

**MARKETING OF E-CIGARETTES AMONG GENERATION Y AND Z IN
JOHANNESBURG**

Modiegi Manyane

744979

744979@students.wits.ac.za

+27 76 978 6127

**A research proposal submitted to the Faculty of Commerce, Law and
Management, University of the Witwatersrand, in partial fulfilment of the
requirements for the degree of Master of Business Administration**

Johannesburg, 2024

KEYWORDS

E-cigarettes, purchasing behaviour, generation Y, Generation Z, millennials,
consumer usage, tobacco usage, perceived harm reduction, perceived health
benefits, subjective norms, social influence

Note

TABLE OF CONTENTS

Approved: DR HORNE

LIST OF TABLES	v
LIST OF FIGURES	vi
LIST OF ACRONYMS	vii
CHAPTER 1. INTRODUCTION	8
1.1 STATEMENT OF PURPOSE	8
1.2 BACKGROUND OF THE STUDY	8
1.3 RESEARCH PROBLEM	9
1.4 RESEARCH OBJECTIVES.....	11
1.5 RATIONALE.....	11
1.6 DELIMITATIONS OF THE STUDY.....	12
1.7 DEFINITION OF TERMS	ERROR! BOOKMARK NOT DEFINED.
1.8 ASSUMPTIONS	ERROR! BOOKMARK NOT DEFINED.
1.9 CHAPTER OUTLINE.....	ERROR! BOOKMARK NOT DEFINED.
CHAPTER 2. LITERATURE REVIEW AND THEORETICAL FRAMEWORK: 15	
2.1 DEFINITION OF TOPIC OR BACKGROUND DISCUSSION.....	ERROR! BOOKMARK NOT DEFINED.
2.2 RESEARCH OBJECTIVE 1: TO DETERMINE THE INFLUENCE OF PERCEIVED HARM REDUCTION ON INTENTION TO PURCHASE E-CIGARETTES. ...	ERROR! BOOKMARK NOT DEFINED.
2.2.1 PERCEIVED HARM REDUCTION.....	ERROR! BOOKMARK NOT DEFINED.
2.2.2 INTENTION TO PURCHASE E-CIGARETTES.....	ERROR! BOOKMARK NOT DEFINED.
2.2.3 ACTUAL E-CIGARETTE USAGE.....	ERROR! BOOKMARK NOT DEFINED.
2.2.4 HYPOTHESIS 1: PERCEIVED HARM REDUCTION AND INTENTION TO PURCHASE E-CIGARETTES	ERROR! BOOKMARK NOT DEFINED.
2.3 RESEARCH OBJECTIVE 2: TO EXAMINE THE INFLUENCE OF PERCEIVED HARM REDUCTION ON ACTUAL E-CIGARETTE USAGE.....	15
2.3.1 PERCEIVED HARM REDUCTION.....	16
2.3.2 ACTUAL E-CIGARETTE USAGE.....	16
2.3.3 HYPOTHESIS 2: PERCEIVED HARM REDUCTION AND ACTUAL E-CIGARETTE USAGE	17
2.4 RESEARCH OBJECTIVE 3: TO INVESTIGATE THE INFLUENCE OF PERCEIVED HEALTH BENEFITS ON THE INTENTION TO PURCHASE E-CIGARETTES.....	17
2.4.1 PERCEIVED HEALTH BENEFITS.....	18
2.4.2 INTENTION TO PURCHASE E-CIGARETTES.....	19

2.5	RESEARCH OBJECTIVE 4: TO DETERMINE THE INFLUENCE OF SUBJECTIVE NORMS ON THE INTENTION TO PURCHASE E-CIGARETTES	19
2.5.1	SUBJECTIVE NORMS	21
2.5.2	INTENTION TO PURCHASE E-CIGARETTES.....	22
2.5.3	HYPOTHESIS 4: SUBJECTIVE NORMS AND INTENTION TO PURCHASE E-CIGARETTES	22
2.6	RESEARCH OBJECTIVE 5: TO INVESTIGATE THE INFLUENCE OF SOCIAL INFLUENCE ON THE INTENTION TO PURCHASE E-CIGARETTES.....	ERROR! BOOKMARK NOT DEFINED.
2.6.1	SOCIAL INFLUENCE	ERROR! BOOKMARK NOT DEFINED.
2.6.2	INTENTION TO PURCHASE E-CIGARETTES.....	ERROR! BOOKMARK NOT DEFINED.
2.6.3	HYPOTHESIS 5: SOCIAL INFLUENCE AND INTENTION TO PURCHASE E-CIGARETTES	ERROR! BOOKMARK NOT DEFINED.
2.7	RESEARCH OBJECTIVE 6: TO EXAMINE THE INFLUENCE OF SOCIAL INFLUENCE ON ACTUAL E-CIGARETTES USAGE.....	22
2.7.1	SOCIAL INFLUENCE	23
2.7.2	ACTUAL E-CIGARETTE USAGE.....	24
2.7.3	HYPOTHESIS 6: SOCIAL INFLUENCE AND ACTUAL E-CIGARETTE USAGE	ERROR! BOOKMARK NOT DEFINED.
2.8	RESEARCH OBJECTIVE 7: TO ASSESS THE INFLUENCE OF THE INTENTION TO PURCHASE E-CIGARETTES ON ACTUAL E-CIGARETTE USAGE	ERROR! BOOKMARK NOT DEFINED.
2.8.1	INTENTION TO PURCHASE E-CIGARETTE	ERROR! BOOKMARK NOT DEFINED.
2.8.2	ACTUAL E-CIGARETTE USAGE.....	ERROR! BOOKMARK NOT DEFINED.
2.8.3	HYPOTHESIS 7: INTENTION TO PURCHASE E-CIGARETTE AND ACTUAL E-CIGARETTE USAGE	ERROR! BOOKMARK NOT DEFINED.
2.9	ANALYTICAL FRAMEWORK.....	24
2.9.1	THEORETICAL FRAMEWORK.....	24
2.9.1.1	THEORY OF PLANNED BEHAVIOUR.....	25
2.9.1.2	SOCIAL COMPARISON THEORY.....	25
2.9.1.3	HEALTH BELIEF MODEL	26
2.9.2	CONCEPTUAL FRAMEWORK	27
2.10	CONCLUSION OF LITERATURE REVIEW	ERROR! BOOKMARK NOT DEFINED.
CHAPTER 3. RESEARCH METHODOLOGY		33
3.1	RESEARCH APPROACH	36
3.2	RESEARCH DESIGN	36
3.3	DATA COLLECTION METHODS	37
3.4	POPULATION AND SAMPLE.....	37
3.4.1	POPULATION	37
3.4.2	SAMPLE AND SAMPLING METHOD	37
3.5	THE RESEARCH INSTRUMENT	37

3.6	PROCEDURE FOR DATA COLLECTION.....	37
3.7	DATA ANALYSIS STRATEGIES AND INTERPRETATION.....	39
3.8	POSSIBLE LIMITATIONS AND CHALLENGES OF THE STUDY	39
3.9	QUALITY ASSURANCE.....	40
3.9.1	EXTERNAL VALIDITY	40
3.9.2	INTERNAL VALIDITY.....	40
3.9.3	RELIABILITY	40
3.10	ETHICAL CONSIDERATIONS.....	40
3.11	PROPOSED SCHEDULE AND TIMELINES ERROR! BOOKMARK NOT DEFINED.	

Chapter 4. Data Analysis and Results Discussion

REFERENCES.....	46
APPENDIX (X) Instrument.....	68

LIST OF TABLES

**Table 1: Profile of respondents (by position or context, not name)Error!
Bookmark not defined.**

LIST OF FIGURES

Figure 1: Title of the Figure (reference).....Error! Bookmark not defined.

LIST OF ACRONYMS

None

CHAPTER 1. INTRODUCTION

1.1 Statement of purpose

The purpose of this study is to determine the influence of perceived harm reduction, perceived health benefits, subjective norms and social influence on the actual e-cigarette use amongst Generation Y and Generation Z cohorts within Johannesburg.

1.2 Background of the study

According to Wedge and Bondurant (2009) the decision and continuous use of tobacco products is influenced by various factors, ranging from individualistic factors like self-image to societal factors including easy access to tobacco products. In their study, Wedge and Bondurant (2009) posited that individuals' factors that are essentially attributes they possess are the major determinants of tobacco use amongst individuals in society at large.

(Zhu, Sun, Bonnevie, Cummins, Gamst, Yin and Lee, (2014) defines electronic cigarettes (dubbed E-cigarettes) to be battery operated nicotine delivery system that come in many varieties but can be classified into three categories, namely: cigalikes, eGos and mods. E-cigarettes have increasingly generated interest amongst potential customers before they were even promoted through mass media promotion campaigns.

(Goniewicz et al., 2012) adds that as an added feature to the nicotine, the vaporised nicotine delivered by e-cigarettes also provides various flavours and physical appeal similar to that is provided by conventional inhaled tobacco cigarettes. The devices have a rechargeable battery, including a heating element and a mouth piece (Goniewicz et al., 2012).

Studies globally have shown an increased usage in e-cigarettes (Goniewicz et al., 2012), (Perikleous et al., 2018), (Perikleous et al., 2018) and increased popularity (Ramôa et al., 2017), (Wasowicz et al., 2015), (Cooke et al., 2015),

that has drawn interest into the study of these now deemed replacements of traditional tobacco products.

This study thus aims to investigate the antecedents that influence actual usage of e-cigarettes. The researcher identifies perceived harm reduction, perceived health benefits, subjective norms, social visibility/influence as influences to the actual usage of e-cigarettes.

1.3 Research problem

According to a report by the (Department of Agriculture, forestry and fisheries of the Republic of South Africa, 2011), the tobacco industry contributes more than R8 billion in excise duty and VAT to the South African government per annum, with private consumers purchasing tobacco products that approximately amount to R12 billion per annum.

Ever since the e-cigarettes first appeared in the market in 2007 (Schoenborn and Gindi, 2015) and it was found that the use of e-cigarettes was higher among tobacco users; with 48% of current smokers and 56% of recent smokers that were found to have tried using e-cigarettes (Nowariak, Lien, Boyle, Amato and Beebe, 2018). Since the introduction of the e-cigarette, tobacco control legislators have always concerned themselves with whether e-cigarettes should be advertised as an effective smoking cessation device (Nowariak, Lien, Boyle, Amato and Beebe, 2018), a study conducted by (Glasser, Collins, Pearson, Abudayyeh, Niaura, Abrams and Villanti, 2017) resolved the controversy from the tobacco legislators in their study when they found e-cigarettes to be the effective in helping people to reduce or quit smoking cigarettes. The increasing prevalence of e-cigarette use among younger populations, particularly Generation Y (Millennials) and Generation Z, has raised significant public health and behavioural concerns globally and in South Africa. While e-cigarettes were initially promoted as harm reduction tools for adult smokers, they have rapidly gained traction among non-smoking youth due to perceptions of reduced harm, health benefits, and social influence (Abo-Elkheir & Sobh, 2023; Hammond et al., 2022). In Johannesburg, a central urban hub in South Africa, this trend is becoming increasingly visible

among the youth. Nevertheless, there is a limited empirical understanding of the psychological, social, and health-related factors influencing this behaviour in this specific context.

Notably, the perceived health benefits and reduced harm associated with vaping have led many young users to view e-cigarettes as safer alternatives to traditional smoking, despite emerging scientific evidence to the contrary. For instance, recent findings suggest that while e-cigarettes may expose users to fewer harmful chemicals than combustible tobacco, they are not risk-free and may still contribute to respiratory and cardiovascular issues (Glantz, 2023; WHO, 2022). However, youth continue to underestimate these risks, often influenced by marketing, peer approval, and digital media narratives that reinforce these positive perceptions (Meernik et al., 2021; Klein et al., 2022).

Furthermore, subjective norms and social influence have been shown to significantly drive e-cigarette experimentation and adoption, especially among Gen Z, who are highly influenced by social networks and online influencers (Gaiha et al., 2020). These social cues contribute to normalising e-cigarette use and diminish perceived barriers to trying or consistently using these products. Despite this, a research gap remains in understanding how these psychosocial factors interact within the South African urban youth context, particularly in Johannesburg, where socio-economic diversity, digital connectivity, and lifestyle trends may uniquely shape e-cigarette behaviours.

Thus, this study addresses a critical need to explore the combined effects of perceived health benefits, harm reduction beliefs, and social influences on actual e-cigarette usage among Generation Y and Z in Johannesburg. By doing so, it aims to generate insights that can inform public health interventions, behavioural change campaigns, and policy responses tailored to the realities of South African youth.

Deducing from the aforementioned study, there is a lacuna in studies that have focused on the antecedents towards the actual e-cigarette usage amongst the Generation Y and Generation Z cohorts within Johannesburg.

Sub-problem – Management Implication

With the rise in use and popularity of e-cigarettes, not much is understood by corporations as to the motivations behind the use amongst individuals. From a regulatory perspective, regulators have to protect consumers around understanding the use of e-cigarettes and the motivations behind the use to better align their regulation policies as to how e-cigarettes are marketed to consumers.

The study aims to provide insights into the influences into the usage of e-cigarettes within the generation Y and Z cohorts within Johannesburg.

