The Perceptions of Electronic Cigarettes among Young Chinese Generation: Expanding the Theory of Planned Behaviour

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ABSTRACT

The theory of planned behaviour (TPB) is recognized as powerful predictive model to explain consumer purchase behaviour. However, there have been relatively few studies that determine the role of TPB's constructs in e-cigarettes decision-making process. Moreover, the TPB ignores the impulsive motivation (i.e., hedonism) and unconscious motivation (i.e., habit) and perceived knowledge in the literature. This study adopted a quantitative method based on a survey with 293 young respondents using e-cigarettes. The proposed hypotheses were empirically tested with SPPS and AMOS. This study revealed that perceived knowledge positively influenced attitude, subjective norm (SN), and perceived behavioural control (PBC) respectively. The results showed a positive relationship between attitude, SN, PBC and intention, and intention positively influenced actual e-cigarettes use behaviour. The results also demonstrated how consumers' hedonic motivation and habit influence intention. Lastly, the theoretical and practical implications and limitations were discussed.

Keywords: Theory of planned behaviour; hedonism; habit; perceived knowledge; e-cigarette use

1. INTRODUCTION

Tobacco cigarette smoking is the leading preventable cause of death in the world, contributing to more than eight million deaths annually (World Health Organization, 2020). It is also the primary risk factor for lung cancer, heart disease and other respiratory disease (Chinese Center for Disease Control and Prevention, 2019). As elsewhere, the Chinese government is struggling with a high prevalence of smoking especially among the youth (Chinese Center for Disease Control and Prevention, 2019). The tobacco cigarette market in China is estimated with approximately 300 million people (National Health Commission of the People's Republic of China, 2021), which occupied more than quarter of whole global tobacco users with 1.337 billion people (World Health Organization, 2019). In China, it is estimated that combustible cigarette smoking causes at least 2740 deaths every day, and the number will increase to double in 2030 (National Health Commission of the People's Republic of China, 2021). The death cases would be totally avoidable if smokers refrained from smoking (Zoccai et al., 2020), as smoking cessation has substantial general health benefits for certain diseases (Fucito et al., 2021). Nevertheless, older people who smoke and are at high risk level for lung cancer are less likely to be interested in smoking cessation (Fucito et al., 2021), and over 40 million young people aged 13-15 have already started to use tobacco (World Health Organization, 2020).

In light of these challenges, tobacco harm reduction alternatives are critically needed for smokers who are unable or unwilling to quit. Electronic nicotine delivery systems (ENDS) (e.g., electronic cigarettes (e-cigarettes), vaping devices, and vape pens) and electronic non-nicotine delivery systems (ENNDS) are an increasingly popular alternative to tobacco cigarettes among smokers worldwide (World Health Organization, 2017). E-cigarettes as the most common prototype, are devices that do not burn or use tobacco leaves but instead vaporize a solution the user then inhales (World Health Organization, 2017), which composed of a battery, a heating element and a tank that contains a solution of nicotine, flavorings and other chemical products (Lucchiari et al., 2020). In the marketplace, e-cigarettes emerged as a potential smoking cessation aid and targeted at people who intent to quit tobacco smoking and reduce nicotine uptake (Muposhi & Dhurup, 2016). E-cigarettes contain markedly low level of toxic and potentially harmful material without tobacco combustion, but they are not harm-free (Fucito et al., 2021). However, data are not convergent and the debate is open, also considering possible dangerous side effects (Lucchiari et al., 2020). Up to date, there are thirty-two countries have banned the sale of e-cigarettes and seventy-nine countries have adopted at least one partial measure to prohibit the use of e-cigarettes in public places, prohibit their advertising, promoting and sponsorship for health proposal events and packaging (World Health Organization, 2021). There are still leaves eighty-four countries where they are not regulated or restricted in any way (World Health Organization, 2021). Because the e-cigarettes are hugely diverse and are evolving rapidly, some are modifiable by the users so that nicotine concentration and risk levels are difficult to regulate (World Health Organization, 2021). Another reason is that certain evidences showed that e-cigarettes also negatively influence people's health, and the outcomes are not clear (National Health Commission of the People's Republic of China, 2021). More specifically, e-cigarettes association may be stronger among younger individuals who smoke in school (Fucito et al., 2021; World Health Organization, 2020), as they can simulate one's visual, sensory due to its unique attributes of flavors, fashionable and novel packaging (Muposhi & Dhurup, 2016).

Currently, there are more than 66.85 million of the adult smokers habitually uses e-cigarettes, with even greater estimates in adolescents groups (Zoccai et al., 2020). Indeed, more than 4.5 million of young Chinese who aged between 15-24 were regular e-cigarettes users, and it displays an increase trend (Chinese Center for Disease Control and Prevention, 2019). Previous studies mostly investigated how e-cigarettes is working for combustible smoking reduction and cessation, for example, majority of them have tried to compare the effect of combustible tobacco and e-cigarettes on individuals' health (Hartmann-Boyce et al., 2021), whether or not e-cigarettes provide an opportunity for patients transit to smoking cessation (Kim, 2020; Zoccai et al., 2020). Although several studies investigate e-cigarettes use in other population, few studies have been given to understanding the motivational factors related to why combustible smokers or potential users would like to change their behaviours (Rüther et al., 2015). In particular, most developing countries neither regulating e-cigarettes nor banning their sale (World Health Organization, 2021), for example, China only banned e-cigarettes sale from online or web-based distribution. Thus, at this stage, analyzing e-cigarettes users' perceptions may generate a better understanding of the motives for its users and nonusers as well as the barriers that encountered.

