



Perception and Behavior about Electric Cigarette in Electric Cigarette Users in Medan City, Indonesia

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Abstract

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BACKGROUND: As a new device and technology, the use of e-cigarettes has increased rapidly in Indonesia, e-cigarettes attract and make people curious.

AIM: This study aims to determine the description of perceptions and behavior about e- cigarette users in Medan city, Indonesia.

METHODS: This type of research is quantitative with descriptive design. The sample of this study was 100 electric cigarette users in Medan city, Indonesia, using consecutive sampling method. The data in this study were obtained through a questionnaire conducted in August–October 2019.

RESULTS: The respondents of this study were 100 electric cigarette users, consisting of 92 men and 8 women, aged between 17 and 39 years and 42% worked as students. Some respondents had more than 1 electric cigarette device and used different atomizers on different devices. As many as, 42% of tobacco smoking respondents switched to e-cigarettes and stopped smoking. There is a decrease in the number of tobacco cigarette consumption among users who use tobacco cigarettes and electric cigarettes, respondents who had a positive perception of e-cigarettes were 51%, and most of respondents (88%) use e-cigarettes because they see the people around them.

CONCLUSION: This study shows that the majority of e-cigarette users in Medan city, Indonesia, are former smokers and have a positive perception of e-cigarettes. Moreover, the most frequent reasons to start using electric cigarette are because they see others around them use it.

Introduction

Electronic cigarette use has become a new habit in Indonesia. In 2018, the proportion of electric smokers in Indonesia was 2.8% with a proportion of 2.8% in the male group and 2.7% in the female group [1].

Electric cigarettes were initially used as a stop smoking or nicotine replacement therapy (NRT) by gradually reducing the nicotine levels of e-cigarettes under the supervision of a doctor. However, in 2009, the FDA sponsored research to evaluate e-cigarettes and found that e- cigarettes still contained certain tobacco nitrosamines and diethylene glycol which were known to be toxic and carcinogens so that in 2010, the WHO no longer recommended their use as NRT because it was stated does not meet the security element [2].

Claims of e-cigarettes that are judged to make tobacco smokers able to quit smoking also cannot be proven scientifically [3]. Lower nicotine levels at the initiation of using e-cigarettes and the use of first- and second-generation devices are independent

predictors of dual use. This causes e-cigarette users to also consume tobacco cigarettes to compensate for unmet nicotine needs and become exposed to harmful toxic substances and carcinogens from tobacco cigarettes. For this reason, the selection of nicotine levels is important in efforts to stop smoking, with some e-cigarette users even reporting the need to increase the concentration of nicotine that was originally chosen to stop smoking [4].

Some of the disadvantages that can be caused by e-cigarettes, such as unsafe e-liquid content, nicotine levels that do not match the label, nicotine addiction, the presence of illegal dangerous substances such as marijuana and heroin, increased risk of dual users and ex-smokers returning to smoking [5]. Making the Indonesian government needs to immediately draw up appropriate regulations related to smoking electrically.

Although several studies have been conducted regarding the perception of users of e- cigarettes, little is known about the perceptions and behavior of e-cigarette users. This study aims to describe how perceptions and behaviors of using e-cigarettes in e-cigarette users in Medan.

Methods

This research is a quantitative research with a descriptive design. The sampling technique uses a consecutive sampling method with a total sample of 100 people. This study aims to determine the description of perceptions and behaviors about e-cigarettes in e-cigarette users in Medan.

The data used in this study are primary data, that is, data obtained directly from research subjects using a questionnaire of perception and behavior about e-cigarettes that were distributed directly to e-cigarette users that researchers met in vape shops in Medan.

Sampling was conducted in August–October 2019. The data obtained in the form of data on demographic characteristics, behavior, and perceptions about electric cigarettes.

Data on demographic and behavioral characteristics about e-cigarettes are taken using a questionnaire and perception data are taken using a questionnaire that has been validated by the previous studies [6]. The perception questionnaire in this study used the cutoff point as the middle value to determine the perception score about e-cigarettes, so a normality test was carried out. The data normality test in this study was carried out using the division between the skewness value which was divided by the standard error which later if it produced a number between -2 and 2 , the data were called normally distributed, while outside that limit the data were called an abnormal distribution. Normally distributed data use the mean value as the middle limit, while data that are not normally distributed use the median value as the middle limit or cutoff point [6].

