

## **Marketing a healthier choice: Exploring young people's perception of e-cigarettes**

### **Abstract**

**Background:** As a consequence of insufficient evidence on the safety and efficacy of e-cigarettes, there has been much controversy surrounding its use in the tobacco control field.

**Objectives:** We sought to examine smoking prevalence and salience of e-cigarettes marketing stimuli, and whether these affected attitude-relevant responses toward e-cigarettes and intention to vape.

**Methodology:** A convenience sampling procedure was used to recruit 436 ever- and never-smokers aged 18 or older in the UK. Correlation analysis and structural equation modelling tested direct and indirect relationships between salience of e-cigarettes marketing messages, attitude relevant variables, and intention to vape.

**Results:** Just over half of never-smokers were females compared to two-thirds of ever-smokers who were males. Majority of respondents comprising 56% of ever-smokers and 63% of never-smokers had seen e-cigarette promotion in stores or gas stations. Only a third or less of ever- and never-smokers had seen e-cigarette promotion on TV, newspaper or online. Among never-smokers, association between e-cigarette promotion awareness and intention to vape was significant ( $B = .59, p < .001$ ) but this was mediated by conative beliefs ( $B = .84, p = .05$ ). Among ever-smokers, awareness of e-cigarette significantly affected cognitive ( $B = .97, p = .01$ ) and conative attitudes ( $B = .88, p = .001$ ), which in turn affected intention to vape in future ( $B = .45, p < .001$ ).

**Conclusions:** Our results suggest that never-smokers might think of vaping instead of smoking cigarettes in future. Likewise, ever-smokers might have intention to vape if they think favourably about promotional stimuli and develop positive emotions towards vaping. Our study supports the need for more scientific evidence on the efficacy of e-cigarettes to encourage vaping as a substitute to smoking.

**Introduction:** The purpose of this paper is to report on the early findings from a study of young adult's perceptions of electronic cigarettes (also called e-cigarettes or electronic nicotine delivery systems) and hereafter referred to as e-cigarettes. These initial findings form the very early outputs of a larger research project planned over four years of data collection. The analysis outlined in this paper represents first two years of data collection. It is expected that by sharing our project at this very early stage the research team can gain valuable feedback to help influence and inform the remaining data collection and analysis phases. This paper provides a brief perspective on the current academic commentary, states the purpose of the research and outlines the design of the research. Initial results are discussed and a number of concluding comments made.

## **Background**

The use of electronic cigarettes has generated much controversy in the tobacco control field. This is partly because of insufficient evidence on the safety of e-cigarettes and its efficacy for tobacco smoking cessation (Benowitz and Goniewicz, 2013; Bullen et al., 2013). Some researchers have argued that use of e-cigarettes may offer a new opportunity for smokers who are unable or unwilling to quit, thereby reducing their chances of getting smoking related diseases (McNeill et al., 2015; Zhu et al., 2013). Others have suggested that e-cigarettes should be banned for lack of safety and efficacy data. In line with this, some countries such as Australia, Canada, and Norway have banned e-cigarettes although these are highly visible and available on the internet (Adkison et al., 2013). As such, smokers in countries with e-cigarettes regulations may still access and purchase these online. The UK government is yet to ban e-cigarettes partly because of the debate surrounding e-cigarettes. A study by Public Health England suggested that e-cigarettes are not completely risk free although when compared to tobacco smoking evidence suggested that they carry a fraction of the harm (Department of Health, 2015). E-cigarette use is increasing in the UK with one out of every 20 smokers using e-cigarettes.

The extant literature suggests that consumers' responses toward marketing stimuli may be of a cognitive, affective or conative nature (Zajonc and Markus, 1982; Zajonc, 1980). Smokers' cognitive responses to messages may reflect favourable or unfavourable evaluations of the attitude object, i.e. the stimuli (Fishbein and Ajzen, 1975; Hill, 1981). In this regard, tobacco marketing messages that promote health benefits of e-cigarettes may create favourable cognitive responses among consumers (Rüther et al., 2015). Such favourable attitudinal responses to marketing stimuli (e.g. decline in health risks or reduce cravings) may lead to uptake of use.

Consumers may also hold affective responses toward the attitude object. Here again, consumers may have favourable or unfavourable feelings towards e-cigarettes or e-cigarette marketing stimuli. Smokers who may feel good about e-cigarettes use would appear to hold positive emotions but those who may indicate that the mere thought of e-cigarettes is disgusting would seem to hold negative emotions or attitude (Ajzen, 1980). Likewise, smokers may also respond in a conative manner with respect to the attitude object, i.e. the promotional message. Such reactions to the message or object could be behavioural intentions (i.e. what they plan to do or would do). So, smokers with negative conative attitudinal responses toward e-cigarettes messages may reject e-cigarettes use but those with positive attitudes may express intentions to use, attend smoking cessation sessions and/or encourage their peers to vape.