In order to analyze motivational factors, this study adopted the theory of planned behaviour (TPB) as a theoretical framework (See Figure 1). In marketing, the TPB is considered the most integrated proposition of social behaviour (Wang & Wong, 2021), and has been frequently applied to understanding individual's purchase intention and actual behaviour (Wang et al., 2021d). Unfortunately, very few studies have examined the relevance of the TPB to smoking behaviour (Topa & Moriano, 2010), scarce studies have attempted to investigate the psychological determinants of e-cigarettes users' initiations based on TPB. The TPB model considers a wide range of act belief, normative belief, and control belief, but it still allows researchers to add new constructs denoting a better portion of the intention variance (Wang et al., 2021c). One of the criticisms of adopting TPB model is it focuses on rational reasoning and lack of consideration on subconscious and impulse aspect (Wang et al., 2021b). Moreover, more knowledgeable consumers related to products/services usually make reasonable decision-making process (Wang et al., 2020a), but there is a lack of understanding regarding the influence of perceived knowledge as an antecedent to e-cigarettes use (Chinese Center for Disease Control and Prevention, 2019). Hence, to increase the TPB model's explanatory power,

this study inputted the hedonism, habit, and perceived knowledge as precursors to young generation who intent to use or use e-cigarettes in China. The purpose of this study is to apply the extended TPB to explore the factors influencing the use of e-cigarettes among young generation in China.

2. LITERATURE REVIEW

2.1 THE THEORY OF PLANNED BEHAVIOUR

Undoubtedly, attitude consistently plays the most important role in determining one's behaviour compared to other factors (e.g., subjective norm, perceived behavioural control) in TPB (Wang et al., 2021a). Attitude is central to the consumer decision-making theories (Cohen et al., 2014) as it seems to be the only consistent predictor in explaining an individual's intention and behaviour (Wang et al., 2021e). Ajzen (1991) defined attitude as the extent to which an individual has a positive or negative evaluation of a given behaviour, and it reflects in an individual's tendencies and feelings towards a particular behaviour (Wang et al., 2021b). Thus, it includes self-judgement on whether the given behaviours under consideration is good or bad and whether or not the actor wants to perform that behaviour (Paul et al., 2016). Previous studies confirmed a strong relationship between attitude and intention/behaviour in various disciplines (Jaiswal & Kant, 2018; Wang et al., 2020a), and indicated that when individuals have a more positive attitude, a more positive purchase intention/behaviour would result (Wang et al., 2020a). However, few studies have attempted to investigate the influence of one's attitude on e-cigarettes use (Rüther et al., 2015). Certain studies on e-cigarettes marketing have showed how attitude positively influence intention and behaviour, for example, Waghel et al. (2014) indicated that various attitudes determine their intentions and behaviours to adopt e-cigarettes instead of tobacco for smoking cessation. Fucito et al. (2021) reported that individuals who ever using e-cigarettes were more likely to express a willingness to try switching to e-cigarettes in the future. Hence, the following hypothesis is proposed:

H1: There is a positive relationship between attitude and intention.

Subjective norm (SN) was perceived as the weakest and most complicated factor in TPB (Wang et al., 2021c) as a weakness of the relationship between SN and intention has been found by previous meta-analysis compared to attitude-intention and perceived behavioural control (PBC)-intention (Topa & Moriano, 2010). However, SN functions as a social pressure source and inspires individuals to transform their behaviours at a diverse macro-level setting (Ulker-Demirel & Ciftci, 2020). It is an influence on one's decision-making from the perceived opinions of significant others (e.g., relatives, close-friends, co-colleagues/workers, or business partners) (Wang et al., 2019). Hence, it represents an individual's normative beliefs about what other references think he or she should or should not do, and his or her motivation to follow (Wang et al., 2021c). Topa and Moriano (2010) investigated the relationship between TPB and individual's smoking behaviour and confirmed that SN is the second important predictor contributed to cigarettes consumption, while Fucito et al. (2021) showed that social acceptability is a significant factor leading individuals change combustible cigarettes to e-cigarettes. Therefore, this study postulates the following hypothesis:

H2: There is a positive relationship between SN and intention.

In certain circumstance, the TPB model ignored the possible mediation effect of SN on intention (Wang et al., 2021c). Specifically non-western consumers who are highly collectivistic tend to share their experience of the novel products or services to their significant others (Wang & Wong, 2021). Researchers who propose the TPB as the underpinning theory on Asian consumers, such as China, Japan, India, Korea as highly collectivistic societies should consider the role of SN is essential when determining one's attitude in those countries (Wang et al., 2021c). Because

it is likely that the favorable or unfavorable views interact significant others on novelty products or services contributes to his/her positive or negative attitude (Wang & Wong, 2021) that result in high or low level of purchase intention or behaviour (Wang et al., 2021a). Some studies have demonstrated a significant causative relationship from SN to attitude, then subsequently, purchase intention (Wang et al., 2021c; Wang et al., 2019), while other studies suggested that attitude has a mediating role between SN and intention (Wang et al., 2021a; Wang & Wong, 2021). Hence, following these findings, the following hypothesis is proposed:

H3: SN positively influences attitude, subsequently, on intention.