Approval for conducting this research was obtained from the Medical Research Ethics Committee of the Faculty of Medicine, Universitas Sumatera Utara, through the issuance of ethical clearance number 209/TGL/KEPK FK USU-RSUP HAM/2019.

Results

The study involved 100 electric cigarette users as respondents, consisting of 92 men and 8 women, aged between 17 and 39 years. This study divides the age group into two, namely, adolescent age groups (17–20 years) and adult age groups (21–40 years). Respondents had the most recent high school education (59%) and 42% worked as students (Table 1).

Some respondents have more than 1 electric cigarette device and use different atomizers on different devices. Overall respondents had used electric cigarettes for <1 month to more than 2 years with

Table 1: Demographic characteristics of respondents

Characteristics	Frequency (%)
Gender (n=100)	
Male	92 (92)
Female	8 (8)
Age (n=100)	
Adolescent (17–20)	33 (33)
Adult (21–40)	67 (67)
Last education (n=100)	
Junior high school	7 (7)
High school	59 (59)
College	34 (34)
Profession (n=100)	
Student	42 (42)
General employees	33 (33)
Entrepreneur	13 (13)
Government employees	5 (5)
BUMN employees	1 (1)
Police	1 (1)
Doctor	1 (1)
Unemployment	4 (4)

the majority already using electric cigarettes <1 year (54%) and nicotine levels were the most widely used by respondents ranging from 1 to 3 mg/ml (53%). Most respondents use e-liquid in the amount of 10–35 ml/week (Table 2).

Table 2: Characteristics of using e-cigarettes

Characteristics	Frequency (%)
Device type (n=100)	
Mod	47 (47)
Pod	38 (38)
Mod and Pod	15 (15)
Atomizer type (n=100)	
RDA	47 (47)
RTA	4 (4)
RDTA	1 (1)
Cartridge	33 (33)
RDA and RTA RDA	2 (2)
And cartridge RDTA	12 (12)
And cartridge	1 (1)
Length of time vaping (n=100)	
<1 month	11 (11)
1–3 months	18 (18)
4–6 months	17 (17)
7–12 month	8 (8)
1–2 years	16 (16)
>2 years	30 (30)
Highest strength of nicotine used now (n=100)	
No nicotine only	2 (2)
1–3 mg/ml	53 (53)
6–12 mg/ml	26 (26)
13–18 mg/ml	6 (6)
>18 mg/ml	13 (13)
Volume of e-liquid use (n=100) (ml/week)	
<10	18 (18)
10–35	48 (48)
35–70	24 (24)
>70	10 (10)

RDA: Rebuildable dripping atomizer, RTA: Rebuildable tank atomizer, RDTA: Rebuildable dripping tank atomizer.

Table 3 shows smoking history of all respondents. Most respondents who used e-cigarettes were former tobacco smokers and no longer smoked (42%). In this study, there were also (2%) e-cigarette users who started using tobacco cigarettes after using e-cigarettes. There are differences in the use of e-cigarettes after waking up where e-cigarettes users who have never used tobacco cigarettes tend to use e-cigarettes longer after waking up than e-cigarettes users who have used tobacco cigarettes or dual users.

Table 4 shows the number of respondents smoking tobacco before using e-cigarettes and had stopped and respondents that still smoking tobacco (n = 77). In addition to the majority of respondents who had completely stopped using tobacco cigarettes after using e-cigarettes, the reduction in tobacco consumption

Table 3: Smoking and vaping history of respondents

Classification	Switch from tobacco and do not smoke tobacco anymore	Use electric cigarettes directly and do not smoke tobacco	Smoking tobacco first, then using an electric cigarette and now using both	Using electric cigarettes then using tobacco cigarettes and now using both
Smoking and vaping history (n=100)	42	23	33	2
Time to first vaping on waking (n=100)				
<5 min	6	3	6	0
6–15 min	6	1	5	1
15–30 min	9	3	2	0
31–60 min	6	2	4	0
Over an hour	15	14	16	1

also occurred in tobacco cigarette users who started using e-cigarettes. In the group smoking tobacco first, then using e-cigarettes and now using both, there was a decrease in the number of respondents who smoked 10–20 tobacco per day from 15 respondents to only 5 respondents.

