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RESEARCH ARTICLE

Protective Influences Against Vaping Among Tobacco Product Naïve Adolescents in Indonesia

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ABSTRACT

Introduction: Research on e-cigarette use among adolescents has predominantly focused on patterns of use and risk factors. However, limited attention has been given to adolescents with no lifetime experience of e-cigarettes or other tobacco products and to the personal, family, peer, and coping-related influences they perceive as supporting continued non-use, particularly in Indonesia. This study explored perceived protective influences and strategies among tobacco product-naïve adolescents.

Methods: This qualitative study involved five focus group discussions with 25 male students aged 16–18 years from two state and two private high schools in Semarang, Indonesia. Teachers helped identify potential participants based on the eligibility criteria. Data were collected using semi-structured focus group discussion (FGD) guidelines developed on the basis of the research objectives and the constructs of the Health Belief Model (HBM) and the Theory of Planned Behaviour (TPB). At the beginning of each discussion, participants' self-reported never-use status was confirmed. Eligible participants reported never having tried an e-cigarette or another tobacco product, even a single puff. Data were analysed using a theory-informed but data-driven thematic analysis.

Results: Four main themes emerged: (1) Personal meanings and reasons for non-use, (2) family influences supporting non-use, (3) navigating peer contexts and invitations, and (4) substance-free responses to stress and difficult emotions. Participants described disliking the anticipated sensation of vaping, maintaining personal values, recognising health and financial consequences, following family rules, and observing smoking-related illness within their families. They also described refusing offers, selecting supportive friends, and managing stress and difficult emotions without using substances. Together, these accounts illustrate interconnected influences that participants perceived as helping them remain tobacco- and vape-naïve.

Conclusion: These findings identify promising components for adolescent vaping prevention programme development, including personally meaningful reasons, family involvement, realistic refusal practice, supportive peer norms, and substance-free coping strategies. These components require further development and testing before conclusions about their effectiveness can be drawn.

Keywords: Adolescent; E-Cigarettes; Protective Influences; Qualitative Research; Tobacco Ucse Prevention

INTRODUCTION

Electronic cigarettes (e-cigarettes), commonly known as vapes, are battery-powered devices that vaporise liquids (e-liquids) containing nicotine, flavourings, and other chemicals for inhalation (1,2). E-cigarettes have increasingly gained popularity among adolescents, raising significant public health concerns worldwide, including in Indonesia (3,4).

In Indonesia, national surveillance data indicate a substantial rise in e-cigarette use over the past decade. The Global Adult Tobacco Survey (GATS) recorded an increase in e-cigarette users in Indonesia from 0.3% in 2011 to 3% in 2021 (5). Furthermore, a survey conducted among high school and college students in Indonesia revealed that 36.2% had smoked cigarettes at some point, while 65.2% had experimented with e-cigarettes (6). Social and environmental influences (such as friends and family), access to social media, and personal factors contribute to adolescents' e-cigarette use and susceptibility to experimentation (7,8).

A growing body of evidence has demonstrated an association between e-cigarette use among adolescents and subsequent initiation of combustible cigarette smoking. A systematic review and meta-analysis of adolescents reported a consistent association between e-cigarette use and the initiation of combustible cigarette use, reinforcing the urgency of prevention among the school-age population (9). This concern is particularly relevant to Indonesia. As a country with a high burden of tobacco-related problems, prevention efforts during adolescence may help disrupt the cycle of nicotine addiction and long-term smoking behaviour.

Previous studies have identified factors associated with adolescent e-cigarette non-use or lower susceptibility, including perceived harm and cost, parental monitoring, non-using peers, and refusal self-efficacy (7,10–15). However, much of this evidence is quantitative and risk-oriented, offering less explanation of how adolescents understand and enact non-use in everyday contexts. Evidence from Indonesia is particularly limited regarding e-cigarette and tobacco product-naïve adolescents, whose accounts may inform prevention before experimentation occurs.

This study therefore explored how Indonesian male e-cigarette and other tobacco product-naïve adolescents describe the influences and strategies that underpin their decision to continue abstaining from these products. Rather than identifying new protective factors, this study presents context-specific qualitative evidence on how established influences, whether related to personal, family, peer, or coping-related factors, are experienced and articulated by e-cigarette and tobacco product-naïve adolescents in urban school settings in Indonesia. This issue matters in Indonesia, where parental roles and social relationships strongly influence adolescent behaviour (7,16). Without basing prevention messages on the perspectives of those who have successfully resisted trying e-cigarettes, public health efforts risk relying on assumptions that may not correspond to the social reality of adolescents. These findings are intended to inform the design of health promotion programmes.

METHODS

This study used a qualitative approach, as described below.

Study Design

This qualitative study formed part of a broader qualitative study of adolescent e-cigarette use. This study used focus group discussions (FGDs) to explore how male e-cigarette and other tobacco product-naïve adolescents maintained their decision not to vape.

Participants and Sample

Participants were male high-school students aged 16–18 years in Semarang. Once the researchers had obtained permission to enter the school, the teachers identified students who met the study criteria: male e-cigarette and other tobacco product-naïve adolescents. Before the FGD began, the researchers reconfirmed participants' self-reported status regarding e-cigarette and other tobacco product use while the consent forms were completed and repeated this verification during the introductory session at the start of the FGD. Initially, 27 students took part in five FGDs. During the introductory phase at the start of one FGD, two students revealed that they had previously tried cigarettes. Consequently, both were deemed ineligible because they did not meet the criterion of 'never having used'. As this information came to light after the FGD had begun, both students remained in the room and occasionally contributed to the discussion. Their identities and contributions were recorded in the notes, and all their statements were excluded from the analytic transcripts, coding, and theme development. Consequently, the final analytical sample comprised 25 eligible participants. The teachers only assisted in selecting potential participants based on their existing knowledge of the students. They were not present during the FGDs and did not have access to students' individual responses during this verification process. Although the study focused on vaping, eligibility was restricted to adolescents who reported never having tried e-cigarettes, cigarettes, or other tobacco products, even a single puff. This criterion was established to obtain the perspectives of adolescents who reported never having used nicotine or tobacco products, to ensure that their decision not to vape was not influenced by experience of using other products.

