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Miranda O'Dell
Southern Adventist University

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The Vaping Epidemic Among the Adolescent Population

Miranda O'Dell

Southern Adventist University, School of Nursing

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Dr. Linda Peoples

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The Vaping Epidemic Among the Adolescent Population

SECTION 1: Introduction

Nearly 2.1 million middle and high school students are current e-cigarette users (FDA, 2023). Since 2014, the most used tobacco product among adolescents has been e-cigarettes. Vaping was declared an “epidemic” among the adolescent population in 2018 by the U.S. Surgeon General (Farzal et al., 2019). The adolescent population continues to be enticed by the expanding marketing and social pressures of e-cigarette use or vaping.

Problem Overview

According to the CDC (2023), tobacco smoking remains the leading cause of preventable disease and death in the U.S. While e-cigarette use has become a gateway to smoking cessation for tobacco cigarette users, vaping has become an epidemic among youth. E-cigarette use among adolescents has emerged as an epidemic over the last decade. From lung injury to long-term risks of addiction and adverse effects on mental health, vaping poses severe concerns to the health of adolescents.

E-cigarettes are electronic aerosol products containing liquid flavorings, nicotine, and other harmful chemicals inhaled into the user’s lungs, not just harmless “water vapor” (CDC, 2023). The Centers for Disease Control and Prevention (CDC) found that 99% of e-cigarettes sold in the U.S. contain nicotine, which is unsafe and can harm adolescent brain development. Nicotine can also impact attention, learning, mood, and impulse control and may lead to future drug addiction (CDC, 2023). The other harmful or potentially harmful substances of e-cigarettes include ultrafine particles inhaled into the lungs, flavorings such as diacetyl, which is a chemical linked to severe lung diseases, unstable organic compounds, cancer-causing chemicals, and heavy metals like nickel, tin, and lead (CDC, 2023).

E-cigarettes are designed to look like everyday items such as regular cigarettes, cigars, pipes, flash drives, and pens that are either disposable or rechargeable (CDC, 2023). The marketing and advertising of various kid-friendly flavors such as fruit, candy, and desserts, as well as designs of e-cigarettes, are appealing to the youth. Approximately 85% of current consumers use flavored e-cigarettes (FDA, 2022).

There is still much to be researched and learned about e-cigarettes and their long-term health effects among adolescents. Adolescents who vape need help and support. Advanced nurse practitioners (APNs) must help fill the knowledge and education gaps on vaping in adolescents. Educating adolescents, parents, and peers on the risks associated with vaping will help protect our youth from initiating or continuing the use of e-cigarettes. Prevention campaigns and education create strong messaging around the potential harms associated with vaping among adolescents.

Purpose Statement/PICO Question

This capstone paper aims to explore the vaping epidemic among the adolescent population and their perceptions of e-cigarette use. This capstone paper also emphasizes vaping behaviors and the perceptions about vaping to improve health communication and prevention and cessation programs for adolescents.

Theoretical Framework

Albert Bandura's Social Cognitive Theory (SCT) explains human behavior using a three-way reciprocal model where personal factors, environmental factors, and behavior continuously interact and influence one another (Butts & Rich, 2018). The SCT emphasizes that people learn from their own experiences and from observing the behaviors of others and the consequences of their behaviors. Individuals can both influence and are influenced by their environment.

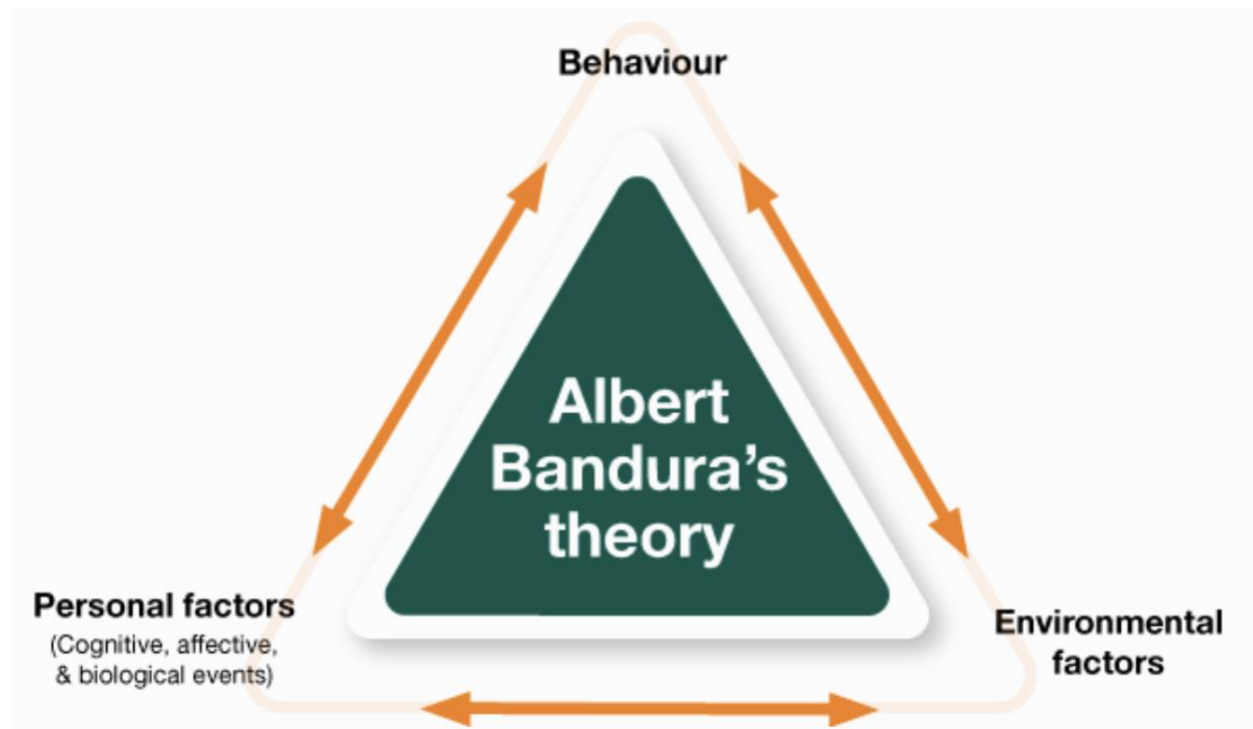
Observational learning, reinforcement, self-control, and self-efficacy are critical behavioral interventions of SCT. The SCT model is useful when addressing habitual behaviors, such as the vaping epidemic among adolescents.

The nursing metaparadigm has four concepts: nursing, person, environment, and health. In this proposed study, adolescents and caregivers are the people of the metaparadigm. Nursing in the metaparadigm consists of nursing actions. In this paper, the advanced practice nurse is screening the adolescent population for perceptions related to vaping. The intervention is proper education on the vaping epidemic and the associated harms. The person targeted by this study is the adolescent population. The environment consists of internal and external factors. The external factors include exposure to harmful chemicals and nicotine through inhaling e-cigarettes. Internal factors include a lack of knowledge about vaping and the health risks associated with e-cigarette use. The health concept of the metaparadigm is defined by the adolescent. The advanced practice nurse must identify what the adolescent understands about vaping and the health risks associated with vaping.

