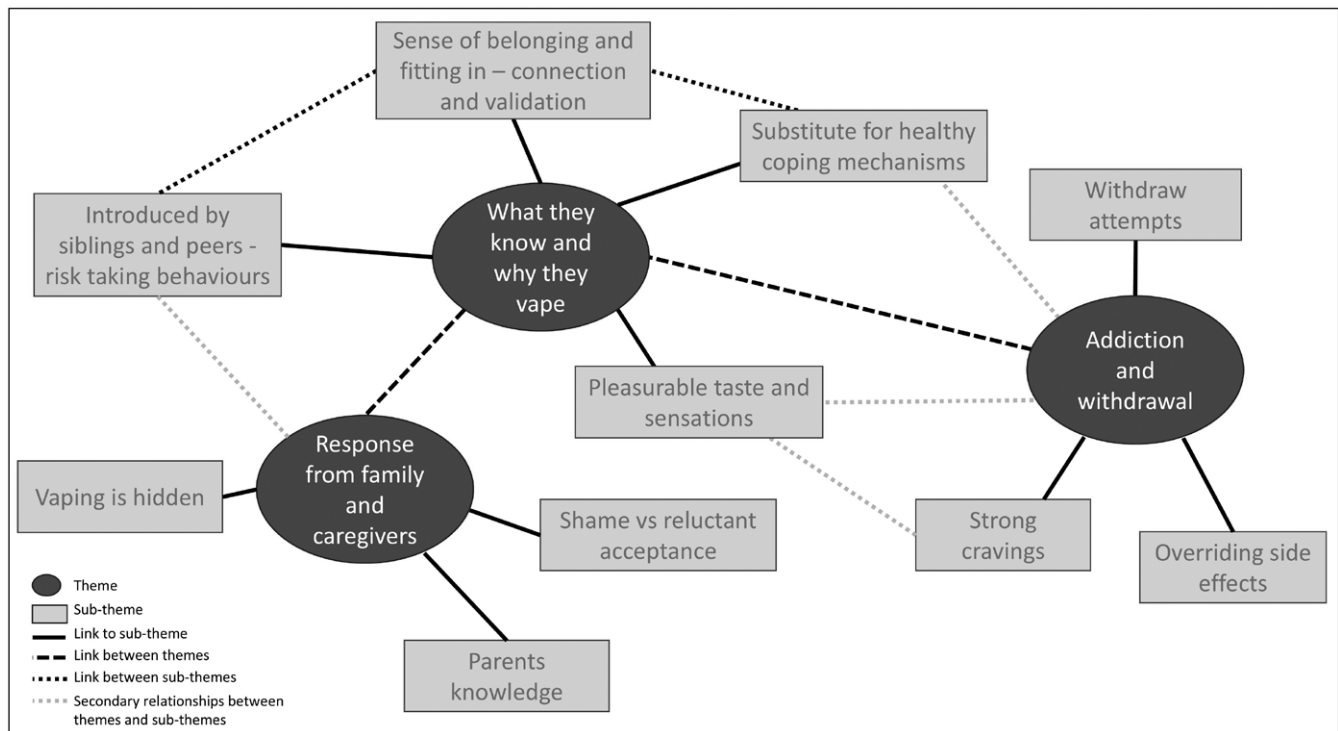


Figure 2. Thematic map demonstrating the relationship between the themes and sub-themes.

e-cigarette smoke, we get likes' (Gupte et al. 2022, p. 2993) and *'That's still sort of why I only do it, is to sort of get the tricks and stuff. My friends are always really impressed'* (Robertson et al. 2022, p. 5).

Substitutes for healthy coping mechanisms

Young people reported the use of vapes to help with social anxiety *'... just keeps you busy when you're in a crowd and stops you from getting, I don't know, bored and awkward'* (Robertson et al. 2022, p. 7) and for relaxation and stress relief *'...if I was stressed during classes or during an essay or something or some homework, I would definitely take a puff, get lightheaded, feel my whole body relax...'* (Simpson et al. 2021, p. 3). A proportion of young people, both male and female, admitted starting to vape with the express purpose of using the stimulant effects of nicotine to control their appetite and weight:

The reason I started [vaping] was because it suppressed my appetite. [When] I was a freshman in college, and I [was] very into LA, [and] never had a very positive body image of myself, and [vaping] made me lose a lot of weight (Kechter et al. 2022, p. 3).

Vaping was a prop for healthy coping mechanisms and often led to additional addiction problems for young people (Simpson et al. 2021, Kechter et al. 2022, Robertson et al. 2022).

Theme 2: Addiction and withdrawal

Central to the studies included the overriding addiction that vaping presented to young people and the often-unsuccessful attempts at withdrawal. This theme consisted of three sub-themes: *strong cravings*, *overriding side effects*, and *withdrawal attempts*.