Research Setting

This study was conducted at four senior high schools in Semarang: one state school and one private school each in the Semarang Barat and Semarang Tengah sub-districts. Google Maps was used to map vape stores by sub-district during August–September 2024, while data on school distribution were obtained from the Semarang City Education Department

website. These two sub-districts were selected because they had a relatively high number of identified vape stores and senior high schools. West Semarang had one state senior high school that agreed to participate. Central Semarang had two state senior high schools; one of these was selected to ensure a balanced composition of state and private schools. Several private schools were contacted, and those that granted institutional permission were included in this study. The number of vape stores was treated solely as a regional contextual indicator, rather than as evidence of individual exposure for each participant. The schools were identified using pseudonyms. Schools in areas with a relatively high number of vape stores were selected because previous research indicated that the proximity of vape stores to a school was associated with ever having used e-cigarettes among adolescents (17).

Data Collection Instrument

Data were collected using semi-structured focus group discussion (FGD) guidelines developed on the basis of the research objectives and the constructs of the Health Belief Model (HBM) and the Theory of Planned Behaviour (TPB). The guide included open-ended questions and probes about perceptions of vaping, social and family contexts, responses to peer pressure, and experiences coping with problems; these questions and probes did not specify the article's four themes from the outset. Two experts—a health-promotion specialist and a tobacco-control researcher—reviewed the guide for clarity and relevance. A pilot study was conducted in a senior high school outside the four research sites and was used primarily to refine the probing questions. The pilot study data were not included. All FGDs were recorded with the participants' consent.

Data Collection Procedures

Five FGDs were conducted in Indonesian and lasted approximately 60 minutes. All FGDs were moderated by the first author, a public health researcher with experience in qualitative research. The moderator had no prior personal, teaching, supervisory, or research relationship with the participants and met them for the first time during the data-collection process. Each group consisted of four to six male students from the same school. They generally knew one another as schoolmates, although they were not always in the same class. Discussions took place in classrooms, meeting rooms, or halls provided by the schools. Teachers, school staff, and other parties were not present in the rooms. The final analytical composition was as follows: a private senior high school in West Semarang (n = 5), a state senior high school in West Semarang (n = 4), a private senior high school in Central Semarang (n = 6), and a state senior high school in Central Semarang (n = 6 and n = 4, respectively, across two FGDs). Saturation was assessed repeatedly throughout the data-collection and analysis processes. After the fourth FGD, the researchers found that the data largely extended the established categories and that no substantively new codes had emerged (code saturation). The researchers conducted the fifth FGD to verify that the meanings had converged and that there was adequate regional representation (meaning saturation).

Data Analysis

Research assistants produced verbatim transcripts in Indonesian under the first author's supervision. The first author checked each transcript while listening to the corresponding audio recording and corrected transcription inaccuracies before coding. All coding, category development, and theme development were conducted using Indonesian-language transcripts. All transcripts were coded in NVivo 11 for the research as a whole. For this article, data from five focus group discussions (FGDs) involving male e-cigarette and other tobacco product-naïve adolescents were reviewed in accordance with Braun and Clarke's stages of thematic analysis: familiarisation, initial coding, grouping of related codes, development of candidate categories and themes, review of quotations and the data as a whole, and definition and naming of themes (18). After the themes had been developed, quotations selected for publication were translated into English by the first author with the assistance of DeepL and Grammarly. The first author checked each translated quotation against the original Indonesian transcript and its conversational context. Culturally specific expressions, including references to religion, family expectations, and peer interactions, were translated according to their intended contextual meaning rather than word for word. The English manuscript was subsequently read by the bilingual co-authors for language clarity. However, they did not conduct a formal independent comparison of the translated quotations against the Indonesian transcripts.

The analysis was theory-informed but remained data-driven. The HBM and TPB informed the broader research framework, but the themes in this article are not predefined theoretical categories. Coding was primarily carried out at the semantic level, followed by interpretative theme development. The first author led the coding and theme development. The second and third authors did not carry out independent coding; they reviewed supporting quotations, discussed the interpretation and coherence of the themes, and reviewed the manuscript. The progress of the analysis was documented through a step-by-step NVivo structure, revisions, and discussions with the supervisor; formal reflective journals were not used. The HBM and TPB were used cautiously as interpretative lenses in the Discussion, rather than as a deductive coding framework or a combined model to be tested. Separate field notes and participant checking of transcripts or findings were not documented in the materials available for this report.

Ethical Approval

Ethical approval was obtained from the Health Research Ethics Committee of the Faculty of Public Health, Muhammadiyah University of Semarang (071/KEPK-FKM/UNIMUS/2024; 5 August 2024), and the procedures followed the approved protocol. For participants aged 16, the protocol designated the form tutor to sign the written consent form. Students read the research information, were able to ask questions, and gave verbal agreement before participating; they did not sign a separate consent form. Participants aged 17–18 signed an informed consent form independently in accordance with the protocol. Separate

parental consent was not obtained. Students were informed that participation was voluntary and did not affect their marks or their relationship with the school. Before each FGD, participants were asked not to disclose the identities or statements of other participants outside the discussion. Teachers and school staff were not present during the FGDs, and participants' names were replaced with codes in the transcripts and manuscript. However, participants were not explicitly informed that confidentiality among group members could not be guaranteed.

