

Knowledge, Attitudes, and Behavior of E-Cigarette Users in Indonesia

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Abstract

Background: Cigarettes, both traditional and electronic, are widely used. In 2018, 9.1% of Indonesians smoked, up from 8.8% in 2016. In several countries, including Indonesia, e-cigarette use has increased. As a result, regulations to minimize the use of e-cigarettes must be implemented. This study aimed to explore the knowledge, attitudes, and behaviors of e-cigarette users in the Indonesian vaper community.

Methods: This study was a quantitative study with a cross-sectional method conducted from September to December 2021. Questionnaires were distributed through social media to 42 randomly selected vaper communities. The minimum sample size was 247 respondents. The analysis used was univariate.

Results: Of the 247 respondents, most were aged 17–24 years (78%), mostly male (62.7%), 61.5% were high school graduates or equivalent, and 65.2% had a monthly income of less than 3 million rupiah. A total of 53.1% of respondents had good knowledge scores, and 52.6% had a positive attitude toward e-cigarettes. More than half of the respondents were long-time e-cigarette users (57.9%) and dual users (55.9%). E-cigarettes were used irregularly/occasionally (63.6%). The average number of puffs/days was 50–99 puffs/day. As many as 58.7% of respondents wanted to quit smoking.

Conclusions: Slightly more than half of the respondents has good knowledge about e-cigarettes, with a positive attitude towards the use of e-cigarettes. Campaign that e-cigarettes are not a substitute for regular cigarettes and awareness regarding the potential dangers of e-cigarettes need to be increased. Government regulations regarding the control of e-cigarettes need to be considered because underage children are already using them.

Keywords: Attitude, behavior, characteristics, e-cigarette, knowledge

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Introduction

The use of cigarettes, fuel, and electricity has been increasing recently. There are 3.2% of adults in America who use e-cigarettes, and there has been an increase in the use of e-cigarettes among students in America from 11.7% in 2017 to 20.8% in 2018.¹ Based on the 2018 Indonesian Basic Health Research (*Riset Kesehatan Dasar*, RISKESDAS), the prevalence of smoking among the Indonesian population aged ten years reached 28.8%. West Java occupies the highest position with a prevalence of 32%, and Bali occupies the lowest position with 23.5%. In 2013, 7.2% of the Indonesian population aged 10–18 years smoked. In

2016, the number of Indonesian people who smoke increased by 1.6% to 8.8%, and in 2018 it reached 9.1%.² Based on the Global Youth Tobacco Survey (GYTS) Indonesia 2019, a survey was carried out to 9,992 students in Indonesia who were smokers. There were 36.8% of students who had ever smoked, and 18.8% still smoked. The percentage of students who had never smoked but were prone to smoking in the future was 7.9% or about 790 students. As an alternative for cigarettes, e-cigarettes were used. Regarding the sources of getting e-cigarettes, 11.5% bought e-cigarettes from *warung* (stalls), online stores, and other people. Around 5,125 students were aged 13–15 years.³

Smoking will cause various diseases and even death. Based on data from the World Health Organization (WHO), 8 million people die every year due to tobacco use, 7 million of whom die from direct exposure to tobacco and about 1.2 million others are non-smokers who are exposed to cigarette smoke.⁴ Several studies have shown that e-cigarettes contain nicotine and other substances that are toxic and can trigger cancer (carcinogenic). Propylene glycol, glycerol, flavors, various compounds, and most importantly, nicotine can all be found in e-cigarette aerosols.⁵ However, the health problems caused by e-cigarettes are still unknown due to a lack of data. Especially the effects of long-term use of e-cigarettes because e-cigarettes are the newest types of cigarette.⁶ The long-time risk of health problems due to e-cigarettes in various countries, including Indonesia needs to be analyzed. Thus, interventions must be carried out to reduce the use of e-cigarettes. The intervention aims to find out and then change the knowledge, attitudes, and behavior of e-cigarettes users.

