

# The rationale of non-smoking adolescents' use of electronic cigarettes (vaping): A scoping review

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## ABSTRACT

**INTRODUCTION:** Although electronic cigarettes are primarily advertised as smoking cessation tools, recent studies found a significant increase of adolescents who are non-smokers initiating the use of electronic cigarettes, and the understanding of the rationale behind those non-smoking adolescents' use of electronic cigarettes is not yet well-established. Guided by the question "What factors increase the likelihood of non-smoking adolescents' use of electronic cigarettes?", this scoping review identifies the current landscape of scholarly explorations on this topic. It aims to provide heuristic implications on shaping the future research agenda that could enlighten social work interventions towards adolescents' use of electronic cigarettes.

**METHODS:** Nine electronic databases were searched and primary research articles exploring the reasons why adolescents (13–18 years of age) initiated their use of electronic cigarettes were screened. A PRISMA-ScR was used to record the results from the search strategy.

**FINDINGS:** Of the five studies retrieved from the database search, three were qualitative studies, and two were quantitative, with all five articles being from the United States. Thematic analysis was used and identified four key themes for the factors influencing the use of electronic cigarettes in this population of interest: personal relationships, social context, ease of access, and production features.

**CONCLUSION:** There is a significant gap in the literature around the reasons why adolescent non-smokers use electronic cigarettes. Conducting further research into this will expand the knowledge of social work practitioners and inform future, evidence-informed interventions and electronic cigarette cessation programmes to reduce the harm electronic cigarettes may have.

**Keywords:** Adolescents; youth; electronic cigarettes; vaping; influencing factors; social work

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Amid a global pandemic, the youth of Aotearoa New Zealand also face another challenge, referred to in a local newspaper as the "vaping epidemic" (Russell, 2022). Electronic cigarettes (also known as vapes, the two terms are used interchangeably in this paper) were developed in 2003 to reduce the use of conventional cigarettes

(Choucair, 2022) and their use has increased exponentially in recent years (Jerzyński et al., 2021). However, the number of youths who have taken up the habit without a prior history of smoking conventional cigarettes is significant, and with recent changes in legislation introducing restrictions around the use and selling of vapes and vape

AOTEAROA  
NEW ZEALAND SOCIAL  
WORK 35(1), 85–94.

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products (Smokefree Environments and Regulated Products (Vaping) Amendment Act, 2020), these teens are now experiencing some negative consequences as schools take a punitive approach to addressing this “vaping epidemic” (Russell, 2022).

To date, there has been little research on what motivates young people to start vaping. The findings from this study, on the one hand, have the potential to provide evidence to support significant changes to the way vaping is advertised and perceived in our society; on the other hand, these could provide social work practitioners with additional knowledge and understanding to more effectively support young people who are using, or at risk of using, electronic cigarettes. Particularly for social workers in schools, this study could support them in developing better interventions and resources to meet the needs as well as enhance the well-being of the young people impacted by vaping issues, in line with the expectations in the Aotearoa New Zealand social work Code of Ethics (Aotearoa New Zealand Association of Social Workers, 2019).

The aim of this research is to investigate the rationales behind why non-smoking adolescents start vaping. By understanding these motives, the hope is that targeted and specific measures can be created and put in place across society to address the rising numbers of young New Zealanders who are vaping. This includes not only addressing the challenges around vaping advertising and commercial regulations, as well as putting out the call for conducting further research under the chosen topic; but also, eventually the development of evidence-informed vaping cessation programmes that specifically address the unique cultural and societal contexts within this country. Internationally vaping cessation programmes have been developed based around existing tobacco reduction and control programmes, so they may not effectively take into account the differences in distinct societal and

cultural settings where vaping behaviours are diversely developed (O'Connor et al., 2019). This carries vital implications for social work practitioners who are actively engaged in designing, implementing, and evaluating vaping interventions in Aotearoa New Zealand.

## Background

The use of electronic cigarettes has increased exponentially in recent years, with high numbers of adolescents taking up the habit (Bandi et al., 2021; Food and Drug Administration, 2020). The statistics for Aotearoa New Zealand youth are incredibly high, with 38% of 13–18 years old in 2019 reporting having tried an electronic cigarette in the past and 66% of this population who have tried vaping had never smoked a conventional cigarette (Fleming et al., 2020). Internationally, Aotearoa New Zealand was identified as having one of the highest rates of non-smokers engaging in the use of electronic cigarettes among the countries surveyed (Yoong et al., 2018). This is incredibly concerning and begs the question: why are our non-smoking youth using electronic cigarettes?