Kelder et al. (2020) conducted a pilot study among middle school students in central Texas called “CATCH My Breath” to help prevent the use of e-cigarettes. The program aims to impact the psychosocial factors of e-cigarette susceptibility, initiation, and sustained use. Using the social cognitive theory, researchers found that behavior is influenced by interactions between environmental factors and intrapersonal factors among middle school students. They incorporated social messaging with promotional posters for tobacco interventions and classroom lessons on health risks, peer expectations, reasons or intentions for e-cigarette use, marketing and advertisements, and refusal skills to help reduce the social norms of using e-cigarettes. The “CATCH My Breath” program showed positive effects on preventing e-cigarette use among

middle school students in central Texas and significantly improved key psychosocial determinants of vaping behaviors (Kelder et al., 2020). This program demonstrates how environmental changes positively influence adolescents' cognitive behaviors to prevent e-cigarette use.

Reciprocal determinism is a crucial construct of SCT. This means healthier behaviors in an individual can be promoted by positive changes in the environment, role models, and reinforcements (Butts & Rich, 2018). The social cognitive theory applies to this capstone paper by targeting adolescent behaviors and perceptions of e-cigarette use and its associated health risks to promote an end to the vaping epidemic. The behaviors of adolescents are heavily influenced by observing those around them. Creating an environment conducive to change to adopt and promote healthy behaviors is essential.



(Da_Natalie442, 2022)

SECTION 2: Literature Review

The literature search was focused on adolescent vaping behaviors and perceptions of vaping. The databases used included CINAHL Complete, PubMed, and Medline Complete. The dates used for the literature review range from 2018 to 2023. All female and male youth and adolescents of all ethnicities were included as criteria for this review. Key phrases and search words that were searched include “adolescents or teens or teenagers or youth,” “vaping or electronic cigarettes or e-cigarettes,” “perceptions or attitudes or opinion,” and “health risks or dangers or effects.” The two main concepts analyzed in most of the research addressed in this capstone paper were vaping behaviors and adolescent perceptions.

Presentation of Literature

Vaping Behaviors

Vaping was initially advertised as an alternative to traditional, combustible cigarettes and a way to bridge cigarette smoking cessation. Social media influence and advertising appeal of vaping became enticing to adolescents, leading to increased e-cigarette use and a growing epidemic and public health concern. Flavors increase appeal and are a primary reason for vaping initiation among adolescents. In February 2020, the FDA placed federal restrictions on selling flavored cartridge- and pod-based e-cigarette devices, except for tobacco and mint or menthol flavors. This restriction did not apply to refillable e-liquid cartridge devices or disposable devices. The International Tobacco Control Policy Evaluation Project (ITC) Youth Tobacco and Vaping Survey evaluates usual vaping behaviors among past 30-day vaping youth in the United States, Canada, and England from 2017-2019 (Hammond et al., 2022).

Hammond et al. (2022) repeated the cross-sectional survey to evaluate vaping behavior trends after the flavor restriction in 2020 with a subsample of 9,512 past 30-day vapers aged 16

to 19 years drawn from the ITC Youth Tobacco and Vaping Survey. The vapers completed online surveys and were asked which flavors they had used most often in the last 30 days, which type(s) of devices they had ever tried, and who had used more than one device in the past 30 days. The data from this study suggest a shift to the use of disposable devices and menthol-flavored cartridge devices that were not under the restriction and noncompliant continued use of devices placed under the flavor restriction. Adolescent vapers in the United States have bypassed the flavor restrictions by continuing to use exempt devices and shifting use to unbanned flavors.

Cullen et al. (2019) used a cross-sectional study of 19,018 middle and high school students in the U.S. from the National Youth Tobacco Survey (NYTS) to evaluate e-cigarette use. The data estimated that 63.3% of high school students and 65.4% of middle school students reported exclusive e-cigarette use, and among those, 72.2% of high school students and 59.2% of middle school students use flavored devices (Cullen et al., 2019). Data concludes there is a significantly high prevalence of vaping among middle school and high school students in the U.S. This suggests a need for further surveillance of, restriction of, and education about vaping among the adolescent population.

The use of e-liquid flavors may be a significant promoter for increased e-cigarette use among adolescents. Notley et al. (2021) conducted a systematic review analyzing the use of e-liquid flavors among youth and its association with initiating e-cigarette use. Researchers reviewed a total of 58 studies, which included 512,874 adolescents nationally. Data analysis revealed that adolescents prefer initiating and continuing e-cigarette use with flavored devices. Evidence determined that flavor descriptions, experimenting with different flavors, and product design were significant motivators for adolescent vaping. Researchers' interpretation of the data

may suggest that adolescents who are willing to experiment with different flavors and devices may experiment with other tobacco products or substances (Notley et al., 2021).

Cavallo et al. (2019) conducted ten focus groups of 69 participants, both non-smokers and smokers, from one middle school, one high school, and one college in Connecticut. Participants were asked to discuss vaping behaviors within the focus groups and create one encouraging and one discouraging message about e-cigarette use and associated health risks and benefits, characteristics, and social advantages and disadvantages. Regarding health benefits and risks, participants said, “Smoking can harm lungs. That’s why you’re risk-free when smoking these [e-cigarettes]” and “Electronic cigarettes may look harmless, but they’re not. They still contain nicotine, an addictive drug” (Cavallo et al., 2019). Attractive characteristics included satisfying flavors, visual appeal of the devices, lack of smoke odor, and vape tricks. Unattractive characteristics included not being as satisfying as cigarettes regarding a “head rush” and being a waste of money. Social advantages of vaping include a cool social image and fitting in with friends. Social disadvantages included “people can make fun of them for not being real cigarettes” and “looking like a fool with a ‘fake’ cigarette.” The messages were generated by youth and may add more credibility when using this study for vaping education to clear up the misperceptions adolescents have regarding vaping and prevention efforts.

Stalgaitis et al. (2020) conducted a cross-sectional online survey with 1,594 Virginia high school students ages 13 to 19 years. The purpose of this study was to understand the psychographics, interests, and risk profiles of adolescent vapers to identify target audiences for vaping prevention campaigns. Through an online survey, researchers examined past 30-day vape use, past 30-day tobacco and other substance use, peer crowd identification (Alternative, Country, Hip Hop, Mainstream, and Popular), prioritization of vaping in social life, and social

media use. After data analysis, researchers identified two peer crowds, Hip Hop and Popular, that were high-risk crowds of interest for vape prevention campaigns. The Hip Hop crowds had a higher proportion of current frequent vapers, while Popular crowds were at increased risk of occasional vaping. Understanding social trends and motivators of high-risk youth can help health educators create relevant messaging to prevent adolescent vaping and break these trends and connections.