PBC represents the non-volitional factor was incorporated into TPB that extended theory of reasoned action (TRA) boundaries as TRA was considered as a rational decision-making framework (Wang et al., 2021e). More importantly, PBC has high explanator power in a situation with individual's perceived constraints than other theories (e.g., value-belief-norm theory) (Steg & Vlek, 2009). Thus, individuals perceived a specific behaviour can be performed difficult or ease (Wang & Wong, 2021), and he/she also consider his/her ability can or cannot to perform a certain behaviour (Wang et al., 2021a). In other words, the more an individual is able to have control over any obstacles, the more possibilities he/she will be engaged in the given behaviour (Wang et al., 2019). Rüther et al. (2015) indicated that e-cigarettes users have a high level of self-efficacy in replacing combustible cigarettes in certain situations (e.g., when waking up, after having a meal or feeling unhappy). Certain studies also demonstrated that e-cigarettes users have more confidence to control their smoking behaviours for medical purpose (e.g., smoking cessation aids, quit tobacco smoking) (Muposhi & Dhurup, 2016; Rüther et al., 2015). Therefore, the following hypothesis is proposed:

H4: There is a positive relationship between PBC and intention.

2.2 HEDONISM

The TPB is a behavioural theory based on a causal process (Ajzen, 1991) that neglects others essential factors such as spontaneous choices and feelings (Ulker-Demirel & Ciftci, 2020). Specifically, individuals are not rational all the time in decision-making processes (Wang et al., 2021c), they may perform certain behaviours are restricted by some elements such as time constrain, cognitive components or lack of knowledge (Ulker-Demirel & Ciftci, 2020). Hedonism represents an irrational process toward shopping for goods or experiencing of services, such as being playful, having fun, or to feel better (Wang et al., 2021a). Individuals are seeking expected sensory stimulations, status, comfort, affection, symbolism and behavioural conformation when they search for a particular product or services during the purchasing and usage process (Lindenberg, 2001; Yeo et al., 2017). However, hedonism does not replace tractional consumer theories but enhances the consumption theories' applications (Wang et al., 2021a). Because hedonic motivation can increase or decrease one's arousal and pleasantness (Wang et al., 2021c), and they may exist in almost everything people do as they are recognized as the significant effect and moods preconditions (Lindenberg, 2001). Wang et al. (2021a) indicated that the additional factor of hedonism incorporated into TPB can increase the explanation power for novel tourism activities. Compared with combustible nicotine replacement therapies, e-cigarettes can simulate the visual, sensory and behavioural aspects of smoking (Hajek et al., 2015); while e-cigarettes users receive positive associations from inhaling the flavored vaporized nicotine, and earning the esteemed tag of vapers (Muposhi & Dhurup, 2016). Overall, e-cigarettes provide a physical sensation like combustible smoking, also associate with high hedonic motivations such as unique, fashionable and novel packing (Stimson et al., 2014). Therefore, the following hypothesis is proposed:

H5: There is a positive relationship between hedonism and intention.

2.3 HABIT

The TPB focuses on rational reasoning and its lack of subconscious and private standards (Ulker-Demirel & Ciftci, 2020), such as unconscious motives and subconscious motives (Wang et al., 2021a). Habit refers to one's learned sequence of acts that have become automatic responses to a particular situation, which maybe functional in obtaining certain goals or end states (Agag & El-Masry, 2016). It is a behavioural tendency that derived from past experience (Khalifa & Liu, 2007) and can be reflected as an automatic behavioural reaction that is stimulated by a specific condition or environment cause without an individual's thinking or conscious mental process (Hsu et al., 2015).

Prior studies have been empirically tested the direct influence of habit on purchase intention in various domains (Agag & El-Masry, 2016), such as hotel booking (Agag & El-Masry, 2016). Nevertheless, few studies to date, related to the influence of habit on e-cigarettes users' behaviours, although Lee (2021) indicated that most e-cigarettes users begin this habit assuming that it will assist them to cease smoking tobacco, while Rüther et al. (2015) also demonstrated that the use of e-cigarettes as a harm reduction strategy for smokers unable to quit, but also potential effects of this smoking habit. Holliday et al. (2021) indicated that one reason that smokers use e-cigarettes instead of combustible tobacco is it kept some conventional smoking habits, such as hand-to-mouth action and vapor production. Therefore, this study proposes the following hypothesis:

H6: There is a positive relationship between habit and intention.

2.4 PERCEIVED KNOWLEDGE AND TPB

Individuals' perceived knowledge often help in the development of attitude and perception towards a specific concept that in turn leads to favorable behaviour (Patharia et al., 2020). According to Yoon and Kim (2016), the more perceived knowledge an individual has to the problem and solution, the more motivated he or she would be to take action. Because individuals' knowledge influence all phases of the consumption process, it is particular influential when they process product or service information (Peng & Chen, 2019). This influence occurs due to knowledge reinforces or undermines the impact of a product or service's message (Naderi et al., 2018). Based on Kumar et al. (2017), knowledge has an important role as an antecedent to the individuals' capacity to process the information, and it impacts the attention to the message about a specific product or services and helps in processing the same. With an increase in specific knowledge, the consumers become more informed, and that raises the possibility of high purchase attitude and intention (Maichum et al., 2016). Therefore, individuals with a high level of product or service knowledge can process its information and make decision faster than those with strict product or service knowledge as they can retrieve relevant information more effectively (Peng & Chen, 2019). Overall, an abundant between individual perceived knowledge and product or service information will strengthen product or service evaluation favorableness and increase the ease of self-judgement and decision making (Peng & Chen, 2019). Therefore, perceived knowledge was a strong predictor of consumer behaviour.