Strong cravings

Central to young people's conversations surrounding vaping were the strong cravings. The cravings were unexpected and often resulted in higher doses of nicotine being required: *'I have 50 [mg] cause I started with the 30 and then I was like let me go up and see if I can feel any more light-headedness and I do'* (Simpson et al. 2021, p. 4) to attain the level of satisfaction that they were seeking. There was a clear progression in the dosage requirements to attain a nicotine craving or abate an emotional discomfort: *'There was a period where I really craved the Suorin [vaping device] because it became a thing where if I was stressed during classes'* (Simpson et al. 2021, p. 3).

Some young people described the cravings as being so strong that their vape needed to always be accessible: *'The worst thing is like - first thing in the morning, it's under my pillow. This is my [rock] bottom, it's under my pillow [when I sleep so I can use it] first thing in the morning'* (Simpson et al. 2021, p. 5). While other young people use the vape for a specific purpose, like weight loss and often as a coping strategy: *'I was pretty heavyset when I was [vaping] a lot, I lost all the weight, stopped vaping, and when I broke my leg, I couldn't exercise, started vaping again, gained the weight back, and now it's kind of hard for me to put it down'* (Kechter et al. 2022, p. 4) the onset often triggers an ongoing addiction to vaping and other conditions. For many of the young people who engage with vapes to suppress appetite, the practice turns into a disordered eating behaviour *'I vape to the point where it suppresses my appetite, so unfortunately, I wake up at two in the morning most nights and gorge on food'* (Kechter et al. 2022, p. 3). The impact of addiction on the lives of young people is powerful.

Overriding side effects

The addiction was cited as hosting a variety of side effects that impacted their lives. When a vape was not accessible,

the craving created intense emotions and physical sensations that young people struggled to navigate (Simpson et al. 2021, Kechter et al. 2022, Robertson et al. 2022): *'I've really felt that a lot where I get irritable like damn, I really wish I had my vape right now...and overriding emotional and physical withdrawal symptoms'* (Simpson et al. 2021, p. 3). This created situations that triggered the ongoing addiction: *'If I did not vape, I would always get mad... get too angry. That flavor... there is something in that flavor, which gets you addicted'* [9th Grade participant] (Gupte et al. 2022, p. 2995).

Regardless of the reasons why a young person engaged in vaping, the addiction and ongoing cravings were the stimulus that sustained the practice: *'I think by the end of that semester it became less of something I did to "release stress" because of the head buzzes'* (Simpson et al. 2021, p. 3). Participants named the overriding cravings: *'It's crazy because we call "fiending" when you just, really want to hit something and you can't'* (Simpson et al. 2021, p. 3).

Withdrawal attempts

Withdrawal was attempted by many young people in their studies. However, due to the level of addiction and overriding side effects, attempts were often unsuccessful: *'This past summer... I tried quitting on a family vacation...I was really killing the vibe for the rest of my family so I went two full days without [vaping]and honestly on that second day I was like I know that I can do this. I know that I can drop it, but I don't know how to stop myself from being irritated and angry when I'm off of it'* (Simpson et al. 2021, p. 4).

The physical side effects impacted school and home life: *'I get headaches, I get more irritated, it gets a little harder for me to concentrate in class'* (Simpson et al. 2021, p. 5). Young people described self-withdrawal strategies involving a gradual decline in vaping: *'I'm going to go through some sort of withdrawals if I try to cold turkey it or wean myself off of it less and less'* (Simpson et al. 2021, p. 5). Vaping withdrawal was isolated, often completed without the support of health professionals and/or family/carers. Young people were heightened to the impact and effects of withdrawal, with some actively discouraging withdrawal: *'Sometimes if I have difficulty sleeping and I know I've been using it more, I'll be like "it's probably the nicotine withdrawal"'* (Simpson et al. 2021, p. 5). It was clear that withdrawal was of concern to young people and even feared: *'I rip it so many times throughout the day that I am scared to stop'* (Simpson et al. 2021, p. 5).

Theme 3: Response from parents/caregivers

Young people in the included studies were cognisant of the views (either perceived or actual) (Simpson et al. 2021, Gupte et al. 2022, Sandhu et al. 2023) of their parents/caregivers. This theme hosted three sub-themes that provide context to the response to vaping from parents/caregivers.

