

# Electronic Cigarettes as a Smoking Cessation or as a Gateway to Start Smoking?

Nurul Husna Akhmar<sup>1\*</sup>, Hanum Hassan<sup>2</sup>

Norhasyikin Rozali<sup>3</sup>, Siti Intan Diyana Ishak<sup>4</sup>, Alia Ashrani Azmi<sup>5</sup>

<sup>1\* 3 4 5</sup> Postgraduates Students & <sup>2</sup> Senior Lecture School Of Human Development and  
Techocommunication (iKOM), Pusat Pengajian Unimap, Perlis

(Correspondence: [husnarmies@gmail.com](mailto:husnarmies@gmail.com))<sup>1\*</sup>

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## Abstract

Nowadays, the use of electronic cigarettes are increasingly popular among teens and adults. Electronic cigarettes use battery power to operate. Electronic cigarettes function is very similar to a conventional cigarette, namely supply of nicotine to the user. However, the electronic cigarette does not produce smoke but vapor to be inhaled. The objectives of the concept paper is to examine the effectiveness of using electronic cigarettes as an aid to stop smoking or as a tool to initiate smoking activities. The method use for this conceptual paper by using secondary data resources at online database and library collection. Finding show from this conceptual paper is a great need in designing strategies to deal with the increased use of electronic cigarettes. In order to conclude, more studies related to electronic cigarettes should be carried out to teenagers and adults. In addition, studies to look at the safety of the use of electronic cigarettes in the long term should be carried out.

Keywords: Electronic Cigarette, Vape, Cigarette Cessation

## Introduction

Electronic cigarettes are electronic devices that deliver nicotine in vapor form, which includes a variety of products, shapes and sizes. There is a small-sized electronic cigarette which resembles like a regular cigarette and there are also medium-sized electronic cigarette which resembles a pen and known as e-hookahs and vape pen. Electronic cigarettes, also known as electronic nicotine delivery systems (ENDS), e-hookah and vape. The electronic cigarette has a large tank known as personal Vaporisers (APVs), also known as modes. The electronic cigarette works by using battery power where propylene glycol containing nicotine and flavorings is heated to create an aerosol to be inhaled (Grana, Benowitz & Glantz, 2013). Electronic cigarettes are usually divided into three main parts, namely battery, heating element, and a cartridge or tank. Electronic cigarettes are designed to deliver nicotine to smokers without the combustion of conventional tobacco products. However, there is also the electronic cigarette does not contain nicotine.

The electronic cigarette was invented in 2003 by a pharmacist Hon Lik in China. The electronic cigarette first appeared in China in 2004 and the same year, electronic cigarettes sold online (Solheim, Papa dan Lefton, 2014). The electronic cigarette was introduced in the US market in 2007 (Yamin, Bitton, & Bates, 2010). The popularity of electronic cigarettes are becoming increasingly popular with its growth in countries such as the United States, sales of electronic cigarettes in the United States in 2007 was \$ 5 million and up to 2014 sales to 2.2 billion dollars (Kornfield, Huang, Vera, & Emery, 2015). Even an increase in promotional expenses (Kornfield et al., 2015) has also led to an ad about electronic cigarettes appear across multiple media channels, especially television, billboards and social media that cause electronic cigarettes spread rapidly and widely among the population in the United States. In 2013 up to 2014 by 81% of youth use electronic cigarettes as interesting flavors on the electronic cigarette (Centers for Disease Control and Prevention, 2013).

