

Identification of Characteristics of E-Cigarettes (Vape) in Jayapura City

Identifikasi Karakteristik Perokok Elektrik (Vape) di Kota Jayapura

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ABSTRACT

The problem of e-cigarette (vape) use in Indonesia is increasingly worrying, especially among adolescents and young people. The assumption that vaping is safer than conventional cigarettes has contributed to the increase in young users. This study aims to describe the characteristics of vape users in Jayapura City with a quantitative descriptive design and cross-sectional approach. The study was conducted in 4 sub-districts with a total sample of 300 people, selected by accidental sampling of vape users in various cafes. Data were collected through interviews using a questionnaire and analyzed univariately with SPSS. The results showed that the majority of users were aged 15-24 years (51.4%), male (69.3%), highly educated (52.7%), Protestant (59.3%), Non-Papuan (76.0%), unmarried (85.3%), and lived with parents (52.3%). The most common duration of use was 3-4 years (48.3%), the most commonly used device was Box Mod (36.3%), and most used less than three types of liquid (65.7%). These results suggest the need for education specifically targeted at young and highly educated groups regarding the long-term health risks of e-cigarette use.

Keywords: Vape, smokers, e-cigarette

ABSTRAK

Masalah penggunaan rokok elektrik (vape) di Indonesia semakin mengkhawatirkan, khususnya di kalangan remaja dan anak muda. Asumsi bahwa vape lebih aman dibandingkan rokok konvensional turut mendorong peningkatan pengguna usia muda. Penelitian ini bertujuan menggambarkan karakteristik pengguna vape di Kota Jayapura dengan desain deskriptif kuantitatif dan pendekatan cross sectional. Penelitian dilakukan di 4 kecamatan dengan jumlah sampel 300 orang, dipilih secara accidental sampling dari pengguna vape di berbagai cafe. Data dikumpulkan melalui wawancara menggunakan kuesioner dan dianalisis secara univariat dengan SPSS. Hasil menunjukkan mayoritas pengguna berusia 15–24 tahun (51,4%), laki-laki (69,3%), berpendidikan tinggi (52,7%), beragama Protestan (59,3%), bersuku Non-papua (76,0%), belum menikah (85,3%), dan tinggal bersama orang tua (52,3%). Durasi penggunaan terbanyak adalah 3–4 tahun (48,3%), alat yang paling umum digunakan adalah Box Mod (36,3%), dan sebagian besar memakai kurang dari tiga jenis liquid (65,7%). Hasil ini menunjukkan perlunya edukasi yang ditargetkan secara spesifik pada kelompok usia muda dan berpendidikan tinggi terkait risiko kesehatan jangka panjang dari penggunaan rokok elektrik.

Kata Kunci: Vape, perokok, rokok elektrik

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INTRODUCTION

The problem of e-cigarette (vape) smoking in Indonesia is increasingly worrying, especially among adolescents and young people. An e-cigarette or vape is an electronic device that is filled with liquid and uses a heater to heat the liquid so that vapor is inhaled. Although marketed as a safer alternative to conventional cigarettes, many users do not realize several harmful substances have been found as a result of the decomposition of the chemical compounds in them, which have the potential to harm human health, including the potential for lung disorders and nicotine addiction which remains high.^{1,2}

Various surveys show the age of smoking starts from the age of 15-19 years. The Global Youth Tobacco Survey (GYTS) data even shows that in the span of 2014 to 2019, there was an increase in the prevalence of student smokers aged 13-15 years from 18.3 percent to 19.2 percent.³ This is supported by data from the Central Statistics Agency that the percentage of smoking in the population aged ≥ 15 years in Indonesia in 2023 was 28.62 percent.^{4,5,6}

E-cigarettes entered Indonesia in 2010 and are touted as an alternative to conventional cigarettes. These e-cigarettes are advertised as non-nicotine cigarettes compared to tobacco cigarettes. Still, the fact is that e-cigarettes are more harmful than other types of nicotine inhalers, and there is no published data stating the safety of e-cigarettes.⁷

Based on data from the Indonesian Personal Vaporizer Association, the number of e-cigarette users in Indonesia exceeded 1.2 million people in 2018.⁸ Meanwhile, the GYTS report also reported that the prevalence of e-cigarette users in Indonesia in 2021 increased to 3% when compared to 2019,

which was only 0.3%. The results of the National Socio-Economic Survey or SUSENAS in Indonesia reported that e-cigarette users reached 4,419,622 people.¹