Parents knowledge

Young people reported that their parents and/or carers were not knowledgeable about vaping: *'Obviously like an e-cigarette, like it's fairly new. Didn't they like pop up, like 2018 or 2016, or something like that?'* (Sandhu et al. 2023, p. 1561). They attested this to both the currency of the product as well as the product adaptability: *'If you were to show them [parents] like a dab pen or e-cigarette, they wouldn't be able to tell the difference'* (Sandhu et al. 2023, p. 1560). This made the vapes accessible and responsive to the risk-taking

behaviour of young people. Quite simply, they became an easy addition to the lives of young people. However, this did not deter them from considering their parent's/carers' responses: *'[My mother's] first thing would just be like, "Why are you doing that? It's not good at all. [Her approach is] More like you should stop versus you should find out by yourself"'* (Sandhu et al. 2023, p. 1561). Despite such consideration, vapes remain hidden.

Vaping is hidden

The act of vaping, although accessible, was known to be a discerning choice, with young people being advised to keep the act and the device hidden from parents/carers: *'I kept it in my cupboard. My brother asked me to hide it from our parents'* (Gupte et al. 2022, p. 2994) in places that were known areas that were safe from prying eyes: *'kept it in my schoolbag; no one touches my bag'* (Gupte et al. 2022, p. 2994). Keeping the device hidden was important, but engaging in the act in a private place was also of importance to young people: *'We bring it to school sometimes and use it in the school washroom'* (Gupte et al. 2022, p. 2994). Despite vapes being a part of young people's socialization, friendship groups and families (Simpson et al. 2021, Kechter et al. 2022, Robertson et al. 2022) they ultimately knew the act was dangerous and thus took to extensive lengths to keep the vaping hidden.

Shaming vs reluctance to acceptance

Despite the lengths taken to hide vapes, inevitably, families/carers were made aware either by schools and/or family members. While some families wanted young people to completely abstain from vaping, others reluctantly accepted the habit (Sandhu et al. 2023). Parents/carers took on an often-ineffective approach by shaming vapers outside of the family: *'She'll [My mother] bring up other people, you know. Outside of family members. She'll say, "Look at them. They are just being hooligans"'* (Sandhu et al. 2023, p. 1561).

Other approaches included reluctant acceptance, where parents compared risk-taking behaviour and chose to accept the habit: *'My mom smacked me. Now she's okay with it'* (Alexander et al. 2019, p. 96) and *'My mom doesn't trust it either, but she told me that she'd rather me be doing that than other bad things'* (Alexander et al. 2019, p. 96). As previously cited, some family members actively encouraged vaping, even resorting to purchasing the device for young people: *'My dad gave me my first one, so'* (Alexander et al. 2019, p. 96), rather than engaging in other risk-taking behaviour.

DISCUSSION

This scoping review aimed to develop a comprehensive understanding of the perceptions, motivations, and experiences associated with nicotine vaping among youth. Through three key and interrelated themes, we identified that young people and adolescents have knowledge and rationale for vaping which generates a sense of belonging with their peers. Once vaping, they often struggle with addiction and withdrawal and may use vaping as a coping mechanism. Adolescents and young people are cognisant of the views of parents/caregivers in vaping who may require support in developing knowledge on the mechanism of vaping.

A clear finding from this review is that adolescents and young adults are often introduced to vaping through siblings and peers or social media with a clear motivation to

be included. The influence of peers on determining the behaviours of others is not new. Social learning theory posits that people learn from one another through observation, imitation, and modelling (Bandura 2021) where the decision to adopt a behaviour depends on perceived benefits and drawbacks. It has been well established in the literature, for example, that modelling behaviours of parents and friends can influence adolescents' smoking behaviours and can also influence the selection of peers (Dickter and Forestell 2012, Vitória et al. 2020). Early intervention/prevention programs such as 'Just Say No' (Meredith et al. 2021) or 'CATCH My Breath' (Baker et al. 2022) have been successful in increasing youths' knowledge of the harmful effects of substance use and addiction and may lead to a decrease in uptake. Exploring the role of social learning theory in the context of vaping, where social networks are leveraged, could provide insights into how behaviours are modelled and adopted, helping to inform strategies that disrupt these patterns.

Similarly to the findings of this review, social media, which is a widely used platform for information sharing and social interaction, simultaneously plays a significant role in influencing youth to take up vaping (Lee et al. 2021, Vogel et al. 2024). With limited initial public health messaging of the high risk of vaping, digital marketing, and social media platforms have capitalized and contributed to the normalization of vaping among young people (Jung et al. 2024). There is emerging evidence suggesting a relationship between smartphone use and smoking behaviours (Oh and Heo 2024) raising the question of whether similar links exist between vaping (chemical) and social media (digital) addictions. Social media also poses a realistic and attainable mode to disseminate information regarding the risk associated with vaping not only to adolescents and young people but also to their communities such as parents and carers.