### **Electronic Cigarette As a Tool to Help Smoker Stop Smoking**

Electronic cigarettes are often sold as smoking aids (Tan, Bigman, & Sanders-Jackson, 2014). The study was done by Etter and Bullen (2011) found that electronic cigarettes are used primarily by ex-smokers as an aid to smoking cessation. These aids are used as a way to avoid smokers to abstain from smoking cessation attempt. Studies show that as much as 51% of users consider electronic cigarettes, and potentially useful to help them stop smoking. These aids are used as a way to avoid smokers to abstain from smoking cessation attempt. Moreover, Dockrell, Morrison, Bauld and McNeill (2013) also found that the use of electronic cigarettes in the British is as a measure of smokers attempt to quit smoking. This is because as many as 170,000 people in British smokers have switched to electronic cigarettes. The use of electronic cigarettes among adults who had never smoked at the British also found is very little. Dockrell, Morrison, Bauld and McNeill (2013) argues that British smokers will benefit the disclosure of information about the effectiveness of the use of electronic cigarettes at the same time can improve the health of the public against the use of conventional cigarettes.

In Barbeau, Barbeau, Burda and Siegel (2013) research about the effectiveness of the use of electronic cigarette nicotine replacement therapy compared to electronic cigarette users who successfully quit smoking. Smokers were found to be difficult to stop smoking when nicotine therapy. They reportedly often failed repeatedly when using the nicotine patch, nicotine gum, and medications that controlled for smoking cessation. However, after switching to electronic cigarettes they managed to avoid a conventional cigarette where the effect is more dangerous to themselves and the public. Therefore, electronic cigarettes may be effective as an aid to stop smoking (Brown, Beard, Kotz, Michie, & West, 2014; Bullen et al., 2010b; R Polosa et al., 2011; Riccardo Polosa, Rodu, Caponnetto, Maglia, & Raciti, 2013).

The use of electronic cigarettes provide a different experience compared to conventional cigarette smoking experience. In the study of Chen, Zhu and Conway (2015) about the discussion of electronic cigarettes and shisha users in online communities have found that typically, smokers who want to quit smoking will experience psychological warfare whether to

quit or return to conventional cigarettes. The situation is different with smokers who switch to using electronic cigarettes as a tool to quit smoking. They do not suffer from psychological warfare to stop because the electronic cigarette has successfully turned their attention from conventional cigarettes.

Bullen and colleagues (2013) conducted a study of 657 people in New Zealand smokers motivated to quit smoking. They were divided into three groups where the first group to use the electronic cigarette which contains 16 milligrams (mg) of nicotine, the second group of electronic cigarettes does not contain nicotine, and the third group with 21 mg nicotine patch therapy. The study found that 7.3% of the group of electronic cigarettes containing nicotine are still continuing therapy while the electronic cigarette does not contain nicotine consisting of 4.1% and 5.8% of study participants from the 21 mg nicotine patch therapy was continued. The study showed that electronic cigarettes are moderately effective in helping smokers motivated to quit smoking.

However in another study conducted by Caponnetto, Auditore, Russo, Cappello and Polosa (2013) using 300 smokers who were motivated to quit smoking as a sample. The samples were divided into three groups which is group A with electronic cigarette with 7.2 mg nicotine for 12 weeks, while group B used the electronic cigarette with 7.2 mg for 6 weeks and 6 weeks remaining nicotine levels derived at 5.4 mg, and group C with cigarette electronic which does not contain nicotine for 12 weeks. A significant reduction of tobacco use in each study group in the first week. But the difference can be seen in the 52nd week in which 13% of group A continued therapy, while 9% of Kumpalan B and 4% of group C. According to the study, the use of electronic cigarettes in smokers who are motivated to stop smoking addicted smokers to reduce cravings and promote the cessation of smoking conventional continuous without any side effects.

Dawkins, Turner, Hasna and Soar, (2012) conducted a study with 86 smokers on electronic cigarette use contains 18 mg nicotine and cigarettes do not contain nicotine. Electronic cigarettes were found to reduce the desire to smoke after the study participants used an electronic cigarette for 20 minutes. In the study, it was found that the use of electronic cigarettes containing biotin is important for smokers who comprise men.