In response to the growing concerns, many schools have adopted those well-intended legislations and regulations introduced by New Zealand Government, for instance, the aforementioned 2020 Smokefree Environments and Regulated Products (Vaping) Amendment Act, into a “zero-tolerance” approach which is seeing that students who are impacted by vaping issues at schools face immediate suspensions (Wiggins, 2021). Social workers work hard in the schools to ensure that the needs of students and their well-being are met and a part of this includes advocating for the students around policy change, in particular when the attendance of students at schools is largely impacted (Gherardi & Whittlesey-Jerome, 2018). Evidence indicated that, while this tough approach fails to provide constructively educational and supportive

environments to address vaping issues among young people, it also unsurprisingly puts forward direct negative impacts on students who are associated with vaping issues / behaviours at schools (Wiggins, 2021). This situation could further leave the students open to exclusion and isolation, let alone the detrimental consequences, including health issues, if they are not encouraged to change their patterns of vape use.

**Method**

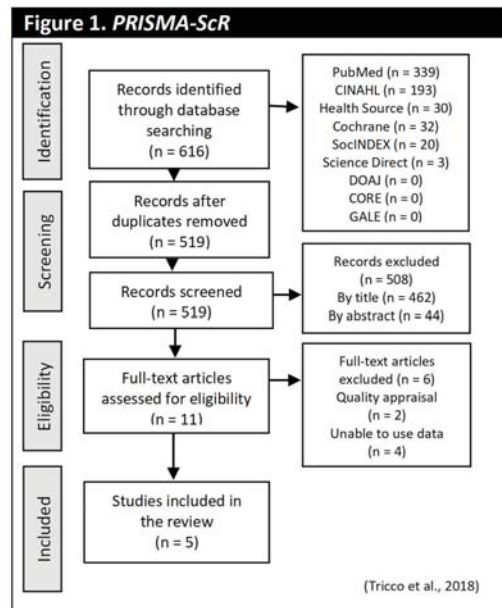
A scoping review was conducted to address the research question “what factors increase the likelihood of non-smoking adolescents’ use of electronic cigarettes?”.

The key search terms identified for this scoping review were “factors” or “influences” or “reasons” and “adolescents” or “adolescence” or “teenagers” or “youth” and “use” or “initiation” and “vaping” or “electronic cigarettes” or “e-cigarette”. Excluded search terms were “smoking cessation” or “smoking cessation interventions” or “quit smoking”.

Nine databases were searched (PubMed, CINAHL, SocINDEX, Health Source / Academic Edition, Science Direct, Cochrane, CORE, DOAJ, and GALE) and the search terms used for each database can be seen in Table 1. The articles retrieved were then screened using the inclusion and exclusion criteria, first by title, and then by abstract. The remaining articles were then assessed for their quality using the JBI critical appraisal tools. At the completion of this process the results from the search strategy were recorded in a PRISMA-ScR table as seen in Figure 1.

This scoping review identified five relevant articles after the screening process, all of which originated in the United States. Three of the studies were qualitative, with the other two utilising quantitative research methods. Thematic analysis was used and resulted in 10 codes being identified across the five articles analysed (see Table 2). These codes were then refined further into four key themes which explore the reasons why non-smoking youth might be influenced to experiment with electronic cigarettes. These key themes were their personal relationships, the social context they are influenced by, the ease of obtaining electronic cigarettes, and the appealing features of electronic cigarettes.

Table 1. Database search terms	
<b>Terms used for database search - PubMed</b>	
(“factors” or “influences” or “reasons”) AND (“adolescents” or “adolescence” or “teenagers” or “youth”) AND (“use” or “initiation”) AND (“vaping” or “electronic cigarettes” or “e-cigarette”)	
NOT (“smoking cessation” or “smoking cessation interventions” or “quit smoking”)	
FILTERS: in the last 10 years, English text, Age 13-18	
<b>Terms used for database search – CINAHL, SocINDEX, Health Source: Nursing/Academic Edition, Science Direct, DOAJ, Cochrane, &amp; CORE</b>	
(“factors” or “influences” or “reasons”) AND (“adolescents” or “adolescence” or “teenagers” or “youth”) AND (“use” or “initiation”) AND (“vaping” or “electronic cigarettes” or “e-cigarette”)	
NOT (“smoking cessation” or “smoking cessation interventions” or “quit smoking”)	
FILTERS: in the last 10 years, English text	
<b>Terms used for database search - GALE</b>	
“factors influencing” AND “adolescents” AND “use” AND “electronic cigarette” NOT “smoking cessation interventions”	