Research in Malaysia⁷ shows that respondents scored well in terms of knowledge about e-cigarettes and had good scores in attitudes towards e-cigarettes. In a study on the community of e-cigarettes users in Airmadidi District,⁸ it was found that they had a good level of knowledge and poor attitudes, and 69.8% were heavy smokers. Men use e-cigarettes more often than women.⁹ Through research conducted at a high school in Bekasi, Indonesia,¹⁰ it was found that the most of e-cigarette users were aged 17 years, with good knowledge about e-cigarettes. However, their attitude values tended to be less supportive.¹⁰ Through several existing studies, and with the increasing use of e-cigarettes, this study aimed to find out the characteristics, knowledge, attitudes, and behavior of e-cigarette users from the vapor community in Indonesia.

Methods

This study was a quantitative descriptive study with a cross-sectional method conducted from September to December 2021. A total of 42 vaper communities in Indonesia were randomly selected from social media.

This research has been approved by the Research Ethics Committee of Universitas Padjadjaran no. 789/UN6.KEP/EC/ 2021. Sample selection used the purposive sampling method with a minimum sample size of 247 people. The inclusion criteria in the study

were that the sample had to be domiciled or living in Indonesia and be an e-cigarettes user.

The data used was primary data obtained using a questionnaire to e-cigarette users. The research instrument used was a questionnaire that had been translated and adapted for the knowledge and attitudes section¹¹ and for the attitude and behavior section.¹²

The questionnaire in this study was divided into four parts. The first part was demographic status and smoking status, which included age, gender, current place of residence, final education, working or not, monthly income, and symptoms experienced when smoking. The second part was the part of determining the respondent's knowledge. There were nine questions with three answer choices and scores as follows, "Yes=2," "Do not know=1," and "No=0." If the total score was more than or equal to 9 then it was interpreted having good knowledge, if it was less than 9 then it was considered to have poor knowledge. The third part contained questions about attitudes towards e-cigarettes. Respondents were asked to agree or disagree using a Likert Scale (range 0–5), the score was 5 for the answer "Strongly Agree", 4 for "Agree", 3 for "Not sure", 2 for "Disagree", 1 for "Strongly disagree", and 0 for "Do not know". If the total score was more than or equal to 28, then it was considered to have a positive attitude toward e-cigarettes, and less than 28 was considered to have a negative attitude. In the fourth part, there were questions regarding the behaviors of e-cigarette users, such as how long they have used e-cigarettes, how often they use e-cigarettes, the type of e-cigarette liquid used, the number of puffs per day, the habit of starting to smoke e-cigarettes every day, the type or model of e-cigarettes used.

The questionnaire was tested on 30 respondents, and the validity of the questionnaire was checked using confirmatory factor analysis (CFA) with STATA software version 15 special edition. Four questions were below 0.3 for knowledge, and Cronbach's alpha was 0.59. There were also four questions below 0.3; the Cronbach alpha obtained was 0.69. Questions below 0.3 were not cut and were still used following previous research. Question had been revised to improve respondents' understanding. The data was processed and analyzed using univariate analysis.

Results

A total of 247 e-cigarette users participated in

this study, with the most of e-cigarette users being male (62.7%) and aged 17–24 years, which was the younger generation. There were underage users in this community. Most e-cigarette users were on the island of Java,

especially West Java (39.3%) (Table 1).

More than half of the respondents were high school graduates or equivalent (61.5%). Only a small portion of respondents were unemployed (4.9%), and the rest were

Table 1 Socio-Demographic and Smoking Background of Respondents

Variable	n	%
Age (years)		
17–24	193	78.1
25–44	54	21.9
Gender		
Male	155	62.7
Female	92	37.3
Residence		
Bali	5	2.0
Banten	18	7.3
Special Capital Region of Jakarta	48	19.4
Special Region of Yogyakarta	14	5.7
West Java	97	39.3
Central Java	20	8.1
East Java	29	11.7
South Kalimantan	1	0.4
Central Kalimantan	2	0.8
East Kalimantan	2	0.8
Bangka Belitung	1	0.4
Riau	5	2.0
Lampung	1	0.4
North Sumatra	4	1.6
Employment		
Work	130	52.6
Does not work	12	4.9
Student	105	42.5
Last education		
High school or equivalent	152	61.5
Diploma	16	6.5
Bachelor degree	78	31.6
Master degree	1	0.4
Income per month (IDR)		
<1,000,000	70	28.3
1,000,000–1,999,999	58	23.5
2,000,000–2,999,999	33	13.4
3,000,000–3,999,999	23	9.3
4,000,000–4,999,999	23	9.3
>5,000,000	40	16.2
Disease history		
Shortness of breath	42	17.0
Phlegm in the throat	50	20.2
Cough	87	35.2
Chest pain	36	14.6
Headache	74	29.9
Visual disturbance	11	4.6
Abdominal discomfort	29	11.7
None	110	44.5