RESULTS

The FGD participants comprised 25 male students aged 16–18 years across five FGDs held at four schools. There were 6 participants (24%) in Year 11 and 19 participants (76%) in Year 12. Six participants were aged 16, 17 were aged 17, and 2 were aged 18. All participants reported never having used e-cigarettes or any other tobacco products. Participant characteristics by school are shown in Table 1.

Table 1. Participant characteristics

School/setting	FGD	Participants	%
Semarang Barat Private School	1	**5**	**20**
Semarang Barat State School	2	**4**	**16**
Semarang Tengah Private School	3	**6**	**24**
Semarang Tengah State School	4	**6**	**24**
Semarang Tengah State School	5	**4**	**16**
Total	1–5	**25**	**100**

Thirty-one initial codes were organised into 12 categories and four themes. Table 2 presents a consistent code–category–theme hierarchy; representative quotations supporting each category are provided in the Results.

Table 2. Theme trail for perceived influences and strategies supporting non-use

Theme	Category	Illustrative initial codes
Personal meanings and reasons for non-use	Personal values and preferences	*Dislike of smell/aerosol; Religious Conviction Future aspiration; Preferred activities*
	Health-related concerns	*Physical discomfort; perceived harm; Fear of addiction; parental health warning*
	Economic considerations	*It's a Waste of Money; expense; alternative priority*
Family influences supporting non-use	Learning from family illness	*Smoking-related illness; respiratory vulnerability in family*
	Parental prohibition	*Clear rules; promise to mother; repeated reminders*
	Non-smoking family norm	*No smoking/vaping at home; non-use as household norm*
Navigating peer contexts and invitations	Responding to offers	*Casual but firm refusal; health-based explanation*
	Peers' responses to refusal	*Acceptance; no continued coercion*
	Supportive social circles	*Choosing non-using friends, limiting vaping setting*
Non-substance responses to stress and difficult emotions	Considering consequences and self-control	*Thinking before acting; perceived emotion control*
	Alternative activities	*Music; exercise; school creative activities; time alone*
	Interpersonal support	*Parental trust, sharing problems; supportive friends*

Theme 1: Personal Meanings and Reasons for Non-Use

Theme 1 comprised three categories: (1) personal values and preferences, (2) health-related concerns, and (3) economic considerations. Participants mainly explained the reasons why e-cigarettes and other tobacco products were not of personal interest to them or did not align with their priorities. Because the data did not consistently demonstrate active identity construction or negotiation, these accounts are interpreted as personal meanings and reasons for non-use rather than as evidence of a distinct non-vaping identity.

Personal values and preferences

Many participants emphasised that their rejection of vaping was often sensory and emotional. They disliked the smell and smoke/vapour emitted by cigarettes and vapes. For them, the unpleasant sensory experience was enough to eliminate any curiosity about trying vaping. One participant stated: *"Because I'm just not interested. Usually, when I come home from school, many of my friends smoke or vape, and I don't like the smell. The smell is unpleasant, so I think the taste must be unpleasant too." (FGD 1)*

Some participants believed that cigarettes or vaping were haram because of their perceived potential to damage the body. This belief, which they linked to religious rules, acted as a strong internal barrier to smoking and vaping. A participant stated: *"I even forbid cigarettes and vapes, it's haram. I said that because cigarettes actually damage our bodies. Yes, I reject them outright.*" (FGD 2)

Several participants revealed that they refused to vape because they had clear future goals, which required them to maintain physical fitness and discipline. Vaping was considered an obstacle that could threaten their aspirations and was therefore not worth pursuing. One participant revealed: *“The reason I don't vape is that I plan to enrol in a civil service academy after graduation. If I vape, it will interfere with my breathing*.” (FGD 5)
Another participant reported having specific passions, such as fashion, sports, or other activities. These activities have shaped their identities as creative adolescents with something to be proud of, making vaping unattractive to them. A participant said: *"Perhaps because I know it's not good for my health, so I think there are other things that I find cooler than that. For example, I like fashion, so I think that's cooler than smoking or vaping."* (FGD 1)

Health-related concerns
Participants described health-related concerns that supported non-use. The concerns were shaped by health information, parental warnings, fear of addiction, and physical discomfort around smoke and aerosol. The accounts represent participants’ perceptions and experiences rather than assessments of comparative harm.
Some participants also described discomfort when exposed to e-cigarette aerosol or cigarette smoke. A few believed that passive exposure was more harmful than active use. They perceived harm and unpleasant residue on clothes, hair, and surroundings, which reinforced their desire not to use either product. Participants stated: “*The impact on me as a passive smoker is more dangerous than on the smoker. That’s why I hate cigarette smoke and vape smoke. I really don't like it at all*.” (FGD 2). “Because *cigarette smoke or vape smoke tends to stick to clothes and other things, I don't like it.” (FGD 4)*
Some participants described sensitivity to vape aerosol, including coughing, tightness, or discomfort when inhaling even a small amount of vapour. This physical sensitivity reinforced their understanding that their bodies are not suited to vaping. Participants stated: *"Hmm, I'm not interested, because I think with all the health risks that come with trying electronic cigarettes, it's just not worth it."* (FGD 1). *“*From my experience, it is sensitive to cigarette smoke. *If I am exposed to even a little bit, sometimes I feel short of breath.*” (FGD 2)
Fear of addiction was another reason participants gave for refusing to vape. One participant stated: "*From the beginning, I have had a principle that I do not want to consume anything that contains nicotine, even though my father has been smoking since he was a student. I am afraid that if I follow in his footsteps, I will become addicted. From the beginning, I decided not to try it, even though my friends around me smoke and vape, but I still have my principles, even though sometimes I become a passive smoker, inhaling cigarette smoke from my friends*." (FGD 4)
Some participants stated that vapes contain harmful substances. Another participant added that he was not interested in vaping because he wanted to stay healthy. The health reasons cited by participants were also reinforced by parental advice. Participants stated: *“My parents don't allow me to smoke because cigarettes are harmful. It's forbidden.”* (FGD 3). *“Not interested, ma'am... I want to live a healthy life. My parents often remind me about it too.*” (FGD 5)