**Table 2. Codes identified**

Name of code	Factors included in the code
Social	Friends who use. Popular in social settings eg parties, school, etc. Look cool to others. Peer pressure. Appear/feel older. Access through friends/social connections.
Appeal	Smoke tricks. Smells good. Taste good. Fun. Discrete.
Ease	Buying online without ID. Easy to vape in school. Easy to obtain
Healthier	Not as harmful as a cigarette. Better option.
Family	Older siblings who use. Information from parents.
Mental health	Boredom. Easing of anxiety and stress
Acceptance	Within society. By peers. Popularity.
Less harm	Flavours considered to be less harmful.
Flavour	Which flavours were the most appealing
Exposure	Advertising. Observing others using.

### Inclusion and exclusion criteria

The term *adolescents* was defined for this scoping review as those aged 13-18 years of age therefore, one of the key exclusions when completing the database search and the screening process for this scoping review was the ages of the participants of the studies. Any article that referenced the terms “young adults”, “college students” or “adult” in their title or abstract were removed from the results due to the participants being in the wrong age range for this specific review. Other reasons for exclusion were if the titles included the terms “dual users”, “tobacco use”, “substance use”, “initiation of cigarette use”, or referenced smoking cessation. When screening the abstracts, articles were excluded if they indicated that the articles were exploring the implications of youth vaping for health professionals or teachers, or if the article was based on intervention strategies. These articles were excluded as they did not match the criteria for the population of interest for this report.

Articles with the keywords “reasons”, “motivations”, “why”, “attitudes”, “appeal”, “curiosity” and “predictor” identified in their title were moved into the second stage of the screening process where the full-text articles were retrieved. Other inclusion criteria for this research report included primary studies of any methodological approach, articles from any geographical location in the world,

studies completed within the last 10 years, studies that had gained ethical approval, and any studies that were written in English.

### Findings

#### Personal relationships

One of the key themes that was prevalent in three of the five articles analysed was the impact that social relationships have on individuals and influencing their decision to use an electronic cigarette. Previous research has explored peer relationships in correlation to the use of tobacco products (Schaefer et al., 2013) and this scoping review found similarities in the importance of social empowerment for those who are vaping. The social relationships that influence non-smoking youth to start vaping not only includes their peer groups, but also the role-modelling they get from their families.

#### Peer relationships

Youth are influenced by the people within their peer group, therefore peer vaping behaviours could easily trigger other group members’ use of electronic cigarettes (Park et al., 2019). The teenage years are crucial in developing one’s personality and social standing, and this is a key age for navigating through peer relationships and networks (Hoffnung et al., 2016). Within society, vaping is seen as acceptable or healthier than smoking cigarettes, and because of this

it holds a place within social circles (Park et al., 2019). An overwhelming majority of the quotes and data from this review show that peers play a large part in influencing young people to initiate their use of electronic cigarettes (Liu et al., 2021; Park et al., 2019; Wagoner et al., 2021).

Talking to friends and seeing peers vape is a major source of influence for both users and non-users, with many young people identifying that their main access to electronic cigarettes is through friends or other social connections (Liu et al., 2021; Park et al., 2019; Wagoner et al., 2021). In one study, every person who reported having tried a vape said that this was a result of a direct invitation from one of their friends who also vaped (Wagoner et al., 2021). However, this could also be linked to peer pressure, with a participant from the same study explaining that they only used electronic cigarettes due to the pressure of people telling them they should (Wagoner et al., 2021). Another study found that being pressured by friends is one of the common factors that leads to the use of vapes (Park et al., 2019). Vapes are often shared around and the desire for young people to fit in can influence them to experiment (Park et al., 2019). One young non-vaper from Park et al.'s study (2019) discussed how they would only try vaping to be able to hang out with the "cool people" and to appear cool. This perception of vaping being cool, or fun was common throughout this scoping review (Padon et al., 2018; Park et al., 2019; Wagoner et al., 2021).