Huong Le et al. (2023) conducted a cross-sectional survey with 1,211 youth and adolescents aged 15 to 24 in Hanoi and Ho Chi Ming City. The study aims to examine ever e-cigarette users and those who intend to use e-cigarettes in the future based on influences from marketing exposure. Data analysis revealed that social media platforms were the most common source for e-cigarette advertising exposure. The vibrant colors and graphics and celebrity and model appearances in these ads increased the participants' vaping odds (Huong Le et al., 2023). Our world revolves around technology, and social media platforms heavily influence adolescents. It is crucial to screen and restrict e-cigarette advertising on social media platforms to help prevent e-cigarette use among youth.

Cho et al. (2021) repeated cross-sectional surveys from the ITC Youth Tobacco and Vaping Survey with 35,490 adolescents aged 16 to 19 from England, Canada, and the United States. The study aims to explore how e-cigarette marketing exposure influences e-cigarette use among adolescents. From 2017 to 2019, researchers reported an increase in e-cigarette marketing exposure in Canada and the United States, while bans and restrictions on e-cigarette marketing in England prevented an increase in adolescent exposure. Researchers also found that e-cigarette marketing was not only appealing to adolescent vapers but also to non-vaping adolescents (Cho et al., 2021).

An increase in adolescent e-cigarette use can lead to addictiveness. Vogel et al. (2019) conducted a longitudinal study between May 2015 and April 2017 with 173 San Francisco Bay area adolescents aged 13 to 18 who reported e-cigarette use at least once in the past 30 days and at least ten times in their lives. This study aims to examine changes in e-cigarette use, nicotine exposure, and e-cigarette dependence over 12 months. Participants were evaluated at baseline, 6-month, and 12-month by saliva sampling for cotinine testing and self-reported e-cigarette frequency and dependence (Vogel et al., 2019). Data from this study showed that 80.3% of participants continued vaping at 12 months, daily e-cigarette use doubled at 12 months, and an increase in cotinine levels. In just one year, this study reveals an increase in adolescent's daily e-cigarette users, e-cigarette dependence, and greater nicotine exposure. The results of this study support a concern about e-cigarette addictiveness and nicotine exposure among adolescents and the need for regulatory action.

Fairman et al. (2023) aim to examine the social influences of vaping among adolescents in COVID-19. Researchers conducted web-based video interviews with a total of 19 adolescents aged 16 and 17 who have vaped in the past 30 days and reside in the U.S. Participants discussed how the initiation of e-cigarette use began through imitating family and friends and how social interactions were motivating factors to continued vaping. Participants also discussed nicotine addiction and described their vaping experience as "I really have that craving...it's a lot more than the first time I started vaping. It's an addiction" (Fairman et al., 2023). The COVID-19 pandemic changed the vaping behaviors of the participants. Some participants stated that the pandemic increased frequent vaping due to boredom, free time, and coping mechanisms for stress and isolation. Others stated that the pandemic decreased vaping because of social isolation from friends, increased pricing, and the closing of vape stores. Researchers found that social

situations and norms strongly influence vaping behaviors, and the COVID-19 pandemic changed e-cigarette use among youth. COVID-19 amplified adolescent's realization that they became addicted to vaping when social interactions were limited. There is a need for more health education about the dangers of vaping, from a social experience to addiction (Fairman et al., 2023).

Adolescent Perceptions

Adolescent perceptions of vaping may influence their susceptibility to e-cigarette use. E-cigarettes have been thought to be a healthier alternative to smoking traditional cigarettes. Although research on vaping and the effects of vaping has not been vast, e-cigarettes are not a risk-free alternative. It is essential to evaluate adolescents' perceptions of and attitudes towards vaping to improve health communications and prevention and cessation campaigns about vaping.

Chen et al. (2019) conducted five focus groups in 2015 with 39 non-e-cigarette users aged 12 to 17, using a questionnaire to explore their perceptions of e-cigarette advertising. Participants of the study mentioned, “Ads show it looks cool, pictures are made to make smoking look cool,” “I see in my Vogue magazine, so it makes it look like high fashion or fancy,” “If ads say they’re healthier, kids think they won’t get addicted,” and “If you see someone post a pic of them smoking and say they’re having a good time, you think you would have a good time if I’d use too” (Chen et al., 2019). Adolescents perceive e-cigarettes as healthier, cool, and fun based on advertising. The e-cigarette industry largely targets non-e-cigarette users through the aesthetic appeal of product design, flavors, visual contrasts from commercials, and social media advertising. Researchers concluded there is a need for policy development of e-cigarette regulation and public health interventions for youth access to evidence-based vaping information.

Cowgill et al. (2020) conducted a qualitative study with 34 middle and high school d/Deaf and hard-of-hearing (d/Dhh) students to learn about their awareness of e-cigarette products and their experience with e-cigarettes. Participants reported exposure to e-cigarette marketing on social media platforms and were enticed to watch people do “vape tricks” on video posts. Students said, “I know it’s not healthy, but it’s still cool...it’s fun, it’s cool,” and “Well, I think it’s safe. E-cigarettes are safer because it’s a kind of steam instead of smoke” (Cowgill et al., 2020). Researchers found that students reported a lack of knowledge regarding potential health risks associated with vaping and that they did not receive adequate prevention education in school. Overall, researchers conclude that there is a need for e-cigarette prevention education for d/Dhh students and other underserved and understudied youth populations.

Rohde et al. (2018) used a cross-sectional survey evaluating the knowledge about and attitudes associated with e-cigarette use among 69 adolescents aged 14 to 18. Researchers found that most participants knew that e-cigarettes contained nicotine, had unknown long-term health effects, contained harmful chemicals, and were not risk-free. Participants who were ever e-cigarette users were less likely to worry about the adverse health risks. Adolescents were aware that e-cigarettes contain nicotine but did not believe they would become addicted. Despite this knowledge, this study suggests that adolescents' beliefs and attitudes about e-cigarette use had a more significant influence on their vaping behaviors than did e-cigarette knowledge.

Studies show that general knowledge of the health risks associated with vaping is known among adolescents, but youth are still experimenting with vaping. Wojtecka et al. (2023) conducted a qualitative study in Poland using adolescents aged 16 to 18, both nicotine users and non-nicotine users, to explore their attitudes and perceptions of vaping. Participants report that they know the potential health risks of vaping. However, they do not personally know anyone

who has experienced health problems, so they cannot relate to the health warning labels on vaping devices (Wojtecka et al., 2023). Adolescents often do not perceive the risks of vaping as real or relevant. Researchers concluded that prevention and cessation programs are ineffective and should shift focus toward more relatable aspects that are important to adolescents to put an end to vaping.