Economic considerations
Economic considerations also played an important role in participants’ reasons for non-use. Several participants stated that vaping devices and e-liquids were considered expensive and a waste of money. For these adolescents, vaping was perceived as not only unhealthy but also irrational. Spending money on something that damages their health was considered unreasonable. This economic consideration strengthened their resistance, particularly when friends spent money on vaping devices and liquids. A participant revealed: “*It's expensive, so from an economic point of view, it's better to buy something else*.” (FGD 1)

Theme 2: Family Influences Supporting Non-Use
Theme 2 describes how family experiences and norms supported participants’ non-use. Three categories were identified in this theme: (1) learning from illness and suffering in the family, (2) parental prohibition, and (3) growing up in non-smoking families as a normative influence.

Learning from illness and suffering in the family
Many participants described how their decision to avoid vaping was influenced by direct observation of illness and declining physical health among their family members. Participants recounted stories of fathers or other family members who experienced health problems that participants associated with long-term smoking. For some participants, these experiences had an emotional impact, motivating them never to try vaping. One participant said, “*I actually come from a family of smokers. My father used to be a heavy smoker, smoking two to three packs a day. However, that made him sickly, with frequent coughing, that's where my hatred came from, one... with cigarette smoke*.” (FGD 2)
In addition to gaining experience from family members who smoke and suffer from illness, some participants had family members who were prone to respiratory health problems after being exposed to cigarette smoke. For some participants, this also reinforced their decision not to try cigarettes or vapes. A participant revealed: *"I have never smoked because my grandfather was a heavy smoker, and it made him sick. In addition, my younger sibling has asthma. My uncle used to smoke inside the house, and my sibling would immediately have difficulty breathing.*” (FGD 4)

Parental prohibition
Parental prohibition emerged as one of the strongest protective factors against vaping. Many participants reported that their parents—especially mothers—had strictly prohibited them from smoking or vaping from an early age. Even in families where

parents continued to smoke, participants were repeatedly warned not to imitate this behaviour. Several participants stated that they had made a personal promise to their mothers not to smoke or vape. This promise was not framed as external pressure but as a commitment that had to be upheld. One participant remained committed to following his mother's instructions, although his father allowed him to smoke cigarettes or vape. Participants stated: *"Since I was little, my parents have told me to stay away from cigarettes and vapes.*" (FGD 5). *"If my parents also forbade me, even though my father is a heavy smoker, but I really don't like cigarettes and vapes like that.*" (FGD 3). "*My father doesn't vape, but he smokes cigarettes. He often offers me some, but I always refuse, because I promised my mother that I wouldn't smoke*." (FGD 3). *"My mother is a doctor. She has emphasized that we should not smoke, vape, or anything like that.*" (FGD 2)

Non-smoking family norm

Some participants who grew up in families where no one smokes or vapes described non-smoking as their default norm. They had never seen smoking behaviour imitated at home, so they viewed vaping as something foreign, unnecessary, and socially distant from their everyday lives. One participant stated: "*No one in my family smokes at all... no one vapes at all.*" (FGD 2)

Theme 3: Navigating Peer Contexts and Invitations

Theme 3 comprises three categories: *(1) strategies for responding to offers, (2) peers' responses to refusal, and (3) choosing a supportive social circle*. This theme describes how participants who did not vape maintained their non-vaping status. Although many participants had been exposed to vaping through friends and social environments, they were not passive recipients of peer influence. Instead, they demonstrated independence in choosing peer groups, negotiating invitations, and maintaining social relationships without compromising their personal boundaries.

Strategies for responding to offers

Most participants stated that they were familiar with social circles that used cigarettes and vapes. Some participants even said that they had been offered them directly. When offered a chance to try vaping, participants employed various strategies to refuse, such as declining casually but firmly and using health reasons.

Several participants stated that when hanging out with friends who smoked cigarettes and vaped, they were often offered a try by their friends. These offers typically arose in casual contexts rather than in overtly coercive ones. Despite being offered cigarettes and vapes, the participants consistently refused. Being around smokers and vapers did not automatically arouse curiosity or a desire to try them. "*Some of my friends smoke and vape too... They jokingly offered me some, saying, "Try this, try it," so I replied jokingly too. But I still refused*" (FGD 5)

Some participants used health reasons to refuse their friends' offers to smoke or vape. A participant revealed: "*There have been offers (from friends), but my usual excuse is, Sorry, I have asthma."* (FGD 2)

Peers' responses to refusal: respect, not rejection

Many participants reported that vaping offers were casual rather than persistently coercive. Participants reported that after they refused, their friends often responded with neutrality or acceptance, rather than ridicule or coercion. Some participants said: "*My friends smoke and vape too... They jokingly offered me some, saying, "Try this, try it," so I replied jokingly too. But I still refused. My friends still respect me for choosing not to smoke or vape, Ma'am.*" (FGD 5). "*They offered it to me, but I refused. When I declined, that was fine; they didn't make fun of me either."* (FGD 1)