### **Family influence**

In this scoping review, families were found to play a part in whether the young person would experiment with vaping. Parents and other family members have a significant influence in shaping how their children view the world and their behaviours (Hoffnung et al., 2016). One study found that overall, those who had never used electronic cigarettes had heard negative information from their

parents about vaping; however, those who had used in the past explained how their older siblings had influenced their views about vaping in a more positive light (Park et al., 2019). This, in part, is due to seeing others vape, including family members, being a major source of influence for both users and non-users (Park et al., 2019). For some of the participants, having an older sibling who uses electronic cigarettes resulted in these siblings being the ones who provided the vape products for use (Park et al., 2019). This highlighted the influence that family can have on a young person's decision to use electronic cigarettes.

### **Social context**

The social setting where a tobacco product is introduced can have a strong influence on the decision to use that product for a young person (Schaefer et al., 2013). It is thought that vaping popularity has risen due to the acceptability of electronic cigarettes in society (Park et al., 2019). A participant from Park et al.'s (2019) study stated that the reason that vaping is so popular is because everyone is doing it, and people do not think twice when they see a teenager vaping. In another study, both those who vape, as well as those that do not, spoke about how their own social contexts played a part in their decisions to use (Liu et al., 2021). Vaping is common in most social settings and has been normalised within society (Liu et al., 2021; Park et al., 2019; Wagoner et al., 2021). Many teenagers vape during school time (Wagoner et al., 2021), although parties were also identified as a key location for the initiation of vaping as it can be seen as a more acceptable place to experiment (Liu et al., 2021). This scoping review found that the most common places that young people are vaping are at school, parties, athletic events, and around the shops in town (Liu et al., 2021; Park et al., 2019; Wagoner et al., 2021).

One of the studies analysed in this review specifically focused on the impacts of advertising and how this can influence

young people to experiment with electronic cigarettes (Padon et al., 2018). At the end of the study, it found that 54% of youth who participated were susceptible to trying vaping within a year, and the more that they liked the advertisements they were exposed to, the more susceptible they became (Padon et al., 2018). Common reasons for liking advertisements were the actors used, the humour and visuals of the ad, as well as the ad quality and length of time (Padon et al., 2018). These findings highlight the significance of youth exposure to advertising and the importance of regulating how electronic cigarettes are marketed.

### Ease of access

Two of the articles used in this scoping review identified that electronic cigarettes are easy to obtain, and this is part of their appeal in comparison to other products such as cigarettes and alcohol (Liu et al., 2021; Wagoner et al., 2021). Participants of one study discussed the lack of requirement for identification to buy vape products online compared to in-store purchasing and the ease of access via debit card (Liu et al., 2021). Other studies did not include specific quotes from their participants on their experiences of accessing vape products online, however they did acknowledge the ease in which their participants were able to access electronic cigarettes (Wagoner et al., 2021).

### Product features

The features of electronic cigarettes also play a significant part in the appeal that it holds for young people. These devices smell and taste nice, are discrete, and there is a perception that they are not harmful to those who are using them.

The number one most appealing factor for vaping identified in this scoping review was the youth-friendly flavours and smells of the juice used in electronic cigarettes. This was identified by both vapers and non-vapers in the studies used, and there were many

young people who stated that they would be unlikely to try electronic cigarettes if they did not have flavoured options (Liu et al., 2021; Wagoner et al., 2021). The flavours not only provide a nice taste for the person using the electronic cigarette, but also emit a sweet-smelling vapour, with both factors being linked with higher appeal to try vaping (Liu et al., 2021; Wagoner et al., 2021). In two of the studies, non-vapers spoke about the nice smells that flavoured vapes have (Liu et al., 2021; Wagoner et al., 2021), and other participants who vape also spoke about how electronic cigarettes are more accepted than conventional cigarettes as it provides a pleasant smell, meaning that they can use the vape in enclosed spaces, such as in cars, without others being offended (Park et al., 2019). One study questioned whether the perception of harm from vaping has been reduced due to flavours masking the harshness of the vapour, and if this is contributing to the interest in experimenting (Pepper et al., 2016). The participants in one study also believed that fruit-flavoured vapes were less harmful than tobacco-flavoured ones, and this may have contributed to the popularity of this flavour as identified in the last section (Pepper et al., 2016).