Table 2 Knowledge of E-Cigarettes

	Knowledge	True n (%)	False n (%)	Do not Know n (%)
1.	E-cigarettes are addictive	141 (57.1)	63 (25.5)	43 (17.4)
2.	E-cigarettes have the potential to cause health problems	181 (73.3)	28 (11.3)	38 (15.4)
3.	E-cigarettes can contain nicotine	229 (92.7)	8 (3.3)	10 (4.0)
4.	The health risks of e-cigarettes are the same as conventional cigarettes	64 (25.9)	146 (59.1)	37 (15)
5.	E-cigarettes are made from the same raw materials as conventional cigarettes	17 (6.9)	189 (76.5)	41 (16.6)
6.	Are government regulations on e-cigarettes the same as conventional cigarettes?	69 (27.9)	81 (32.8)	97 (39.3)
7.	E-cigarettes are less harmful than conventional cigarettes	59 (23.9)	143 (57.9)	45 (18.2)
8.	E-cigarettes are harmless for non-e-cigarette users	89 (36)	112 (45.3)	46 (18.6)
9.	E-cigarettes can be used in non-smoking areas	195 (79)	31 (12.6)	21 (8.5)

workers (52.6%) and students (42.5%). A total of 65.2% had a monthly income of less than 3 million rupiah, and some respondents had an income of less than 1 million rupiah. During smoking, respondents answered that they had no symptoms, but some respondents experienced coughs, sore throats, and even exciting things such as visual disturbances (Table 1).

The average total knowledge score of respondents in this study was 9.98 out of 18. One hundred and sixteen respondents (46.9%) had a poor knowledge score, and 131 respondents (53.1%) already had good knowledge about e-cigarettes. Respondents did not know whether there were government regulations regarding e-cigarettes, and some answered no. Some respondents thought that e-cigarettes were less harmful than conventional cigarettes and that the smoke from e-cigarettes was not harmful to non-smokers (Table 2).

The average attitude score of respondents in this study was 28.46 out of 55. There were 130 respondents (52.6%) who agreed with e-cigarettes, and 117 respondents (47.4%) did not. The respondents disagreed that e-cigarettes should be banned in Indonesia and should be regulated according to Indonesian laws. Respondents agreed that the use of e-cigarettes was fun; e-cigarette advertising made them interested in using it; there was an effect on solving problems, helping reduce smoking habits, relieving stress, increasing concentration. Respondents were unsure whether e-cigarettes could improve their self-

image or look more fashionable (Table 3).

Slightly more than half of the respondents were long-time e-cigarettes users (57.9%). E-cigarettes were used irregularly/occasionally (63.6%). The average amount of puffs/day of respondents was 50–99 puffs/day. The wide range of puff frequencies was caused by uncounted puff made by respondents. Most respondents smoked e-cigarettes >60 minutes after waking up from sleep (70.1%). The type or model of e-cigarettes most frequently used was Mod (49.4%). Slightly more than half of the respondents wanted to quit smoking (58.7%), and 29 (11.7%) respondents had no desire to quit smoking. Some e-cigarette users only used e-cigarettes, and some were dual users (44.1% and 55.9%, respectively)(Table 4).

Discussion

In this study, the average age of respondents was in the range of 17–24 years with the youngest being 17 years and the oldest being 40 years. Based on previous research, it was found that the average age of e-cigarette users is 28 years.¹² According to smoking laws in Indonesia, sellers cannot sell all types of cigarettes to people under 18 years of age. The gender of e-cigarette users in this study was more male than female, the same as in several previous studies.^{9,11–13} However, in this study, it was found that many women had started using e-cigarettes. Most e-cigarettes users are in West Java and this is in line with the report from the Ministry of Health of Republic of Indonesia regarding smoking prevalence