Previous studies have found that perceived knowledge significantly associated with individual attitude, SN, PBC, and subsequently, leading to purchase intention. For example, Wang et al. (2020a) indicated hotels customers' perceived knowledge about environmental issues result in their positive attitudes towards visiting intention. When individuals perceive those others expect them to know about a specific product or service information, they might purposely present themselves as knowing a lot about that product or service. Moorman et al. (2004) showed that perceived knowledge influences the choice of the consumers, as they can be inspired from others to act on the knowledge they have, while Maichum et al. (2016) indicated that perceived knowledge is positively influences SN towards green products. Moreover, perceived knowledge would increase the belief that an individual has control of the situation, thereby increasing their confidence to over certain obstacles to make decisions (Maichum et al., 2016). A study by Kim et al. (2014) demonstrated that high level of perceived knowledge will exert a strong positive influence

on PBC towards the sustainable consumption. As there is a lack of perceived knowledge about cigarettes including e-cigarettes among Chinese smokers (Chinese Center for Disease Control and Prevention, 2019), based on above discussion, the following hypotheses are proposed:

H7: There is a positive relationship between perceived knowledge and attitude.

H8: There is a positive relationship between perceived knowledge and SN.

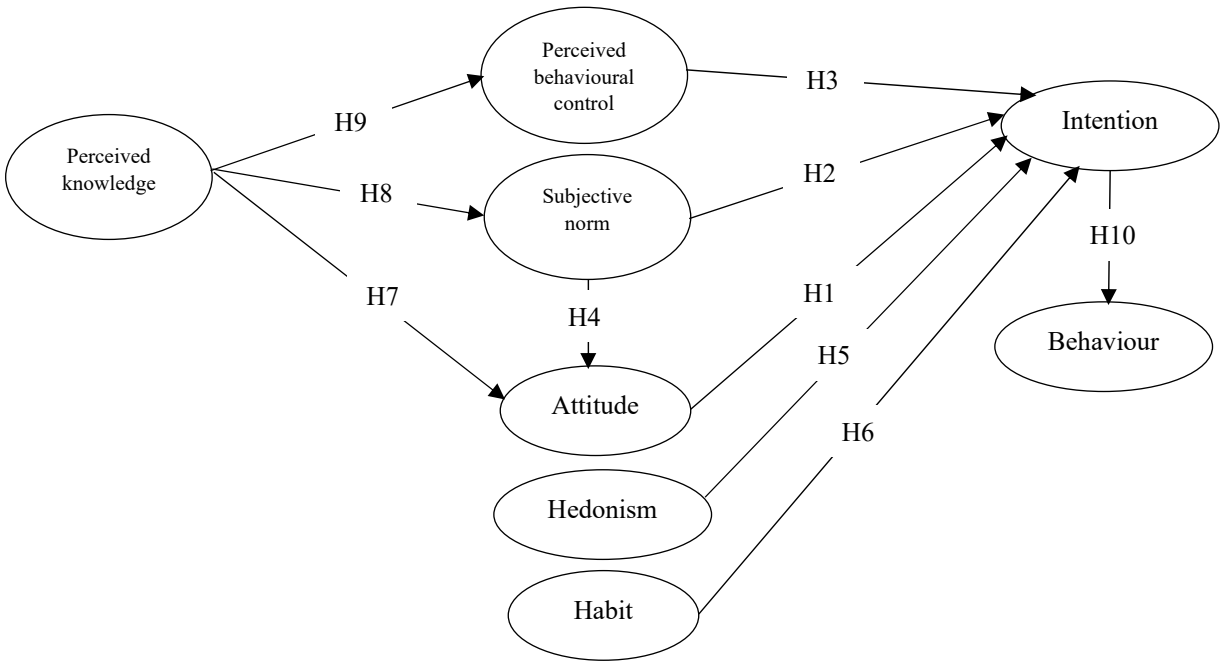
H9: There is a positive relationship between perceived knowledge and PBC.

2.5 INTENTION TOWARDS BEHAVIOUR

In marketing, intention is considered one of the best predictor of planned behaviour, especially when it is difficult to observe the actual behaviour (Ulker-Demirel & Ciftci, 2020). It refers to an individual's cognitive motivation to utilize the effort in performing a specific behaviour (Wang et al., 2019), such as willing/unwilling recommend, pay a premium, repurchase a product or service (Jiang & Gao, 2019). Thus, it can be postulated as the best proxy and has a high reliability for explaining the relationship between the purchase behaviour of a consumer in the TPB (Wang et al., 2021e). However, the stated behavioural intention did not always translate into the actual behaviour (Wang et al., 2021a). This effect may be attributed to as intention-behaviour gap and the issues have been demonstrated in certain studies (Han & Yoon, 2015; Kumar et al., 2017). In contrast, many other studies showed a high degree of correlation between intention and behaviour (Bahl & Kumar, 2019; Bashir et al., 2019). Although the relationship between intention and behaviour have well documented in the literature, there is still a room for researchers to understanding the correlation between intention and actual behaviour towards e-cigarettes use. Therefore, the following hypothesis is proposed:

H10: There is a positive relationship between intention and behaviour.