In a study conducted by Bullen and colleagues, (2010) of 40 smokers have used four methods of electronic cigarettes containing 16 mg of nicotine, electronic cigarettes does not contain nicotine, nicotine inhaler, and conventional cigarettes. In the study it was found that study participants who use the electronic cigarette contains 16 mg of nicotine less desire to smoke compared to study participants who use the electronic cigarette does not contain nicotine and can not be differences of study participants who use the nicotine inhaler and conventional cigarettes. The use of electronic cigarettes containing nicotine is 16 mg reduced the desire to return a cigarette smoker. This is because the electronic cigarette has been supplying the needs nicotine to smokers to get rid of a conventional cigarette addiction.

Polosa and colleagues (2011) have used electronic cigarettes containing nicotine 7.4 mg of 40 smokers who are not motivated to smoke. It was found that there was a 50% reduction in the number of conventional cigarettes smoked by 12.5% of study participants during the week of the 24th, while 22.5% of study participants still continue therapy with the use of electronic cigarettes containing 7.4 mg of nicotine without conventional cigarettes. Moreover, in another study Polosa and colleagues (2013) have extended the review period from 24 weeks to 24 months and found that 12.5% of study participants managed to reduce the use of conventional cigarettes for more than 50% of daily consumption, while 12.5% of study participants still continue therapy without conventional cigarettes. The use of electronic cigarettes in the long term among smokers who are not ready to quit smoking can reduce the consumption of conventional cigarettes on a daily basis.

Caponnetto, Auditore, Russo, Cappello and Tolosa (2013) conducted a study of 14 patients with schizophrenia who smoke and do not intend to stop smoking. Study participants are supplied with electronic cigarettes that contain 7.4 mg nicotine. The study was conducted over 12 months. In the week to 52 found that there was a reduction of 50% use of conventional cigarettes per day by 50% of study participants, while 14.3% of study participants still continue to use the electronic cigarette contains 7.4 mg of nicotine without conventional cigarettes. The use of electronic cigarettes causes a decrease in the use of conventional cigarettes is significant in patients with schizophrenia who do not plan to stop smoking without causing side effects to the study participants.

Franck, Budlovsky, Windle, Filion and Eisenberg (2014) conducted a study to evaluate the efficacy and safety of electronic cigarettes as a smoking cessation aid. Promoting the use of electronic cigarettes as a smoking cessation has been studied in two groups of children (King, Alam, Promoff, Arrazola, & Dube, 2013; Pearson, Richardson, Niaura, Vallone, & Abrams, 2012; Pepper & Brewer, 2014; Sutfin, McCoy, Morrell, Hoepfner, & Wolfson, 2013) and adolescents (Dutra & Glantz, 2014; Pepper et al., 2013).

Nevertheless, there is still no research to confirm the electronic cigarette devices for smoking cessation (Franck, Budlovsky, Windle, Filion & Eisenberg, (2014). The presence of nicotine in liquid form has increased confidence smokers to use electronic cigarettes as smoking cessation aids (Barbeau et al., 2013; Caponnetto, Polosa, Auditore, Russo, & Campagna, 2011).

### **Electronic Cigarette as a Gateway to Start Smoking**

While electronic cigarettes are used as devices to smokers to quit smoking however, there are opinions that say that electronic cigarettes as a way for young people to start smoking (Trtchounian & Talbot, 2011). This is due to the desire to try electronic cigarettes is higher among youth after watching advertisement about the difference between the use of conventional cigarettes and electronic cigarettes (Pepper, Emery, Ribisl, Southwell, & Brewer, 2014).

Nowadays, many young adults are aware of the presence of the phenomenon of electronic cigarettes. Many of them are willing to try the electronic cigarette despite many studies showing the dependency of smokers to electronic cigarettes as a source of nicotine addiction. The phenomenon of electronic cigarettes causing many young people have the intention to start using electronic cigarettes (Pepper et al., 2013).