1.4 Research objectives

Given the purpose of the study, the following empirical objectives were developed:

- 1) To examine the influence of perceived harm reduction on actual use of e-cigarettes,
- 2) To investigate the influence of perceived health benefits on actual use of e-cigarettes,
- 3) To determine the influence of subjective norms on the actual use of e-cigarettes,
- 4) To examine the influence social influence on actual use of e-cigarettes.

The above objectives will be achieved by considering and reviewing the below conceptual frameworks.

1.5 Rationale

Findings of this study aims to contribute to existing literature by identifying influencers to the actual usage of e-cigarettes. Marketing managers in e-cigarette firms may use and refer to findings of this study to better understand the customers' influences on the usage of e-cigarettes, furthermore understanding of this finding will enable marketer to understand their customers better thus enhancing relevant influencers to induce higher usage.

Tobacco regulators may refer to the findings of this study to aid their decision making in tobacco control, taking aid from the study the perceived health benefits identified in this study. Furthermore, study suggests that e-cigarettes are the most effective cessation strategy and this finding should be noted by regulators as a method to reduce the concerning tobacco consumption.

This study aims to also inform customers and potential customers on e-cigarettes and advises on the health benefits associated with their usage. Therefore, tobacco consumers who want to quit tobacco or rather reduce their tobacco consumption can refer to this study and consider the findings in their decision making to switch from the conventional cigarette to the e-cigarette.

1.6 Delimitations of the study

The extent of the examination is limited to students at the University of the Witwatersrand regarded to be categorized as falling within the Generation Y and Generation Z.

The research adopts only specifically tailored instruments to test the hypotheses developed which can be restrictive as respondent may identify to other factors to their behaviours and usage of e-cigarettes.

The research is limited to the adopted framework.

1.7 Definitions of terms

Generation Y – Individuals born between 1977 and 1995

Generation Z – Individuals born between 1996 and 2006

E-cigarette – electronic cigarette that contains heat combustion system with no tobacco content.

Perceived harm – The psychological assumed damage that an individual believes e-cigarette will impose adverse effects on their health.

Perceived harm reduction – the psychological assumed reduction or benefit realized by substituting one product with another.

Perceived health benefits – assumed health benefits by an individual with the use of a product.

Actual e-cigarette usage – The usage of e-cigarettes by individuals owing to respective reasons.

Subjective norms – an individuals perceived societal expectations to adopt particular behaviours.

1.8 Assumptions

Survey participants will respond openly, honestly and factually. Given the time constraints, validating respondent answers would be irrational, hence the assumptions is that respondents will answer the survey openly, honestly and factually. Respondent are offered confidentially given that personal identification data, only age range will be collected for the purposes of classifying respondents.

350+ respondents will opt to complete the online survey. Wits University had over 42,000 students enrolled in 2022, as an indication of the large population size the environment has which should be reasonable that 350+ respondents opt to participate in the study.

The notable assumption is that the research instruments, along with the 5-point Lickert scale is a fair representative of the respondent understanding and captures their fair view on the information asked.

1.9 Chapter Outline

This study will make use of the Harvard referencing style.

Chapter 1: Overview of the Study

Chapter 1 will provide the overview of the study which includes the introduction, problem statement, purpose of the study and research objectives.

Chapter 2: Literature review, conceptual framework and hypothesis development

Chapter 2 will cover the literature review of the grounding theory as well as that of the research constructs and will be concerned with conceptualizing the research model as well as hypothesis development.

Chapter 3: Research Methodology and Design

Chapter 3 will cover the research methodology and Design

Chapter 4: Data Analysis and Results

Chapter 4 will cover data analysis as well as the interpretation and presentations of the results.

Chapter 5: Conclusion, Recommendations. Ethical Considerations and Limitations of the study

CHAPTER 2. LITERATURE REVIEW AND THEORETICAL FRAMEWORK:

The literature review sections of the study purports to review existing literature to achieve objectives that assist in researching the findings of the study. The section starts by review of the body of literature in the adopted conceptual frameworks and empirical literature, then provides hypothesis develops as informed by the reviewed literature. The sections are concluded by providing an overview of the literature reviewed and emphasis of hypotheses that have been developed.

2.1 Research Objective 1: To examine the influence of perceived harm reduction on actual e-cigarette usage

This section purports to review literature on perceived harm reductions as well as drawing knowledge from literature on the actual e-cigarette usage

A study by McNeill et al. (2022) in the UK found that a majority of adult smokers who switch to e-cigarettes cite reduced harm perception as the main reason. Users believed vaping exposed them to fewer toxins, leading to increased uptake. Adkison et al. (2021) – Across four countries (US, UK, Canada, Australia), perceived harm reduction was one of the strongest predictors of switching from combustible cigarettes to e-cigarettes. In addition, Tan et al. (2022) found that in South Africa, university students who believed e-cigarettes were less harmful were significantly more likely to use them regularly. The perception was influenced by peer exposure and online marketing. Furthermore, Wackowski & Delnevo (2016) found that among young adults, dual users (those who smoke and vape) often rationalise their e-cigarette use as a way to reduce the harms of tobacco, despite still smoking intermittently.

Contrary to this, Soneji et al. (2017) found that adolescents who perceived vaping as less harmful were more likely to initiate use but were also more likely to transition to traditional cigarettes, raising concern about gateway effects. Grana, Benowitz & Glantz (2014) criticised the oversimplification of "harm reduction" narratives, noting that the long-term safety of e-cigarettes remains uncertain.

Thus, users may adopt e-cigarettes under false impressions. Truth Initiative (2020) Warned that misleading marketing has created inflated perceptions of harm reduction, notably through flavours and youth-targeted ads.

In urban hubs like Johannesburg, Generation Y (Millennials) and Generation Z (digital natives) are particularly exposed to social media marketing and peer influence, which shape their perceptions of harm. For these groups, E-cigarettes are often marketed as “clean,” “modern,” or “healthier” alternatives, reinforcing harm reduction beliefs (Vilakazi & Mavimbela, 2023). This belief lowers psychological barriers to initiation and increases actual use, particularly in settings where traditional smoking is restricted.

The literature consistently shows that perceived harm reduction is a major driver of actual e-cigarette usage, especially among young adults and current smokers. While the belief encourages harm-mitigating behaviour (like quitting smoking), it may also lead to premature adoption or dual use in the absence of accurate risk information.

2.1.1 *Perceived harm reduction*

Tobacco harm reduction stems from the same principle as the other harm reductive strategies, which are to minimize the adverse health, social and economic consequences of drug use without expecting complete abstinence van der. Public health considers harm reduction to be ethical as it tends to reduce the negative impacts of drug use and can bring addicted drug users closer to treatment services (Eijk, 2015).

2.1.2 *Actual e-cigarette usage*

Usage of electronic cigarettes has seen an increasing trend amongst users and former users of conventional cigarettes (Delnevo, Giovenco, Steinberg, Villanti, Pearson, Niaura and Abrams, 2015). Study findings by Arrazola, Singh, Corey, Husten, Neff, Apelberg, Bunnell, Choiniere, King, Cox and McAfee (2015) has found that electronic cigarettes have evolved as the highly used tobacco product

by high-schoolers (13.4%), middle schoolers (3.9%), subsequently the number of youth whom currently use e-cigarettes has tripled in 2014 from 2013, accruing to a total of approximately 2.4 million users.

Since tobacco use remains to be the leading cause of preventable deaths annually, electronic cigarettes have since been indorsed as an alternative for smoking cessation and thorough research has shown that many adults who promote e-cigarette usage are using electronic devises to quit smoking (Goniewicz, Lingas and Hajek, 2013).

2.1.3 Hypothesis 1: Perceived harm reduction and actual e-cigarette usage

H1: Perceived harm reduction has a positive influence on the actual e-cigarettes usage.

2.2 Research Objective 2: To Investigate the influence of perceived health benefits on actual e-cigarette usage

This section aims to review the literature on perceived health benefits, as well as drawing on research on actual e-cigarette usage. A study conducted by Copeland, Peltier and Waldo (2017) found that users often perceive e-cigarettes as offering tangible health advantages, such as fewer respiratory side effects and reduced carcinogenic risks, which positively correlates with their intention to use and continue using the product. McNeill et al. (2022) report that many UK vapers cite perceived health benefits (e.g., improved breathing, reduced coughing) as the reason for switching from combustible cigarettes to e-cigarettes. Wackowski & Delnevo (2016) show that individuals who believe e-cigarettes are less harmful or healthier than traditional cigarettes are more likely to engage in regular vaping. Tan, Mboweni, & Selemela (2022) explored youth perceptions in South Africa and found that the belief in e-cigarettes as a "cleaner" or "less toxic" alternative strongly influenced adoption among university students.

Contrary to this, Grana, Benowitz, & Glantz (2014) caution that while perceived health benefits may influence usage, these perceptions are not always evidence-

based. Their review notes that many of these claims lack scientific consensus, potentially misleading consumers about long-term risks. Soneji et al. (2017) found that although some young people perceive health benefits, these perceptions may lead to dual use (e-cigarettes and conventional cigarettes), thus negating any expected health improvements.

Marketing and Social Influence Marketing has played a significant role in reinforcing perceived health benefits. According to Truth Initiative (2020), e-cigarette companies often use health-related claims—such as “no tar” or “smoke-free”—to influence perceptions, particularly among youth. The influence of perceived health benefits is both powerful and potentially misleading. While it motivates actual usage, it can lead to complacency regarding health risks. Therefore, public health messaging should balance harm reduction narratives with transparent evidence on health effects.

Perceived health benefits are a major driver of actual e-cigarette usage, especially among younger populations. While many users act on the belief that e-cigarettes offer a healthier alternative, current research suggests the need for caution and more informed decision-making supported by evidence-based communication.

2.2.1 *Perceived health benefits*

Released in 2004; Cobb, Byron, Abrams and Shields (2010) dub the e-cigarette as battery operated nicotine delivery devices that are meant to allot a safer experience compared to conventional tobacco cigarettes. Studies conducted by (Choi and Forester, 2013; Goniewicz and Zielinska, 2012; Sutfin, McCoy, Morrell, Hoepfner and Wolfson, 2013) found that individuals that perceived e-cigarettes as less harmful or less addictive than traditional cigarettes were likely to use them. Studies proved that users, especially those in their teen year, young adults (usually between the ages 18-26) perceived e-cigarettes to be safer than the conventional cigarettes (Etter and Bullen, 2011; Adkison, O'Connor, Bansal-

Travers, Hyland, Borland and Yong, 2013; Choi, Fabian, Mottey, Corbett and Foster, 2012).

Subsequently, it can be established that should individuals perceive benefits from e-cigarettes it can be substantiated that they are more likely to use e-cigarettes instead of the conventional cigarette.

2.2.2 *Actual e-cigarette usage*

Usage of electronic cigarettes has seen an increasing trend amongst users and former users of conventional cigarettes (Delnevo, Giovenco, Steinberg, Villanti, Pearson, Niaura and Abrams, 2015). Study findings by Arrazola, Singh, Corey, Husten, Neff, Apelberg, Bunnell, Choiniere, King, Cox and McAfee (2015) has found that electronic cigarettes have evolved as the highly used tobacco product by high-schoolers (13.4%), middle schoolers (3.9%), subsequently the number of youth whom currently use e-cigarettes has tripled in 2014 from 2013, accruing to a total of approximately 2.4 million users.

Since tobacco use remains to be the leading cause of preventable deaths annually, electronic cigarettes have since been indorsed as an alternative for smoking cessation and thorough research has shown that many adults who promote e-cigarette usage are using electronic devises to quit smoking (Goniewicz, Lingas and Hajek, 2013).

Hypothesis 2: Perceived health benefits have a positive influence on the intention to purchase e-cigarettes.

2.3 Research Objective 3: To determine the influence of subjective norms on actual e-cigarette usage

This section purports to review literature on social norms as well as draw knowledge from literature on actual e-cigarette usage. Empirical evidence supporting the relationship between social influence and youth is evident in a study by Pokhrel et al. (2015), which found that peer norms significantly predict

e-cigarette use among young adults. The greater the perception that peers approve of or use e-cigarettes, the higher the likelihood of personal use. Czoli et al. (2017) reported that adolescents exposed to e-cigarette use in their social networks (especially peer groups) were more likely to initiate vaping themselves. Tan, Mboweni, & Selemela (2022) examined e-cigarette use among South African youth and highlighted that both peer and parental attitudes influenced vaping uptake. Participants reported mimicking behaviour seen at home or among social circles. Zheng & Lin (2021) identified that online social norms, especially among Gen Z on platforms like TikTok and Instagram, create a perception that vaping is trendy and socially endorsed, which drives actual behaviour. Furthermore, Pepper, Ribisl, & Brewer (2016) found that exposure to vape-friendly messages online normalised the behaviour and significantly correlated with increased experimentation and regular use.

Contrary to these Findings or Cautions, Roditis et al. (2016) caution that while social influence is strong, some young adults resist peer pressure due to concerns about addiction or long-term harm, indicating that subjective norms do not uniformly predict behaviour. Wills et al. (2015) suggested that the influence of subjective norms might be moderated by personality traits like sensation-seeking and self-esteem, making the effect variable across individuals.