Table 4: Changes in smoking for smokers taking up vaping (n=77)

Classification	Switch away from tobacco and do not smoke tobacco anymore	Smoking tobacco first, then using an electric cigarette and now using both	Using electric cigarettes then using tobacco cigarettes and now using both
Cigarettes per day before vaping started			
Very occasional	4	2	0
Occasional (<1/day)	6	3	0
1–10	11	8	0
11–20	12	5	0
>20	9	15	0
Total	42	33	0
Cigarettes per day after vaping started			
Very occasional	0	3	0
Occasional (<1/day)	0	9	0
1–10	0	13	2
11–20	0	3	0
>20	0	5	0
Total	0	33	2

Respondents can choose more than 1 reason to start using e-cigarettes. The most reason in this study (88%) was because they saw people around him using it (Table 5).

Table 5: The reason for using electric cigarettes

The reason for using electric cigarettes (n=100: Multiple responses allowed)	Frequency
See people around using electric cigarettes	88
To stop smoking	61
Want to try something new	77
To improve my health	72
To save money	77

Respondents in this study have a total positive perception of 51%, meaning that most respondents consider electric cigarettes to be safe for their users to use. Negative perception related to the definition means that respondents support the use of electric cigarettes. Positive related to benefits means that respondents assume that after they use e-cigarettes, they can stop using tobacco cigarettes. Negative perception related to disadvantage means that the majority of respondents do not know that e-cigarettes have a danger to explode and also they assume that e-cigarettes cannot cause addiction problems and cause health problems. A positive perception related to the reasons means that the majority of respondents use e-cigarettes with a reason to quit smoking cigarettes. A positive perception related to regulations means that the majority of respondents assume that e-cigarettes must be made immediately. A

positive perception related to price means the majority of respondents consider that the use of e-cigarettes is more efficient and cheaper than tobacco cigarettes (Table 6).

Table 6: Electric cigarette perception

Electric cigarette perception (n=100)	Frequency (%)	
	Positive	Negative
Total perception	51 (51)	49 (49)
Definition	43 (43)	57 (57)
Content	48 (48)	52 (52)
Benefits	77 (77)	23 (23)
Disadvantage	49 (49)	51 (51)
Reason	69 (69)	31 (31)
Regulation	52 (52)	48 (48)
Price	63 (63)	37 (37)

Discussion

This study involved 100 respondents who use electric cigarettes in Medan city, Indonesia, with the majority of respondents being male (92%) compared to female respondents (8%). The high proportion of users of conventional cigarettes and electric cigarettes in men is one of them caused by the belief that smoking is a symbol of masculinity [7].

There were two categories of respondents in this study, namely, teenagers aged 17–20 years (33%) and adults aged 21–40 years (67%). In this study, the number of adult respondents was higher than that of adolescents, this is consistent with the reality on the packaging of e-cigarettes that contained age restrictions that can use or buy liquids if they are 18 years of age or older, whereas those under 18 years are prohibited from buying or using cigarette liquids.

This is in line with the draft parliamentary law in Europe which states that one regulation related to e-cigarettes is that e-cigarettes should not be sold to those under the age of 18 [8].

Of the three types of educational ranges, the most widely used e-cigarettes in the city of Medan are at the level of high school education (59%) followed by college (34%) and junior high school (7%). Education has an impact on increasing individual knowledge where individuals with higher education will have broader knowledge than individuals with lower education. This knowledge will later influence the respondent in perceiving e-cigarettes [9].

Some respondents in this study had more than 1 electric cigarette device and used different atomizers on different devices to feel different vaping sensations. Different types of devices and atomizers can cause differences in taste and odor [10].

As many, 46% of the respondents were new e-cigarette users who started using e-cigarettes less than 6 months and the majority were less than a year.

Most respondents (53%) used nicotine levels in their e-liquids of 1–3 mg/ml and the use of e-liquids 10–35 ml/week as many as 48 people. Similar to a survey of e-cigarette users in New Zealand also mentioned the majority of respondents using nicotine levels in e-liquid of 1–3 mg/ml and using e-liquid volume of 10–35 ml/week [11].