Yang, Salmon, Pang and Cheng (2015) in a study on media exposure and intentions to smoke among adolescents shows that media exposure of adolescents have a positive relationship in increasing desire for smoke. The youth is the largest in Twitter. Marketing of electronic cigarettes in Twitter will lead the youth who do not smoke will also be interested to try electronic cigarettes (Huang et al., 2014). In addition, the study found that teens who reported smoking more likely to try electronic cigarettes after viewing smoking-related electronic (Adkison et al., 2013; Pearson et al., 2012; Pepper et al., 2013; Regan, Promoff, Dube, & Arrazola, 2011).

Shiplo, Czoli and Hammond (2015) found that 10% to 30% of electronic cigarette users never conventional cigarettes before using the electronic cigarette. In the study Dutra and Glantz (2014) showed that the use of electronic cigarettes is associated with the use of conventional high smoking among adults and adolescents. In two other studies also found that users of electronic cigarettes was found to have the intention to start mneghisap conventional cigarettes and openness to start on conventional cigarettes at any time. (Bunnell et al., 2015; Coleman et al., 2015).

## **Conclusion**

Electronic cigarette utilize is related with higher rates of smoking initiation among youths, even among the individuals who might somehow or another have no slant to smoke. There is an enormous need to plan strategies that address the rising commonness of electronic cigarette utilize and re-standardization of smoking conduct to ensure our who and what is to come. The nonappearance of information on long haul security ought not be likened with wellbeing; such was the situation with cigarettes in the most recent century.

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## **Corresponding Author**

Nurul Husna Akhmar  
Posgraduate Students,  
School of Human Development and Telecommunication (iKOM),  
Universiti Malaysia Perlis (UniMAP), Perlis  
Malaysia

Email: [husnarmies@gmail.com](mailto:husnarmies@gmail.com)

## References

- Adkison, S. E., O'Connor, R. J., Bansal-Travers, M., Hyland, A., Borland, R., Yong, H. H., & Fong, G. T. (2013). Electronic nicotine delivery systems: International Tobacco Control Four-Country Survey. *American Journal of Preventive Medicine*, 44(3), 207–215. <https://doi.org/10.1016/j.amepre.2012.10.018>
- Barbeau, A. M., Burda, J., & Siegel, M. (2013). Perceived efficacy of e-cigarettes versus nicotine replacement therapy among successful e-cigarette users: a qualitative approach. *Addiction Science & Clinical Practice*, 8(1), 1–7. <https://doi.org/10.1186/1940-0640-8-5>
- Brown, J., Beard, E., Kotz, D., Michie, S., & West, R. (2014). Real-world effectiveness of e-cigarettes when used to aid smoking cessation: A cross-sectional population study. *Addiction*, 109(9), 1531–1540. <https://doi.org/10.1111/add.12623>
- Bullen, C., McRobbie, H., Thornley, S., Glover, M., Lin, R., & Laugesen, M. (2010a). Effect of an electronic delivery device (e-cigarette) on desire to smoke and withdrawal, user preferences and nicotine delivery: randomized cross-over trial. *Tob Control*, 19. <https://doi.org/10.1136/tc.2009.031567>
- Bullen, C., McRobbie, H., Thornley, S., Glover, M., Lin, R., & Laugesen, M. (2010b). 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. <https://doi.org/10.1136/tc.2009.031567>
- Caponnetto, P., Auditore, R., Russo, C., Cappello, G. C., & Polosa, R. (2013). Impact of an electronic cigarette on smoking reduction and cessation in schizophrenic smokers: A prospective 12-month pilot study. *International Journal of Environmental Research and Public Health*, 10(2). <https://doi.org/10.3390/ijerph10020446>
- Caponnetto, P., Polosa, R., Auditore, R., Russo, C., & Campagna, D. (2011). Smoking cessation with e-cigarettes in smokers with a documented history of depression and recurring relapses. *International Journal of Clinical Medicine*, 2(July), 281–284. <https://doi.org/10.4236/ijcm.2011.23046>
- Centers for Disease Control and Prevention (CDC). (2013). Tobacco product use among middle and high school students - United States, 2011 and 2012. *MMWR*. 62, 893–897.
- Chatterjee, K., Alzghoul, B., Innabi, A., & Meena, N. (2016). Is vaping a gateway to smoking: a review of the longitudinal studies. *International Journal of Adolescent Medicine and Health*, 1–7. <https://doi.org/10.1515/ijamh-2016-0033>
- Chen, A. T., Zhu, S.-H., & Conway, M. (2015). What Online Communities Can Tell Us About Electronic Cigarettes and Hookah Use: A Study Using Text Mining and Visualization Techniques. *Journal of Medical Internet Research*, 17(9), e220. <https://doi.org/10.2196/jmir.4517>
- Coleman, B. N., Apelberg, B. J., Ambrose, B. K., Green, K. M., Choiniere, C. J., Bunnell, R., & King, B. A. (2015). Association between electronic cigarette use and openness to cigarette smoking among US young adults. *Nicotine and Tobacco Research*, 17(2), 212–218. <https://doi.org/10.1093/ntr/ntu211>