Choosing supportive social circles

Some participants described consciously choosing friendships that aligned with their values. Some spent more time with peers who did not smoke or vape, while others limited their interactions with friends who frequently used vapes. A participant explained: "In friendships, you also have to be selective. Choose healthy friends and a healthy circle. I don't like smoking. When there are big problems, it's usually not about smoking, but about how we share, give each other feedback, opinions, and so on. In my opinion, that is more effective and very helpful, compared to smoking and other things." (FGD 2)

Theme 4: Substance-free Responses to Stress and Difficult Emotions

Theme 4 highlights participants' accounts and perceptions of responding to stress or difficult emotions without relying on the addictive substances found in e-cigarettes and other tobacco products. This theme encompasses three interrelated categories: *(1) considering consequences and self-control; (2) alternative activities; (3) interpersonal support*. Some quotations described lived coping experiences, whereas others expressed general beliefs about appropriate responses to problems. The theme is therefore interpreted as perceived substance-free responses rather than evidence that particular coping strategies causally prevented vaping.

Considering consequences and self-control

Several participants reported carefully weighing the pros and cons before deciding what to do and maintaining emotional control. Before deciding, they tended to evaluate the potential benefits and risks of each option. A participant revealed: *"Ask myself... Why do I have to smoke? What are the benefits for me? What are the disadvantages of smoking? How much does it cost? What are the effects of smoking? For example, if we are active smokers, we can smoke 2-3 packs a day. That costs a lot of money. Before trying it, we must consider the benefits and costs*." (FGD 2)

One participant offered a general belief that adolescents experiencing mental health problems might be more likely to smoke or vape. The participant said, *"In my opinion, aside from environmental influences, smoking and vaping are really influenced by the mental health of teenagers themselves. Those who are mentally unwell, depressed, and emotionally unstable will see their friends smoking and want to try it too. From the outset, we need to emphasise the importance of adolescents' mental health. Their mental health must be looked after and their emotions controlled. From there, we can build strategies to prevent them from trying smoking or vaping."* (FGD 2). This was treated as the participant's interpretation of other adolescents, not as evidence from this study that emotional instability causes vaping, and it was not used to make a causal claim.

Alternative activities

Several participants described activities they used when experiencing stress or difficult emotions, including listening to music, going for a drive, exercising, completing school projects, and creative activities. Participants stated: "If I want to be alone, I listen to music." (FGD 2). "I like sports, so I have no choice but to avoid them to perform well. My coach says that smoking makes you tire easily." (FGD 1). "As for me, I prefer to find other things to do, such as sports. Otherwise, I work on proposals (school projects) and other things, looking for activities that I can do. Or if not, I do 'healing' activities, which make me feel more relaxed." (FGD 2). "Only when the stress becomes too much, and I find it difficult to control, I usually leave the house, get on my motorbike, and just go for a ride. I drive around." (FGD 2). These accounts show that participants described alternative activities as ways of relieving stress without relying on substances; however, they do not establish the effectiveness of any specific coping strategy.

Interpersonal Support

Support from family and peers plays an important role in helping adolescents cope with stress. Participants described choosing friends who belonged to healthy social circles and with whom they could discuss issues and support one another during difficult times.

Parents—especially mothers—also provide emotional support. According to one participant, maintaining parental trust is very important. The desire to maintain this trust was described as helping participants avoid risky behaviour under stress. One participant revealed: "*In my opinion, the most important thing is parental supervision and maintaining parental trust, so that he won't want to smoke*." (FGD 2).

DISCUSSION

This study explored perceived influences and strategies supporting continued non-use among male adolescents naïve to e-cigarettes and other tobacco products. Four themes organised their accounts: personal meanings and reasons for non-use, family influences, navigation of peer contexts, and substance-free responses to stress or difficult emotions. Therefore, these findings are not intended to imply causal relationships, proven protective pathways, or measures of the magnitude of protective effects.

Theme 1 showed that participants connected e-cigarette non-use with sensory preferences, religious and personal values, aspirations, health concerns, fear of addiction, and economic priorities. Previous research has shown that perceptions of the harms and addictive nature of e-cigarettes are associated with susceptibility to trying e-cigarettes (8,10). Furthermore, considerations regarding costs and benefits, as well as attitudes towards e-cigarettes, are also linked to use behaviour among adolescents (13). These findings do not suggest that these reasons constitute entirely new protective factors. This contribution lies in the participants' explanations of how these recognised influences take on meaning for adolescents in Indonesia. Some participants felt that vaping was incompatible with their life goals, religious beliefs, health status, and spending priorities. This suggests that reasons for not using e-cigarettes are linked not only to knowledge of the risks, but also to how well the behaviour aligns with what participants consider important in their lives.

Most quotations describe participants' reasons for and assessments of not using e-cigarettes, rather than the process by which participants actively define, maintain, or negotiate their identity as non-vapers. Therefore, these findings are interpreted as personal meanings and reasons for not using e-cigarettes, rather than as evidence of a non-vaping identity. This interpretation distinguishes these findings from previous research that specifically examined vaping identity in relation to the norms, attitudes, and behaviours of e-cigarette users (19).

Health also reinforces adolescents' personal reasons. Participants' health concerns often stem from parental advice, discomfort when around smoke or aerosols, fear of addiction, and observations of health problems within their families. Furthermore, participants' statements regarding the dangers of passive exposure reflect their perceptions and are not used as clinical evidence that passive exposure is always more harmful than active use. The key analytical point is that discomfort and perceptions of harm reinforce participants' reasons for not trying e-cigarettes. This is consistent with evidence that perceptions of harm and addiction are associated with a lower likelihood of e-cigarette use (8,10).