Electronic cigarette (e-cig) use among teenagers has been increasing for several years and has surpassed conventional smoking. Some of the causes of the increase in e-cigarette smoking include that many smokers in Indonesia are turning to vapes to help them quit conventional smoking.⁹ In addition, the more affordable price makes it easy for people of all ages, occupations, and incomes to buy vapes.^{10,11}

The widespread use of electronic cigarettes in society, especially adolescents, is due to their promotion as safer cigarettes and smoking cessation aids. This false (illusive) security without sufficient knowledge creates a new generation of customers for the tobacco industry.¹²

Socio-demographic characteristics are unique to Jayapura City, with rapid economic growth but stark social inequalities, such as the prevalent vape smoking behavior. This behavior is influenced by local factors such as income, education, and culture. Therefore, this study aimed to explore the social characteristics of e-cigarette smokers in Jayapura City.

MATERIALS AND METHODS

This study used a quantitative descriptive design with a *cross-sectional study* approach. The study was conducted in September 2024 in Jayapura City, covering Abepura Sub-district, Heram Sub-district, South Jayapura Sub-district, and North Jayapura Sub-district.

The study population was e-cigarette (vape) users or smokers; sampling of 300 people was done



by accidental sampling by selecting e-cigarette users who happened to be in cafes around Jayapura City. Data collection was done through interviews with respondents using a questionnaire. Data processing and analysis were carried out univariately using SPSS.

RESULTS

This study involved 300 respondents who use e-cigarettes or vape. The results in Table 1 based on characteristics: the majority were aged 15-24 years, as many as 154 people (51.4%), male gender 208 people (69.3%), the most education was College, as many as 158 people (52.7%). The religion of the respondents was mostly Christian, as many as 178 people (59.3%), most of them came from non-Papuan tribes, namely 228 people (76.0%). Based on married status, the majority are unmarried, 256 people (85.3%), and live with parents 157 people (52.3%).

Table 1. Distribution of Characteristics of e-Cigarette Users in Jayapura City

Characteristics	n	%
Age		
≤ 19 years	43	14.3
20-24 years	154	51.4
25-29 years	81	27.0
≥ 30 years	22	7.3
Gender		
Male	208	69.3
Female	92	30.7
Final Education		
Junior high school	5	1.7
High school	103	34.3
PT	158	52.7
Not in School	34	11.3
Religion		
Islam	104	34.7
Protestant	178	59.3
Catholic	7	2.3

Characteristics	n	%
Buddhism	4	1.3
Tribe		
Papua	72	24.0
Non-Papuan	228	76.0
Marital Status		
Married	32	10.7
Unmarried	256	85.3
Ever Married	12	4.0
Status of Residence		
Parents	157	52.3
Siblings	29	9.7
Uncle	12	4.0
Boarding	78	26.0
Own House	24	8.0
Total	300	100

Source: Primary data, 2024

Based on Table 2, the duration of e-cigarette use of most respondents was 3-4 years, namely 145 people (48.3%), and the least respondents had a duration of more than 9 years, namely two people (0.7%).

Table 2. Distribution of Vape Use in Jayapura City

Variable	n	%
Duration of Vape Use		
< 1 year	44	14.6
1-2 years	69	23.0
3-4 years	145	48.3
5-6 years	32	10.7
7-8 years	8	2.7
>9 years	2	0.7
Type of device used		
Vape Pen	88	29.3
Box Mod	109	36.3
Vape Pod	103	34.4
Number of Liquid Types/Day		
> 3 types	103	34.3
≤ 3 types	197	65.7
Total	343	100

Source: Primary data, 2024



The research data in Table 2 shows that the majority of respondents have been using e-cigarettes for 3-4 years (48.3%), indicating that vape use among this group has been going on for quite a while and is not just a momentary experiment. The type of device used also varied, with the highest trend in the use of Box Mod (36.3%), followed by Vape Pod (34.4%) and Vape Pen (29.3%). Based on the number of liquid types used, most respondents admitted to using less than 3 types of liquid, namely 197 people (65.7%).