FIGURE 1.
CONCEPTUAL RESEARCH MODEL



3. METHODOLOGY

3.1 DATA COLLECTION

A non-probability sampling method was adopted for current study, because it is challenging for social science studies to acquire a precise sampling frame or to track down potential respondents from a population of interest in order to address the research questions (Saunders et al., 2011). Therefore, a purposive sampling technique was used to gather samples that fit the nature and objectives of the study (Neuman, 2002). The China occupied the largest group of smokers with approximately 300 million people in the world (National Health Commission of the People's Republic of China, 2021), and there is an increase trend that Chinese regular combustible smokers transfer to using e-cigarettes, in particular, young generation. Because cigarette sales have fallen, tobacco companies have been aggressively marketing e-cigarettes (World Health Organization, 2021), and labelled themselves as cessation or harm reduction, healthy and fashion (Reference News, 2019). However, their goal is clear which that hook another generation on nicotine (World Health Organization, 2021). According to Tsinghua University reported that there were more than 7.4 million of Chinese were regular e-cigarettes users (Reference News, 2019), more than 4.5 million of young Chinese who aged between 15-24 were regular e-cigarettes users (Chinese Center for Disease Control and Prevention, 2019). In addition, previous studies also indicated a high level of awareness and susceptibility of e-cigarettes usage among students (Muposhi & Dhurup, 2016). Considering that over 40 million young people aged 13 to 15 have already started to use tobacco (World Health Organization, 2020), it is necessary to understand whether young generation is willing to consume e-cigarettes instead of conventional cigarettes no matter what it is usefulness for cigarettes cessation or provide less harm.

Jiangsu province has more than 1.1 million undergraduate students making it hold the third highest number of university students in China, and Xuzhou possessed almost one-fifth of the student number (Wang et al., 2021c). Thus, data was collected at six undergraduate universities in Xuzhou from 1 June to 10 December 2021. The questionnaires were distributed to 3,000 students during their class time and their participation in survey were voluntary. All respondents were recruited from various majors to complete the questionnaires thus reduce the common method bias (CMB) impact from the homogeneous issues. All respondents' personal information and answers were strictly confidential by using an internet-survey tool (using WeChat QR cord) to be kept private and reduce pressure. For structural equation modelling (SEM), most studies suggested a sample size of at least 200 respondents, and between 10 and 20 cases per parameter (Kline, 2015). To ensure all respondents understood the research context, all items of the questionnaire were initially translated into Chinese using the back-translation method. Then, a pilot test was conducted involving 30 respondents to ensure the usability and validity of the developed instrument and to prevent any problems that may affect the quality of the obtained data. Overall, 293 responses were collected which exceeded the minimum recommended sample size.

3.2 RESEARCH INSTRUMENT

A formal development of a self-administered and closed-ended questionnaire that included validated measurement scales was used for this study. There were four sections in the questionnaire. The first section included the new added variables: three items for hedonism were adapted from Wang et al. (2021c); three items for habit were adapted from Agag and El-Masry (2016); and four items for perceived knowledge were derived from World Health Organization (2020), National Health Commission of the People's Republic of China (2021), World Health Organization (2017), and Fucito et al. (2021). The second section focused on TPB components: four items belonging to attitude, three items belonging to SN, and three items belonging to PBC were adapted from Wang et al. (2021a) and Rüther et al. (2015). The third section focused on exogenous variables: three items belonging to intention were adapted from Wang et al. (2021c), and three items belonging to behaviour were adapted from Ateş (2021), Rahman et al. (2020), and Eid et al. (2020). Lastly, the final section focused on demographic characteristics such as age, gender, education level, seniority level and usage of e-cigarettes. All items were measured through a five-point Likert scale as it provides marginally higher mean scores and permits direct data comparison (Dawes, 2008).

4. DATA ANALYSIS AND RESULTS

4.1 DESCRIPTIVE ANALYSIS

A total of 293 usable questionnaires were obtained for analysis. Out of these respondents, 87.4% of them were male, the majority were aged 19 years (22.2%), 67.6% were 4-years bachelor students, most of them were junior level's students (26.3%). Moreover, 67.6% of them were mono e-cigarettes users, rest of them were both e-cigarettes and combustible cigarettes users (See Table 1). According to Byrne (2016), the normal data distribution is when skewness (-2 to +2) and kurtosis (-7 to +7) values are near zero. The results showed normality was present as skewness were between -1.716 to -0.62, while kurtosis ranged from -0.628 to 4.385. The Kaiser-Meyer-Olkin and Bartlett's test of sphericity showed sampling adequacy with 0.934 and significance value below 0.001. In addition, Harman's single factor test was undertaken to identify if CMB affects results, and the results showed an exploratory factor analysis with a single factor accounted for 48.912% of the variance less than the 50% benchmark value.

TABLE 1.
SAMPLE CHARACTERISTIC (N = 293).