Two studies identified the discrete, visually appealing design as one appeal for using electronic cigarettes (Padon et al., 2018; Wagoner et al., 2021). Half the participants in one study agreed that vapes were considered to be high tech, and a third of the participants also thought that vapes were visually appealing (Padon et al., 2018). Both vapers and those who have never used reported that electronic cigarettes are discrete (Wagoner et al., 2021) and this may link into why vaping is so common in schools. If the devices are easy to hide then there is a lower chance of students being caught with vapes in school, and due to the normalisation of vaping the consequences if they get caught are likely to be lower than if they were to be caught smoking cigarettes (Wagoner et al., 2021).

One common theme that was found to be influencing young people's decisions to initiate their use was their perception that vaping was healthy, or just "not as bad" as smoking conventional cigarettes. In four of the five articles used for this scoping review, the perception of harm from electronic cigarettes was given as a reason why young people may be more likely to use (Liu et al., 2021; Padon et al., 2018; Park et al., 2019; Pepper et al., 2016). This could be for a variety of reasons, including how vaping is advertised and the presence of flavours changing how vaping is viewed. Currently, there is no understanding of the long-term effects that vaping may have on the user (World Health Organisation, 2020) and often electronic cigarettes are being advertised as a smoking cessation tool as they are a better alternative to smoking (World Health Organisation, 2021). However, this scoping review has found that, for young people, this message is being perceived as a reason to use electronic cigarettes. In one of the studies the participants stated that they considered vaping to be a better option than using either conventional cigarettes or smoking cannabis (Park et al., 2019).

## Discussion

The relationships that young people form during their teenage years can have a significant impact on the way they view themselves and the world (Hoffnung et al., 2016). During adolescence, young people are going through the identity versus role confusion stage of Erikson's developmental stages (Hoffnung et al., 2016), and therefore, if they have poor relationships at home then their desire for connection with their peers may be even stronger (Hoffnung et al., 2016). As a result, the young person may be more likely to use electronic cigarettes when their peer group carries a vaping culture as a way to fit in, or even to meet new people as this develops a sense of community (Liu et al., 2021; Park et al., 2019; Wagoner et al., 2021). As this scoping review found, those who vape often do it with their friends, therefore

initiating vaping can be an easy way to find and interact with new friends. As social workers, building connections with the young people who are accessing support can have a positive influence on those vaping, by providing support to build resilience skills against peer pressure (Wagoner et al., 2021). With the support of the social workers in schools, these connections and whanaungatanga can be built on and developed into a new culture, where the students are moving away from vaping and are able to connect with their peers over more positive habits.

This scoping review highlighted the lack of research available, not only in Aotearoa New Zealand, but internationally, around vaping. The perception that people hold around vaping is a key contributing factor to why youth are initiating their use, and therefore education is needed to address this. Ideally, young people in Aotearoa New Zealand would not begin their use of electronic cigarettes; however, with the high rates of those already using, a harm-reduction approach may benefit this population to reduce the harm of electronic cigarettes and also align with the New Zealand National Drug Policy which focuses on harm reduction (Inter-Agency Committee on Drugs, 2015). Having knowledge on the impacts of electronic cigarettes may also open the door for the young person to learn more about what they are doing and allow them to make more informed decisions. The flow-on effect from this is that entire friend groups may decide to reduce or stop their use of electronic cigarettes, which can demonstrate positive peer influence (Wagoner et al., 2021). As a social worker, ensuring that people are free to make their own decisions, based on informed consent, falls under the value of rangatiratanga in the *Code of Ethics* (Aotearoa New Zealand Association of Social Workers, 2019), and therefore it is of importance that social workers in schools are able to provide this to the students they work alongside. Not only this, but being able to assess the use

of the students, and make external referrals for additional support if needed is a key part of the social worker role (Gherardi & Whittlesey-Jerome, 2018).