Bernat et al. (2018) examined the perceptions of the harm and benefit of e-cigarettes among 22,884 high school students aged 14 to 17. The study showed that less than one-half of the participants believed e-cigarettes to be less harmful than cigarettes. Non-vapers reported more harmful health consequences associated with e-cigarettes than did e-cigarette users. Roughly 40% of participants reported that people could not become addicted to e-cigarettes or did not know if they could (Bernat et al., 2018). This finding suggests that adolescents do not understand the nature of addiction, and there is a need for informative messaging about the risk of nicotine addiction and other health consequences. Perceived benefits of e-cigarettes, including looking cool and fitting in, were reported by less than 15% of participants, and the proportion of perceived benefits of coping and stress relief was higher. This implies that e-cigarette prevention campaigns may not benefit from focusing on social benefits but rather on internal benefits.

Research shows that many youths believe e-cigarettes do not contain nicotine, while previous studies from the CDC found that 99% of e-cigarettes tested and on the market do contain nicotine at varying levels. Bluestein et al. (2022) extrapolated data from the Population Assessment of Tobacco and Health (PATH) study evaluating the perceptions of the harmfulness and addictiveness of e-cigarettes among youth aged 12 to 17. This study shows that adolescents who perceived e-cigarettes to have little to no harm and “unlikely” addictiveness were more likely to initiate use.

To further evaluate addictiveness, Strombotne et al. (2021) evaluated the perception of one's ability to quit vaping and the perception of the difficulty of quitting among 1,610 teenagers. Data analysis revealed that 60% of participants are optimistically biased about their ability to quit, but they acknowledge it may be more difficult for other teenagers to quit vaping. Adolescents were more likely to have higher expectations for themselves than of others. This implies adolescents have misperceptions about the overall ease of quitting vaping and resisting addiction.

Researchers evaluated the perceived likelihood of harm from vaping over time to understand better youth vaping beliefs to improve prevention and cessation tobacco control programs. Coats et al. (2022) conducted cross-sectional surveys with 296 adolescents in 2017 and 286 adolescents in 2019. Participants were aged 15 to 17, vaped within the past 30 days, and lived in New York. There has been increasing popularity among youth vaping nicotine and cannabis, which pose short- and long-term health consequences and risk for addiction to tobacco and other products (Coats et al., 2022). Data analysis shows an increase in vaping nicotine, perceived likelihood of harm from vaping, and perceived harm from vaping flavored devices from 2017 to 2019. Despite knowledge of the harms associated with vaping, adolescents continue to vape or increase their vaping tendencies. This study demonstrates youth misperceptions of the harm associated with vaping, which can be used to help improve prevention and cessation programs for vaping adolescents.

Simply informing youth about the health consequences of vaping is doing little to discourage or stop vaping. Gilmore et al. (2023) conducted a cross-sectional survey to evaluate adolescents' perceptions of adverse health outcomes due to vaping. Researchers found that there are significantly lower perceived health threats associated with vaping than traditional cigarettes.

Participants report no correlation between vaping and smoking traditional cigarettes, but research shows that vaping can lead to increased rates of nicotine and tobacco use in adolescents (Gilmore et al., 2023). Researchers also found a correlation between social acceptance and vaping. Adolescents' perceptions of being socially accepted by vaping indicate an increased risk of vaping in order to model social norms.

Summary of Literature

Many of the research studies reviewed suggest the need for stronger messaging around the health risks associated with vaping in prevention and cessation programs. E-cigarette marketing and misperceptions about vaping increase the risk of vaping among adolescents. Warning labels on products are being ignored or overlooked, and adolescents are bypassing restrictions and bans on specific vaping products.

If restrictions are made across all e-cigarette marketing segments, there may be a more significant impact among adolescent vapers. The adolescent population is vulnerable. They want to “fit in” and follow social norms. Since 2014, e-cigarettes have been the chosen tobacco product among adolescents. Adolescents are enticed and influenced by social media, social pressure from peers, and e-cigarette marketing. Adolescents often express lower perceived risks of harm and addictiveness of e-cigarettes. Research shows that adolescents are knowledgeable about vaping and the associated health consequences, yet they are still engaged and experimenting with vaping.

SECTION 3: Discussion and Synthesis

The purpose of this capstone paper is to explore the vaping epidemic among adolescents through an emphasis on their vaping behaviors and perceptions about vaping. Understanding vaping behaviors and perceptions of vaping among the adolescent population can help lead to further evidence-based research. Vaping was declared an epidemic among youth in 2018 by the U.S. Surgeon General. Since then, there have been many efforts toward more evidence-based research about vaping among the adolescent population. The current prevention and cessation campaigns and programs informing adolescents about vaping must make changes that are more effective at reaching out and relating to youth.

Research shows that social media platforms and e-cigarette advertising and marketing are appealing and enticing to adolescents. Flavors, device design, peer influence, and coping with stress are among the reasons for adolescent vaping. Adolescents are heavily motivated and influenced by their peers and what they see on social media. In 2020, the FDA restricted sells of flavored e-cigarettes, except for tobacco and mint/menthol flavors, refillable devices, and disposable devices. Research shows a shift in adolescent vaping to menthol-flavored and disposable devices, which suggests adolescents are bypassing restrictions and continuing to vape (Hammond et al., 2022). Researchers identified high-risk profiles who were more susceptible to vaping. Stalgaitis et al. (2020) suggest that understanding high-risk youth's social trends and motivators can help create relevant messaging behind adolescent prevention and cessation programs.

Adolescents are an extremely vulnerable population. Their perceptions influence their susceptibility to vaping. Due to marketing influence, adolescents believe e-cigarettes are a healthy alternative to traditional cigarettes. They believe they will not become addicted to e-

cigarettes. E-cigarettes are not risk-free and do contain nicotine and other harmful chemicals and heavy metals. Research suggests that adolescents who vape tend to have lower risk perceptions of the harms associated with e-cigarettes than non-vapers have. Adolescents do not perceive the health consequences of e-cigarettes to be real or relevant to them. Wojtecka et al. (2023) found that adolescents reported knowing the potential health risks associated with vaping. However, they could not relate to these risk warnings because they did not know anyone who had experienced negative consequences. Adolescents are aware of the potential harmfulness and addictiveness of e-cigarettes, yet they continue to vape.

There were many strengths and limitations found in the review of literature. The overall strengths of the literature review include consistency in methodology to ensure the accuracy of data trends, saliva testing for cotinine to confirm e-cigarette use to validate data, and online surveys and questionnaires to reach more youth in diverse areas. Overall limitations of the literature review include lack of generalizability to youth in rural areas and homeschooled, self-reported data instead of saliva testing for cotinine to verify e-cigarette use, recall bias where youth may not consciously recognize or understand strategies behind e-cigarette marketing, and online surveys that could lead to misinterpretation of data based on limited nonverbal communication. Of these, saliva sampling to confirm e-cigarette use and online surveys were both strengths and limitations. Research suggests a great need for health literacy about the vaping epidemic that is relevant and relatable to adolescents.

