ORIGINAL ARTICLE

# Cross Sectional Study: Cigarette Smoking and the Usage of E-cigarettes Among the Students of University of Cyberjaya.

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**Abstract**

**Background:** Electronic cigarettes continue to grow and gain popularity, recognition and acceptance globally, especially among adolescents. Aside from that, more adults are switching from smoking to vaping due to their disproportionate misconceptions pertaining to the adverse effects of the practices respectively. Therefore, this study aims to assess the association between e-cigarettes use and cessation of smoking.
**Materials and Methods:** A cross-sectional study was conducted among 145 students in the period from November 2020 until January 2021 in University of Cyberjaya (UOC), Cyberjaya, Selangor, Malaysia. The sample selection was done by convenience sampling and voluntary participation. The self-administered questionnaire was distributed online.
**Result:** The prevalence of smokers and vapers among the students are 15.9% and 12.4% respectively. Most of the smokers started smoking due to friend influence (26.7%). For vapers, most of them start using vape to quit using tobacco products (38.9%). Prevalence of smoking and vaping was significantly higher in male ($p = 0.003$, $p = 0.007$). There is a significant association between usage of e-cigarette and cessation of cigarette smoking ($p = 0.001$). Most vapers believe that e-cigarette is less harmful when compared to smoking tobacco (61.1%).
**Conclusion:** This study found that 15.9% and 12.4% students are smokers and vapers respectively. Males' students were more likely to smoke and vape. E-cigarette use appears to be associated with smoking cessation, even so, most of them believe e-cigarettes are safer than tobacco smoking. Hence, further study on the use of e-cigarettes and its effect on human health should be conducted to create awareness about the danger of it.

**Keywords:** Smoking, Vaping, E-Cigarettes, Perception, Smoking Cessation.

## Introduction

Vaping is defined as a behaviour of inhaling the vaporized solution from an electronic cigarette also known as e-cigarettes, which refers to a mechanical nicotine delivery device that includes a battery, automatic or manual switch, heating element, and reservoir of liquid nicotine solution.[1]

The use of tobacco by adolescents remains a major public health concern worldwide. According to the National Health and Morbidity Survey 2015 approximately 22.8% (4,991,458) of Malaysian population aged 15 years and above were smokers, 43.0 % (4.85 million) of men and 1.4% (143,566) of women smoked manufactured cigarettes, hand-rolled and electronic cigarettes (E-cigarettes). [2]

Tobacco use, a major preventable cause of premature death and disease, presently causes more than 5 million deaths globally each year and is expected to cause over 8 million deaths annually by 2030. [3]

Awareness and the usage of the electronic cigarettes has increased significantly in the past five years, but little is known about the experiences, satisfaction, opinions, and preferences of e-cigarettes users. There was a study, with 1177 participants have completed an online survey regarding the e-cigarette preferences, 200 from the participants were randomly selected for analysis in which the data were analysed using both qualitative and quantitative methods. The results of the study show that most of the participants believe that the design, the ability to customize, and the quality of vapour to be the most important characteristics of the device. Most of them thought that the positive aspect of electronic cigarette use was to help them in cessation of smoking, enhance overall health and reduced cost, as the electronic cigarettes are much cheaper compared to the conventional cigarettes. As for the negative aspects with electronic cigarettes, mainly it is related to the side effects, such as dry mouth. [4]

More adults are switching from smoking to vaping due to their disproportionate misconceptions pertaining to the adverse effects of the practices respectively. Hence it is important to identify and subsequently inform those susceptible in order to reduce the development of certain diseases and ultimately premature death. Therefore, the aim of this study is to determine the perceptions of the reasons for starting vaping and the association of switching from smoking cigarettes to vaping.

## Materials and methods

A cross sectional study was conducted in the University of Cyberjaya from November 2020 to February 2021. The highest sample size will be 152, meanwhile the minimum number of sample size will be 138.

The target group was the total population of students in the University of Cyberjaya (UOC). The sample was chosen from a total of 3286 college students. The sample selection was done by convenient sampling. Participation is voluntary.

Data was collected through an online questionnaire using questions adapted from The Global Tobacco Surveillance System (GTSS) questionnaire and National Youth Tobacco Survey (NYTS 2015), National Adult Tobacco Survey (NATS 2014), with a total of 24 questions.