Items	Characteristic	Frequency	Percentage (%)
Gender	Male	256	87.4
	Female	37	12.6
Age	Below 18	3	1.0
	18	47	16.0
	19	65	22.2
	20	57	19.5
	21	49	16.7
	22	56	19.1
	Above 22	16	5.5
Usage of e-cigarettes	Only e-cigarettes	198	67.6
	Both e-cigarettes and combustible cigarettes	95	32.4
Education level	3-years diploma	76	25.9
	4-years bachelor	198	67.6
	Master and above	19	6.5
Seniority level	Fresh	50	17.1
	Sophomore	76	25.9
	Junior	77	26.3
	Senior	71	24.2
	Other	19	6.5

4.2 CONFIRMATORY FACTOR ANALYSIS (CFA)

Cronbach's alpha value should be greater than 0.7 to be considered adequate for the testing internal reliability, while composite reliability (CR) of measurement model also need to be greater than 0.7, and average variance extracted (AVE) value of above 0.5 are suggested (Hair et al., 2010). Besides, the discriminate validity was assessed by considering the maximum shared squared variance (MSV) and the average shared squared variance (ASV). Both the MSV and ASV should be less than the AVE value (Hair et al., 2010). Meanwhile, the correlation between each variable should be less than 0.9 (Meyers et al., 2006). Furthermore, higher factor loadings for item reliabilities informed the shared variance between construct and measure than error variance (Hulland et al., 2018). Hence, factor loadings below 0.7 (i.e., habit2) was dropped. Accordingly, the construct reliability (See Table 2) and discriminate validity (See Table 3) were established for this study. Next, the study ensured with the assessment of model fit. The results showed that CMIN = 875.865, DF = 296, CMIN/DF = 2.959, $p < 0.001$, CFI = 0.934, PGFI = 0.634, PNFI = 0.762, PCFI = 0.788, NFI = 0.904, IFI = 0.934, TLI = 0.922, RMR = 0.043, RMSEA = 0.082. The overall goodness-of-fit indices presented a good measurement model fit.

TABLE 2.
CONSTRUCT VALIDITY

Construct (Cronbach's Alpha)	Items	Item loadings	CR	AVE	SD
Hedonic (α = 0.963)	Hed1. I find that using e-cigarettes is fun	0.943	0.964	0.898	0.821
	Hed2. I find that using e-cigarettes is enjoyable	0.947			0.832
	Hed3. I find that using e-cigarettes is very entertaining	0.953			0.840
Habit (α = 0.856)	Hab1. Using e-cigarettes is something I do frequently	0.851	0.860	0.755	1.015
	Hab3. Using e-cigarettes is something that has become a routine for me	0.886			1.152
Perceived knowledge (α = 0.907)	PK1. E-cigarettes is legal for sale both online and offline shops in China	0.938	0.915	0.730	0.544
	PK2. E-cigarettes also contains nicotine				
	PK3. E-cigarettes is same as combustible cigarettes harm for individuals' health	0.755			0.675
		0.910			0.521
	PK4. E-cigarette lack of product standard and industry regulation				
		0.801			0.612
Attitude (α = 0.937)	For me, using e-cigarettes to instead of combustible cigarettes is:		0.939	0.794	
	Att1. Desirable	0.912			0.812
	Att2. Pleasant	0.916			0.792
	Att3. Wise	0.872			0.843
	Att4. Positive	0.864			0.868
Subjective norm (α = 0.958)	SN1. Most people who are important to me think I should use e-cigarettes to instead of combustible cigarettes	0.947	0.959	0.887	1.281
	SN2. Most people who are important to me would want me to use e-cigarettes	0.957			1.253
	SN3. People whose opinions I value would prefer that I use e-cigarettes	0.921			1.155
Perceived behavioural control (α = 0.939)	PBC1. Whether or not I use e-cigarettes is entirely up to me	0.930	0.940	0.839	1.074
	PBC2. I am confident that if I want, I can buy and use e-cigarettes	0.888			1.006
	PBC3. I have resources, time and opportunities to buy and use e-cigarettes	0.930			1.055
Intention (α = 0.908)	Inten1. I am willing to use e-cigarettes to instead of combustible cigarettes	0.891	0.914	0.726	0.903
	Inten2. I plan to use e-cigarettes to instead of combustible cigarettes				
	Inten3. I will make an effort to use e-cigarettes in future	0.880			0.855
	Inten4. I am willing to recommend e-cigarettes to others				
		0.856			0.974
		0.777			1.104
Behaviour ($\alpha = 0.942$)	Beh1. I prefer to re-purchase and re-use e-cigarettes	0.900	0.942	0.803	0.896
	Beh2. I purchase e-cigarettes even if they are more experience than the combustible cigarettes	0.901			1.000
	Beh3. I feel more comfortable when I use e-cigarettes rather than combustible cigarettes	0.880			0.939
		0.904			1.029
	Beh4. I prefer e-cigarettes over combustible cigarettes when their product qualities are similar				

TABLE 3.
DISCRIMINATE VALIDITY.

Constructs	AVE	MSV	ASV	1	2	3	4	5	6	7	8
1. Habit	0.755	0.601	0.260	0.869							
2. Perceived knowledge	0.730	0.323	0.171	0.300	0.854						
3. Subjective norm	0.887	0.573	0.275	0.443	0.199	0.942					
4. Attitude	0.794	0.711	0.379	0.393	0.568	0.615	0.891				
5. Intention	0.726	0.601	0.385	0.775	0.479	0.547	0.607	0.852			
6. Behaviour	0.803	0.711	0.421	0.491	0.409	0.757	0.843	0.672	0.896		
7. Hedonism	0.898	0.629	0.343	0.381	0.518	0.550	0.754	0.604	0.793	0.948	
8. PBC	0.839	0.394	0.205	0.628	0.279	0.369	0.389	0.618	0.416	0.346	0.916

4.3 STRUCTURAL MODEL ESTIMATION (SEM)

The next step was to perform SEM using the structural model and to test hypotheses. The overall goodness-of-fit indices demonstrated a good structural model as following: CMIN = 1182.819, DF = 306, CMIN/DF = 3.865, $p < 0.001$, CFI = 0.9, PGFI = 0.631, PNFI = 0.759, PCFI = 0.785, IFI = 0.901, RMSEA = 0.099, and the outcomes tabulated in Figure 2 and Table 4.