Public health messaging needs to address social dynamics by targeting peer groups rather than individuals alone. Campaigns should consider leveraging counter-normative strategies (e.g., showing disapproval from admired figures) to reduce the social desirability of vaping.

Subjective norms are a powerful predictor of actual e-cigarette use, particularly among young people. Peer approval, family modelling, and social media exposure all shape attitudes and behaviours related to vaping. However, this relationship may be influenced by personal values and risk perceptions, making it important to adopt multi-dimensional interventions.

2.3.1 Subjective Norms

Social psychology dubs social influences to be the influence of external social factors on respective individual behaviors that can be differentiated into; normative social influence, and informational social influence (Deutsch, and Gerard, 1955). The Theory of planned behavior defines subjective norms as people engaging in various types of specific behavior when they are under the pressure to meet the requirements of normative social influences, which may also be referred to as normative conformity (Deutsch and Gerard, 1955). It was suggested by Cialdini, Kallgren, and Reno (1991) in their study that the concept of social norms includes constructs of “behavior supported by social groups” and “how those groups behave”. Through social norms, descriptive norms are others’ actions that other individuals adopt when they are not aware of the situation or idea (Fang, Ng, Wang, and Hsu, 2017), furthermore, normative values are values shared understandings of practices that are permitted or forbidden (Cummins, 1996)

This results in people making their own judgements on whether a behaviour is typical, normal, effective, adaptive, or appropriate by observing and imitating others’ behaviours displayed by those around them (Fang, Ng, Wang, and Hsu, 2017). Other studies conducted by (Abrahamse and Steg, 2009) and (Guagnano, Stern, and Dietz, 1995) have found and discussed that there is a positive correlation between norms and the behavioral intentions in pro-environmental behavior context.

This study posits that individuals mimic actions and make decisions based on what they believe to be true within the society, thus being easily prone to influences from their peers on the environment they find themselves to be in. The use of E-cigarettes within the student community will often be accepted by individuals because of those around them who use E-cigarettes, and give into the idea that E-cigarettes are generally accepted.

2.3.2 Actual e-cigarette usage

Usage of electronic cigarettes has seen an increasing trend amongst users and former users of conventional cigarettes (Delnevo, Giovenco, Steinberg, Villanti, Pearson, Niaura and Abrams, 2015). Study findings by Arrazola, Singh, Corey, Husten, Neff, Apelberg, Bunnell, Choiniere, King, Cox and McAfee (2015) has found that electronic cigarettes have evolved as the highly used tobacco product by high-schoolers (13.4%), middle schoolers (3.9%), subsequently the number of youth whom currently use e-cigarettes has tripled in 2014 from 2013, accruing to a total of approximately 2.4 million users.

Since tobacco use remains to be the leading cause of preventable deaths annually, electronic cigarettes have since been indorsed as an alternative for smoking cessation and thorough research has shown that many adults who promote e-cigarette usage are using electronic devises to quit smoking (Goniewicz, Lingas and Hajek, 2013).

H3: Subjective norms have a positive influence on actual e-cigarette usage.

2.4 Research Objective 4: To examine the influence of social influence on actual e-cigarettes usage.

This section purports to review literature on social influence as well as drawing knowledge from literature on the actual e-cigarette usage. Social influence plays a central role in shaping health-related behaviours, including tobacco and e-cigarette use. For Generation Y and Z, who are more connected digitally and socially, the role of peers, family, and media in shaping e-cigarette behaviour is especially pronounced.

Peer Influence Youth are more likely to experiment with vaping if their friends do. According to Pokhrel et al. (2015), perceived peer approval and vaping prevalence among friends are strong predictors of use. Tan et al. (2022) report that exposure to e-cigarette use within the family normalises the behaviour and can increase the chances of early initiation. Social media platforms like TikTok

and Instagram often portray vaping as a trend, influencing behaviour among Gen Z. Zheng & Lin (2021) found that influencer endorsements and user-generated content create favourable social cues for vaping. In contexts where e-cigarettes are seen as fashionable or less harmful, such as some urban youth cultures, social acceptance fuels increased usage. Czoli et al. (2017) noted that normalisation in school or university settings leads to greater adoption. Wills et al. (2015) found that adolescents with friends who vape were significantly more likely to become dual users of both cigarettes and e-cigarettes. In addition, Huang et al. (2019) showed that perceptions of e-cigarettes being "cool" and socially acceptable were associated with increased use among college students.

Contrasting Evidence. While social influence is powerful, it is not always a determining factor. Roditis et al. (2016) observed that some youths resist peer influence due to health concerns or family disapproval, showing a moderating effect of personal beliefs. Miech et al. (2017) argue that social influence is less predictive in later stages of use, where addiction and habit begin to dominate.

Counter-influence strategies such as peer-led education, influencer partnerships in anti-vaping campaigns, and school-based interventions could reduce the social appeal. Public health messaging should address the glamorization of vaping and present realistic portrayals of health impacts.

Social influence, through peers, family, media, and cultural norms, is a strong determinant of actual e-cigarette use, particularly among young users in urban settings like Johannesburg. While powerful, its effects may be moderated by individual health awareness and value systems. Interventions that reshape social perceptions may be key to curbing use.

2.4.1 Social Influence

Tobacco harm reduction stems from the same principle as the other harm reductive strategies, which are to minimize the adverse health, social and economic consequences of drug use without expecting complete abstinence van der. Public health considers harm reduction to be ethical as it tends to reduce the

negative impacts of drug use and can bring addicted drug users closer to treatment services (Eijk, 2015).

2.4.2 *Actual e-cigarette usage*

Usage of electronic cigarettes has seen an increasing trend amongst users and former users of conventional cigarettes (Delnevo, Giovenco, Steinberg, Villanti, Pearson, Niaura and Abrams, 2015). Study findings by Arrazola, Singh, Corey, Husten, Neff, Apelberg, Bunnell, Choiniere, King, Cox and McAfee (2015) has found that electronic cigarettes have evolved as the highly used tobacco product by high-schoolers (13.4%), middle schoolers (3.9%), subsequently the number of youth whom currently use e-cigarettes has tripled in 2014 from 2013, accruing to a total of approximately 2.4 million users.

Since tobacco use remains to be the leading cause of preventable deaths annually, electronic cigarettes have since been indorsed as an alternative for smoking cessation and thorough research has shown that many adults who promote e-cigarette usage are using electronic devises to quit smoking (Goniewicz, Lingas and Hajek, 2013).

H4: Social influence has a positive influence on actual e-cigarette usage.

2.5 ANALYTICAL FRAMEWORK

The analytical framework is an integrated overview of the theoretical and empirical concepts of your study.

2.5.1 Theoretical Framework

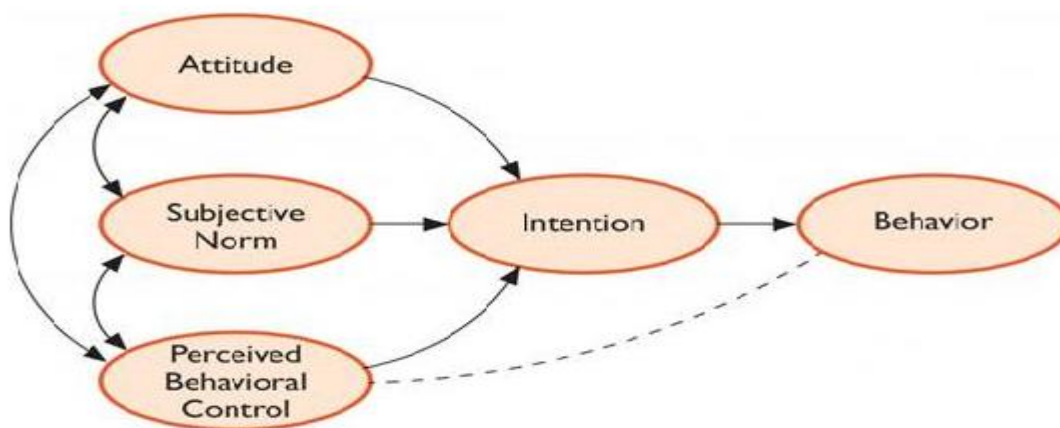
The study adopted the theory of planned behaviour and the social comparison theory (SCT). Moreover, this study adopts the health belief model (HBM) which is a psychological model that attempts to explain and predict health behaviours.

The next section highlights the underpinning theories.

2.9.1.1 Theory of Planned Behaviour

Theory of Planned Behaviour/Reasoned Action was proposed by Ajzen and Fishbein (1980) and suggests that behaviours is determined by intentions, attitudes (beliefs about a behaviour), and subjective norms (beliefs about others' attitudes toward a behaviours). According to Ajzen and Fishbein (1980) reasoned action approach the major predictors of intention and actions follow reasonably from – and can be understood in terms of behavioural, normative and control beliefs. In addition to attitudes and subjective norms which comprise the theory of reasoned action, The Theory of Planned Behaviours' key contribution is the concept of perceived behavioural control, defined as an individual's perception of the ease or difficulty of performing the particular behaviours (Ajzen and Fishbein (1980).

Figure 1.2: The Theory of Planned Behaviour



Source: (Director, 2018)

2.9.1.2 Social Comparison Theory

The Social Comparison theory is grounded on the understanding that people view themselves and their abilities by correlating themselves with others in attempt to mitigate uncertainty while learning how to describe themselves (Corcoran, Crusius and Mussweiler, 2011). Developed in 1945 by social psychologist Leon Festinger, the social comparison theory makes exhaustive arguments that

explains how individuals perceive themselves and further elaborating that individual value their own self-esteem by identifying individuals they can identify with, including close friends and family (Grigg 2004).

2.9.1.3 Health Belief Model

The Health Belief Model originates from the 1950 at a time where numerous social psychologists needed to understand the infrequent acceptance of preventative practices and ore-illness screening tests (Prentice-Dunn, and Rogers, 1986). Rosenstock (1974) proposes that the Health Benefit Model is composed of four components, namely: 1. Perceived susceptibility – refers to the subjective perception of risk or vulnerability to a health threat, 2. Perceived severity- which consists of an individuals' perception of the seriousness of the health threat, 3. Perceived benefits – which consists of the efficacy of an action designed to prevent or reduce the threat of the illness, and 4. Perceived barriers – which refers to the assessment of the negative consequences that might be associated with the preventative or ameliorative behaviour.

Together, these theories explain that perceived harm reduction and health benefits promote favourable attitudes, beliefs, and social validation for e-cigarette use. These perceptions, shaped by both personal judgments and peer influence, drive intention and actual usage, particularly among young users in socially dynamic environments.

2.5.2 Conceptual Framework

A conceptual model, as defined by Robinson, Arbez, Birta, Tolk, and Wagner (2015), is “a concise and precise consolidation of all goal-relevant structural and behavioral feature of the System under Investigation (SUI) presented in the predefined format, it provides founded for the development of the simulation program”.

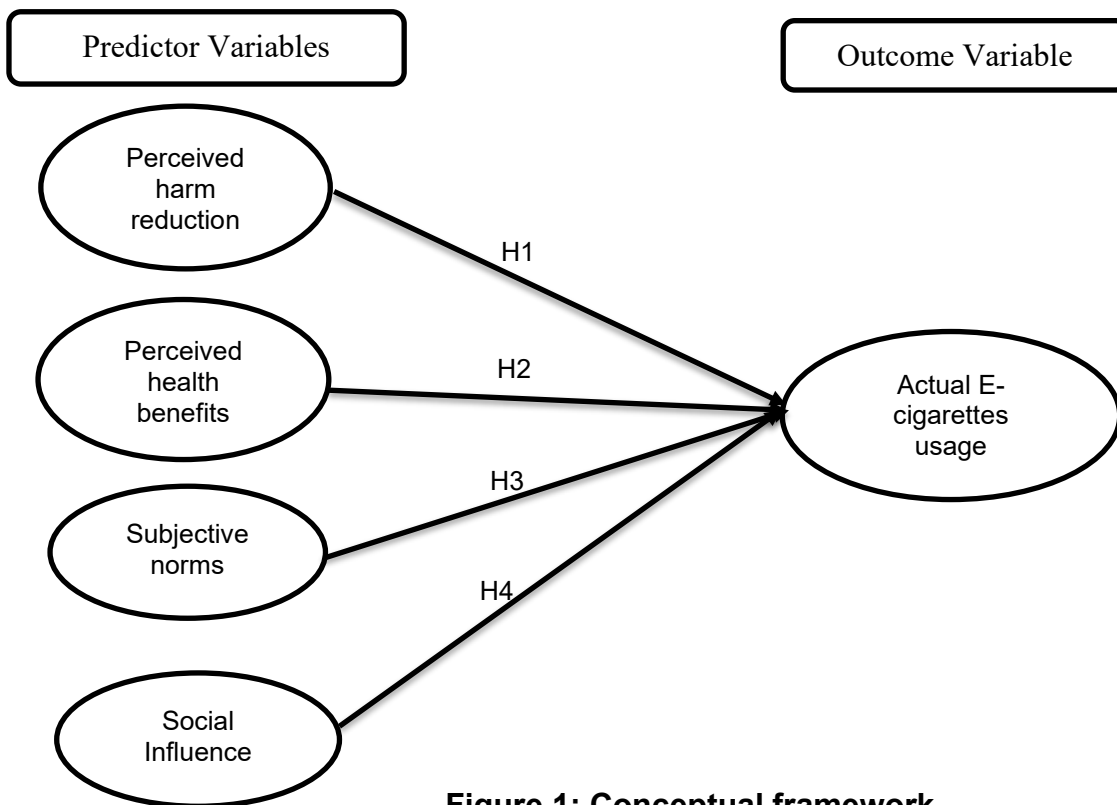


Figure 1: Conceptual framework

2.5.3 Hypotheses Development

2.5.3.1 Perceived Harm Reduction and Actual E-Cigarette Usage

The concept of perceived harm reduction is pivotal in understanding why individuals may choose e-cigarettes over combustible tobacco products. This perception refers to the belief that e-cigarettes are less harmful to health than traditional cigarettes. Several empirical studies have emphasised that perceived

harm reduction is a key factor influencing both the initiation and continuation of e-cigarette use (Goniewicz et al., 2019; Borland et al., 2011).