Pre-test of the questionnaire was performed on twenty students of the University of Cyberjaya. Those who participated in the pre-test were excluded in the study later. It helps to improve the quality of data significantly. It also provides an opportunity to give feedback to the interviewer to ensure that we follow the proper protocol of data collection procedures to ensure objectivity in data

collection. Pre-test was done to validate the questionnaire.

The data collected was analysed using descriptive statistics to get the frequency, to determine whether there is a significant association between cessation of cigarette smoking and the usage of e-cigarettes fisher exact test was used. A p value of $\leq 0.05$ would be used to indicate that the data is statistically significant.

## Results

**Sociodemographic description of respondents.**
Table 1 shows the sociodemographic description of the respondents in our study. Majority of the respondents were female (64.8%), aged group between 22-25 years old (80.7%), Malay race (83.4%), Muslim (86.2%), from Faculty of Medicine (57.9%) and Year 4 students (51.0%).

**Prevalence of smoking.**
Figure 1 shows the prevalence of current smokers among the students at University of Cyberjaya is 10.3% whereas the prevalence of students who already stopped smoking is 5.5%.

**Prevalence of smoking according to sociodemographic status.**
Table 2 shows that the prevalence of smoking among the students are highest among the male (21.6%), age group of more than 25 years (25%), Indian (25%), Faculty of Allied Health Sciences (21.1%) and Year 3 students (16.3%). Results show that there is a statistically significant association between gender and smoking, with p value equal to 0.003.

**Prevalence of vaping.**
The prevalence of vapers among the students in University of Cyberjaya is 12.4%, as shown in figure 2.

**Prevalence of vaping according to sociodemographic status.**
Table 3 shows that the prevalence of vaping among the students is highest among the male (23.5%), age group of 25 years (25%), Malay (14%), others faculty (42.9%), and year 3 students (18.6%). Results show that there is a statistically significant association between gender and vaping with p value equal to 0.007.

**Perception of reasons to start smoking and vaping.**
Table 4 shows that the most common reason to start smoking is due to friend's influence with 26.7%, followed by smokers in the family with 20.0% and to takeout psychological stress and to help concentration in studies with same prevalence which is 13.3%. As for vaping, most of them start using vape in attempt to try to quit using tobacco products, with 38.9%, followed by curiosity and because they are available in flavours with 16.7% and 22.2 % respectively.

**Association of e-cigarette use on the cessation of cigarette smoking.**
As shown in the table 5, the prevalence of vapers that aim to quit smoking using e-cigarette and successfully quit smoking is 80.0%. The prevalence of e-cigarette users who aim to quit smoking and successfully quitting smoking among the e-cigarette user in the University of Cyberjaya was calculated by dividing the number of vapers who aim to quit and success (n= 8) with the total number of vapers in the study (n=145) and the result is 44.4%. The association between e-cigarette use on cessation of cigarette smoking was determined by using Fisher exact test. The P value is 0.001 ($P<0.05$) which shows that it is statistically significant. We reject the null hypothesis. Therefore, there is a significant association between usage of e-cigarette and cessation of cigarette smoking.

**Perception of harmfulness of E-cigarette in relation to smoking among vapers**
Most vapers believe that e-cigarette is less harmful when compared to smoking tobacco, at 61.1% as shown in figure 3.

## Discussion

**To determine the prevalence of cigarette smoking and vaping among the students in University of Cyberjaya.**

The overall prevalence of current smokers among the students at University of Cyberjaya is 10.3%, which is lower than the data from National Health and Morbidity Survey, 2019, in which, the prevalence of smokers was found to be approximately 21.3%[5] and also lower than the prevalence of cigarette smoking among the students in Management and Science University which is 29%.[6]

The prevalence of vapers among the students in University of Cyberjaya is 12.4%, which is higher than the data from data from National E-cigarette Survey, 2016, in which the prevalence of vapers was found to be 3.2%.[7] It is also higher when compared to data from National Health and Morbidity Survey, 2019, in which the prevalence of e-cigarette users was 5.0%.[5]