FIGURE 2.
STRUCTURAL EQUATION MODELING OUTCOMES.

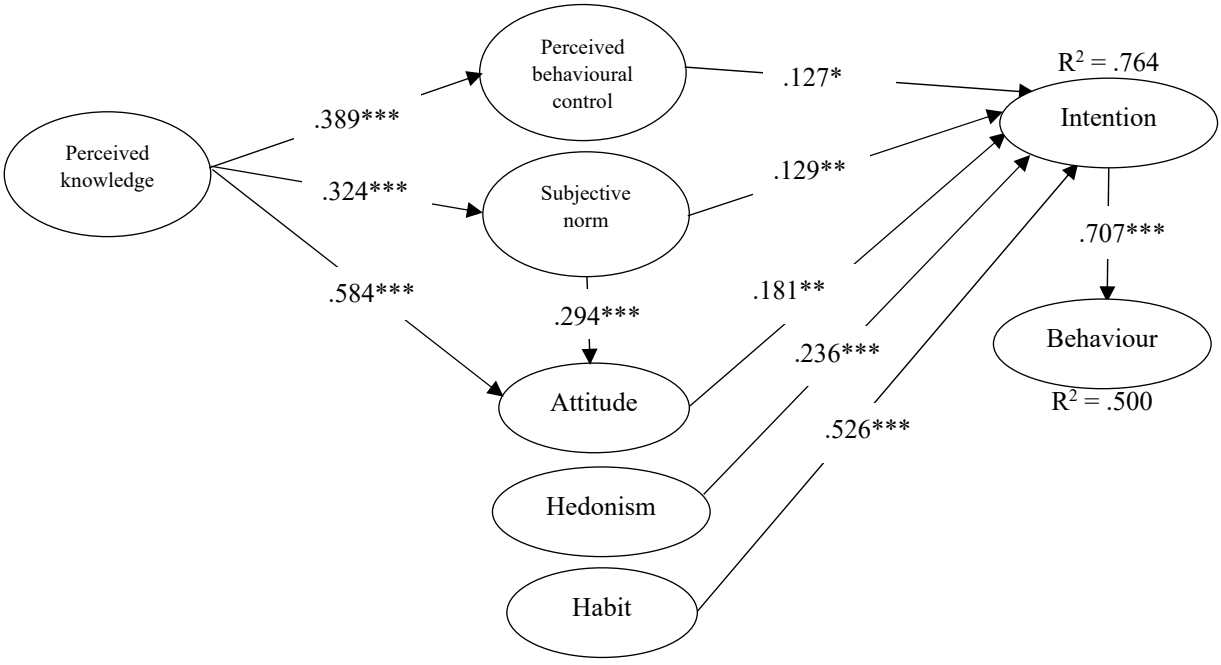


TABLE 4.
STRUCTURAL RELATIONSHIPS AND HYPOTHESES TESTING.

Items	Parameter	Estimate	P-value	C.R.	Decision
H1	Attitude ----------> intention	0.181	0.003	2.994	Supported
H2	Subjective norm ---> intention	0.129	0.003	2.945	Supported
H3	Subjective norm/attitude/intention	0.027[a] 0.026[b]			Supported
H4	Perceived behavioural control ---> intention	0.127	0.014	2.448	Supported
H5	Hedonism --------> intention	0.236	***	4.381	Supported
H6	Habit ----------> intention	0.526	***	8.543	Supported
H7	Perceived knowledge -> attitude	0.584	***	9.895	Supported
H8	Perceived knowledge -> subjective norm	0.324	***	5.240	Supported
H9	Perceived knowledge -> perceived behavioural control	0.389	***	6.282	Supported
H10	Intention ----------> behaviour	0.701	***	12.595	Supported

Note: a denotes the direct effect from attitude on intention. b denotes the indirect effect from attitude on intention via subjective norm.

5. DISCUSSION AND CONCLUSION

This study primarily aimed to examine the hypothesized extended TPB model that incorporated subconscious aspect (i.e., habit), impulsive aspects (hedonic motivation), perceived knowledge, and the use intention of e-cigarettes. The TPB as the most popular theory used in various marketing studies (Wang et al., 2021a; Wang & Wong, 2021). Studies confirmed that an individual's attitude, SN and PBC positively influenced his/her use intention of e-cigarettes. Specifically, attitude played the most important determinant role in predicting one's intention ($\beta = 181$, $p < 0.01$) compared to SN and PBC. This corresponds with Wang (2020) demonstrated that attitude is one of the many factors that determine behaviour, and it seems to be the most important predictor of intention and behaviour (Wang et al., 2020b). SN functions as a social pressure from significant others (e.g., close-friends, relatives, co-workers, etc.) and inspires individuals to perform a given behaviour at a diverse macro-level setting (Ulker-Demirel & Ciftci, 2020). Our results showed that SN is the second important predictor of intention ($\beta = 0.129$, $p < 0.01$). This finding corresponds with Wang et al. (2021c) findings that SN had a significant influence on intention. This study's results showed that PBC positively influenced individual's intention to use e-cigarettes ($\beta = 0.127$, $p < 0.05$). This result stands in line with many previous studies showing that a higher level of confidence to perform a given behaviour leads to a high level of intention to purchase products or services (Liu et al., 2020; Wang et al., 2021c). Meanwhile, this study showed that intention had a high correlation with actual behaviour ($\beta = 0.707$, $p < 0.001$). Many researchers asserted that intention should be considered as a single and best predictor of actual behaviour (Ajzen, 1991; Wang et al., 2019), although in certain circumstances, the actual behaviour did not always reflect the stated behavioral intention (Wang et al., 2021e). This finding suggests that an individuals' intention significantly influenced their actual behaviour of using e-cigarettes.