**Contribution:** Although studies have examined smoking prevalence and attitude-relevant responses toward e-cigarettes (Dockrell et al., 2013; Borland, 2011), only a few studies have assessed the three distinct categories of attitudinal responses toward attitude object. This study adds to the existing literature by assessing ever smokers and never smokers' cognitive,

affective and conative attitudinal responses to e-cigarettes promotions. To the extent that smokers' attitude toward e-cigarettes messages can shape future smoking behaviours, our results will provide a better understanding of the underlying reactions to e-cigarettes use and messages, and unravel the characteristics of potential e-cigarette users. We hypothesise that ever and never smokers would hold favourable attitudes toward health benefits of electronic cigarette use. Given that the three components reflect the same underlying attitude, we also propose that these three would correlate to some degree. On account that smokers with favourable attitudes about e-cigarettes are more likely to vape as a substitute to regular cigarette smoking, we hypothesised that salience of tobacco marketing stimuli will affect attitude relevant components, which will in turn affect future intention to vape.

### **Research Purpose and Objectives:**

**Methodology:** The study was a cross-sectional pilot survey that took place on a university campus in the UK. Participants were recruited from a non-probability convenient sample of UK student population. The aim was to recruit ever smokers and never smokers to examine their tendency of vaping or using e-cigarettes in future. The inclusion criteria only permitted participants of 18 or older. Ethical approval was granted before the study was conducted.

Participants were briefly introduced to the questionnaire administration procedure and the goal of the study. The researchers handed out the questionnaires to participants and sought their consent to complete. The questionnaire comprising 35 questions was designed to examine attitude-relevant responses to e-cigarettes use and awareness of e-cigarettes messages. The questions were adapted from existing questionnaires about e-cigarettes (Rash and Copeland, 2008) and additional questions were added to gain deeper insights regarding e-cigarettes. Most questions were answered on a dichotomised scale "yes" or "no". However, a few questions were answered on a three point scale "large extent", "some extent" or "lesser extent." Participants answered on demographics (age and sex) and smoking status. Overall 436 participants responded to our survey. For the purpose of this study former smokers and current smokers were combined to form "ever smokers".

**Measures: Awareness of e-cigarettes marketing messages:** Participants were asked to respond to their awareness of e-cigarettes marketing stimuli in the media, in stores and from friends and family. The question asked was: "Which of the following sources have you ever heard about e-cigarettes (TV, Newspaper, in stores, news story on TV, news story in newspapers, and online)?" with response options "yes" and "no."

**Attitude-relevant responses toward e-cigarettes:** Based on the multicomponent dimensions of attitudinal responses toward e-cigarettes, 4 cognitive, 3 affective and 3 conative questions were asked to examine participants' attitude-relevant responses toward the attitude object. Dichotomised responses options "yes" and "no" were provided for each of the questions asked.

**Alternative Behaviours:** A measure of behaviour is a smoker's willingness to perform. One item was used: "Do you intend to use e-cigarettes in future?", Response options for this are: "yes" and "no".

**Statistical Analyses:** Statistical analyses were performed with STATA (version 14). Smoking prevalence rates were computed to examine the extent to which the sample varied by smoking status. Reliability analyses were conducted to show the internal consistency of the items used, which revealed Cronbach's alpha of 0.52 or more for all the scales tested. Confirmatory factor analysis (CFA) was performed to assess whether the constructs were correlated. This revealed that overall model fit was acceptable. Model fit statistics were all within the acceptable criteria. Structural equation modelling (SEM) was then performed to test the direct and indirect

relationships between salience of e-cigarettes marketing messages, attitude relevant variables, and intention to vape.

## **Results**

Our findings showed that 46% of never smokers compared to 65% of ever smokers were males aged 18-39 years. 35% of ever smokers and 54% of never smokers were females aged 19-39. Among those who were aware of e-cigarette promotion, 26% of ever smokers compared to 31% of never smokers had heard about e-cigarettes online, 22% of ever smokers and 30% of never smokers had seen it on TV, 8% of ever smokers and 13% of never smokers had read about it in advertising newspaper, 17% of ever smokers and 16% of never smokers had heard as news story on TV, 9% of ever smokers and 13% of never smokers had read about it in a newspaper, and 56% of ever smokers compared to 63% of never smokers had seen it in stores or gas stations. Cognitive attitudinal responses revealed that 40% of never smokers compared to 42% of ever smokers thought that e-cigarettes are not safe enough to use, 22% of never smokers and 14% of ever smokers thought that e-cigarettes would not be mistaken for regular cigarettes, and 13% of never smokers and 19% of ever smokers thought that e-cigarettes do not resemble regular cigarettes.

Affective response depicted that 11% of never smokers compared to 20% of ever smokers felt that e-cigarettes are embarrassing to use in public while 26% of never smokers compared to 33% of ever smokers felt that vaping will eradicate the smell of using regular cigarettes. 19% of never smokers compared to 31% of ever smokers felt that e-cigarettes use will reduce craving for regular cigarettes. 23% of never compared to 34% of ever smokers felt that e-cigarettes use will not satisfy their desire to smoke. Conative attitudinal responses showed that 26% of never smokers compared to 40% of ever smokers thought that e-cigarettes use will help them to reduce smoking regular cigarettes, whereas 19% of never smokers compared to 31% of ever smokers believed that e-cigarettes will help them to give up regular cigarettes use. The findings depicted that 27% of never smoker compared to 13% of ever smokers believed that vaping will help them to spend more time with friends and family. We found that 13% of ever smokers compared to 5% of never smokers said they intend to use e-cigarettes in future.