The majority of respondents in this study were former tobacco smokers who switched to using e-cigarettes and not using tobacco cigarettes anymore (42%). Vaping is a means of stopping, reducing smoking, or avoiding/mitigating relapses of smoking [11]. Many tobacco smokers who switch to using e-cigarettes because of the more fragrant smell of electric cigarette smoke want to follow the trends in society and want to live healthier [12]. In this study, there were also (2%) e-cigarette users who started using tobacco cigarettes after using e-cigarettes. In accordance with the meta-analysis and other studies showing that the use of electric cigarettes encourages the use of tobacco cigarettes. With an estimated threefold increase in the risk of subsequent cigarette initiation with e-cigarette use [10].

There are differences in the use of e-cigarettes after waking up where e-cigarette users who have never used tobacco cigarettes tend to use e-cigarettes longer after waking up than e-cigarette users who have used tobacco cigarettes or multiple users. This shows the level of dependence on nicotine in the group that only uses e-cigarettes are lower than e-cigarette users who have used tobacco cigarettes or dual users [13].

Reducing tobacco consumption also occurs in tobacco cigarette users who start using e-cigarettes. This reduction in smoking is consistent with findings in other studies for dual users [4], [15].

As many as, 88 respondents agreed they used electric cigarettes because they saw people around them using them. Peer influence is one of the most common reasons for the use of e-cigarettes among high school students and college students. The use of e-cigarettes is strongly associated with having family members (3-fold increase) and friends (7-fold increase) who use e-cigarettes [16].

The results of this study indicate that of 100 respondents, 51% have positive perceptions of e-cigarettes, while 49% have a negative perception of e-cigarettes. Respondents perceptions are mostly positive because respondents who use e-cigarettes consider these e-cigarettes safe for their users to use [6]. This study divides respondents' perceptions into

seven parts, they are perceptions of the definition of e-cigarettes, perceptions of the content of e-cigarettes, perceptions of the benefits of e-cigarettes, perceptions of the disadvantages of e-cigarettes, perceptions of reasons for use, perceptions of e-cigarette regulations, and perceptions of the price of e-cigarettes.

Respondents perceptions of the definition of electric cigarette are negative by the number of majority (57%). Negative perception means that the respondent supports the use of e-cigarettes. The majority of e-cigarette users in this study are more respondents who have sufficient understanding related to e-cigarettes. This can be caused because the measurement of understanding in this study involves an understanding of the definition of e-cigarettes and the impact of e-cigarettes which of course e-smokers will know more about the components of e-cigarettes because they have visual experience and think that e-cigarettes are healthier than tobacco cigarettes [7].

Perceptions about the content of e-cigarettes are perceptions that assume that e-cigarettes have harmful substances or compounds in them. The majority of respondents (52%) had a negative perception of the content of e-cigarettes. This shows that the respondents perception considers the content of e-cigarettes to be harmless. Misperceptions about the content of e-cigarettes can lead to an increase in the likelihood of use. A similar study conducted on high school students and young adults in California found nearly one in five respondents (19.05%) agreed or strongly agreed that smoke from e-cigarettes was water, 23.03% felt that e-cigarettes were not tobacco products, 26.38% believed that e-cigarettes did not contain tar, and 18.98% believed that e-cigarettes did not produce smoke [17].

The perception of the benefits of e-cigarettes is the perception of respondents assumes that after they use e-cigarettes, they can stop using tobacco cigarettes. The results of this study, the majority of respondents had a positive perception of the benefits of e-cigarettes, which was 77%. The emergence of the perception of the use of e-cigarettes can be used as a method of quitting smoking encouraging conventional cigarette users to switch to using e-cigarettes [18].

The perception of the loss of e-cigarettes is the perception of the dangers and the impact they get after they use e-cigarettes. This study found the majority of respondents (51%) had a negative perception of the loss of e-cigarettes. This shows that the majority of respondents do not know that e-cigarettes have a danger of exploding and also think that e-cigarettes cannot cause addiction problems and cause health problems. There is evidence that those who start using e-cigarettes think that despite safety concerns, e-cigarettes are less dangerous than tobacco cigarettes, in other words, they understand and make decisions based on the concept of relative harm [19].