- Dawkins, L., Turner, J., Hasna, S., & Soar, K. (2012). *The electronic-cigarette: Effects on desire to smoke, withdrawal symptoms and cognition*. *Addictive Behaviors* (Vol. 37).  
<https://doi.org/10.1016/j.addbeh.2012.03.004>
- Dockrell, M., Morrison, R., Bauld, L., & McNeill, A. (2013). E-cigarettes: prevalence and attitudes in Great Britain. *Nicotine & Tobacco Research : Official Journal of the Society for Research on Nicotine and Tobacco*, 15(10), 1737–44. <https://doi.org/10.1093/ntr/ntt057>
- Dutra, L. M., & Glantz, S. A. (2014). Electronic cigarettes and conventional cigarette use among U.S. adolescents: A cross-sectional study. *JAMA Pediatrics*, 168(7), 610–617.  
<https://doi.org/10.1001/jamapediatrics.2013.5488>
- Etter, J. F., & Bullen, C. (2011). Electronic cigarette: Users profile, utilization, satisfaction and perceived efficacy. *Addiction*, 106(11), 2017–2028. <https://doi.org/10.1111/j.1360-0443.2011.03505.x>
- Franck, C., Budlovsky, T., Windle, S. B., Filion, K. B., & Eisenberg, M. J. (2014). Electronic cigarettes in North America: History, use, and implications for smoking cessation. *Circulation*, 129(19), 1945–1952. <https://doi.org/10.1161/CIRCULATIONAHA.113.006416>
- Grana, R., Benowitz, N., & Glantz, S. A. (2013). Background paper on E-cigarettes (electronic nicotine delivery systems). *Center for Tobacco Control Research and Education, University of California, San Francisco, a WHO Collaborating Center on Tobacco Control. Prepared for World Health Organization Tobacco Free Initiative*, (December), 1–109. Retrieved from <http://pvw.escholarship.org/uc/item/13p2b72n>
- Huang, G. C., Unger, J. B., Soto, D., Fujimoto, K., Pentz, M. A., Jordan-Marsh, M., & Valente, T. W. (2014). Peer influences: The impact of online and offline friendship networks on adolescent smoking and alcohol use. *Journal of Adolescent Health*, 54(5), 508–514.  
<https://doi.org/10.1016/j.jadohealth.2013.07.001>
- King, B. A., Alam, S., Promoff, G., Arrazola, R., & Dube, S. R. (2013). Awareness and ever-use of electronic cigarettes among U.S. adults, 2010–2011. *Nicotine and Tobacco Research*, 15(9), 1623–1627. <https://doi.org/10.1093/ntr/ntt013>
- Kornfield, R., Huang, J., Vera, L., & Emery, S. L. (2015). Rapidly increasing promotional expenditures for e-cigarettes. *Tobacco Control*, 24(2), 110.
- Pearson, J. L., Richardson, A., Niaura, R. S., Vallone, D. M., & Abrams, D. B. (2012). E-cigarette awareness, use, and harm perceptions in US adults. *American Journal of Public Health*, 102(9), 1758–1766. <https://doi.org/10.2105/AJPH.2011.300526>
- Pepper, J. K., & Brewer, N. T. (2014). Electronic nicotine delivery system (electronic cigarette) awareness, use, reactions and beliefs: a systematic review. *Tobacco Control*, 23, 375–384.  
<https://doi.org/10.1136/tobaccocontrol-2013-051122>
- Pepper, J. K., Emery, S. L., Ribisl, K. M., Southwell, B. G., & Brewer, N. T. (2014). Effects of advertisements on smokers' interest in trying e-cigarettes: the roles of product comparison and visual cues. *Tobacco Control*, 23 Suppl 3(suppl\_3), iii31–6.  
<https://doi.org/10.1136/tobaccocontrol-2014-051718>
- Pepper, J. K., Reiter, P. L., McRee, A. L., Cameron, L. D., Gilkey, M. B., & Brewer, N. T. (2013). Adolescent males' awareness of and willingness to try electronic cigarettes. *Journal of Adolescent Health*, 52(2), 144–150. <https://doi.org/10.1016/j.jadohealth.2012.09.014>