Although TPB plays essential role in determining one's intention and behaviour in marketing. Nevertheless, the TPB ignores some essential factors such as spontaneous choices and feelings (Ulker-Demirel & Ciftci, 2020), specifically, unconscious/subconscious components and impulsive components (Wang et al., 2021c). This study proposed habit represents an individual's unconscious and subconscious motivation that determine one's intention. The results showed that habit positively influenced young generation's use intention of e-cigarettes ($\beta = 0.526$, $p < 0.001$), and it is the most important antecedent of all predictors of intention. This means that individual's intention to use of e-cigarettes is derived from keeping certain use traditional tobacco cigarettes behaviours (e.g., hand-to-mouth action and vapor production) whether they look for quite smoke or instead of traditional tobacco cigarettes.

The hedonism of use e-cigarettes provides additional theoretical contributions to the marketing. The hedonic motivation is a distinct construct from the variables of TPB which represents an individual's personal feelings and spontaneous choices (Wang et al., 2021c). Our results indicated that hedonism positively influenced one's intention

to use e-cigarettes with $\beta = 0.236$, $p < 0.001$. This corresponds with previous studies showed that hedonic motivation can be considered as an extra predictor with TPB model (Wang et al., 2021a; Wang et al., 2021c). In other words, the TPB overlook one's spontaneous construct that can influence his or her decision-making process. The hedonism can be considered as an additional construct that incorporate into TPB to enhance its predictive capacity.

Lastly, the results showed that perceived knowledge positively influenced one's attitude, SN, and PBC towards intention to use e-cigarettes. Ideally, more knowledgeable consumers knowing products or services usually make reasonable decision-making process (Wang et al., 2020a). However, as there is a huge debate of whether safe or not to use e-cigarettes compare to traditional combustible cigarettes or use it to quite traditional combustible cigarettes smoking behaviours. Hence, leading to a lack of perceived knowledge about cigarettes including e-cigarettes among Chinese smokers (Chinese Center for Disease Control and Prevention, 2019). This study investigated the influence of perceived knowledge of universal cigarettes/e-cigarettes products on individuals' attitude, SN, and PBC. The results indicated that perceived knowledge positively influenced young generation's attitude ($\beta = 0.389$, $p < 0.001$), SN ($\beta = 0.324$, $p < 0.001$) and PBC ($\beta = 0.584$, $p < 0.001$) towards intention to use e-cigarettes. The findings denoted those Chinese young e-cigarettes' consumers are more concerned about the harmful information about the e-cigarettes and willing to purchase and use of e-cigarettes.

The results of this study also suggest certain practical implications. Perceived knowledge shapes an individual's attitude, SN and PBC as perceived knowledge significantly influenced attitude, SN and PBC, leading to intention to use e-cigarettes. Cigarette's education should be a part of school routine and government's campaign by publishing correct products information. Information on reduced e-cigarettes usage should be advertised and promoted whether in campus or public.

As individual's attitude, SN and PBC positively influenced intention to use e-cigarettes. It can be said, Chinese young generations who have more positive attitudes will develop stronger intention to purchase and use e-cigarettes. They will have more confidence to control non-rational factors and overcome obstacles that may influence their purchasing or using e-cigarettes behaviours. Meanwhile, individuals develop a positive concept of e-cigarettes will result in a high level of intention to continue to use e-cigarettes in future. Considering many traditional combustible cigarettes producers transfer their products to e-cigarettes, hence, e-cigarettes marketers are encouraged to disseminate their novel products through formal an informal communication channels while focusing on creating a positive brand image for potential users. Also, e-cigarettes marketers need to promote their products to the public, such as creating a strong connection between their young customers and themselves, thus, the post-users will voluntarily spread such products to their significant others. Since the Chinese regulation restricted that e-cigarette cannot be purchased from offline stores, e-cigarettes marketers need to make a strong bond with their customers via online, such as blog, webchat group, official accounts, to guide those customers to purchase and use their products in a convenient way.

Furthermore, the results demonstrated that many e-cigarettes' users use e-cigarettes for a hedonic purpose, and many of them use e-cigarettes due to habit reason. Thus, e-cigarettes marketers should highlight their products' physical attributes, such as unique flavors, fashionable compared to traditional combustible cigarettes and novel packing. Meanwhile, they also need to demonstrate that e-cigarettes have similar physical sensation like combustible smoking. E-cigarettes' wholesalers and small retailers can provide some free products for potential consumers leading them to touch this new cigarette products.

This study contains certain limitations. First, the study scope was limited in Xuzhou, Jiangsu province, China, and the sample respondents were university students. Thus, the findings of this study cannot be generalized to other places and societies, and there is an insufficient representation of the population. Second, only thirty-seven female students participated in survey. Thus, further studies should include detail demographic characteristics to enable prediction of intention to use e-cigarettes. Last, rare studies applied TPB to investigate cigarettes users' perspectives towards e-cigarettes, the model used in this study should be replicated and tested in other locations to further confirm its validity and usefulness.

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