According to the Health Belief Model (HBM) (Rosenstock, 1974), individuals are more likely to adopt a health-related behaviour, such as switching to e-cigarettes, if they believe the alternative offers a reduced risk. This aligns with findings from Adkison et al. (2013), who discovered that smokers who believed e-cigarettes posed fewer health risks than traditional cigarettes were more likely to adopt them. Similarly, research by McNeill et al. (2020), commissioned by Public Health England, affirmed that a majority of vapers cite harm reduction as a primary motive for switching from tobacco smoking to vaping.

However, it is worth noting that harm reduction perceptions are not always evidence-based. For instance, several studies have shown that although e-cigarettes may have fewer toxicants than combustible cigarettes, the long-term health effects remain unclear (Glantz & Bareham, 2018). Nevertheless, what matters in behavioural models is not objective risk but the perceived risk, and the belief that vaping is safer has been associated with increased usage, particularly among adolescents and young adults (Villanti et al., 2016; Kowitt et al., 2017).

Given the salience of perceived harm reduction in behavioural decision-making, particularly among health-conscious or risk-averse populations, it is plausible to hypothesize the following:

H1: *Perceived harm reduction significantly influences actual e-cigarette usage.*

2.5.3.2 Perceived Health Benefits and Actual E-Cigarette Usage

Closely related to harm reduction is the notion of perceived health benefits, which refers to the belief that e-cigarettes may confer health advantages beyond merely avoiding harm. These benefits may include reduced coughing, improved breathing, enhanced physical performance, and improved oral hygiene compared to traditional cigarette smoking (Etter & Bullen, 2011).

Empirical research has shown that perceptions of health benefits positively correlate with the initiation, continuation, and cessation substitution of e-cigarette use (Copeland et al., 2017; Romijnders et al., 2018). For instance, Copeland et al. (2017) found that users who experienced or believed in positive physical outcomes from vaping were significantly more likely to continue use, even if they initially adopted vaping for smoking cessation purposes. This reinforces the idea that e-cigarettes are not only perceived as "less harmful" but also as positively beneficial to health.

From a theoretical standpoint, the Expectancy-Value Theory (Fishbein & Ajzen, 1975) posits that individuals are likely to adopt a behaviour if they expect positive outcomes. In this context, if users believe that e-cigarettes will improve their health or reduce smoking-related symptoms, they may be more inclined to continue their usage. These beliefs are often amplified by anecdotal reports and user testimonials online, which serve to validate and spread health benefit narratives (Laestadius et al., 2016).

Thus, the perception that e-cigarettes offer tangible health improvements plays a significant motivational role in user behaviour. Based on this rationale, the following hypothesis is proposed:

H2: *Perceived health benefits significantly influence actual e-cigarette usage.*

2.5.3.3 Subjective norms and actual e-cigarette usage

Subjective norms, as conceptualised in the Theory of Planned Behaviour (TPB) (Ajzen, 1991), refer to an individual's belief about whether key people in their lives (e.g., friends, family, or colleagues) approve or disapprove of a behaviour. This social pressure, whether real or perceived, is a powerful determinant of behaviours involving health and risk (Armitage & Conner, 1999).

In the context of e-cigarette use, numerous studies have highlighted the influence of subjective norms, particularly among adolescents and young adults. For

example, research by Kong et al. (2015) showed that peer influence is one of the most significant predictors of e-cigarette initiation in teenagers. Likewise, Lee et al. (2016) found that users were more likely to adopt and continue vaping if it was socially accepted in their peer group or if they believed that important others viewed vaping positively.

Subjective norms also interact with media influence and celebrity endorsements, which often portray vaping as trendy, modern, and socially acceptable (Pokhrel et al., 2018). These perceptions can normalise e-cigarette usage and make it more likely that individuals will engage in vaping as a socially endorsed behaviour. Additionally, the Social Learning Theory (Bandura, 1986) posits that individuals learn behaviours through the observation of others, particularly role models or peers. Observing others vape in social or online contexts can reinforce positive subjective norms and increase the likelihood of use.

Given the above, it is reasonable to propose the following hypothesis:

H3: *Subjective norms significantly influence actual e-cigarette usage.*

2.6 CONCLUSION

This chapter has provided a comprehensive review of the existing literature and theoretical frameworks underpinning the current study. The review focused on understanding the key psychological and social factors influencing actual e-cigarette usage, with a particular emphasis on perceived harm reduction, perceived health benefits, and subjective norms.

The literature affirms that perceived harm reduction plays a significant role in motivating individuals to adopt e-cigarettes, particularly due to the belief that vaping presents fewer health risks than traditional smoking. Drawing on the Health Belief Model, it was demonstrated that when individuals perceive a behaviour as reducing health risks, they are more likely to engage in it. Thus, harm reduction perceptions are powerful cognitive motivators in decisions about e-cigarette use.

Similarly, perceived health benefits, beyond just reduced harm, have emerged as a strong influencer of e-cigarette usage. Through the lens of the Expectancy-Value Theory, individuals who anticipate improved health outcomes from vaping are more inclined to adopt and maintain the behaviour. This belief is often reinforced through peer discussions, anecdotal experiences, and digital testimonials.

The impact of subjective norms on actual e-cigarette usage was also explored through the Theory of Planned Behaviour and Social Learning Theory. The review highlighted that individuals are significantly influenced by the attitudes and behaviours of people they consider important, especially within youth and student populations. Observing peers, family members, or influencers using e-cigarettes can normalise the behaviour, making adoption more likely due to social acceptability.

Lastly, the construct of social influence, though overlapping with subjective norms, was addressed as a broader category encompassing both normative and informational influences. The studies reviewed show how social environments can create behavioural templates that guide e-cigarette use, particularly in younger and socially connected populations.

The chapter further outlined the analytical and conceptual frameworks that guide this research. The integrated use of the Theory of Planned Behaviour (TPB), Health Belief Model (HBM), and Social Comparison Theory (SCT) provides a robust theoretical foundation for analysing consumer behaviour in the context of e-cigarette usage.

In conclusion, this chapter not only identifies and reviews key constructs relevant to the study but also develops testable hypotheses grounded in theory and empirical evidence. These are:

H1: Perceived harm reduction significantly influences actual e-cigarette usage.

H2: Perceived health benefits significantly influence actual e-cigarette usage.

H3: Subjective norms significantly influence actual e-cigarette usage.

The insights and gaps identified in this chapter provide a critical foundation for the next chapter, which will outline the research methodology used to test the hypotheses empirically.

CHAPTER 3. RESEARCH METHODOLOGY

3.1 Introduction

This chapter outlines the research methodology employed to achieve the study's objectives, test the proposed hypotheses, and validate the conceptual model developed in the previous chapter. The methodology provides a detailed roadmap of how the study was designed, conducted, and analysed to ensure the integrity, validity, and reliability of the results. It encompasses the philosophical assumptions underpinning the research, the research design and approach, data collection techniques, sampling strategy, instrumentation, and data analysis procedures.

The current study examines the impact of perceived harm reduction, perceived health benefits, subjective norms, and social influence on actual e-cigarette use among Generation Y and Z students at the University of the Witwatersrand in Johannesburg. Given the nature of this research, a quantitative approach was deemed most appropriate, and the study is positioned within a positivist research paradigm. This approach enables the examination of variable relationships through structured instruments and statistical methods, facilitating hypothesis testing and generalisability of the results.

The rationale for selecting a positivist and quantitative research design stems from the need to obtain empirical, measurable, and objective data that can be analysed using statistical tools such as SPSS and SMART PLS. These tools allow for comprehensive data analysis, including descriptive statistics, confirmatory factor analysis (CFA), and structural equation modelling (SEM). By employing validated constructs and scales adapted from existing literature, this study seeks to ensure methodological rigour and credibility.

A cross-sectional survey design was used to gather data at a specific point in time, providing a snapshot of attitudes, beliefs, and behaviours associated with e-cigarette use among the targeted demographic. The study sample consists of Generation Y and Z students, defined by specific birth cohorts, who were invited to participate in the survey via an online questionnaire. The use of convenience

sampling is justified by the homogeneity of the population and accessibility constraints, although potential limitations in representativeness are acknowledged.

This chapter also presents procedures for data collection, instrument development, sampling techniques, ethical considerations, and quality assurance strategies, including tests for reliability, validity, and objectivity. Each section contributes to ensuring that the research process adheres to established academic standards, thereby enhancing the trustworthiness, generalizability, and replicability of the findings.

In summary, this chapter provides a comprehensive overview of the research's structure and implementation. It builds the foundation for understanding how empirical data was collected and analysed to draw meaningful conclusions about the predictors of e-cigarette use in a South African urban academic context.

3.2 Research Paradigm

This study adopts a positivist research paradigm, which is particularly well-suited given its quantitative research approach. Positivism, grounded in the philosophical tradition of empiricism, holds that knowledge is derived from observable and measurable phenomena and that the goal of research is to explain, predict, and control reality through the discovery of causal laws (Creswell & Creswell, 2018; Saunders, Lewis, & Thornhill, 2019). It assumes that reality is objective, external, and independent of human perception, and that valid knowledge can be obtained through systematic observation and empirical evidence (Neuman, 2014).

The positivist paradigm is particularly suitable for studies that aim to examine relationships among variables, as it employs structured instruments, such as questionnaires and surveys, to collect quantifiable data. This aligns with the current study's aim to test hypotheses about the influence of perceived harm reduction, perceived health benefits, and subjective norms on actual e-cigarette usage.

The core premise of positivism is that knowledge is derived from sensory experience, interpreted through logical and mathematical treatment of data. For this study, that means using empirical data collected via questionnaires to understand how marketing strategies influence e-cigarette purchase intentions and use among Generations Y and Z.

The study is based on structured instruments (Likert-scale questionnaires) to collect numerical data for statistical analysis, which aligns well with the positivist stance. Positivism provides a neutral lens to measure and analyse variables such as purchase intention, perceived health benefits, and subjective norms, reducing researcher bias. The research builds on well-established theories such as the Theory of Planned Behaviour (Armitage & Conner, 1999), making the positivist paradigm ideal for hypothesis testing and model validation.

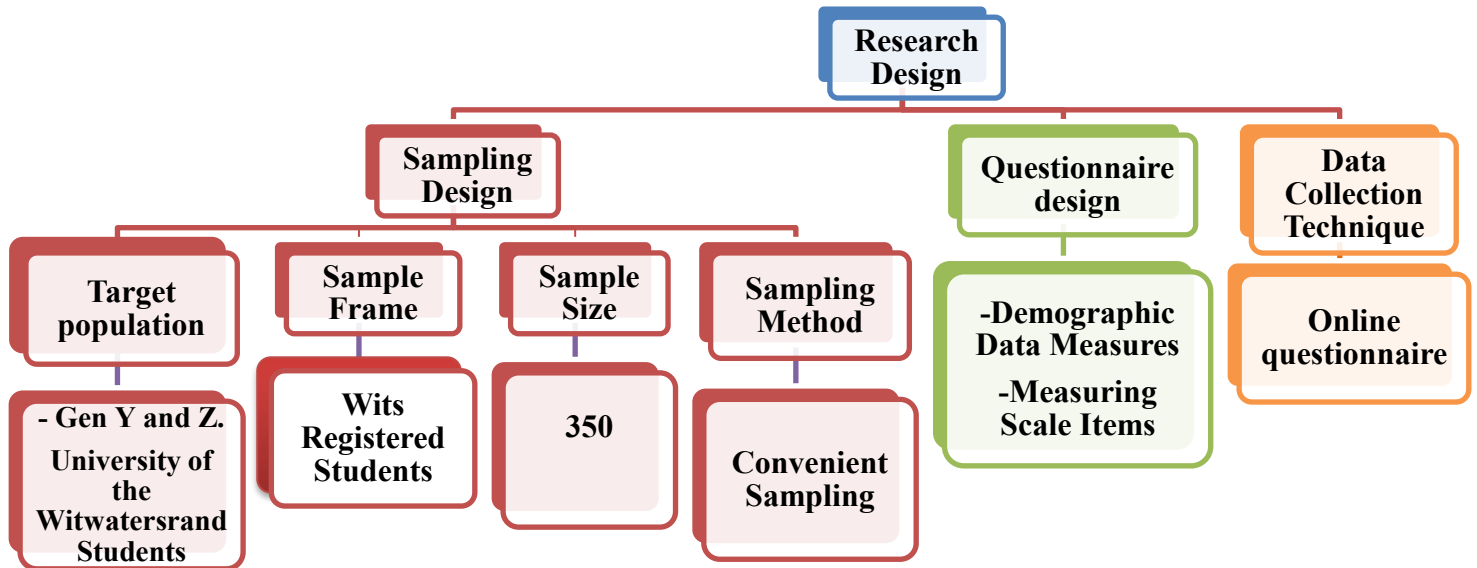
The goal of this research is to produce findings that can be generalised to broader populations within Johannesburg, requiring a paradigm that emphasises large-sample, deductive reasoning.