Implications for Advanced Nursing Practice

Health education and patient advocacy are crucial for advanced nurse practitioners (APNs) to address the vaping epidemic among the adolescent population. Research shows that adolescents who vape have low-risk perceptions of the harms associated with e-cigarette use. APNs and other healthcare providers can provide adolescents with evidence-based information and education on vaping to help them better understand the risks of vaping. Screening is the most effective preventative health care measure for providers. Through routine screenings, APNs can better understand the behaviors of adolescents and provide them with appropriate, relevant resources and education.

The American Academy of Pediatrics (AAP) recommends identifying, educating, and promoting tobacco avoidance and cessation (Ward et al., 2023). Adolescents are screened for alcohol and substance abuse around age 11. Specific screening for e-cigarette use and vaping should also be implemented in care. E-cigarette use and vaping should also be included in anticipatory guidance for adolescents. Adolescents who vape should be assessed for readiness to quit and treated appropriately with a personalized treatment plan, including behavioral interventions, pharmacotherapy, and resources to quit.

APNs play a critical role in helping put an end to the vaping epidemic among adolescents. In conjunction with clinical practice, APNs can collaborate with community and state agencies through school-based educational campaigns and local policy reforms and regulations to address the harmful effects of vaping on adolescents. APNs should also stay up to date on evolving legislation, literature, and research on vaping in the adolescent population.

Collaboration between clinical practice, legislation policy, and public health education is needed to reverse vaping trends and protect our youth's health and well-being.

Recommendations for Future Research

Research and literature on the vaping epidemic among the adolescent population continue to be limited and are emerging. E-cigarette use among youth gained popularity around 2014 and was declared an epidemic in 2018. Since this time, researchers and providers have been developing more evidence-based research and information about vaping among our youth. This capstone paper focuses on the most relevant concepts, vaping behaviors and adolescent perceptions, in current research exploring the vaping epidemic among youth.

Current research needs longitudinal studies addressing the harm and benefits perceptions of vaping related to initiation among youth. We must understand why adolescents are initiating the use of e-cigarettes to provide effective intervention to stop vaping. Future longitudinal studies could help bridge this knowledge gap. There are vaping cessation and prevention programs and campaigns in place for adolescents, but research suggests these programs are ineffective and failing. These programs must be improved to ensure our youth are receptive to them. Further research is necessary to explore why these programs fail and what can be done to improve them.

Research shows that e-cigarette marketing is appealing to youth, and marketing exposure leads to increased e-cigarette use among adolescents. Albert Bandura's Social Cognitive Theory explains how individuals influence and are influenced by different environments and the behaviors of others. E-cigarette marketing and exposure to this marketing on social media platforms heavily influence the perceptions and behaviors of adolescents. Future research could look more into how the tobacco industry deceives and manipulates adolescents into vaping and

what can be done to stop marketing, especially on social media platforms, that targets adolescents. In 2020, the FDA placed federal restrictions on flavored e-cigarette devices and enforced warning labeling on products to decrease adolescent vaping. Research shows adolescents bypass these restrictions, ignore warning labels, and continue using banned devices. Future research could investigate before and after restrictions and regulations to evaluate data trends in e-cigarette use among youth. This will give a better understanding of the impact of device restrictions and ways to improve restriction strategies and policies that are more effective in decreasing youth vaping.

There is a need for future research exploring adolescent vaping interventions and analysis from healthcare providers and school-based programs. The AAP recommends that all adolescents should be screened explicitly for e-cigarette use and vaping at age 11 (Ward et al., 2023). Collaboration between healthcare providers and schools could improve school-based programs addressing the concerns and risks associated with vaping among the adolescent population.

Future research would benefit from exploring e-cigarette use among minority groups of adolescents. One research study reviewed in this paper evaluated e-cigarette use among deaf and hard-of-hearing adolescents. Researchers in this study suggest the need for future studies exploring communication barriers to encourage and guide program adaptability for varied adolescent populations.

Vaping and e-cigarette use pose short- and long-term consequences to the health of our youth, and we must explore more on this topic to help reverse trends and put an end to the vaping epidemic. Future research will provide a better understanding of e-cigarette use among

adolescents and the potential risks affecting the health of our youth and guide us in implementing appropriate and effective patient care interventions and prevention and cessation programs.

Conclusion

To tackle the vaping epidemic among adolescents, we must understand vaping behaviors and adolescent perceptions about vaping. This knowledge and research will help reach the adolescent population with relevant, persuasive messaging and health literacy about vaping. Research indicates persistence in adolescent vaping and increases in frequency and nicotine exposure, which can lead to dependence and addiction that lead to short- and long-term health consequences. APNs can help bridge knowledge gaps through routine screenings and anticipatory guidance in clinical practice and collaboration with local legislation and the community about vaping to help put an end to the vaping epidemic among adolescents.

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Reference	Research Question Purpose Objective Hypothesis	Patients Population Sample	Interventions Identify Independent and Dependent Variables	Comparisons	Outcomes Findings	Level of Evidence and Quality Grade
Bernat, D., Gawquet, N., Wilson, K. O., Porter, L., & Choi, K. (2018). Electronic cigarette harm and benefit perceptions and use among youth. <i>Am J Prev Med</i> , 55(3), 361-367. https://doi.org/10.1016/j.amepre.2018.04.043	Aim to examine adolescent perceptions of harm and benefits associated with e-cigarette use	N=22,884 high school students from all counties in Florida Ages 14 to 17 Parental consent obtained	NA	Comparison of adolescent e-cigarette use and perceived harm and benefits of e-cigarettes among six different focus groups	Less than half of participants reported that e-cigarettes are harmful to their health and less than two-thirds reported that individuals can get addicted.	Meta-analysis Level III Grade A Florida Youth Tobacco Survey
Bluestein, M.A., Harrell, M. B., Hebert, E. T., Chen, B., Kuk, A. E., Spells, C. E., & Perez, A. (2022). Associations between perceptions of e-cigarette harmfulness and addictiveness and the age of e-cigarette initiation	Aim to examine youth perceptions of harmfulness and addictiveness of e-cigarettes and how that may impact the initiation of e-cigarette use	N=16,143 U.S. youth from the national PATH study Ages 12-17 Parental consent obtained	NA	Comparison of the perceptions of e-cigarette harmfulness and addictiveness between e-cigarette user and non-e-cigarette users	Youth who perceive e-cigarettes to be of no or little harm and unlikely to cause addiction were more likely to use e-cigarettes and to report earlier age of initiation than those who had	Meta-analysis Level III Grade A PATH Study