Educational campaigns that address the misconceptions among young people about the safety of continued vaping are warranted. This review indicates that adolescents and young people are not always aware of the risk associated with vaping. These campaigns should focus on presenting credible information and evidence (Lee et al. 2024), correcting the narrative that vaping is harmless and emphasizing the long-term health risks (de Carvalho et al. 2024) and in a mode that is acceptable to the target audience, for example, social media rather than calling a Quitline (Rahmann et al. 2024). Public health messaging should strategically target vaping prevention and cessation support among youth and young adults by considering the influence of message elements, the credibility of sources, the choice of communication channels, and the specific characteristics of the audience (Wu et al. 2024). In addition, campaigns to support parents' and caregivers' knowledge are needed. Campaigns such as P-EVER (Abraham et al. 2024), an educational infographic for parents and families of adolescents and young people, have been evidenced as providing strategies in commencing conversations around vaping risk, withdrawal, and cessation. Extending such resources to include conversations around coping mechanisms would further support adolescents and young people.

An important finding from this scoping review suggests that vaping is being used as a coping mechanism. During adolescence, brain regions integral to executive functions, such as decision-making and impulse control, are significantly restructured, modulated in part by nicotinic acetylcholine receptors (Yuan et al. 2015). Prolonged nicotine exposure

may induce epigenetic modifications and heighten stress sensitivity, potentially contributing to the onset of mood disorders, schizophrenia (Quigley and MacCabe 2019, Riehm et al. 2019), and substance use disorders (Iniguez et al. 2009, Yuan et al. 2015). Our findings are consistent with research indicating that vaping may serve as a marker for mental health behaviour risks (Becker et al. 2021). In addition, reliance on nicotine as a coping mechanism can impede the development of healthy adaptive coping skills (Turliuc et al. 2024), which is why early, multi-modal intervention strategies with comprehensive support are recommended to help youth navigate the transition into adulthood and reduce the risk of future substance use.

A clear finding of this review is that if an adolescent attempts to withdraw from vaping, it is usually attempted alone, without peers, family, or health professional support. Recognizing that youth often turn to vaping as a coping mechanism for mental health, attempting to quit without support understandably, frequently leads to failure (Cuccia et al. 2021). Coupled with the severity of known addiction and withdrawal symptoms (Soule et al. 2020, Barakat et al. 2021) posit the need for research related to withdrawal pathways. Findings from this review support that incorporating strategies to help youth withdraw from vaping must consider factors including social influences, mental health considerations, and the physical symptoms adding to the complexity of withdrawal. Recognized as a public health concern (Berg et al. 2021), effective interventions should provide behavioural support, such as peer-led programs (Chu et al. 2021, Wyman et al. 2021) and educational initiatives that target the harmful effects of vaping, enhancing harm perceptions among young people, which are positively associated with quit attempts (Cuccia et al. 2021). Technology-based interventions, including text messaging programs (Graham et al. 2022a, 2022b, Graham et al. 2024), YouTube and TikTok (Rahmann et al. 2024) and gamification approaches (Berg et al. 2021), have shown promise in engaging youth and promoting sustained cessation. Grant et al. (2019) highlight the complex nature of vaping and its relationship to other substance addiction. It is reasonable, therefore, to also consider interventions that have proven successful in addressing addiction. For example, non-pharmacological interventions such as cognitive behavioural therapy (Lachance and Frey 2020) and mindfulness have been demonstrated to reduce cravings, stress reactivity, and reward sensitivity in various substance use disorders (Balconi and Angioletti 2021).

LIMITATIONS

There are a few limitations to this review that are worth mentioning. We only included studies published in English, which means we might have missed important perspectives from non-English-speaking countries and different cultural settings. Given that the review relies on self-reported data, there is a possibility that participants may not have fully disclosed their experiences or feelings, which could affect the accuracy of the findings. Since we excluded quantitative data, this limits our ability to assess just how widespread these behaviours or issues are among young people. Although we concentrated on the experiences of young people, we did not explore how factors like gender, socioeconomic background, or geographic location might influence their vaping experiences. These gaps underscore the need for further research

to comprehensively understand vaping among young people from diverse backgrounds.

CONCLUSION

This scoping review provides insight into the perceptions, motivations, and experiences behind vaping among adolescents and young adults, such as peer influence, social acceptance, and the appeal of various flavours. While many are aware of the associated health risks, quitting remains challenging due to nicotine's addictive properties. Family responses range from unawareness to unwillingness to accept, highlighting the need for more public education and intervention strategies. Developing targeted cessation programs and pathways that address both the physical addiction and the social dynamics of vaping is required. Although further research is required, this scoping review provides a solid understanding of the factors contributing to youth vaping and guiding future prevention efforts.

CONFLICT OF INTEREST

None declared.

FUNDING

None declared.

DATA AVAILABILITY

The data underlying this article are available in the article.

ETHICS STATEMENT

This scoping review explores the use of existing published data therefore Human Research Ethics approval is not required.

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