Table 3 Attitude of E-Cigarettes

	Attitude	SA n (%)	A n (%)	NS n (%)	D n (%)	SD n (%)	NK n (%)
1.	Using e-cigarettes is fun	79 (32)	145 (58.7)	19 (7.7)	4 (1.6)	-	-
2.	E-cigarette advertising made me interested in using e-cigarettes	24 (9.7)	87 (35.2)	78 (31.6)	42(17)	4 (1.6)	12 (4.9)
3.	E-cigarettes have the effect of solving my problem	34 (13.8)	78 (31.6)	73 (29.6)	44 (17.8)	9 (3.6)	9 (3.6)
4.	E-cigarettes help reduce smoking habits (conventional cigarettes)	53 (21.5)	87 (35.2)	56 (22.7)	29 (11.7)	4 (1.6)	18 (7.3)
5.	E-cigarettes can relieve my stress	39 (15.8)	106 (42.9)	71 (28.7)	23 (9.3)	6 (2.4)	2 (0.8)
6.	E-cigarettes can improve my performance	30 (12.2)	92 (37.3)	82 (33.2)	28 (11.3)	11 (4.5)	4 (1.6)
7.	E-cigarettes can improve my concentration	31 (12.6)	83 (33.6)	78 (31.6)	42 (17)	13 (5.3)	-
8.	E-cigarettes can improve my self-image	14 (5.7)	48 (19.4)	71 (28.7)	66 (26.7)	44 (17.8)	4 (1.6)
9.	E-cigarettes should be banned in Indonesia	12 (4.9)	26 (10.5)	48 (19.4)	95(38.5)	62 (25.1)	4 (1.6)
10.	E-cigarettes make me more stylish/fashionable	27 (10.9)	12 (4.9)	58 (23.5)	51 (20.7)	8 (3.2)	2 (0.8)
11.	E-cigarettes must be regulated in accordance with applicable laws in Indonesia	32 (13)	130 (52.6)	45 (18.2)	19 (7.7)	7 (2.8)	14 (5.7)

Note: SA= Strongly agree, A= Agree, NS= Not sure, D= Disagree, SD= Strongly disagree, NK= Not know

by province.¹⁴ Half of the respondents had a high school education or equivalent and were workers, this is the same as previous study.¹⁵ The average income of respondents was Rp2,000,000.00–Rp2,999,999.00. Meanwhile, e-cigarettes require regular maintenance to prevent malfunctions in e-cigarettes.¹⁶ Costs for maintaining equipment, purchasing e-liquid, replacing equipment, and others with a total price of >Rp100,000.00.¹⁰ This could be a consideration considering that e-cigarettes are not a primary need. Respondents reported experiencing several symptoms such as shortness of breath, phlegm in the throat, cough, chest pain, headache, visual disturbances, and abdominal discomfort. Dry mouth and throat, as well as coughing are irritations caused by aerosolized propylene glycol.^{5,17} It could lead to severe illnesses such as pulmonary and cardiovascular diseases associated with vaping.¹⁸

The average knowledge score is 9.98 out of 18 showing the respondents' lack of knowledge about e-cigarettes. This is different from the results of previous study, which

stated that the most of respondents had good knowledge.¹⁰ Respondents thought that e-cigarettes could be addictive, can interfere with health, e-liquid can contain nicotine, e-cigarettes are not made from the same raw materials as conventional cigarettes, harmless to non-smokers, and cannot be used in smoke-free areas. This follows the results of previous study.¹¹ However, there are different results from previous study. Research respondents answered that there were differences in health risks between conventional cigarettes and e-cigarettes, in which e-cigarette were considered less dangerous.¹¹ Respondents did not know whether the regulations for e-cigarette were the same as for conventional cigarettes. This is a consideration that there are no specific regulations regarding e-cigarettes in Indonesia.