Based on our research, male students show higher prevalence of smoking and vaping in University of Cyberjaya as compared to female students with 21.6% and 23.5% respectively. These findings correspond to the study done by NHMS, in which the prevalence of smokers was higher in male (40.3%) as compared to females (1.2%). As for e-cigarette use, it was found to be higher among males (12.1%) as compared to females (0.7%).[5] We found that there is a statistically significant association between gender to smoking and vaping in our study ($p = 0.003$, $p = 0.007$). The finding was supported by another study by Al-Naggar, et al., 2011, in which the study found that there is a significant association between gender and smoking, with p value < 0.001. [6] For vapers, a study among 8 colleges in North Carolina found that there is an association between e-cigarette use and vape with p value = 0.005. [8] Men tend to believe that smoking will make them young and attractive and they also believe that their parents/guardian will find smoking as an acceptable behaviour. [9] Low prevalence of smoking among females may be due to under-reporting because of shame or maybe attributed to cultural and social reasons. [6]

**To determine the perceptions of the reasons for using e-cigarettes and smoking tobacco.**

According to our study, 38.9% vapers start vaping to try to quit using tobacco products while 22.2% start using it because they are available in flavours. Most vapers believe that e-cigarette is less harmful when compared to smoking tobacco, at 61.1%.

More adults are switching from smoking to vaping due to their disproportionate misconceptions pertaining to the adverse effects of the practices respectively. In Malaysia, the main reason to use electronic cigarette was to experiment with the e-cigarette. 16.2% admitted that they were using the e-cigarette to quit smoking tobacco cigarettes.[10] Other common reason for using electronic cigarettes were because they perceived lower toxicity compared to tobacco and the enjoyment of the products. [11] Those from the low socioeconomic group and perceived e-cigarette as more expensive compared to tobacco, were more likely to have the intention to quit. [12] However, studies examining the use of e-cigarette and the intention to quit vaping in Malaysia are still lacking. [13]

According to our study results among the smokers in the University of Cyberjaya, about 26.7% of them started smoking due to friend influence, 20.0% started smoking because of smokers within their family members and 13.3% due to psychological stress. A study done among 199 students in Management and Science University in Selangor has found that the most important reason to start smoking was stress (20.0%) followed by friends (16.0%).[3] Peer pressure can give strong impact to the smokers when they are included with other smokers in a social group,

which reinforces smoking.[14] Meanwhile, Shaheen, et al., 2018 emphasizes in their study that smokers started to get to know and enter the smoking world fully guided and facilitated by their friends. Non-smokers felt the need to start smoking to be friends with smokers and smokers rationalize the smoking as a coping mechanism to handle stress. [15]

**To determine the association between e-cigarettes in the cessation of cigarette smoking.**

According to our study among the students of University of Cyberjaya, the prevalence of e-cigarette users who aim to quit smoking and successfully quitting smoking with e-cigarette is 44.4%. There is a statistically significant association between e-cigarettes use and cessation of cigarette smoking with p-value = 0.001. The six-month observational study done in Kuantan and Pekan, Malaysia among 218 sole and dual user vapers shows that quitting conventional cigarettes was significantly higher among sole electronic cigarette users (p = 0.036) which correspond to our study finding. [16] Another cross-sectional study that was involving six universities in Malaysia, with a total of 1302 respondents revealed that 57.8% of the respondents used e-cigarettes as a smoking cessation tool while other respondents consider the electronic e-cigarettes as a self-image enhancing tool or as a part of social activities. [17]

A web-based longitudinal survey for 1-year follow-up study in Great Britain reported that daily use of electronic cigarettes were 2.1 times more likely to increase cessation attempt of smoking as compared to non-daily use (OR=2.1, 95% CI; 1.2-3.9). However, the result only shows that it is significantly associated with increased cessation attempts (p-value = 0.006) but not with cessation of smoking (p-value= 0.210). [18]

In this study, the vaper users were asked questions on their perception of harmfulness of electronic cigarettes in relation to conventional cigarettes, our result shows that most of the vapers believe that electronic cigarettes are less harmful when compared to smoking tobacco, at 61.1%. Their perceptions and beliefs that electronic cigarettes are much safer when compared to tobacco smoking makes them choose electronic cigarettes as a replacement for smoking tobacco. A study done among e-cigarettes smokers visiting retail shops in Selangor and Kuala Lumpur, with majority of the respondents were youth in colleges or university stated that 85.0% from the respondents believes that e-cigarettes are not as intrusive as tobacco cigarettes and e-cigarettes are healthier than tobacco cigarettes. [12] Wan Puteh, et at., 2018 concluded in the study that around 28.2% students believe that e-cigarette as the most effective alternative for smoking cessation. [17]