By using the positivist paradigm, the study aims to derive generalizable and statistically valid insights into how marketing influences e-cigarette behaviour among young adults. This research employs a descriptive, cross-sectional, quantitative research design. The goal is to describe and measure the attitudes, beliefs, and behavioural intentions related to e-cigarette use among Generation Y and Z in Johannesburg at a specific point in time.

Johannesburg, as the largest city in South Africa and a major urban economic hub, was selected for the following reasons: Johannesburg has a high concentration of digital marketing, retail environments, and lifestyle influencers, making it a prime location for exposure to e-cigarette marketing. The city hosts many universities, colleges, and entertainment spaces where young adults (ages 18–35) frequently gather, aligning with the target population of Generation Y (Millennials) and Generation Z. Johannesburg has also been noted for rising trends in vaping and alternative smoking behaviours among urban youth, making it a relevant setting for studying health-related consumer choices.

3.3 Research approach

The study is quantitative in nature as it will involve collecting data from a large population.



3.1 Research design

The study will adopt an online questionnaire/survey whereby respondent data will be captured, recorded and processed via SPSS. The questionnaire will capture the demographic data like Age because the study focuses on two generational cohorts, namely generation Y and Generation Z, there it is imperative to collect demographic data for data classification purposes.

Osorio and Madero (2024) refer to Generation Z, or centennials, as the population group that is born between 1996 and 2012. Hope (2016) defines generation Z as members born between 1995 and 2010 and asserts that generations are continuous in their natures and do not abruptly end or start. For the study, generation Z will be characterized by considering the lowest birth age of 1995 as identified by Hope (2016) and the maximum age as identified by Osorio and Madero (2024), which is 2012. Therefore, for the purpose of the study, generation

Z will be members born between 1995 and 2012, with the maximum age range capped at 2006. Making the generation Z age range 1995 to 2006 for the purposes of the study.

The study questionnaire adopts a 5-point Likert scale in assessing respondent to the variable tested within the study.

3.2 Data collection methods

The study will utilize an online survey to collect data from respondents within the Generation Y and Z cohorts in Johannesburg.

3.3 Population and sample

Participants will be invited to complete the online questionnaire. This results in an equal probability of selection for all elements in the population.

3.3.1 *Population*

The study will target generation Y and Generation Z within the Johannesburg Metropolitan area.

3.3.2 *Sample and sampling method*

The convenience sampling method is adopted for the purpose of the study. The premise is because of the population being homogenous in nature and that the population size is large.

The survey will target approximately 350 students.

3.4 The research instrument

All constructs are measured using Likert-type scales ranging from 1 (Strongly Disagree) to 5 (Strongly Agree), following standard psychometric practices to

facilitate reliability and comparability across items and constructs. Section B: Purchase Intention (PI) adapted and modified from Armitage & Conner (1999) with the purpose of measuring the individual's intention to buy e-cigarettes. It had three items. These items capture the strength of an individual's intention to perform a behaviour (i.e., purchasing e-cigarettes), reflecting future behavioural commitment.

The Section C: Subjective Norms (SN) was adopted from Armitage & Conner (1999) with the purpose of assessing the perceived social pressure to perform or not perform the behaviour. There were three items, and these items reflect normative beliefs and motivation to comply, key components in the TPB framework.

Section D: Perceived Health Benefits (PHB) was sourced from Copeland, Peltier, & Waldo (2017) with a purpose: to evaluate the perceived health-related advantages of e-cigarettes over traditional smoking. It had four items, and these items were designed to assess beliefs about positive health attributes, aligned with health behaviour research models.

Section E: Perceived Harm Reduction (PHR) adapted from Armitage & Conner (1999) with the purpose of measuring beliefs that e-cigarettes are safer or less risky than traditional tobacco products. The variable had three items. These items capture risk perception—a key determinant in health-related behavioural decisions.

Ultimately, section F: Actual E-cigarette Use (AU) was adapted from Armitage & Conner (1999) with the purpose of gauging behavioural engagement and the experiential appeal of using e-cigarettes. It has three items, and these items aim to assess actual behaviour and affective attitudes, contributing to the understanding of behavioural reinforcement. Instrument Validation and Usage Pilot testing of items should precede large-scale deployment to assess reliability (e.g., using Cronbach's alpha) and validity (e.g., construct validity via factor

analysis). Items were adapted from validated literature, ensuring theoretical rigour and empirical grounding.

3.5 Procedure for data collection

The research questionnaire will be sent to the Generation Y and Z student cohorts within the University of the Witwatersrand via the centralised mailing system after ethical clearance has been issued to collect data. Respondent will then view the online surveys via their devices.

3.6 Data analysis strategies and interpretation

The data collected will be entered in Microsoft Excel and will then be transferred to SPSS 28.0 statistical software as well as to SMART PLS software for performing the required tests. SPSS will be used to conduct the test for demographic and descriptive statistics. SMART PLS, on the other hand, will be used to perform confirmatory factor analysis (CFA) as well as path modelling which involved structural equation modelling (SEM) among other tests.

This approach will also check for reliability and validity of measurement. Confirmatory Factor Analysis (CFA) aims to confirm if the number of factors or constructs and the loadings of observed or indicator variables on them conform what is expected, based on the theory. CFA is used to check if the indicator variables load as predictor variables on the expected number of factors (Malhotra, 2010).

3.7 Possible limitations and challenges of the study

The limitations of the study are listed below:

- Population limited to the University of the Witwatersrand students
- Population limited to Generation Y and Generation Z

3.8 Quality Assurance

The concepts of validity and reliability, with external validity (i.e. generalisability) mainly apply to quantitative research. Given the nature of the study, the below will be tested and verified that the data meets the respective thresholds of acceptance as suggested by literature.

Quantitative
External validity (generalisability)
Reliability
Internal validity
Objectivity

(Lincoln, Y. S. & Guba, E. G. (1986). But is it rigorous? Trustworthiness and authenticity in naturalistic evaluation *New Directions for Program Evaluation* (pp. 73-84): Wiley Subscription Services, Inc.)

3.8.1 External validity

External validity will be tested on the data collected.

3.8.2 Internal validity

Internal validity will be tested on the data collected.

3.8.3 Reliability

Reliability will be tested on the data collected.

3.9 Ethical considerations

The research must include ethical principles such as honesty, objectivity, integrity, carefulness, openness and respect for intellectual property. A recognized ethical committee should give ethical clearance for the research and any fabricating or misrepresenting of research data should not be undertaken.

Respondents will be asked to participate within the survey via email and will decide to participate at their own discretion. Ethical clearance will be obtained from the ethics committee, following a request to complete surveys will be sent out via mass student communication as per university guidelines.

No identifying personal data will be collected (i.e. ID or student number, email addresses etc.) Once collected, respondent data will be processed in Microsoft excel and SPSS software.

Table 4. Consistency table: research questions, propositions, data collection and data analysis

RQ #		State Research Objective	Prop/hyp #	State Proposition or Hypothesis	Data collection detail	Data analysis method
1		To determine the influence of perceived harm reduction on the intention to purchase e-cigarettes	H1	Perceived harm reduction has a positive influence on the intention to purchase e-cigarettes	Questionnaire	
2		To examine the influence of perceived harm reduction on actual e-cigarette usage	H2	Perceived harm reduction has a positive influence on the actual e-cigarettes usage.	Questionnaire	

RQ #		State Research Objective	Prop/hyp #	State Proposition or Hypothesis	Data collection detail	Data analysis method
3		To investigate the influence of perceived health benefits on the intention to purchase e-cigarettes	H3	Perceived health benefits have a positive influence on the intention to purchase e-cigarettes.	Questionnaire	
4		To determine the influence of subjective norms on the intention to purchase e-cigarettes	H4	Subjective norms have a positive influence on the intention to purchase e-cigarettes	Questionnaire	
5		To investigate the influence of social influence on the intention to purchase e-cigarettes	H5	social influence has a positive influence on the intention to purchase e-cigarettes.	Questionnaire	

RQ #		State Research Objective	Prop/hyp #	State Proposition or Hypothesis	Data collection detail	Data analysis method
6		To examine the influence of social influence on actual e-cigarette usage	H6	Social influence has a positive influence on	Questionnaire	
7		To assess the influence on the intention to use e-cigarettes on actual e-cigarette usage.	H7	The intention to purchase e-cigarette has a positive influence on the actual e-cigarette usage.		

4.10 CONCLUSION

This chapter outlines the methodological framework employed to investigate the determinants of actual e-cigarette use among Generation Y and Z students at the University of the Witwatersrand. It discussed the positivist paradigm underpinning the study, the quantitative research approach, and the descriptive cross-sectional design. The chapter also detailed the sampling procedures, research instrument, data collection process, and analytical techniques, including SPSS and SMART PLS. Ethical considerations

and quality assurance measures were also addressed to ensure the study's validity and reliability. The next chapter presents the results and analysis of the data collected in line with the outlined methodology.

CHAPTER 4. Chapter 4 Data Analysis and Results Discussions

INTRODUCTION

This chapter outlines the procedures used for data analysis and presents the resulting findings. The sample consisted of 280 respondents, and the data were analysed using the Statistical Package for Social Sciences (SPSS) software for descriptive statistics, as well as partial least squares structural equation modelling for both the measurement and structural models. The chapter is divided into four main sections. The first section presents the findings from the descriptive data analysis, focusing on the demographic characteristics of the respondents, including a determination of the generational distribution, precisely if the respondents are part of Generation Z (Born between 1995 and 2006) or Generation Y (Born between 1977 and 1995). These results are illustrated using pie charts to show frequencies and percentages. The second section explores the descriptive analysis of the research constructs, using percentages along with measures of central tendency (mean) and variability (standard deviation) to examine the distribution of responses on the measurement scales. The third and fourth sections provide an analysis of the structural equation modelling results, focusing on the psychometric properties of the scales, specifically convergent and discriminant validity. Finally, the chapter concludes with the results of the structural model testing, assessing the hypotheses through partial least squares structural equation modelling conducted using Smart PLS.

4.1 DESCRIPTIVE STATISTICS OF SAMPLE CHARACTERISTICS AND CONSTRUCTS MEASURES

The following sections provide an overview of the descriptive statistics of the sample and the metrics of the constructs used in the study.

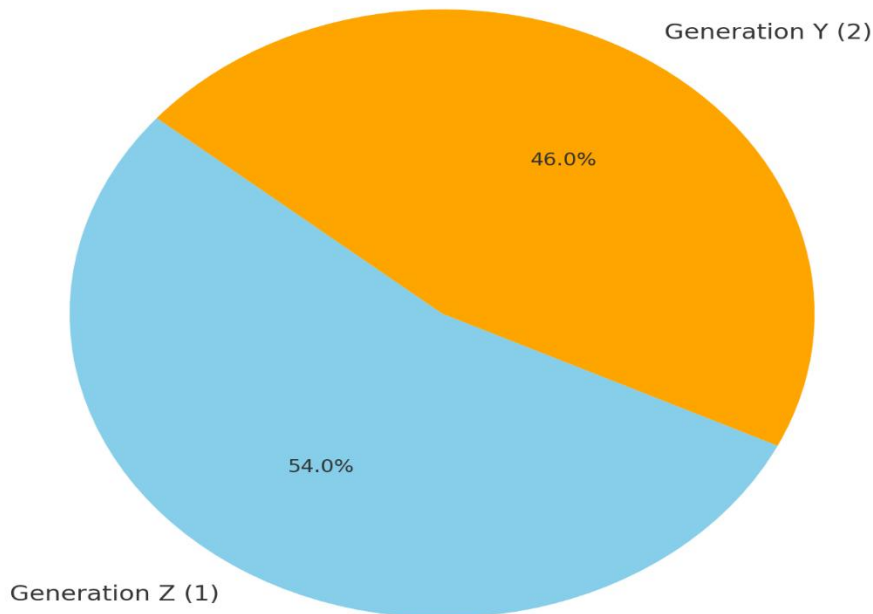
4.1.1 Descriptive statistics of the sample

Pie charts depict the sample's descriptive statistics, with the outcome broken down by the generational distribution.

4.1.1.1 Generational distribution

Figure 4.1 displays the generational distribution within the dataset, which has 280 responses. The chart below visually represents the distribution, showing Generation Z as the majority at 53.96% with Generation Y at 46.04%.