Reference	Research Question Purpose Objective Hypothesis	Patients Population Sample	Interventions Identify Independent and Dependent Variables	Comparisons	Outcomes Findings	Level of Evidence and Quality Grade
<p>among the population assessment of tobacco and health (PATH) youth. <i>Tobacco Use Insights</i>, 15, 1-11. https://doi.org/10.1177/1179173x221133645</p>					higher risk perceptions	
<p>Cavallo, D. A., Kong, G., Ells, D. M., Camenga, D. R., Morean, M. E., & Krishnan-Sarin, S. (2019). Youth-generated prevention messages about electronic cigarettes. <i>Health Education Research</i>, 34(2), 247-256. https://doi.org/10.1093/her/cyz001</p>	<p>Aim to examine knowledge, attitudes, and perceptions of e-cigarettes by identify message themes about e-cigarettes that youth use to encourage and discourage peers from using e-cigarettes</p>	<p>N=69 nonsmokers and smokers from one middle school, high school, and college in Connecticut</p> <p>52% male, 36% smokers</p> <p>Parental consent obtained for <18 years</p>	NA	Comparison of encouraging and discouraging messages among participants related to e-cigarettes	The top encouraging messages included satisfying flavors, convenience of use, and decreased health risk. Top discouraging messages included unsafe products, increased addiction risk, and similar health risks as cigarettes.	Qualitative Study Level III Grade B

Reference	Research Question Purpose Objective Hypothesis	Patients Population Sample	Interventions Identify Independent and Dependent Variables	Comparisons	Outcomes Findings	Level of Evidence and Quality Grade
					Youth-generated messaging could help improve e-cigarette prevention among youth.	
Chen, Y., Tilden, C., & Vernberg, D. K. (2019). Adolescents' interpretations of e-cigarette advertising and their engagement with e-cigarette information results from five focus groups. <i>Psychology & Health, 35</i> (2), 163-176. https://doi.org/10.1080/08870446.2019.1652752	Aim to explore adolescent non-e-cigarette users interpretations of e-cigarette advertising.	N=36 adolescents Age 12 to 17, mean = 14.21 years 80% female Parental consent obtained	NA	Use a thematic approach to compare perceptions and interpretations of e-cigarette knowledge and advertising among non-e-cigarette users	Non-e-cigarette users find advertising appealing. Participants reported three main themes; advertising motivates non-users to use e-cigarettes, incorporates emotional appeals, and lack of validation in searching for e-cigarette information. Non-e-cigarette users are heavily targeted by advertising.	Qualitative Study Level III Grade B

Reference	Research Question Purpose Objective Hypothesis	Patients Population Sample	Interventions Identify Independent and Dependent Variables	Comparisons	Outcomes Findings	Level of Evidence and Quality Grade
<p>Cho, Y. J., Thrasher, J. F., Driezen, P., Hitchman, S. C., Reid, J. L., & Hammond, D. (2021). Trends in exposure to and perceptions of e-cigarette marketing among youth in England, Canada, and the United States between 2017 and 2019. <i>Health Education Research</i>, 36(6), 657-668. https://doi.org/10.1093/her/cyab039</p>	<p>Examine reported exposure to and perceptions of e-cigarette marketing among adolescents in England, Canada, and the U.S.</p>	<p>N=11,362 in England N=12,018 in Canada N=12,110 in the U.S. Ages 16 to 19</p>	<p>NA</p>	<p>Comparison of e-cigarette advertising exposure among adolescents between the U.S., Canada, and England</p>	<p>Exposure to e-cigarette advertising increased among youth in Canada and the U.S between 2017 and 2019. E-cigarette marketing restrictions in England limited adolescent exposure. More than one-third of participants reports e-cigarette marketing as appealing.</p>	<p>Cross-sectional survey Level III Grade A</p>
<p>Coats, E. M., Farrelly, M. C., Henes, A. L., Pikowski, J. M., Brown, E. M., & Nonnemaker, J. M. (2022). Youth vaping beliefs and behaviors: Evidence</p>	<p>Assess vape frequency, nicotine content of products, risk perceptions of vaping among adolescents in New York in 2017 and 2019</p>	<p>N=296 in 2017 N=286 in 2019 Ages 15 to 17 living in New York and have vaped in the past 30 days</p>		<p>Comparison of vape frequency, nicotine content of products, and risk perceptions of vaping among adolescents in 2017 compared to 2019</p>	<p>The proportion of frequent youth vapers increased from 16.8% to 26.2% and those who use high-nicotine vapes increased from 12.6% to 40%.</p>	<p>Cross-sectional survey Level III Grade B</p>

Reference	Research Question Purpose Objective Hypothesis	Patients Population Sample	Interventions Identify Independent and Dependent Variables	Comparisons	Outcomes Findings	Level of Evidence and Quality Grade
<p>from New York. <i>Health Education Research</i>, 37(4), 254-265. https://doi.org/10.1093/her/cyac014</p>					<p>The findings suggest youth misperceptions about health risks of vaping.</p>	
<p>Cowgill, B. O., Herrmann, A., Richardson, J., Guthmann, D. S., Mckee, M. M., Malzkuhn, M., & Berman, B. A. (2020). Understanding e-cigarette knowledge and use among d/Deaf and hard of hearing students and the need for tailored prevention programming: A qualitative study. <i>American Annals of Deaf</i>, 165(3), 335-352.</p>	<p>Assess the knowledge of and experiences with e-cigarettes and other tobacco exposure and prevention programming exposure among d/Deaf and hard of hearing (d/Dhh) youth</p>	<p>N=34 d/Dhh middle school and high school students from two schools for the deaf in California</p> <p>Parental consent obtained</p>	<p>NA</p>	<p>Similarities and differences about e-cigarette use and knowledge and prevention programs were compared among 4 middle school focus groups and 4 high school focus groups.</p>	<p>Students reported frequent exposure to product advertising on social media and that students expressed interest in learning more about e-cigarette and other products and the associated health risks. Participants suggest program adaptability to prevention campaigns to accommodate dDhh students</p>	<p>Qualitative Study Level III Grade B</p>

Reference	Research Question Purpose Objective Hypothesis	Patients Population Sample	Interventions Identify Independent and Dependent Variables	Comparisons	Outcomes Findings	Level of Evidence and Quality Grade
https://doi.org/10.1353/aad.2020.0022						
Cullen, K. A., Gentzke, A. S., Sawdey, M. D., Chang, J. T., Anic, G. M., Wang, T. W., Creamer, M. R., Jamal, A., Ambrose, B. K., & King, B. A. (2019). E-cigarette use among youth in the United States, 2019. <i>JAMA</i> , 322(21), 2095-2103. https://doi.org/10.1001/jama.2019.18387	To estimate the prevalence of e-cigarette use among U.S. middle school and high school students in 2019	N=19,018 U.S. middle school and high school students Parental consent obtained	NA	Comparisons between middle school and high school student e-cigarette use, frequency of use, and use of flavored devices	An estimated 27.5% of high school students report e-cigarette use and 10.5% of middle school students. 21.4% high school students report current e-cigarette users and 8.8% of middle school students. 72.2% of high school students and 59.2% of middle school students who use e-cigarette report current use of flavored devices	Cross-sectional analysis Level III Grade A The National Youth Tobacco Survey (NYTS)
Fairman, R. T., Churchill, V., Garner, J. B., Brown, D., Massey,	To evaluate youth e-cigarette use initiation, social use, addiction, and	N=19 Ages 16 and 17	NA	Comparisons between participants e-cigarette use	Many youth initiated use of e-cigarettes due to influences from	Qualitative Study Level III Grade B