The average attitude score is 28.46 out of 55. Half of the total respondents support the use of e-cigarettes. Respondents strongly agree that e-cigarettes are fun, e-cigarette advertisements are attractive, have the effect of helping solve problems, help reduce

Table 4 Smoking Behavior with E-Cigarettes

Behavior	n	%
Long time using e-cigarettes		
<=3 months	29	11.7
4-6 months	40	16.2
7-12 months	35	14.1
>12 months	143	57.9
Regularity in e-cigarettes		
Regular	90	36.4
Irregular/occasionally	157	63.6
Type of e-cigarette liquid used		
Contains nicotine	168	68.0
Does not contain nicotine	34	13.8
Both of them	45	18.2
Number of puffs/day		
<50	87	35.2
50-99	82	33.2
100-150	33	13.4
>150	45	18.2
The habit of starting to smoke e-cigarettes every day		
After waking up	28	11.3
30-60 minutes after waking up	46	18.6
>60 minutes after waking up	173	70.1
Type/model of e-cigarette used		
Mod	122	49.4
Open system pod	89	36.0
Closed system pod	36	14.6
Desire to quit smoking		
Yes	73	29.6
No	29	11.7
Maybe	145	58.7
Dual users		
Yes	138	55.9
No	109	44.1

smoking habits, reduce stress, improve performance, increase concentration, and feel that e-cigarettes should be regulated by applicable law in Indonesia. There are differences with a study in Malaysia.¹¹ They disagree that e-cigarettes are fun, cannot help solve problems, reduce smoking habits, reduce stress, and improve performance and concentration.¹¹

Respondents are not sure that e-cigarettes can improve their self-image and looks more fashionable. Respondents did not agree with the ban on e-cigarettes in Indonesia. However, this is very different from a study in Malaysia¹¹ which strongly agreed that e-cigarettes should be banned. There are several questions in this section where the answer is between not sure and agree. So, this causes the attitude score to be small. Respondents' views on e-cigarettes

can increase happiness, and self-satisfaction is relatively high.

Half of the respondents were long-time users of e-cigarettes. This is different from the results of previous study, where the majority of respondents were new users of e-cigarettes.¹² The average number of puffs/day of respondents was 50-99 puffs/day. In this question, respondents thought this because there was a possibility that they did not count every time they smoked. Most respondents smoked e-cigarettes >60 minutes after waking up from sleep. This is consistent with another study.¹² E-cigarettes are used irregularly or occasionally. The type or model of e-cigarettes most frequently used is Mod. This is different from the results of another study which stated that e-cigarettes were used regularly and mini e-cigars were the most

widely used.¹² Half of the respondents want to quit smoking, and some respondents do not want to quit smoking. Some e-cigarette users only smoke e-cigarettes, and there are also dual users with conventional cigarettes. Dual use causes users' exposure to nicotine to increase because both conventional cigarettes and e-cigarettes contain nicotine which can interfere with the user's health, even though e-cigarettes have a lower nicotine content than burnt cigarettes.¹⁹ Most respondents used e-liquids containing nicotine. In previous study, it was stated that some e-cigarette users used high doses of nicotine in their e-cigarettes.²⁰ Nicotine is not only addictive but can also increase the risk of suffering from cardiovascular disease.¹⁷

In this research, there were several obstacles. The questionnaire cannot be distributed throughout the vaper community and cannot be accessed in areas in Indonesia that are in the bad signal category. The questionnaire has low validation and reliability value. The results of this study are expected to provide an overview of e-cigarette users in Indonesia. According to the results of this study, the best primary prevention is to distribute the correct knowledge about e-cigarettes to the younger generation, primarily children aged 17–24 years, then provide correct information about e-cigarettes. E-cigarettes are not recommended as a substitute for traditional cigarettes due to their low clinical efficacy and high cost.²¹

In conclusions, knowledge of e-cigarettes users about e-cigarettes is in the good category, and shows a positive attitudes toward e-cigarettes. Campaigns regarding e-cigarettes are not a substitute for regular cigarettes and awareness of the danger of e-cigarettes needs to be increased. Laws regarding the control of e-cigarettes need to be considered because underage children are already using them.