DISCUSSION

The results of this study indicate that the behavior of using e-cigarettes has become part of the routine of most respondents. The use of vape is no longer experimental but shows a stable and integrated pattern in daily life. The preference for more complex device types and the habit of using different liquid variants reflect a high level of engagement in this activity. Vaping is understood not only as a substitute for conventional cigarettes but also as a form of self-expression, sensation-seeking, and a symbol of a certain lifestyle. The existence of a community, the influence of the social environment, and the perception of vapes as more modern also reinforce this habit. With a persistent pattern of use and high frequency, this behavior has the potential to form a dependency. It presents new challenges in health promotion and tobacco control efforts among young people.

The majority of respondents in this study were young and productive e-cigarette users, and showed that vaping is more popular among young people, who are often more open to new trends.^{13,14} Andesline explains that adolescents are interested in trying cigarettes because they are driven by

feelings of curiosity, feelings of wanting to be recognized and brave in their environment, feelings of wanting to be considered greater and considered more mature by their peers, and a sense of friend loyalty.¹⁵ Adolescents and young adults tend to seek new experiences, including the use of alternative tobacco products.¹³ These findings are in line with other research by Faisal, which shows that this age group is more vulnerable to peer influence. At this age range, individuals are in the identity search phase and tend to be influenced by the social environment, including the lifestyles of peers.⁹ In addition, aggressive marketing targeting the younger generation through social media and attractive packaging also strengthens the appeal of this product. This is also to the findings of the Indonesian Youth Council for Tobacco Control, where children stated that they use e-cigarettes because they follow the company of friends and follow the latest trends.¹²

Based on gender, the majority of e-cigarette users are male. This gender imbalance is in line with the results of studies showing that vaping is more common among men than women.¹⁴ Other studies also show that adult e-cigarette smokers are predominantly male.² In Indonesia, social and cultural norms often influence smoking behavior, where men are more allowed to use tobacco products. However, some female respondents became e-cigarette smokers. Men and women both tend to vape due to encouragement from the social environment, the desire to follow trends, and the perception that vapes are safer than regular cigarettes. Although, this phenomenon indicates that gender plays an important role in determining e-cigarette smoking behavior. Theoretically, this phenomenon can be explained through the Gender



Role Theory proposed by Sandra Bem and further developed by Connell (1995).¹⁶ According to this Theory, society forms different norms and behavioral expectations based on gender, where men are associated with risk-taking attitudes, including in trying tobacco products or vapes. On the other hand, women tend to be socially pressured to maintain a healthy and "good" image and are, therefore, more controlled in terms of addictive behavior. This view is reinforced by Social Socialisation Theory, which explains that individuals learn behaviors from their social environment - and gender roles become one of the main elements in the process.¹⁷ In addition, the Hegemonic Masculinity Theory helps explain why men are more dominant in the use of smoking in cigarette advertisements.¹⁸ In many cultures, including in Indonesia, behaviors such as smoking or using vapes can be a symbol of masculinity and social acceptance among men. These practices are often part of "social rituals" that reinforce male identity within peer groups. Other approaches, such as the Social Construction of Risk Theory, also explain that women tend to assess risk more conservatively than men due to social values attached to their gender roles.¹⁹ Meanwhile, in terms of behavioral approaches, the Theory of Planned Behaviour outlines that a person's intention to use a particular item, such as a vape, is determined by attitudes towards the behavior, perceived social norms, and perceptions of self-control.²⁰ In the context of gender, social norms towards men who are "allowed" to try vaping and the presence of permissive attitudes from the environment can increase the likelihood of such behavior. Meanwhile, women may have higher

perceived control over risk, which limits both intention and practice of vaping.

The last education of the respondents was mostly in College. This result is supported by research in 2 cities, Semarang and Pare-Pare, which found that most e-cigarette smokers were diploma or college graduates.^{8,14} The high proportion of highly educated smokers suggests that education may not always be directly proportional to the decision to use tobacco products. This is consistent with Social Learning Theory (Bandura, 1977) that new behaviors can be learned through observation and imitation, especially from public figures or friends who are considered "cool" and work environments that provide space for habits such as smoking behaviour.²¹