Reference	Research Question Purpose Objective Hypothesis	Patients Population Sample	Interventions Identify Independent and Dependent Variables	Comparisons	Outcomes Findings	Level of Evidence and Quality Grade
Z. B., Ashley, D. L., & Popova, L. (2023). It's addiction at this point: A qualitative examination of youth e-cigarette use trajectory in the United States. <i>Tobacco Use Insights</i> , 16, 1-6. https://doi.org/10.1177/1179173X231185455	how COVID-19 changed youth vaping behaviors	58% male Parental consent obtained		initiation and behaviors and how COVID-19 changed the vaping behaviors and perceptions of participants	friends and family. Many participants expressed the importance of social interactions for use. When the COVID-19 pandemic hit, youth began to realize vaping socially mattered less, suggesting they had become addicted.	
Gilmore, B. A., Gilmore, C. M., Reveles, K. R., Koeller, J. M., Spoor, J. H., Flores, B. E., & Frei, C. R. (2023). A survey of vaping use, perceptions, and access in adolescents from South-Central Texas schools.	Aim to assess adolescents' perceptions of vaping, use of vapes, and access to vaping among adolescents in eleven schools in South-Central Texas	N=267 middle school and high school students in South-Central Texas Ages 12 to 20 61% female	NA	Comparisons between vape use, perceptions of vaping, and access to vaping among middle and high school student participants	Data suggests participants reason for vaping was social acceptance. Participants also found it easy to vape at school because the vapes are easy to conceal and were likely to access vapes through	Cross-sectional study Level III Grade B

Reference	Research Question Purpose Objective Hypothesis	Patients Population Sample	Interventions Identify Independent and Dependent Variables	Comparisons	Outcomes Findings	Level of Evidence and Quality Grade
<p><i>International Journal of Environmental Research and Public Health</i>, 20, 6766. https://doi.org/10.3390/ijerph20186766</p>					<p>people they know. Most students reported lower perceived health risks from vaping.</p>	
<p>Hammond, D., Reid, J. L., Burkhalter, R., Travers, M. B., Gravely, S., Hyland, A., Kasza, K., & McNeill, A. (2022). E-cigarette flavors, devices, and brands used by youth before and after partial flavor restrictions in the United States: Canada, England, and the United States, 2017-2020. <i>American Journal of Public Health</i>, 112(7), 1014-1024. https://doi.org/10.2196/ajph.2017.112.7.1014</p>	<p>Examine trends before and after U.S. flavor restrictions on cartridge- or pod-based e-cigarette devices, other than menthol and tobacco flavors</p>	<p>N=9,512 adolescents who have vaped in the last 30 days from the U.S., Canada, and England</p> <p>Ages 16 to 19</p>	<p>NA</p>	<p>Comparison of vaping trends among adolescents before and after flavor restrictions were implemented to vape devices</p>	<p>Researchers found a shift to menthol flavored devices and to disposable devices after restrictions were implemented. Researchers also report noncompliance with flavor restrictions with continued use of banned devices</p>	<p>Cross-sectional survey Level III Grade A</p> <p>International Tobacco Control Policy Evaluation Project Youth and Vaping Survey</p>

Reference	Research Question Purpose Objective Hypothesis	Patients Population Sample	Interventions Identify Independent and Dependent Variables	Comparisons	Outcomes Findings	Level of Evidence and Quality Grade
05/ajph.2022.306780						
Huong Le, T. T., Hoang Le, T., Dat Le, M., & Nguyen, T. T. (2023). Exposure to e-cigarette advertising and its association with e-cigarette use among youth and adolescents in two largest cities in Vietnam 2020. <i>Tobacco Use Insights, 16</i> , 1-9. https://doi.org/10.1177/1179173X231179676	Aims to describe the situation of exposure to e-cigarette marketing of adolescents living in two cities in Vietnam (Hanoi and Ho Chi Minh) and identify associated factors of e-cigarette marketing with use	N=1,211 youth and adolescents living in Hanoi and Ho Chi Minh cities Ages 15 to 24	Independent variables: general information of participants (age, gender, living status, etc.), exposure to e-cigarette advertising, characteristics of the ads, and type of advertisements. Dependent variables: ever e-cigarette users and never e-cigarette users	Comparisons made about how e-cigarette advertising exposure impacts e-cigarette users and non-e-cigarette users	Data analysis show that social media is the most popular source of e-cigarette advertising and was associated with the odds of e-cigarette use among youth and adolescents. Attractive colors and free samples were motivating factors for use.	Cross-sectional study Level III Grade B
Kelder, S. H., Mantey, D. S., Van Dusen, D., Case, K., Haas, A., & Springer, A. E.	Evaluate the feasibility and initial effectiveness of “CATCH My Breath,” an e-	N=12 middle schools in Texas (6 intervention schools and 6 control schools)	NA	Comparison of e-cigarette use between middle schools that implemented the	From baseline to 16-month follow up, e-cigarette use was lower among intervention	Quasi-experimental study Level II Grade B

Reference	Research Question Purpose Objective Hypothesis	Patients Population Sample	Interventions Identify Independent and Dependent Variables	Comparisons	Outcomes Findings	Level of Evidence and Quality Grade
(2020). A middle school program to prevent e-cigarette use: A pilot study of “CATCH my breath.” <i>Public Health Reports</i> , 135(2), 220-229. https://doi.org/10.1177/0033354919900887	cigarette prevention program, among middle schools in central Texas			“CATCH My Breath” program and middle school students that did not implement the program	schools (2.8%-4.9%) than control schools (2.7%-8.9%). Intervention schools had better improvements in e-cigarette knowledge than control schools	
Miech, R., Leventhal, A., Johnston, L., O’Malley, P. M., Patrick, M. E., & Barington-Trimis, J. (2021). Trends in use and perceptions of nicotine vaping among U.S. youth from 2017 to 2020. <i>JAMA Pediatrics</i> , 175(2), 185-190. https://doi.org/10.1001/jamapediatrics.2020.5667	Estimate the prevalence, perceived harm, and accessibility of nicotine vaping devices among U.S. adolescents from 2017 to 2020	N=94,320 10 th and 12 th grade students nationally Parental consent obtained	NA	Comparison of vaping trends from 2017 to 2020 among U.S adolescents in 10 th and 12 th grades	Vape use among U.S. adolescents increased from 2017 to 2019 until becoming stagnant in 2020. Past 30-day and past 12-month vaping levels held steady and daily nicotine vaping declined from 9% to 7%.	Cross-sectional study Level III Grade A Monitoring the Future (MTF)