- Polosa, R., Caponnetto, P., Morjaria, J. B., Papale, G., Campagna, D., & Russo, C. (2011). Effect of an electronic nicotine delivery device (e-cigarette) on smoking reduction and cessation: a prospective 6-month pilot study. *BMC Public Health*, *11*. <https://doi.org/10.1186/1471-2458-11-786>
- Polosa, R., Rodu, B., Caponnetto, P., Maglia, M., & Raciti, C. (2013). A fresh look at tobacco harm reduction: the case for the electronic cigarette. ... *Reduction ...*, *10*(1), 19. <https://doi.org/10.1186/1477-7517-10-19>
- Regan, a. K., Promoff, G., Dube, S. R., & Arrazola, R. (2011). Electronic nicotine delivery systems: adult use and awareness of the “e-cigarette” in the USA. *Tobacco Control*, 19–23. <https://doi.org/10.1136/tobaccocontrol-2011-050044>
- Shiplo, S., Czoli, C. D., & Hammond, D. (2015). E-cigarette use in Canada: prevalence and patterns of use in a regulated market. *BMJ Open*, *5*(8), e007971–e007971. <https://doi.org/10.1136/bmjopen-2015-007971>
- Solheim, J., Papa, A., & Lefton, C. (2014). It’s Electric!. *Journal of Emergency Nursing*, *40*(1), 75–77.
- Sutfin, E. L., McCoy, T. P., Morrell, H. E. R., Hoepfner, B. B., & Wolfson, M. (2013). Electronic cigarette use by college students, *131*(3), 214–221. <https://doi.org/10.1016/j.drugalcdep.2013.05.001>
- Tan, A. S. L., Bigman, C. a, & Sanders-Jackson, A. (2014). Sociodemographic correlates of self-reported exposure to e-cigarette communications and its association with public support for smoke-free and vape-free policies: results from a national survey of US adults. *Tobacco Control*, 1–8. <https://doi.org/10.1136/tobaccocontrol-2014-051685>
- Trtchounian, A., & Talbot, P. (2011). Electronic nicotine delivery systems: is there a need for regulation? *Tobacco Control*, *20*(1), 47–52. <https://doi.org/10.1136/tc.2010.037259>
- Yamin, C. K., Bitton, A., & Bates, D. W. (2010). E-cigarettes: a rapidly growing Internet phenomenon. *Annals of Internal Medicine*, *153*(9), 607–609.
- Yang, F., Salmon, C. T., Pang, J. S., & Cheng, W. J. Y. (2015). Media exposure and smoking intention in adolescents: A moderated mediation analysis from a cultivation perspective. *Journal of Health Psychology*, *20*(2), 188–197. <https://doi.org/10.1177/1359105313501533>