From an HBM perspective, concerns about health problems and addiction can help explain how participants interpret vulnerability and severity, whilst parental advice and experiences of observing health problems within the family can be interpreted as cues to action (20). However, this study did not measure HBM constructs or test relationships between them. The HBM was used solely as a lens to help interpret the meanings of health conveyed by participants.

Taken together, Theme 1 shows that prevention messages could be developed around issues adolescents consider important, such as health, future aspirations, personal values, and financial priorities. Previous studies have identified the health consequences, fear of addiction, and financial impacts as themes with potential for use in prevention messages

(4,21,22). However, this study has only identified candidate message content. The acceptance and effectiveness of these messages still need to be tested through intervention development and evaluation research.

Theme 2 highlights the important role of the family in supporting adolescents' decisions to refrain from vaping. This support included not only parental rules against vaping and similar products but also learning from illnesses and suffering that participants associated with smoking among family members. Participants described these experiences as making health risks less abstract and more emotionally salient, thereby reinforcing negative views of vaping. These findings are consistent with previous studies showing that family support plays a crucial role in preventing smoking among adolescents. The higher the level of family support, the lower the likelihood of smoking (12).

The health conditions of family members reported by participants were not clinically verified. These experiences represent the participants' interpretations and do not constitute evidence that smoking directly causes the specific conditions described in the FGDs. The key finding was that the experience of witnessing illness or discomfort within the family served as a reason for not using cigarettes or e-cigarettes.

From a TPB perspective, family rules, expectations, and customs can be used to interpret the social norms that support not using e-cigarettes (23). However, the data from this study do not prove that family norms directly cause participants to continue not using e-cigarettes. The family is one of the sources of influence perceived by participants, alongside personal values, health considerations, and the peer environment.

Overall, theme 2 emphasises that families are not merely a source of restrictions on vaping, but rather a protective system that provides moral and emotional support. Previous research among Muslim youth also shows that health-related meanings and behavioural intentions are strongly influenced by value-based socialisation within the family (24). When designing prevention messaging, incorporating family stories and parental perspectives can strengthen non-vaping messages by connecting with adolescents' real-life experiences. However, the specific forms of family communication best suited to preventing vaping among Indonesian adolescents still need to be developed in collaboration with families and adolescents, and tested for their acceptability, feasibility, and effectiveness.

Theme 3 clarifies, rather than contradicts, previous evidence regarding the influence of peers. Previous research has shown that peers' behaviour and social network dynamics are associated with e-cigarette use among adolescents (11,25). E-cigarette use among peers is also associated with individual use, alongside considerations of cost, benefits, and self-efficacy (13).

In this study, participants knew or interacted with friends who smoked and used e-cigarettes, and some had received direct offers. However, the offers they described were generally casual in nature and did not always develop into sustained pressure. After the participants refused, some friends respected their refusal or did not make an issue of it. Thus, the peer environment can simultaneously present exposure to vaping, acceptance of non-use, and opportunities for adolescents to exercise their decision-making skills.

These findings do not suggest that peer influence is unimportant or contradict previous literature. The participants in this study were indeed adolescents who had never used cigarettes or e-cigarettes. Therefore, the results should not be assumed to represent the experiences of all adolescents, particularly those facing stronger social pressure or who have already tried these products. The added value of this study lies in demonstrating how participants in the 'never-use' group cope with social situations: by refusing in a relaxed yet firm manner, citing health reasons, choosing more supportive friends, or limiting their involvement in environments dominated by the use of cigarettes and e-cigarettes.

This theme provides a basis for exploring realistic refusal exercises in developing prevention programmes. Exercises may draw on situations familiar to participants, such as offers made in jest, offers while socialising with friends, and ways to maintain social relationships after refusing. The material may also feature peers who respect a decision not to use, so that friends are not always portrayed as a source of pressure. However, this approach remains a candidate for an intervention component that requires further development and testing.

Theme 4 covered participants' experiences and views on how to cope with stress or difficult emotions without resorting to e-cigarettes. Some participants described activities they actually engaged in, such as listening to music, exercising, driving, completing schoolwork, engaging in creative activities, taking time out on their own, or seeking support from others. This theme also highlighted the views of some participants who emphasised the importance of self-control and thinking before acting, so that they could avoid the urge to try e-cigarettes and other tobacco products when facing difficulties. However, these findings are not intended to prove that specific activities and ways of thinking constitute effective coping strategies.

Previous research has linked emotional vulnerabilities and negative-affect-reduction expectancies with e-cigarette use among young adults (26). In adolescents, difficulty describing feelings was associated with e-cigarette use and mediated the association between emotional abuse/neglect and e-cigarette use (27). These findings suggest that emotional processes are relevant to consider, but they cannot be used to conclude that stress or mental health difficulties directly caused vaping among the participants in this study.

A more robust finding is that some participants recognised response options that did not involve substance use when faced with stress or difficult emotions. Interpersonal support, particularly from parents, was also perceived as helping participants maintain self-confidence and consider the consequences before engaging in risky behaviour. However, this study does not prove that such alternative activities, self-control, or support are effective in preventing vaping.

When developing prevention programmes, non-judgemental discussions about stress, the introduction of alternative activities, social support, and the skills needed to seek help can be explored together with young people. These components need to be tailored to young people's needs and everyday lives. Further research is needed to assess whether these components are acceptable, feasible, and effective in preventing e-cigarette use.