Perceptions about the reasons for using e-cigarettes show 69% respondents have a positive perception. This means that the majority of respondents assume that they use electric cigarettes because people around them use electric cigarettes and want to try new things.

Perception about regulation is a perception that considers that the regulation of e-cigarettes must be immediate. The results of this study stated that the majority of respondents had a positive perception (52%) of the regulation of e-cigarettes in Indonesia. In Indonesia, the regulations related to the use of e-cigarettes are still unclear. The Indonesian government is still discussing drafting regulations related to e-cigarettes. As a country that has the third highest prevalence of smoking behavior in the world, controlling the impact of smoking on health needs to be a priority in regulation through existing policies by considering a long-term perspective for public health that is not only smokers but also non-smokers. The World Health Organization (WHO) has also conducted discussions on e-cigarettes, the results of which suggest that each country formulates policies to limit the promotion of e-cigarettes [5].

Perception about the price of e-cigarettes is a perception that considers that the use of e-cigarettes is more efficient and cheaper than tobacco cigarettes. The results of this study stated that respondents' perceptions of the price of e-cigarettes were mostly positive perceptions with numbers (63%). This mentioned that the majority of e-cigarette users consider that e-cigarettes are more expensive than tobacco cigarettes. Similar to research conducted on vape communities in Tangerang City which states that respondents consider electric cigarettes more expensive than tobacco cigarettes [6].

Further research in a larger scale is needed, to look at the effects of using e-cigarettes on smoking cessation of tobacco from random samples of new e-cigarette users who use e-cigarettes to stop smoking, including much more detailed information about using tobacco cigarettes, e-cigarettes, nicotine intake, and comparison of e-cigarettes consumers and cigarettes smokers.

Conclusion

This study shows that most of the e-cigarettes users are man, between 21-40 years old, have occupation as students, former tobacco smokers and using it because they see others around them. Most of the respondents have positive perceptions of e-cigarette and this may support a wider use of e-cigarettes. The results of this study can be used as important input for making policies regarding e-cigarettes to control the harmful effects in Medan, Indonesia.