CFA results depicted positive correlations between cognitive, affective and conative attitudes for ever smokers and never smokers. SEM examined associations between awareness of e-cigarettes promotions, attitude-relevant constructs and intention to use e-cigarettes. This showed borderline significance between e-cigarettes promotion awareness and conative attitudes among never smokers ( $B=.84$ ,  $p\text{-value} = .05$ ), which in turn significantly affected intentions to use e-cigarettes ( $B= .59$ ,  $p\text{-value} < .001$ ). Among ever smokers, awareness of e-cigarettes significantly affected cognitive ( $B= .97$ ,  $p\text{-value} = .01$ ) and conative attitudes ( $B= .88$ ,  $p\text{-value} = .001$ ), which in turn affected intention to vape in future ( $B= .45$ ,  $p\text{-value} < .001$ ).

## **Concluding comments**

We evaluated smoking prevalence and salience of e-cigarettes marketing stimuli, and whether these affected attitude-relevant responses toward e-cigarettes and intentions to vape. Positive correlations between cognitive, affective and conative responses were reported among ever smokers and never smokers. Consistent with past research (Dockrell et al., 2013), our findings suggest that favourable cognitive responses toward a promotional stimuli can positively affect emotional responses, which in turn will facilitate positive associations with conative attitudes. Among ever smokers, awareness of e-cigarettes promotion affected their conative attitudes, which also affected their intention to vape. Our results suggest that ever smokers might think of vaping instead of smoking in future (Caponnetto et al., 2013), because of positive connotations of vaping as a result of marketing messages. Likewise our findings that never smokers' awareness of marketing stimuli will positively affect conative responses and intention to vape, suggest that those contemplating of smoking might opt for a perceived healthier choice

- vaping. Our study supports the need for more scientific evidence on the efficacy of e-cigarettes to encourage vaping as a substitute to smoking.

## References

- Ajzen, I., 1980. *Attitude Structure and behavior*. In A.R. Pratkanis, S.J. Breckler and A.G. Greenwald (eds), *Attitude Structure and Function*. Psychology Press, pp. 241-250.
- Adkison, S.E., et al., 2013. Electronic nicotine delivery systems: international tobacco control four-country survey. *American Journal of Preventive Medicine*, 44(3), pp. 207–215.
- Benowitz, N.L., and Goniewicz, M.L. 2013. The regulatory challenge of electronic cigarettes. *Journal of American Medical Association*. 310(7), pp. 685–686.
- Borland, R., 2011. Electronic cigarettes as a method of tobacco control. *British Medical Journal*, 343, d6269. doi:10.1136.
- Bullen, C., et al., 2013. Electronic cigarettes for smoking cessation: a randomised controlled trial. *Lancet*. S0140-6736(13), pp. 61842–61845.
- Caponnetto, P., et al., 2013. Efficiency and safety of an electronic cigarette (ECLAT) as tobacco cigarettes substitute: a prospective 12-month randomized control design study. *PLoS One*. 8(6), pp. e66317.
- Department of Health, 2015. A report commissioned by Public Health England Department of Health. Protecting and improving the nations' health.
- Dockrell, M., et al., 2013. E-Cigarettes: Prevalence and attitudes in Great Britain. *Nicotine & Tobacco Research*, 15 (10), pp. 1737-1744.
- Fishbein, M., and Ajzen, I., 1975. *Belief, attitude, intention, and behavior: An introduction to theory and research*. Reading, Mass.: Addison-Wesley. Greenwald.
- Hendricks, P.S., Delucchi, K.L., and Hall, S.M., 2010. Mechanisms of change in extended cognitive behavioral treatment for tobacco dependence. *Drug Alcohol Dependence*. 109, pp. 114–119.
- Hill, R.J., 1981. Attitudes and behaviour. In M. Rosenberg and R. H. Turner (eds), *Social Psychology, sociological perspectives*, pp. 347-377. New York: Basic.
- McNeill et al., 2015. E-cigarettes: an evidence update. A report commissioned by Public Health England Department of Health. Protecting and improving the nations health.
- Rash, C.J., and Copeland, A.L., 2008. The Brief Smoking Consequences Questionnaire-Adult (BSCQ-A): development of a short form of the SCQ-A. *Nicotine & Tobacco Research*, 10(11), pp. 1633–1643.
- Rüther, et al., 2015. Electronic cigarettes—Attitudes and use in Germany. 18 (5), *Nicotine & Tobacco Research*. pp. 660-669
- Zajonc, R.B., 1980. "Feeling and Thinking: Preferences Need No Inferences," *American Psychologist*, 35, pp. 151-175.

Zajonc, R.B., and Markus, H., 1982. "Affective and Cognitive Factors in Preferences," *Journal of Consumer Research*, 9, pp. 123-131.

Zhu et al., 2013. The use and perception of electronic cigarettes and snus among the U.S. population. *PLUS One*. 8(10), e79332.