Overall, the four themes identified several areas with potential for use in developing health promotion initiatives, namely: personal meanings and reasons for non-use, family influences, navigation of peer contexts, and substance-free responses to stress or difficult emotions. Previous research on prevention messages has also shown that messages concerning health risks, addiction, costs, dependence on vaping, and social consequences are potential themes that could be developed for adolescents (4,21,22).

In this article, HBM and TPB serve as interpretative frameworks to help explain specific aspects of participants' experiences (20). The contribution of this research is not to identify entirely new protective factors, but rather to provide a specific qualitative understanding of the context in which Indonesian male e-cigarette and other tobacco product-naïve adolescents interpret the various influences that support non-use.

Implications for Health Promotion

Based on these four themes, prevention programmes may consider four potential components:

messages linking adolescents who do not use e-cigarettes to health, future aspirations, personal values and financial priorities (4,21,22);

family communication that combines clear rules, support, family experiences and trust (12);

skills for refusing invitations to use e-cigarettes and reinforcing peer norms that respect non-use (11,13,25); and alternative activities, social support, emotional regulation, and skills for seeking help without stigmatising mental health issues (26,27).

These components are suggestions for the development of health promotion messages; they are not recommendations whose effectiveness has been demonstrated by this study.

Limitations and Cautions

Several limitations should be considered when interpreting this study's findings. Participants were purposively recruited from four schools in two Semarang subdistricts, limiting transferability to other regions. Teacher-mediated identification may have favoured students perceived as compliant or opposed to vaping; vape store counts were area-level contextual indicators and did not establish individual exposure to vaping, peer pressure, or stress.

Eligibility was based on self-report and reconfirmed verbally after the FGD groups had assembled rather than through private screening. This procedure may have introduced social desirability, peer conformity, and never-use misclassification biases. Two students who were found to be ineligible remained in the discussion rooms, although their identities and contributions were marked and excluded from the analytic transcripts, coding, and theme development. Their continued presence and occasional participation may nevertheless have influenced group interaction. Future studies should verify eligibility privately before participants enter the discussion room.

Although participants were asked to keep the discussions confidential, they were not explicitly informed that confidentiality among FGD members could not be guaranteed. Disclosure of discussion content outside the groups therefore remained possible. The first author translated the selected quotations with digital language assistance and checked them against the Indonesian transcripts and discussion context. However, the translations were not independently verified against the source transcripts by another bilingual researcher.

For 16-year-olds, class guardians provided written permission under the approved protocol and students gave verbal rather than separately documented written assent; separate parental permission was not obtained. Finally, the cross-sectional design identifies perceived influences and strategies but cannot establish causal protection, temporal pathways, or intervention effectiveness.

Recommendations for Future Research

Future research should use longitudinal designs to examine how reasons for non-use and perceived protective influences change over time and across genders and tobacco use histories. Future co-design studies could then test candidate components involving family communication, refusal practice, personally meaningful reasons for non-use, and substance-free coping.

CONCLUSION

Among 25 e-cigarette and other tobacco product-naïve Indonesian male adolescents, four themes described perceived influences and strategies supporting non-use: personal meanings and reasons, family influences, navigation of peer contexts, and substance-free responses to stress or difficult emotions. These themes provide context-specific qualitative insights rather than causal protective pathways.

The findings suggest candidate components for adolescent-focused programme design—personally meaningful reasons for non-use, family communication, realistic refusal practice, supportive peer norms, and substance-free coping—that require subsequent feasibility and effectiveness evaluation.

DECLARATIONS

Author contributions: Trixie Salawati: Conceptualization; Methodology; Investigation; Formal analysis; Writing – original draft; Writing – review & editing. Che Hazniza Che Noh: Methodology; Writing – review & editing. Mohd Khairie Ahmad: Methodology; Writing – review & editing. All authors approved the final manuscript. The second and third authors also discussed the interpretation and coherence of the themes and supporting quotations.