Figure 4.1 Generational distribution



4.2 DESCRIPTIVE ANALYSIS OF THE MEASURE OF CONSTRUCT

This section presents the descriptive analysis of the specific measures used for each construct in the study. The constructs examined include subjective norms, perceived health benefits, perceived harm reduction and actual e-cigarette use. The analysis focused on whether respondents agreed or disagreed with each construct. The basic descriptive statistics for these constructs, including means and standard deviations, are provided in Tables 4.1, 4.2, 4.3, and 4.4.

Mean values were calculated as the measures of central tendency for the constructs. The tables presented below show that the mean values for all constructs were 4, indicating that most respondents expressed agreement with the statements provided (i.e., a '4' on the Likert scale). Standard deviation values were also calculated to assess the variability of responses for each construct. According to Lee et al. (2015), standard deviation (SD) reflects the dispersion of data in a normal distribution and indicates how closely the sample data align with the mean. The relationship between the mean and SD is such that a smaller standard deviation suggests that responses were more consistent, with most responses clustered around the mean. In contrast, a larger standard deviation suggests greater variability in responses, with the values deviating more widely from the mean (Hair et al., 2019). Furthermore, it is recommended that the standard deviation should ideally be less than 1, though values up to 2 are acceptable to ensure that no significant outliers are present (Chuchu & Maziriri, 2020; Drost, 2011; Merza & Mohammed, 2021).

4.2.1 Subjective norms

The subjective norms variable refers to the belief that an important person or group of people will approve and support a particular behaviour. Subjective norms are determined by the perceived social pressure from others for an individual to behave in a certain manner and their motivation to comply with those people's views. Table 4.1 displays the descriptive analysis results based on mean and standard deviation.

Table 4.1: Descriptive statistical analysis of subjective norms

Name	Mean	Scale min	Scale max	Standard deviation
SN1	1.344	1	5	0.706
SN2	1.541	1	5	0.926
SN3	2.022	1	5	1.179

Section B of the questionnaire, which included subjective, had the highest mean score of 2.022 (Item SN3) and the lowest mean score of 1.344 (Item SN1), for a range of 0.678. The lowest mean score of 1.344 (Item SN1) suggested that respondents feel that people who are important to them think that they should buy e-cigarettes. Table 4.1 shows that Item SN3 (My acquaintances would approve of my decision to buy e-cigarettes) had the greatest standard deviation value recorded at 1.179 and the lowest standard deviation at 0.706. (Item SN1). This information shows that the data points are relatively concentrated around the mean. The SD values are less than two, as reported by Chuchu and Maziriri (2020) and Merza and Mohammed (2021), demonstrating the absence of outliers.

4.2.2 Perceived health benefits

This variable refer to individuals' perceptions of the positive changes that result from a particular action to reduce the threat of illness. Table 4.2 displays the descriptive analysis results based on mean and standard deviation.

Table 4.2: Descriptive statistical analysis of perceived health benefits

Name	Mean	Median	Scale min	Scale max	Standard deviation
PHB1	2.527	2	1	5	1.403
PHB2	1.559	1	1	5	0.865
PHB3	2.172	2	1	5	1.206

Perceived health benefits, which comprised Section C of the questionnaire, had the highest mean score of 2.527 (Item PHB1) and the lowest mean score of 1.559 (Item PHB2), providing a range of 0.968. The lowest mean of 1.559 (Item PHB2) suggested that respondents thought that E-cigarettes are safe. Table 4.2 shows that Item PHB1 (E-cigarettes can be used anywhere, even indoors) had the highest standard deviation value recorded at 1.403, and the lowest standard

deviation was 0.865. (Item PHB2). This information shows that the data points are relatively concentrated around the mean. The SD values are less than two, as reported by Chuchu and Maziriri (2020) and Merza and Mohammed (2021), demonstrating the absence of outliers.

4.2.3 Perceived harm reduction

The variable "perceived harm reduction of e-cigarettes" refers to the belief or subjective assessment held by individuals (such as consumers, healthcare professionals, or the general public) regarding the extent to which e-cigarettes are less harmful than traditional tobacco cigarettes. It involves how people perceive the potential health risks of using e-cigarettes compared to smoking conventional cigarettes. Table 4.3 displays the results of the descriptive analysis based on mean and standard deviation.

Table 4.3: Descriptive statistical analysis of perceived harm reduction

Name	Mean	Scale min	Scale max	Standard deviation
PHR1	2.000	1	5	1.110
PHR2	2.075	1	5	1.077
PHR3	2.262	1	5	1.185

Perceived harm reduction, which made up Section D of the questionnaire, had the highest mean score of 2.262 (Item PHR3) and the lowest mean score of 2.000 (Item PHR1), providing a range of 0.262. The lowest mean of 2.000 (Item PHR1) revealed that respondents perceived e-cigarettes as less harmful than regular cigarettes. Table 4.2 shows that Item PHR3 (E-cigarettes are a better alternative to regular cigarettes) had the highest standard deviation value recorded at 1.185, and the lowest standard deviation was 1.077. (Item PHR2). This information shows that the data points are relatively concentrated around the mean. The SD

values are less than two, as reported by Chuchu and Maziriri (2020) and Merza and Mohammed (2021), demonstrating the absence of outliers.

4.2.4 Actual e-cigarette use

Actual e-cigarette use refers to the real, observed behaviour of individuals using e-cigarettes, as opposed to perceptions or beliefs about e-cigarettes. This variable typically involves tracking and measuring the frequency, context, and patterns of e-cigarette consumption among users. Table 4.4 displays the results of the descriptive analysis based on mean and standard deviation.

Table 4.4: Descriptive statistical analysis of actual e-cigarette use

Name	Mean	Scale min	Scale max	Standard deviation
AU1	1.692	1	5	1.16
AU2	1.857	1	5	1.224
AU3	2.097	1	5	1.334

Actual e-cigarette use, which comprised Section E of the questionnaire, had the highest mean score of 2.097 (Item AU3) and the lowest mean score of 1.692 (Item AU1), giving a 0.405 range. The lowest mean of 1.692 (Item AU1) revealed that respondents enjoyed using e-cigarettes. Table 4.4 shows that Item AU3 (E-cigarettes are fun to use) had the highest standard deviation value recorded at 1.334 and the lowest standard deviation was 1.160. (Item AU1). This information shows that the data points are relatively concentrated around the mean. The SD values are less than two, as reported by Chuchu and Maziriri (2020) and Merza and Mohammed (2021), demonstrating the absence of outliers.

4.3 INFERENCE STATISTICS

This study makes use of SmartPLS 4 software to do partial least squares structural equation modelling (PLS-SEM). To evaluate models in SEM, the researchers used the two-step procedure suggested by Anderson and Gerbing (1988). This method begins by assessing the measurement model, with an emphasis on reliability and validity assessments, and then moves on to the structural model, which explores the path coefficients between the observed variables.

4.4 MEASUREMENT MODEL VALIDATION

The results presented in Table 4.5 provide a thorough validation of the measurement model employed in this study. The composite reliability (CR) values exceed the recommended threshold of 0.6, with the lowest CR value being 0.831, indicating satisfactory reliability (Hulland, 1999). Cronbach's alpha values ranged from 0.703 to 0.871, all surpassing the 0.7 benchmark for acceptable internal consistency reliability (Field, 2013). Furthermore, the average variance extracted (AVE) values, which assess convergent validity, all exceed the recommended minimum of 0.4, further validating the strength of the constructs under investigation (Anderson & Gerbing, 1988). The factor loadings for individual items are also high, with all exceeding the 0.5 threshold, reflecting strong indicator reliability and convergent validity (Anderson & Gerbing, 1988). Collectively, these findings demonstrate the successful validation of the measurement model, with the instruments showing satisfactory reliability, convergent validity, and internal consistency. Therefore, the results provide solid evidence for the credibility and validity of the research scale used in this study (Chinomona & Chinomona, 2013).

Table 4.5: Measurement accuracy assessment

Item codes	VIF (outer) values	Factor loadings	Cronbach's alpha	Composite reliability (rho_c)	Average variance extracted (AVE)
SN			0.770	0.865	0.681
SN1	1.582	0.783			
SN2	1.619	0.867			
SN3	1.525	0.824			
PHB			0.703	0.831	0.621
PHB1	1.248	0.810			
PHB2	1.498	0.762			
PHB3	1.487	0.791			
PHR			0.863	0.915	0.782
PHR1	2.248	0.880			
PHR2	2.203	0.861			

Item codes	VIF (outer) values	Factor loadings	Cronbach's alpha	Composite reliability (rho_c)	Average variance extracted (AVE)
PHR3	2.173	0.911			
AU			0.871	0.921	0.796
AU1	2.326	0.889			
AU2	2.121	0.875			
AU3	2.723	0.911			

Note: subjective norms=SN; perceived health benefit=PHB; perceived harm reduction = PHR; actual e-cigarette use=AU

Source: Table by author

4.4.1 Discriminant validity

Field (2013) defines discriminant validity as items that measure diverse concepts. Table 4.6 shows the findings of the discriminant validity analysis. The discriminant validity was assessed using the HTMT ratio (Table 4.6). When assuming a more conservative viewpoint, discriminant validity is achieved when the HTMT score is less than 0.9 (Chabata, Nel & Maziriri, 2024). Table 4.6 shows that the highest obtained HTMT value is 0.893, which is lower than the cautious estimate of 0.9. As a result, all constructs meet the criteria for discriminant validity.

Table 4.6 Heterotrait-monotrait (HTMT) ratio

Variables	AU	PHB	PHR	SN
AU				
PHB	0.737			
PHR	0.467	0.893		
SN	0.736	0.683	0.408	

Note: subjective norms=SN; perceived health benefit=PHB; perceived harm reduction = PHR; actual e-cigarette use=AU

Source: Calculated from survey results

4.4.2 The variance inflation factors, the coefficient of determination (R^2); the effect size (f^2) and the predictive relevance (Q^2)

In the context of PLS-SEM, the researchers utilized a method known as a comprehensive collinearity evaluation methodology to discover common method bias (Kock, 2015). They assessed collinearity using the variance inflation factor (VIF) values, with a 3.3 threshold. VIF readings less than 3.3 indicated the absence of CMB, whereas those more than 3.3 indicated the presence of CMB. Rather than presenting the collinearity issues explicitly, the researchers calculated the VIF values using typical business research methodologies. Table 3 shows the results of the multicollinearity evaluation with VIF values. The data revealed that all constructs had VIF values less than 3.3 (Kock and Lynn, 2012), indicating that CMB was not a concern in the experiment. The researchers also evaluated the model fit using the standardised root mean square residual (SRMR), which assesses the average standardized residuals between the observed and hypothesized covariance matrices (Chen, 2007). According to

Jatmika & Abdurrahman (2023) this value is a measure of model fit (model fit), namely the difference between the data correlation matrix and the estimated model correlation matrix. In (Hair et al, 2022) values, SRMR below 0.08 indicates a fit model. However, in (Karin et al, 2003), the SRMR value is between 0.08 - 0.10 indicating an acceptable fit model. The estimation result of the model is 0.092 it shows that the model used has an acceptable fit. Furthermore, the chi-square value was reported as 463.055, and the normed fit index (NFI) was assessed as 0.901, meeting the suggested level for NFI (Afthanorhan, 2013). These values provided additional support for the model's adequacy. As part of the study's methodology, the researchers looked at the endogenous constructs' coefficients of determination (R^2).

Schumacher et al. (2016) define R^2 as the percentage of variance in a variable that can be explained by independent variable groupings. Hair et al. (2019) propose that R^2 values of 0.75, 0.5, and 0.25 be deemed substantial, moderate, and weak, respectively. Hair et al. (2019) revealed the R^2 value for the study's outcome construct: actual e-cigarette use. This construct had an R^2 value of 0.488. Hair et al. (2019) state that these results indicate that the constructed model has moderate to high explanatory power. In addition to R^2 as a predictive criterion, Hair et al. (2017a) recommend that researchers look at Q^2 to assess the structural model's predictive validity. The predictive applicability of constructs should be positive, with values greater than zero (Hair et al., 2019). Q^2 , shown in Table 4.7, assesses how an exogenous construct influences an endogenous latent construct. Q^2 values can be small (0.02), medium (0.15), or big (0.35) to determine the extent of the Q^2 effect, as shown in Table 4.7. The study's Q^2 value was 0.346 for actual e-cigarette use.

These values are within the desired range, showing that the route model has enough predictive power for the endogenous constructs. Furthermore, the effect size (f^2) is a metric that shows the impact of disregarding a specific exogenous component in the model on the R^2 value (Hair et al., 2019). Effect sizes $f^2 \geq 0.30$, $0.3 < f^2 \geq 0.50$, and $f^2 > 0.50$ indicate weak, moderate, and high impacts, respectively (Bliwise, 2006).