Most of the respondents in this study adhered to Christianity, followed by Islam. The predominance of Christian respondents can be explained by the geographical and demographic context of Papua, which is a predominantly Christian region. Nevertheless, religion remains a relevant factor in analyzing smoking behavior and vape use. A study by Rusmin (2010) showed that religious norms play a role in shaping attitudes toward tobacco products, where some teachings explicitly prohibit or restrict smoking behavior. An individual's level of religiosity is also influential, as those with a high commitment to religious teachings are more likely to avoid smoking behavior or the use of other addictive substances.²²

The majority of respondents identified as vape users were from non-Papuan tribes. This finding reflects the cultural diversity of communities in the study area, as well as opening up space for reflection on how ethnic and cultural backgrounds influence the attitudes and behaviors of individuals



towards alternative tobacco products such as e-cigarettes (vape). In the sociology and anthropology of health approach, the behavior of using addictive substances such as cigarettes or vaping cannot be separated from the cultural values, social norms, and customary contexts that live in society. Some ethnic communities in Indonesia, such as Java, Bugis, Makassar, Batak, and Ambon, have social cultures that are more permissive towards smoking behavior, both conventionally and in modern forms such as vape. In these environments, smoking is often interpreted as part of male maturity, a symbol of socializing, and even as an expression of lifestyle or individual freedom. Non-Papuans, who generally live in urban or semi-urban areas, tend to have a more permissive attitude towards vaping. In their culture, smoking or vaping can be seen as part of a lifestyle, a symbol of socializing, or individual freedom.

In contrast, some Indigenous Papuan communities, especially those still attached to religious and customary values, tend to have stronger social controls on this kind of behavior. However, in certain social spaces such as markets, Papuan women are also found smoking or vaping openly. This finding is in line with Social Learning Theory (Bandura, 1977), which explains that behavior is learned through social observation, as well as the concept of social marketing (Kotler & Roberto, 1989), which emphasizes the importance of understanding cultural values in behavior change. Therefore, tobacco and vape control strategies need to be designed with a contextualized, culture-based approach.

The majority of respondents in this study were unmarried. This finding is in line with research in

Pare-pare City, South Sulawesi, which shows that e-cigarette users are more likely to come from unmarried groups.²³ The behavior of vape use in unmarried individuals can be explained through the Theory of Planned Behaviour.²⁴ Individuals in this group tend to have more permissive attitudes towards vape, supportive social norms from the peer environment, and perceptions of self-control that allow them to try the product. Unmarried status is also often associated with identity-seeking and social needs, which further reinforces the intention of vaping behavior.

More than half of the respondents lived with their parents. Previous research has shown that a health-supportive home environment tends to reduce smoking among children and adolescents. Living with parents can influence smoking behavior, both positively and negatively. In families with strong supervision, open communication, and norms that emphasize the importance of a healthy lifestyle, individuals are less likely to smoke because they feel supervised and valued. Conversely, if the family environment is permissive, lacks attention, or if the parents themselves smoke, this can set an example that encourages children to imitate the behavior.²⁵

CONCLUSIONS AND SUGGESTIONS

This study aimed to describe the characteristics of e-cigarette (vape) users in Jayapura City using a descriptive quantitative approach and cross-sectional design. Of the 300 respondents, the most prominent characteristics were shown by the age group of 20-24 years as much as 51.4%, male 69.3%, unmarried 85.3%, and college education 52.7%. The majority of respondents were also of



non-Papuan ethnicity (76%) and lived with their parents (52.3%), reflecting the dominance of vape use among urban young adults who are still in the socially explorative phase. A positive finding of this study is the high proportion of highly educated respondents, who are potentially more accessible to digital and science literacy-based health education programs. However, a worrying finding emerged from the usage patterns: 48.3% of respondents had been vaping for 3-4 years, indicating a medium-term duration of consumption. A total of 36.3% used Box Mod-type devices, which tend to be used by experienced users, and 34.3% consumed more than three liquids per day, indicating a high level of intensity and risk of dependence. Although the majority lived with their parents, the fact that usage rates remained high suggests weak social control functions within the home environment.

Health promotion interventions need to focus on the unmarried and highly educated 20-24-year-old age group. Family education, especially for parents, is also important as many users still live at home. Public campaigns should highlight the dangers of medium-term use and the risk of dependence. Local governments need to tighten regulations on the distribution of vapes and devices. Further research using qualitative approaches is recommended to understand the social and psychological factors behind vaping behavior.

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CONFLICT OF INTEREST

The authors declare that there are no conflicts of interest that could affect the results or interpretation of this study.

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