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REFERENCES

1. Quiroga L, Asif M, Lagziel T, et al. E-Cigarette Battery Explosions: Review of the Acute Management of the Burns and the Impact on Our Population. Cureus. 2019;11(8): e5355. Available from: https://doi.org/10.7759/cureus.5355
2. Selya A, Ruggieri M, Polosa R. Measures of youth e-cigarette use: strengths, weaknesses and recommendations. Front Public Health. 2024; 12:1412406. Available from: https://doi.org/10.3389/fpubh.2024.1412406.
3. Salari N, Rahimi S, Darvishi N, Abdolmaleki A, Mohammadi M. The global prevalence of E-cigarettes in youth: a comprehensive systematic review and meta-analysis. Public Health Pract (Oxf). 2024; 7:100506. Available from: https://doi.org/10.1016/j.puhip.2024.100506.
4. Wu J, Benjamin EJ, Ross JC, et al. Health Messaging Strategies for Vaping Prevention and Cessation Among Youth and Young Adults: A Systematic Review. Health Commun. 2025; 40:531–549. Available from: https://doi.org/10.1080/10410236.2024.2352284.
5. World Health Organization, Centers for Disease Control and Prevention (US), Ministry of Health Republic of Indonesia. GATS Global Adult Tobacco Survey comparison fact sheet: Indonesia 2011 & 2021. 2022 May 17. Available from: https://stacks.cdc.gov/view/cdc/148399.
6. Wibowo R, Weinmann T, Nowak D, et al. Exploring E-Cigarette Use Among Indonesian Youth: Prevalence, Determinants and Policy Implications. J Community Health. 2025; 50:585–595. Available from: https://doi.org/10.1007/s10900-025-01442-0.
7. Bigwanto M, Pénzes M, Kodriati N, et al. E-cigarette use and susceptibility among Indonesian youth: the role of social environment, social media, and individual factors. BMC Public Health. 2025; 25:2756. Available from: https://doi.org/10.1186/s12889-025-24013-3.
8. Jongenelis MI, Thoonen KAHJ. Factors associated with susceptibility to e-cigarette use among Australian adolescents. Int J Drug Policy. 2023; 122:104249. Available from: https://doi.org/10.1016/j.drugpo.2023.104249.
9. O'Brien D, Long J, Quigley J, et al. Association between electronic cigarette use and tobacco cigarette smoking initiation in adolescents: a systematic review and meta-analysis. BMC Public Health. 2021; 21:954. Available from: https://doi.org/10.1186/s12889-021-10935-1.
10. Aly AS, Mamikutty R, Marhazlinda J. Association between Harmful and Addictive Perceptions of E-Cigarettes and E-Cigarette Use among Adolescents and Youth—A Systematic Review and Meta-Analysis. Children. 2022; 9:1678. Available from: https://doi.org/10.3390/children9111678.
11. Skinner AT, Golonka M, Godwin J, et al. My friends made me do it: Peer influences and different types of vaping in adolescence. Addict Behav. 2024; 159:108128. Available from: https://doi.org/10.1016/j.addbeh.2024.108128.
12. Zaborskis A, Kavaliauskienė A, Eriksson C, et al. Family Support as Smoking Prevention during Transition from Early to Late Adolescence: A Study in 42 Countries. Int J Environ Res Public Health. 2021; 18:12739. Available from: https://doi.org/10.3390/ijerph182312739.
13. Durkin K, Williford DN, Turiano NA, et al. Associations Between Peer Use, Costs and Benefits, Self-Efficacy, and Adolescent E-cigarette Use. J Pediatr Psychol. 2021; 46:112–122. Available from: https://doi.org/10.1093/jpepsy/jsaa097.
14. Kim J, Lee S, Chun J. An international systematic review of prevalence, risk, and protective factors associated with young people's e-cigarette use. Int J Environ Res Public Health. 2022;19(18):11570. Available from: https://doi.org/10.3390/ijerph191811570.
15. Heng PP, Daud F, Mohd Yusoff MF, Lim KH. Susceptibility to e-cigarette initiation among tobacco product naïve adolescents in Malaysia: findings from the Tobacco and E-Cigarette Survey among Malaysian Adolescents (TECMA). Tob Induc Dis. 2021; 19:89. Available from: https://doi.org/10.18332/tid/142900.
16. Purwati P, Rodhiyah RR, Nikmah FK, et al. The Correlation Between Parenting Styles, Social Maturity, and Peer Interaction in Adolescents. Islam Guid Couns J. 2024; 7:1–10. Available from: https://doi.org/10.25217/0020247491100.
17. Fauzi R, Areesantichai C. Factors associated with electronic cigarettes use among adolescents in Jakarta, Indonesia. J Health Res. 2022; 36:2–11. Available from: https://doi.org/10.1108/JHR-01-2020-0008.
18. Clarke V, Braun V. Thematic analysis. J Posit Psychol. 2017; 12:297–298. Available from: https://doi.org/10.1080/17439760.2016.1262613.
19. Donaldson CD, Fecho CL, Ta T, et al. Vaping identity in adolescent e-cigarette users: A comparison of norms, attitudes, and behaviors. Drug Alcohol Depend. 2021; 223:108712. Available from: https://doi.org/10.1016/j.drugalcdep.2021.108712.
20. Fang L, Zhang Q, Zhou N, et al. Influencing factors and mechanisms promoting proactive health behavior intention: an integration of the health belief model and the theory of planned behavior. Front Public Health. 2025; 13:1629046. Available from: https://doi.org/10.3389/fpubh.2025.1629046.
21. Rath JM, Romberg AR, Perks SN, et al. Identifying message themes to prevent e-cigarette use among youth and young adults. Prev Med (Baltim). 2021; 150:106683. Available from: https://doi.org/10.1016/j.ypmed.2021.106683.
22. Rohde JA, Noar SM, Sheldon JM, et al. Identifying Promising Themes for Adolescent Vaping Warnings: A National Experiment. Nicotine Tob Res. 2022; 24:1379–1385. Available from: https://doi.org/10.1093/ntr/ntac093.

23. Simpson EEA, Davison J, Doherty J, et al. Employing the theory of planned behaviour to design an e-cigarette education resource for use in secondary schools. BMC Public Health. 2022; 22:276. Available from: https://doi.org/10.1186/s12889-022-12674-3.
24. Ahmad MK, Mohd Hadza @ Othman MB, Mohd Jalil NH, et al. Cultural Sensitivity Health Communication Model: An Exploration Among Young Muslims in Malaysia. J Komun Malaysian J Commun. 2021; 37:310–325. Available from: https://doi.org/10.17576/JKMJC-2021-3704-18.
25. Piombo SE, de la Haye K, Valente TW. Network Dynamics of Social Influence on E-cigarette Use Among an Ethnically Diverse Adolescent Cohort. Nicotine Tob Res. 2025; 27:1583–1590. Available from: https://doi.org/10.1093/ntr/ntaf065.
26. Brockenberry LO, Braitman AL, Harrell PT. Emotion dysregulation, transdiagnostic vulnerabilities, and e-cigarette expectancies in a young adult sample. Addict Behav. 2022; 128:107253. Available from: https://doi.org/10.1016/j.addbeh.2022.107253.
27. Sutherland BD, Fallah-Sohy N, Kopera M, et al. Alexithymia mediates the association between childhood trauma and adolescent E-cigarette use. Drug Alcohol Depend. 2022; 236:109500. Available from: https://doi.org/10.1016/j.drugalcdep.2022.109500.

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