References

- Hussain S, Shahid Z, Foroozesh M, Sofi U. E-cigarettes: a novel therapy or a looming catastrophe. *Ann Thorac Med.* 2021;16(1):73–80.
- Badan Penelitian dan Pengembangan Kesehatan Kementerian Kesehatan RI. Hasil utama riset kesehatan dasar tahun 2018. Jakarta: Badan Penelitian dan Pengembangan Kesehatan Kementerian Kesehatan RI; 2019.
- Ministry of Health Republic of Indonesia, WHO, CDC. Global Youth Tobacco survey: lembar informasi Indonesia 2019. Geneva: World Health Organization; 2020.
- WHO. Tobacco [Internet]. [Cited 2021 May 1]. Available from: <https://www.who.int/news-room/fact-sheets/detail/tobacco>.
- Callahan-Lyon P. Electronic cigarettes: human health effects. *Tob Control.* 2014;23(Suppl 2):ii36–40.
- Tanuwihardja RK, Susanto AD. Rokok elektronik (Electronic cigarette). *J Respir Indones.* 2012;32(1):53–61.
- Nuurain A, Tengku A, Nadeeya'Ayn, Dzulkhairi MR, Mohamed F, Shalinawati R, et al. Knowledge, attitude and practice on electronic cigarette and their associated factors among undergraduate students in a public university. *IIUM Med J Malaysia.* 2021;20(2):43–51.
- Purnawinadi IG, Kumayas JEGS. Pengetahuan dan sikap sebagai predisposisi perilaku merokok pada komunitas vaper. *Nutrix J.* 2019;3(2):31–7.
- Perera K, Kay SY, Rajenthiran H, Ibrahim N, Ming LZ. Knowledge, awareness, beliefs and prevalence of e-cigarettes usage among undergraduate students in a private medical college in Malaysia. *Int J Biomed Clin Sci.* 2020;5(1):5–19.
- Cleopatra AB, Fitriangga A, Fahdi FK. Faktor-faktor yang berhubungan dengan penggunaan rokok elektrik di wilayah Kecamatan Pontianak Barat. *J ProNes.* 2019;4(1):1–10.
- Hafiz A, Rahman MM, Jantan Z. Factors associated with knowledge, attitude and practice of e-cigarette among adult population in KOSPEN areas of Kuching district, Sarawak, Malaysia. *Int J Community Med Public Health.* 2019;6(6):2300–5.
- Karasneh R, Al-Azzam S, Nusair M, Hawamdeh S. Perceptions, symptoms, and practices of electronic cigarette users: descriptive analysis and validation of Arabic short form vaping consequences questionnaire. *PLoS One.* 2021;16(1):e0245443.
- Mark KS, Farquhar B, Chisolm MS, Coleman-Cowger VH, Terplan M. Knowledge, attitudes, and practice of electronic cigarette use among pregnant women. *J Addict Med.* 2015;9(4):266–72.
- Direktorat Pencegahan dan Pengendalian Penyakit Tidak Menular Kementerian Kesehatan Republik Indonesia. Pengendalian konsumsi hasil produk tembakau lainnya (HPTL). Jakarta: Direktorat Pencegahan dan Pengendalian Penyakit Tidak Menular Kementerian

- Kesehatan Republik Indonesia;. 2020. [Cited 2022 June 20]. Available from: <http://p2ptm.kemkes.go.id/dokumen-p2ptm/pengendalian-konsumsi-hptl-media-briefing-15-januari-2020>.
15. Damayanti A. Electronic cigarette using in Surabaya's personal vaporizer community. *J Berkala Epidemiol.* 2016;4(2):250–61.
 16. Reasoner JJ, Regier BA, Beckendorf R, McAllister RK. Update on the risks of electronic cigarettes—vaping. *Ochsner J.* 2020;20(1):2–4.
 17. Eaton DL, Kwan LY, Stratton K, editors. *Public health consequences of e-cigarettes.* Washington (DC): National Academies Press (US); 2018.
 18. Oriakhi M. Vaping: an emerging health hazard. *Cureus.* 2020;12(3):e7421.
 19. DeVito EE, Krishnan-Sarin S. E-cigarettes: impact of e-liquid components and device characteristics on nicotine exposure. *Curr Neuropharmacol.* 2018;16(4):438–59.
 20. Jankowski M, Brożek G, Zejda J, Jarosińska A, Idzik A, Majek P. Electronic cigarette in smoking cessation. *Eur Respir J.* 2017;50(Supp 61):PA1236.
 21. Dmytriiev K, Mostovoy Y, Slepchenko N, Tymbaliuk N, Sidorov A. Role of e-cigarettes in the smoking cessation. *Eur Respir J.* 2018;52(Suppl 62):PA1726.