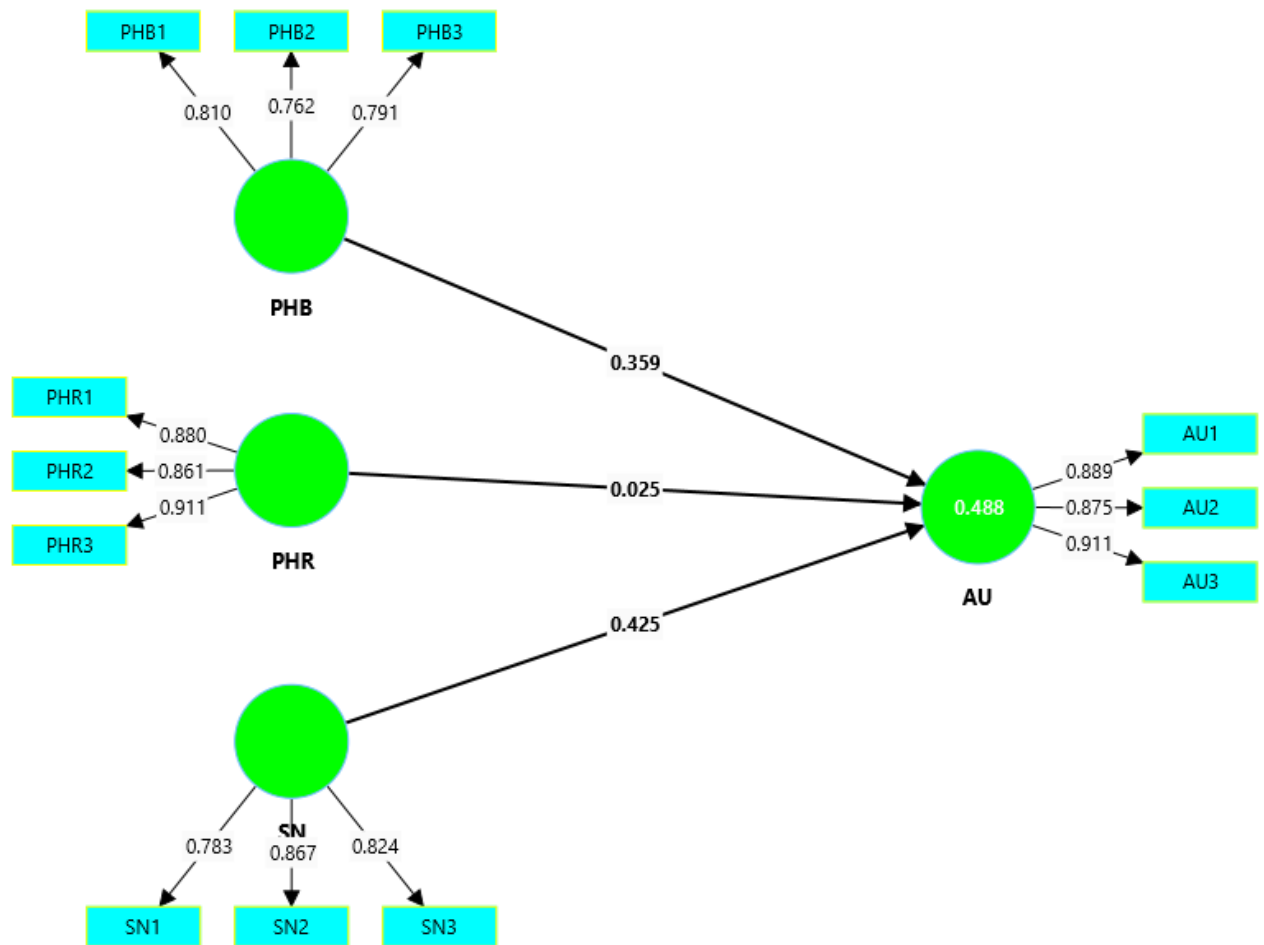
Table 4.7: Coefficient of determination (R^2), effect size (f^2) and predictive relevance (Q^2)

Variables	R Square	Q^2	Effect size
Actual e-cigarette use	0.488	0.346	3.423

4.5 HYPOTHESES TESTING RESULTS

The table presents the proposed hypotheses, path coefficients, t-statistics, and indicates whether each hypothesis is supported or rejected. According to Chin (1998), a t-statistic greater than 1.96 suggests a statistically significant relationship, while higher path coefficients reflect stronger relationships between latent variables. Based on the results in Table 4.8, the following hypotheses are significantly supported: H1 ($\beta=0.359$; $t=5.021$) and H3 ($\beta=0.425$; $t=6.574$) as all t-statistics exceed the threshold of 1.96. It is also imperative to note that H2 ($\beta=0.025$; $t=0.717$), was insignificant as the T value was less than 1.96. The structural model, including path coefficients and p-values, is shown in Figure 4.2.

Figure 4.2: Structural model with path coefficients and p-values



Source: Authors' work

Table 4.8: Summary of the results of the hypotheses testing

	Original sample (O)	T statistics (O/STDEV)	P values
PHB -> AU	0.359	5.021	0.000
PHR -> AU	0.025	0.363	0.717
SN -> AU	0.425	6.574	0.000

Note: subjective norms=SN; perceived health benefit=PHB; perceived harm reduction = PHR; actual e-cigarette use=AU

Note: * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$. Arrows signify the relationships between each construct to indicate the proposed hypothesis

Source: Authors' work

4.6 DISCUSSION

This section presents a detailed discussion of the study's findings about the primary research objective, which was to determine the influence of subjective norms, perceived health benefits, and perceived harm reduction on actual e-cigarette use. The discussion also integrates relevant prior research to contextualise the results within the broader body of literature.

The statistical analysis revealed that perceived health benefits have a positive and statistically significant impact on actual e-cigarette use. This finding suggests that individuals who believe e-cigarettes offer health advantages over traditional cigarettes are more likely to engage in their use. These results are consistent with the findings of Wackowski and Delnevo (2016), who reported that health-related perceptions significantly drive the adoption of e-cigarettes among young adults. Similarly, research by Pepper, Emery, Ribisl, and Brewer (2015) found that consumers who viewed e-cigarettes as healthier alternatives were more inclined to use them as smoking cessation tools.

Furthermore, the Health Belief Model (HBM) supports this association, positing that individuals are likely to adopt a behaviour if they believe it will reduce a health risk (Champion & Skinner, 2008). In the context of this study, users perceive vaping as a means to mitigate the adverse effects of smoking, thus encouraging actual use.

Interestingly, the study found that while perceived harm reduction had a positive relationship, it was statistically insignificant in predicting actual e-cigarette use. This suggests that even though users may believe that e-cigarettes are less

harmful than combustible cigarettes, this perception alone does not necessarily translate into usage behaviour.

These findings are supported by the study of Pericot-Valverde, Gaalema, Priest, and Higgins (2017), who found that harm reduction beliefs were common but did not independently predict usage unless accompanied by strong social or health motivations. Similarly, Glasser et al. (2017) argue that harm perception alone is not a strong enough determinant of use unless reinforced by other factors such as peer influence or targeted marketing.

One possible explanation for this insignificant relationship is that while users may cognitively accept that e-cigarettes are less harmful, emotional or behavioural hesitations, such as distrust in e-cigarette safety or unfamiliarity with usage, may inhibit actual engagement.

The results also provide empirical support for the notion that subjective norms have a positive and significant effect on actual e-cigarette use. This implies that individuals are more likely to use e-cigarettes when they perceive that significant others (friends, family, or peers) approve of or engage in vaping.

This is consistent with the Theory of Planned Behaviour (Ajzen, 1991), which asserts that social pressure or normative beliefs can significantly influence behavioural intentions and actual behaviour. The findings are also in agreement with research conducted by Lee, Lin, and Hsu (2016), who found that peer influence was one of the strongest predictors of e-cigarette uptake among adolescents and young adults.

Additionally, Pokhrel et al. (2015) discovered that the social acceptability of vaping within one's peer group significantly increased the likelihood of trying and continuing to use e-cigarettes. This underscores the social dimension of vaping behaviour, especially among youth and emerging adults who are highly sensitive to peer approval.

4.7 CHAPTER SUMMARY

In summary, this chapter has thoroughly examined the data gathered through a range of statistical methods to explore the connections between the various constructs in the study. The use of descriptive statistics offered valuable insights into the demographic makeup of the sample, providing a foundation for understanding the context of the data. Furthermore, the analysis of the key constructs highlighted meaningful relationships among them, shedding light on the factors that influence behaviour. Notably, the study emphasized the significant roles of perceived health benefits and subjective norms in shaping individuals' decisions to use e-cigarettes. These results not only offer a clearer picture of the dynamics at play but also enhance our comprehension of the underlying drivers of e-cigarette use. By identifying these critical factors, the findings contribute to a more nuanced understanding of how perceived health benefits and subjective norms affect e-smoking-related behaviours, which could inform public health strategies and interventions in the future. The next chapter will consolidate these findings, provide recommendations and outline potential directions for future research.

REFERENCES

- Abrahamse, W., & Steg, L. (2009). How do socio-demographic and psychological factors relate to households' direct and indirect energy use and savings? *Journal of Economic Psychology*, 30(5), 711–720.
- Adkison, S. E., O'Connor, R. J., Bansal-Travers, M., Hyland, A., Borland, R., Yong, H. H., Cummings, K. M., McNeill, A., Thrasher, J. F., Hammond, D., & Fong, G. T. (2013). Electronic nicotine delivery systems: International tobacco control four-country survey. *American Journal of Preventive Medicine*, 44(3), 207–215.
- Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, 50(2), 179–211. [https://doi.org/10.1016/0749-5978\(91\)90020-T](https://doi.org/10.1016/0749-5978(91)90020-T)
- Benowitz, N. L., & Goniewicz, M. L. (2013). The regulatory challenge of electronic cigarettes. *JAMA*, 310(7), 685–686.
- Bicchieri, C. (2006). *The grammar of society: The nature and dynamics of social norms*. Cambridge University Press.
- Blaxter, L., Hughes, C., & Tight, M. (2006). *How to research* (3rd ed.). Open University Press.
- Bryant, A. (2011). *Leading issues in business research methods*. Academic Conferences Limited.
- Bryman, A., & Bell, E. (2015). *Business research methods* (4th ed.). Oxford University Press.
- Bullen, C., McRobbie, H., Thornley, S., Glover, M., Lin, R., & Laugesen, M. (2010). Effect of an electronic nicotine delivery device (e-cigarette) on desire to smoke and withdrawal, user preferences and nicotine delivery: Randomised cross-over trial. *Tobacco Control*, 19(2), 98–103.
- Calás, M. B., & Smircich, L. M. (1997). Postmodern management theory.
- Champion, V. L., & Skinner, C. S. (2008). The health belief model. In K. Glanz, B. K. Rimer, & K. Viswanath (Eds.), *Health behavior and health education: Theory, research, and practice* (pp. 45–65). Jossey-Bass.

Chapman, S. (2014). E-cigarettes: The best and the worst-case scenarios for public health—An essay by Simon Chapman. *BMJ: British Medical Journal (Online)*, 349, g5512.

Choi, K., Fabian, L., Mottey, N., Corbett, A., & Forster, J. (2012). Young adults' favourable perceptions of snus, dissolvable tobacco products, and electronic cigarettes: Findings from a focus group study. *American Journal of Public Health*, 102(11), 2088–2093.

Cialdini, R. B., Kallgren, C. A., & Reno, R. R. (1991). A focus theory of normative conduct: A theoretical refinement and reevaluation of the role of norms in human behaviour. In *Advances in Experimental Social Psychology* (Vol. 24, pp. 201–234). Academic Press.

Cobb, N. K., Byron, M. J., Abrams, D. B., & Shields, P. G. (2010). Novel nicotine delivery systems and public health: The rise of the “e-cigarette.”

Collis, J., & Hussey, R. (2014). *Business research: A practical guide for undergraduate and postgraduate students* (4th ed.). Palgrave Macmillan.

Cooke, A., Fergeson, J., Gagnon, Z., & Sterba, P. M. (2015). The electronic cigarette: The good, the bad, and the ugly. *The Journal of Allergy and Clinical Immunology: In Practice*, 3(4), 498–505. <https://doi.org/10.1016/j.jaip.2015.05.022>

Corcoran, K., Crusius, J., & Mussweiler, T. (2011). Social comparison: Motives, standards, and mechanisms.

Creswell, J. W., & Creswell, J. D. (2018). *Research design: Qualitative, quantitative, and mixed methods approaches* (5th ed.). SAGE Publications.

Crotty, M. (1998). *The foundations of social research: Meaning and perspective in the research process*. Sage.

Cummins, D. D. (1996). Evidence of deontic reasoning in 3-and 4-year-old children. *Memory & Cognition*, 24(6), 823–829.

Cunliffe, A. L. (2003). Reflexive inquiry in organizational research: Questions and possibilities. *Human Relations*, 56(8), 983–1003.

Deutsch, M., & Gerard, H. B. (1955). A study of normative and informational social influences upon individual judgment. *The Journal of Abnormal and Social Psychology*, 51(3), 629.

Dockrell, M., Morrison, R., Bauld, L., & McNeill, A. (2013). E-cigarettes: Prevalence and attitudes in Great Britain. *Nicotine & Tobacco Research*, 15(10), 1737–1744.

Dorsey, J. (2024). Generations birth years - Gen Z, millennials, Gen X, and Baby Boomers. Jason Dorsey. <https://jasondorsey.com/about-generations/generations-birth-years/>

Durmowicz, E. L. (2014). The impact of electronic cigarettes on the paediatric population. *Tobacco Control*, 23(Suppl 2), ii41–ii46.