References

1. Kementerian Kesehatan Republik Indonesia. Laporan Nasional Rikesdas 2018. Jakarta, Indonesia: Badan Penelitian dan Pengembangan Kesehatan; 2019. Available from: http://www.labdata.litbang.kemkes.go.id/images/download/laporan/RKD/2018/Laporan_Nasional_RKD2018_FINAL.pdf. [Last accessed on 2019 Feb 01]. <https://doi.org/10.31002/rep.v5i1.2050>
2. Oh AY, Kacker A. Do electronic cigarettes impart a lower potential disease burden than conventional tobacco cigarettes? Review on e-cigarette vapor versus tobacco smoke. *Laryngoscope*. 2014;124(12):2702-6. <https://doi.org/10.1002/lary.24750> PMID:25302452
3. Farsalinos KE, Romagna G, Tsiapras D, Kyrzopoulos S, Voudris V. Evaluating nicotine levels selection and patterns of electronic cigarette use in a group of "vapers" who had achieved complete substitution of smoking. *Subst Abuse*. 2013;7:139-46. <https://doi.org/10.4137/sart.s12756> PMID:24049448
4. Farsalinos KE, Romagna G, Voudris V. Factors associated with dual use of tobacco and electronic cigarettes: A case control study. *Int J Drug Policy*. 2015;26(6):595-600. <https://doi.org/10.1016/j.drugpo.2015.01.006> PMID:25687714
5. Directorate of Safety, Quality, and Import Export of Drugs, Narcotics, Psychotropics, Precursors and Addictive Substances. Deputy Drug and Drug Control Sector. Annual report; 2018. Available from: https://www.ppid.pom.go.id/file/annual_report/central/Directorate%20Supervision%20KMEI%20ONPPZA.pdf. [Last accessed on 2019 Feb 01]. <https://doi.org/10.31092/jpbcc.v4i2.964>
6. Alawiyah SS. Perceptions of E-Cigarette Users in the Vaporizer Community in Tangerang City 2017. Available from: <http://www.repository.uinjkt.ac.id/dspace/bitstream/123456789/35973/1/Siti%20Sarah%20Alawiyah-FKIK.pdf>. [Last accessed on 2019 Feb 01]. <https://doi.org/10.31850/makes.v2i3.190>
7. Putra IG, Putra IM, Prayoga DG, Astuti PA. Description of Understanding, Perception, and Use of Electric Cigarettes in High School Students in Denpasar City. Jakarta: Proceeding 4th ICTOH 2017 Indonesian Conference on Tobacco or Health; 2017. p. 2-12. Available from: <http://www.ictoh-tcscindonesia.com/wp-content/uploads/2018/01/proceeding-Book-4th-ICTOH.pdf>. [Last accessed on 2019 Feb 02]. <https://doi.org/10.18411/a-2017-023>
8. Patterson C, Hilton S, Weishaar H. Who thinks what about e-cigarette regulation? A content analysis of UK newspapers. *Addiction*. 2016;111(7):1267-74. <https://doi.org/10.1111/add.13320> PMID:26802534
9. Notoatmodjo S. Health Promotion and Health Behavior. Jakarta: Rineka Cipta; 2010.
10. Fadus MC, Smith TT, Squeglia LM. The rise of e-cigarettes, pod mod devices, and JUUL among youth: Factors influencing use, health implications, and downstream effects. *Drug Alcohol Depend*. 2019;201:85-93. <https://doi.org/10.1016/j.drugalcdep.2019.04.011> PMID:31200279
11. Truman P, Glover M, Fraser T. An online survey of New Zealand vapers. *Int J Environ Res Public Health*. 2018;15(2):222. <https://doi.org/10.3390/ijerph15020222> PMID:29382129
12. Atmojo WS. Decision Making of Tobacco Smokers Who Switch to E-Cigarettes; 2017. Available from: <http://www.eprints.ums.ac.id/52652/11/NASPub%20X.pdf>. [Last accessed on 2019 May 09].

13. Lee AS, Hart JL, Walker KL, Keith RJ, Ridner SL. Dual users and electronic cigarette only users: Consumption and characteristics. *Int J Healthc Med Sci.* 2018;4(6):111-6. PMID:30450441
14. Manzoli L, Flacco ME, Ferrante M, La Vecchia C, Siliquini R, Ricciardi W, *et al.* Cohort study of electronic cigarette use: Effectiveness and safety at 24 months. *Tob Control.* 2017;26(3):284-92. <https://doi.org/10.1136/tobaccocontrol-2015-052822> PMID:27272748
15. Jorenby DE, Smith SS, Fiore MC, Baker TB. Nicotine levels, withdrawal symptoms, and smoking reduction success in real world use: A comparison of cigarette smokers and dual users of both cigarettes and E-cigarettes. *Drug Alcohol Depend.* 2017;170:93-101. <https://doi.org/10.1016/j.drugalcdep.2016.10.041> PMID:27883949
16. Khoury M, Manlhiot C, Fan CPS, Gibson D, Stearne K, Chahal N, *et al.* Reported electronic cigarette Use among adolescents in the Niagara region of Ontario. *CMAJ.* 2016;188(11):794-800. <https://doi.org/10.1503/cmaj.151169> PMID:27431303
17. Gorukanti A, Delucchi K, Ling P, Fisher-Travis R, Halpern-Felsher B. Adolescents' attitudes towards e-cigarette ingredients, safety, addictive properties, social norms, and regulation. *Prev Med.* 2017;94:65-71. <https://doi.org/10.1016/j.ypmed.2016.10.019> PMID:27773711
18. Lotrean LM. Use of electronic cigarettes among Romanian university students: A cross-sectional study. *BMC Public Health.* 2015;15:358. <https://doi.org/10.1186/s12889-015-1713-6>
19. Wadsworth E, Neale J, McNeill A, Hitchman SC. How and why do smokers start using E-cigarettes? Qualitative study of vapers in London, UK. *Int J Environ Res Public Health.* 2016;13(7):661. <https://doi.org/10.3390/ijerph13070661> PMID:27376312