Reference	Research Question Purpose Objective Hypothesis	Patients Population Sample	Interventions Identify Independent and Dependent Variables	Comparisons	Outcomes Findings	Level of Evidence and Quality Grade
<p>Notley, C., Gentry, S., Cox, S., Dockrell, M., Havill, M., Attwood, A. S., Smith, M., & Munafo, M. R. (2021). Youth use of e-liquid flavours – a systemic review exploring patterns of use of e-liquid flavours and associations with continued vaping, tobacco smoking uptake and cessation. <i>Addiction</i>, <i>117</i>, 1258-1272. https://doi.org/10.1111/add.15723</p>	<p>Aim to review the use of e-liquid flavors by youth and describe the associations with increase in use of vaping, adverse effects, and subjective experiences.</p>	<p>N=512,874 young people withing 58 studies (48 in the U.S, 8 in the U.K., 2 in Korea, 1 in Taiwan, and 1 in Mexico) 39 studies were in school settings and 19 were community recruited</p> <p>Reported mean age = 15</p>		<p>Comparison of the e-liquid flavoring in vaping devices and its impact on e-cigarette use among young people</p>	<p>Young people generally prefer using e-liquid flavored devices. Flavoring descriptions, design labels, and experimentation of different flavors were enjoyable aspects of flavored devices that are appealing to young people. Analysis of studies highly suggest young people are interested in using and experimenting with flavored vape devices, which may lead to experimentation of other tobacco</p>	<p>Systematic review Level III Grade A</p>

Reference	Research Question Purpose Objective Hypothesis	Patients Population Sample	Interventions Identify Independent and Dependent Variables	Comparisons	Outcomes Findings	Level of Evidence and Quality Grade
					products and substances.	
Rohde, J. A., Noar, S. M., Horvitz, C., Lazard, A. J., Ross, J. C., & Sutfin, E. L. (2018). The role of knowledge and risk beliefs in adolescent e-cigarette use: A pilot study. <i>International Journal of Environmental Research and Public Health</i> , 15(138). https://doi.org/10.3390/ijerph15040830	Examine adolescents' knowledge and beliefs about e-cigarette risks and whether this knowledge is associated with e-cigarette use	N=69 adolescents drawn from a national survey by the Center for Regulatory Research on Tobacco Communication in 2014-2015 Ages 14 to 18		Comparisons of e-cigarette knowledge and beliefs on associated risks between adolescent e-cigarette never- and e-cigarette ever-users	A majority of adolescents are aware of associated risks of e-cigarettes, but that plays little to no role in their use of e-cigarettes and they did not believe they could become addicted. Data analysis suggests beliefs play a larger role in vaping behaviors than knowledge.	Cross-sectional survey Level III Grade B
Stalgaitis, C. A., Djakaria, M., & Jordan, J. W. (2020). The vaping teenager: Understanding the psychographics and interests of adolescent vape	Identify and describe subgroups of adolescents who vaped and evaluate vaping behaviors among the groups	N=1,594 adolescents from high school students in the state of Virginia Ages 13 to 19 Mean age=16.47 years		Comparison of vaping rates and frequency by peer groups to identify high-risk groups	Hip Hop and Popular groups were the highest risk crowds with increased odds of current and frequent vaping. These groups also reported more	Cross-sectional survey Level III Grade B

Reference	Research Question Purpose Objective Hypothesis	Patients Population Sample	Interventions Identify Independent and Dependent Variables	Comparisons	Outcomes Findings	Level of Evidence and Quality Grade
users to inform health communication campaigns. <i>Tobacco Use Insights</i> , 13, 1-15. https://doi.org/10.1177/1179173X20945695					social prioritization with use. It's important to understand how to identify high-risk adolescent groups to be able to reach them with relevant, effective messaging about vaping prevention and cessation.	
Strombotne, K., Sindelar, J., & Buckell, J. (2021). Who me? Optimism bias about U.S. teenagers' ability to quit vaping. <i>Addiction</i> , 116, 3180-3187. https://doi.org/10.1111/add.15525	Estimate the extent to which teens exhibited optimism bias about vaping and perceptions of ones' ability to quit vaping	N=1,610 U.S. teenagers Ages 14 to 18	Dependent variables: perception of difficulty to quit vaping and optimism bias Covariates: smoking and vaping	Comparisons among teenagers about own perceived difficulty of quitting vaping compared to that of the average U.S. person their age	More than 60% of teenagers are biased about their own ability to quit vaping as opposed to the ability of others to quit.	Cross-sectional survey Level III Grade B
Vogel, E. A., Prochaska, J. J., Ramo, D. E.,	Examine the changes in e-cigarette frequency,	N=173 adolescents in San Francisco	NA	Comparison of baseline, 6-month, and 12-	80.3% of participants continued to use	Longitudinal

Reference	Research Question Purpose Objective Hypothesis	Patients Population Sample	Interventions Identify Independent and Dependent Variables	Comparisons	Outcomes Findings	Level of Evidence and Quality Grade
<p>Andres, J., & Rubinstein, M. L. (2019). Adolescents' e-cigarette use: Increases in frequency, dependence, and nicotine exposure over 12 months. <i>Journal of Adolescent Health</i>, 64, 770-775. https://doi.org/10.1016/j.adohealth.2019.02.019</p>	<p>levels of nicotine exposure, and e-cigarette dependence among adolescents over 12 months</p>	<p>Bay who reported past month e-cigarette use</p> <p>Ages 13 to 18 Mean age=16.6 years</p> <p>75.1% male</p>		<p>month e-cigarette use, nicotine exposure, and e-cigarette dependence among adolescents</p>	<p>e-cigarettes at 12 months with greater frequency, dependence, and nicotine exposure. Daily e-cigarette users doubled from 14.5% to 29.8% at 12 months. Cotinine levels also increased over time reflecting an increase in exposure to nicotine.</p>	<p>experimental study Level II Grade B</p>
<p>Wojtecka, A., Kalinowska-Beszczyńska, O., Tyranska-Fobke, A., Kaleta, D., Wojnarowska, M., Robakowska, M., & Balwicki, L. (2023). Adolescents' perceptions and attitudes towards</p>	<p>Investigate motivations to start vaping, patterns of product use, perceptions of vaping and vapers, and attitudes toward nicotine use among adolescents in Poland</p>	<p>N=48 adolescents in three cities in Poland</p> <p>Ages 16 to 18</p>	<p>NA</p>	<p>Comparisons between adolescent non-nicotine users and nicotine users about their attitudes toward smoking and nicotine products</p>	<p>Young people ignore pictures and warning labels on product packaging, they do not react to these labels and do not perceive the consequences to be real.</p>	<p>Qualitative study Level III Grade B</p>

Reference	Research Question Purpose Objective Hypothesis	Patients Population Sample	Interventions Identify Independent and Dependent Variables	Comparisons	Outcomes Findings	Level of Evidence and Quality Grade
traditional and electronic cigarettes – Results of focus group interviews. <i>International Journal of Environmental Research and Public Health</i> , 20, 1438. https://doi.org/10.3390/ijerph20021438					In order to effectively address the risks of vaping to adolescents, we must listen to their needs and better understand their attitudes and beliefs about smoking.	