Eissenberg, T. (2010). Electronic nicotine delivery devices: Ineffective nicotine delivery and craving suppression after acute administration. *Tobacco Control*, 19(1), 87–88.

Elkjaer, B., & Simpson, B. (2011). Pragmatism: A lived and living philosophy. What can it offer to contemporary organization theory? In *Philosophy and Organisation Theory* (pp. 55–84). Emerald Group Publishing Limited.

Etter, J. F. (2010). Electronic cigarettes: A survey of users. *BMC Public Health*, 10, 231.

Etter, J. F., & Bullen, C. (2011). Electronic cigarette: Users' profile, utilisation, satisfaction and perceived efficacy. *Addiction*, 106(11), 2017–2028.

Fang, W. T., Ng, E., Wang, C. M., & Hsu, M. L. (2017). Normative beliefs, attitudes, and social norms: People reduce waste as an index of social relationships when spending leisure time. *Sustainability*, 9(10), 1696.

Fleetwood, S. (2005). Ontology in organisation and management studies: A critical realist perspective. *Organisation*, 12(2), 197–222.

Gill, J., & Johnson, P. (2010). *Research methods for managers*. Sage.

Glasow, P. A. (2005). *Fundamentals of survey research methodology*. MITRE Corporation.

Glasser, A. M., Collins, L., Pearson, J. L., Abudayyeh, H., Niaura, R. S., Abrams, D. B., & Villanti, A. C. (2017). Overview of electronic nicotine delivery systems: A systematic review. *American Journal of Preventive Medicine*, 52(2), e33–e66.

Glasser, A. M., Collins, L., Pearson, J. L., Abudayyeh, H., Niaura, R. S., Abrams, D. B., & Villanti, A. C. (2017). Overview of electronic nicotine delivery systems: A systematic review. *American Journal of Preventive Medicine*, 52(2), e33–e66. <https://doi.org/10.1016/j.amepre.2016.10.036>

Goniewicz, M. L., Gawron, M., Nadolska, J., Balwicki, L., & Sobczak, A. (2014). Rise in electronic cigarette use among adolescents in Poland. *Journal of Adolescent Health*, 55(5), 713–715.

Goniewicz, M. L., Knysak, J., Gawron, M., Kosmider, L., Sobczak, A., Kurek, J., Prokopowicz, A., Jablonska-Czapla, M., Rosik-Dulewska, C., Havel, C., & Jacob, P.

P. (2014). Levels of selected carcinogens and toxicants in vapour from electronic cigarettes. *Tobacco Control*, 23(2), 133–139.

Goniewicz, M. L., Lingas, E. O., & Hajek, P. (2013). Patterns of electronic cigarette use and user beliefs about their safety and benefits: An internet survey. *Drug and Alcohol Review*, 32(2), 133–140.

Grana, R., Benowitz, N., & Glantz, S. A. (2014). E-cigarettes: A scientific review. *Circulation*, 129(19), 1972–1986.

Guagnano, G. A., Stern, P. C., & Dietz, T. (1995). Influences on attitude–behavior relationships: A natural experiment with curbside recycling. *Environment and Behavior*, 27(5), 699–718.

Henwood, K. (2014). Qualitative research. In *Encyclopedia of Critical Psychology* (pp. 1611–1614). Springer.

Kelemen, M. L., & Rumens, N. (2008). *An introduction to critical management research*. Sage.

Kennedy, I. (2022). Sample size determination in test-retest and Cronbach alpha reliability estimates. *British Journal of Contemporary Education*, 2(1), 17–29.

Ketokivi, M., & Mantere, S. (2010). Two strategies for inductive reasoning in organizational research. *Academy of Management Review*, 35(2), 315–333.

Lee, H. Y., Lin, H. C., & Hsu, Y. H. (2016). The role of social influence and e-cigarette exposure in adolescent e-cigarette use. *Addictive Behaviors*, 62, 132–136. <https://doi.org/10.1016/j.addbeh.2016.06.027>

Loukas, A., Marti, C. N., Cooper, M., Pasch, K. E., & Perry, C. L. (2018). Exclusive e-cigarette use predicts cigarette initiation among college students. *Addictive Behaviors*, 76, 343–347.

Marketing, D. (2011). A profile of the South African tobacco market value chain.

McCrindle, M. (2003). Understanding Generation Y. *Principal Matters*, (55), 28–31.

Muthén, B. (1984). A general structural equation model with dichotomous, ordered categorical, and continuous latent variable indicators. *Psychometrika*, 49(1), 115–132.

Neuman, W. L. (2014). *Social research methods: Qualitative and quantitative approaches* (7th ed.). Pearson Education Limited.

Osorio, M. L., & Madero, S. (2024). Explaining Gen Z's desire for hybrid work in corporate, family, and entrepreneurial settings. *Business Horizons*.

Pepper, J. K., Emery, S. L., Ribisl, K. M., & Brewer, N. T. (2015). How dangerous is it to use e-cigarettes? It depends on how you ask. *Nicotine & Tobacco Research*, 17(7), 842–846. <https://doi.org/10.1093/ntr/ntu318>

Pericot-Valverde, I., Gaalema, D. E., Priest, J. S., & Higgins, S. T. (2017). E-cigarette awareness, perceived harmfulness, and ever use among U.S. adults. *American Journal of Preventive Medicine*, 52(3), 362–367. <https://doi.org/10.1016/j.amepre.2016.10.036>

Pokhrel, P., Herzog, T. A., Muranaka, N., Regmi, S., & Fagan, P. (2015). Young adult e-cigarette users' reasons for liking and not liking e-cigarettes: A qualitative study. *Psychology & Health*, 30(12), 1450–1469. <https://doi.org/10.1080/08870446.2015.1061129>

Polosa, R., Rodu, B., Caponnetto, P., Maglia, M., & Raciti, C. (2013). A fresh look at tobacco harm reduction: The case for the electronic cigarette. *Harm Reduction Journal*, 10(1), 19.

Prentice-Dunn, S., & Rogers, R. W. (1986). Protection motivation theory and preventive health: Beyond the health belief model. *Health Education Research*, 1(3), 153–161.

Ramôa, C. P., Eissenberg, T., & Sahingur, S. E. (2017). Increasing popularity of waterpipe tobacco smoking and electronic cigarette use: Implications for oral healthcare. *Journal of Periodontal Research*, 52(5), 813–823.

Robinson, S., Arbez, G., Birta, L. G., Tolk, A., & Wagner, G. (2015, December). Conceptual modeling: Definition, purpose and benefits. In *Proceedings of the 2015 Winter Simulation Conference* (pp. 2812–2826). IEEE Press.

Sapru, S., Vardhan, M., Li, Q., Guo, Y., Li, X., & Saxena, D. (2020). E-cigarettes use in the United States: Reasons for use, perceptions, and effects on health. *BMC Public Health*, 20, 1–10.

Saunders, M., Lewis, P., & Thornhill, A. (2009). *Research methods for business students* (5th ed.). Pearson Education.

Saunders, M., Lewis, P., & Thornhill, A. (2019). *Research methods for business students* (8th ed.). Pearson Education.

Schoenborn, C. A., & Gindi, R. M. (2015). Electronic cigarette use among adults: United States, 2014. *National Center for Health Statistics*, 1–8.

Taylor, S. J., Bogdan, R., & DeVault, M. (2015). *Introduction to qualitative research methods: A guidebook and resource*. John Wiley & Sons.

Trtchounian, A., & Talbot, P. (2011). Electronic nicotine delivery systems: Is there a need for regulation? *Tobacco Control*, 20(1), 47–52.

Van der Eijk, Y. (2015). Ethics of tobacco harm reduction from a liberal perspective. *Journal of Medical Ethics*. <https://doi.org/10.1136/medethics-2015-102924>

Vardavas, C. I., Anagnostopoulos, N., Kougias, M., Evangelopoulou, V., Connolly, G. N., & Behrakis, P. K. (2012). Short-term pulmonary effects of using an electronic cigarette: Impact on respiratory flow resistance, impedance, and exhaled nitric oxide. *Chest*, 141(6), 1400–1406.

Wackowski, O. A., & Delnevo, C. D. (2016). Young adults' risk perceptions of various tobacco products relative to cigarettes: Results from the National Young Adult Health Survey. *Health Education & Behavior*, 43(3), 328–336. <https://doi.org/10.1177/1090198115599988>

Wang, J., & Etter, J. F. (2004). Administering an effective health intervention for smoking cessation online: The international users of Stop-Tabac. *Preventive Medicine*, 39(5), 962–968.

Wasowicz, A., Feleszko, W., & Goniewicz, M. L. (2015). E-cigarette use among children and young people: The need for regulation. *Expert Review of Respiratory Medicine*, 9(5), 507–509.

Wedge, R., & Bondurant, S. (Eds.). (2009). *Combating tobacco use in military and veteran populations*. National Academies Press.

Zhu, S. H., Sun, J. Y., Bonnevie, E., Cummins, S. E., Gamst, A., Yin, L., & Lee, M. (2014). Four hundred and sixty brands of e-cigarettes and counting: Implications for product regulation. *Tobacco Control*, 23(Suppl 3), iii3–iii9.

APPENDIX (X) Instrument

SECTION A

GENERAL INFORMATION

Please indicate your answer by selecting an appropriate box.

A1. Please indicate your Age.

18-20		21-23		24-26		26-28	29-31		32-35	
-------	--	-------	--	-------	--	-------	-------	--	-------	--

SECTION B

Purchase Intention (Armitage and Conner, 1999)

Below are statements about Purchase Intention. You can indicate the extent to which you agree or disagree with the statement by ticking the corresponding number in the 5 point scale below:

1=strongly disagree, 2= disagree, 3= moderately agree, 4= agree and 5= strongly agree

Please tick only one number for each statement

PI1	I intend to buy E-cigarettes	Strongly disagree	1	2	3	4	5	Strongly agree
PI2	I plan to purchase E-cigarettes	Strongly disagree	1	2	3	4	5	Strongly agree
PI3	I will purchase E-cigarettes in my next purchase	Strongly disagree	1	2	3	4	5	Strongly agree

SECTION C

Subjective Norms (Armitage and Conner, 1999)

Below are statements about Subjective Norms. You can indicate the extent to which you agree or disagree with the statement by ticking the corresponding number in the 5-point scale below:

1=strongly disagree, 2= disagree, 3= moderately agree, 4= agree and 5= strongly agree

Tick only one number for each statement.

SN1	People who are important to me think that I should buy e-cigarettes.	Strongly disagree	1	2	3	4	5	Strongly agree
SN2	My interaction with people influences me to buy e-cigarettes.	Strongly disagree	1	2	3	4	5	Strongly agree
SN3	My acquaintances would approve of my decision to buy e-cigarettes.	Strongly disagree	1	2	3	4	5	Strongly agree

SECTION D

Perceived Health Benefits (Copeland, Peltier & Waldo, 2017)

Below are statements about laptop design. You can indicate the extent to which you agree or disagree with the statement by ticking the corresponding number in the 5 point scale below:

1=strongly disagree, 2= disagree, 3= moderately agree, 4= agree and 5= strongly agree. *Please tick only one number for each statement*

PHB1	E-cigarettes can be used anywhere, even indoors.	Strongly disagree	1	2	3	4	5	Strongly agree
PHB2	E-cigarettes are safe.	Strongly disagree	1	2	3	4	5	Strongly agree
PHB3	E-cigarettes are an effective way to quit smoking regular cigarettes.	Strongly disagree	1	2	3	4	5	Strongly agree
PHB4	E-cigarettes do not have the same adverse effects as regular cigarettes after smoking (i.e. mouth and throat irritation, nausea, headache and dry cough.	Strongly disagree	1	2	3	4	5	Strongly agree

SECTION E

Perceived harm reduction (Armitage and Conner, 1999)

Below are statements about device price. You can indicate the extent to which you agree or disagree with the statement by ticking the corresponding number in the 5 point scale below:

1=strongly disagree, 2= disagree, 3= moderately agree, 4= agree and 5= strongly agree

Please tick only one number for each statement

PHR1	E-cigarettes are less harmful than regular cigarettes.	Strongly disagree	1	2	3	4	5	Strongly agree
PHR2	E-cigarettes contain fewer chemicals than regular cigarettes.	Strongly disagree	1	2	3	4	5	Strongly agree
PHR3	E-cigarettes are a better alternative to regular cigarettes	Strongly disagree	1	2	3	4	5	Strongly agree

SECTION F

Actual E-cigarettes use (Armitage and Conner, 1999)

Below are statements about emotional value towards laptops. You can indicate the extent to which you agree or disagree with the statement by ticking the corresponding number in the 5 point scale.

1=strongly disagree, 2= disagree, 3= moderately agree, 4= agree and 5= strongly agree

Please tick only one number for each statement

AU1	I enjoy using e-cigarettes.	Strongly disagree	1	2	3	4	5	Strongly agree
AU2	I prefer using e-cigarettes instead of regular cigarettes because they have a sense of style.	Strongly disagree	1	2	3	4	5	Strongly agree
AU3	E-cigarettes are fun to use.	Strongly disagree	1	2	3	4	5	Strongly agree