This scoping review also found that one of the primary places where young people are using electronic cigarettes is in schools (Liu et al., 2021; Park et al., 2019; Wagoner et al., 2021) and in Aotearoa New Zealand there was an aforementioned legislation passed in 2020 to address vaping: the Smokefree Environments and Regulated Products (Vaping) Amendment Act (2020) (hereinafter referred to as the Act). The Act targets several of the themes identified in this scoping review including vaping in schools and other social contexts. From November 11, 2020, the Act prohibits people from vaping in schools and other venues, and from November 28, 2021, vaping in motor vehicles in the presence of anyone under the age of 18 was also prohibited (Smokefree Environments and Regulated Products (Vaping) Amendment Act, 2020). While these restrictions are well-intended, the outcome is that many schools are now taking a punitive approach to students who are vaping, as opposed to a supportive one. The role that social workers can play in this is to advocate for the students and their right to education (Gherardi & Whittlesey-Jerome, 2018) and they can also challenge the policies and structures within the schools to enhance the wellbeing of students by reducing the suspensions, and increasing the supports put in place for the students who are vaping (Gherardi & Whittlesey-Jerome, 2018).

One of the studies used for this scoping review explored what flavours were the most attractive to young people, and the results from this found that fruit flavours were the most popular and were almost six times more likely to spark interest for young people than tobacco-flavoured electronic cigarettes (Pepper et al., 2016). Another way that the Act is targeting the younger population's vaping habits is by enforcing restrictions on the flavours that can be sold,

and where they can be purchased from. In Aotearoa New Zealand it was prohibited to sell vape products to those under the age of 18 from November 11, 2020, and from August 11, 2021 only retailers who have applied and been accepted as specialist vape retailers are able to sell flavours other than menthol, tobacco, and mint (Smokefree Environments and Regulated Products (Vaping) Amendment Act, 2020). This does mean that dairies and convenience stores are no longer able to sell the youth-friendly flavours; however, young people are still able to access the flavoured vape juices online without the requirement to prove their age with identification (Taunton, 2021). This means underage users are still able to access the prohibited substance despite the legislation. More needs to be done to regulate and monitor these online vape stores to achieve the desired outcome of young people being unable to access electronic cigarettes and the associated products.

## Conclusion

The findings of this scoping review support evidence found in a qualitative study conducted to explore the difference in smoking cessation and vaping cessation (Sanchez et al., 2021). While there are similarities in the reasons why people want to stop their use of conventional and electronic cigarettes, and barriers to them being able to achieve this, there are also differences that need to be taken into account. The primary differences that have been found between smoking conventional cigarettes and electronic cigarettes are the enjoyment that electronic cigarette users get from the flavours, the appeal of the discreteness and convenience of the device, the lack of trusted information to support them to be able to quit, and also the social acceptance that vaping has (Sanchez et al., 2021). This is why it is crucial that evidence-informed vaping cessation frameworks are created to address the specific needs of those wanting to quit, as opposed to basing



vaping-cessation programmes off existing smoking-cessation frameworks.

Overall, this scoping review confirms that there is a significant lack of research that has been conducted into the reasons why non-smoking adolescents are using electronic cigarettes, as evidenced by only finding five relevant articles which addressed the research question. As this paper is written in Aotearoa New Zealand, the primary population of interest is the youth living in this country; however, all five studies included in this scoping review are from the United States. This means that the studies may not necessarily address the diverse cultural needs or aspects of electronic cigarette use in this country. However, within the five articles found there were four key themes which were prevalent in exploring why non-smoking adolescents are choosing to initiate the use of electronic cigarettes. These themes included the influence of personal relationships, social contexts, the ease of obtaining electronic cigarettes for young people and the appeal of product features. While it is beneficial to begin to understand the motivations behind why young people are using electronic cigarettes, the lack of available research has limitations on the ability to inform policy and social practice.

This scoping review is relevant to social workers as they are the ones who can stand up and challenge the schools on taking the “easy approach” of standing students down, and instead encourage schools to invest in their pastoral care teams to educate those vaping and work towards better health and social outcomes. This can be done by providing support to those vaping rather than just punishing them without support put in place to address the behaviour. This would start with a harm-reduction approach rather than a punitive one to ensure that those who are vaping do not experience exclusion from school or other activities based on their decisions, and could go as far as challenging the legislation so that it

is reviewed and reflects a harm-reduction approach to this widely experienced issue. Ultimately, policies need to adapt their approach to vaping for those under 18 years old considering the lack of action taken by the government to address advertising aimed towards the younger population when vaping was first introduced in Aotearoa New Zealand (Robertson & Hoek, 2022).

Submitted: 24 August 2022

Accepted: 4 March 2023

Published: 7 April 2023

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