Farsalinos and Polosa, 2014, concluded in their study that e-cigarette use is by far less harmful substitute and replacement to smoking, as there is no tobacco and no combustion involved in e-cigarette use. Hence, vapers may avoid several harmful toxic chemicals that are present in the smoke of conventional cigarettes. As a matter of fact, e-cigarettes release some toxic chemicals but their levels are lower. [19] However, vaping is actually not an effective way to stop smoking, not just because it is hazardous to health, but the nicotine concentration in e-cigarettes is higher than in cigarettes, as proven in a study. The study states that nicotine content in e-cigarettes with the brand name “JUUL” is more than 50 mg/mL, as it uses benzoic acid and nicotine salt technology to deliver higher concentrations of nicotine. The other typical levels of other e-cigarette brands are between 3-24 mg/mL, which are higher than conventional cigarettes nicotine content with 10 mg/m. [20]

Meo and Al-Asiri, 2014, concluded that non-scientific claims about electronic cigarettes cause confusion in public perception about electronic cigarettes and people tend to believe that electronic cigarettes are safe and less addictive

compared to tobacco, however its use is unsafe and very hazardous to human health. This statement was proven by the same study, which used data from 28 published studies and the study summarizes the common health hazards of e-cigarette smoking. [21]

E-cigarettes can affect many systems in our body, mainly the respiratory systems. The various chemical substances and ultrafine particles in the e-cigarettes liquid cause irritation of the pharynx, upper and lower respiratory tract and it can cause dry cough. Smoking e-cigarettes can increase risk of lung malignancy as it also contains various toxins and carcinogens. Other than the respiratory tract, e-cigarette may irritate the gastrointestinal system and cause nausea, vomiting and dizziness due to exposure to nicotine, pose increased risk of nicotine toxicity. E-cigarettes were also not advised to pregnant women as the study shows that nicotine is harmful to both the mother and developing foetus, and carbon monoxide within the e-cigarette decreases in semen volume and increases sperm immotility. Otherwise, the e-cigarette vapours, mist and smoke may cause irritation, dryness and redness of the eye as the e-liquid is rapidly absorbed and can lead to eye damage. [21]

According to a study conducted among six universities in Malaysia, with most of the respondents which are e-cigarettes user with prevalence of 74.9% complained of occurrence of adverse effect in relation to e-cigarettes use, which are dizziness (14.4), cough (14.1%) and headaches (12.4%).[17]

Electronic cigarettes may help smokers to stop smoking, nonetheless, the effectiveness and efficacy of e-cigarette use as a smoking tool is still unclear, and subject for further research which needs to be done. Furthermore, e-cigarettes use is not without risk or hazard, however it is believing that e-cigarettes is much less dangerous than tobacco, as it has less carcinogenic chemicals (e.g. acetone, acroline, benzene, cadmium, carbon monoxide, toluene, etc). [19] Kozlowski, et al., 2017 suggested in his studies that the mistaken perception of lesser risk may be the influencing factor for e-cigarette use as a substitute for tobacco smoking. Therefore, further research on the health effects of e-cigarette on the human body should be conducted, to establish and ascertain regarding its effect on human health. [22] Other interventions to create awareness need to be done and e-cigarettes should be regulated in the same way as traditional or conventional cigarettes which need to be prohibited in closed public spaces and banned its usage among children and adolescents. [21]

The limitation of this study is that the data were only collected in one university in the Cyberjaya within a certain time duration. Therefore, the sample does not necessarily represent university students in Malaysia and hence has limited generalizability. Other limitations were mostly due to the sample size and demographic of the study samples. The small sample size of our study, which consisted mainly of the participants were aged 22-25 years old Malay females, with fewer Indian and Chinese and mostly from the Faculty of Medicine from the University of Cyberjaya. However, despite the limitations, the findings represent a good profile of e-cigarette users and a framework with which to guide decision making and future research on e-cigarette use.

## Conclusion

This study found that 15.9% and 12.4% students are smokers and vapers respectively. Males students were more likely to smoke and vape. Usage of cigarettes, both conventional or electronic cigarettes used among the students, for whatever reason, need to be discouraged. E-cigarette use appears to be associated with smoking cessation, even so, most of them believe e-cigarettes are safer than tobacco smoking. Hence, further study on the use of e-cigarettes and its effect on human health should be conducted to find evidence and create awareness about the

dangers of e-cigarette. Otherwise, other studies with many respondents can be conducted in order to augment and support the findings of this study.

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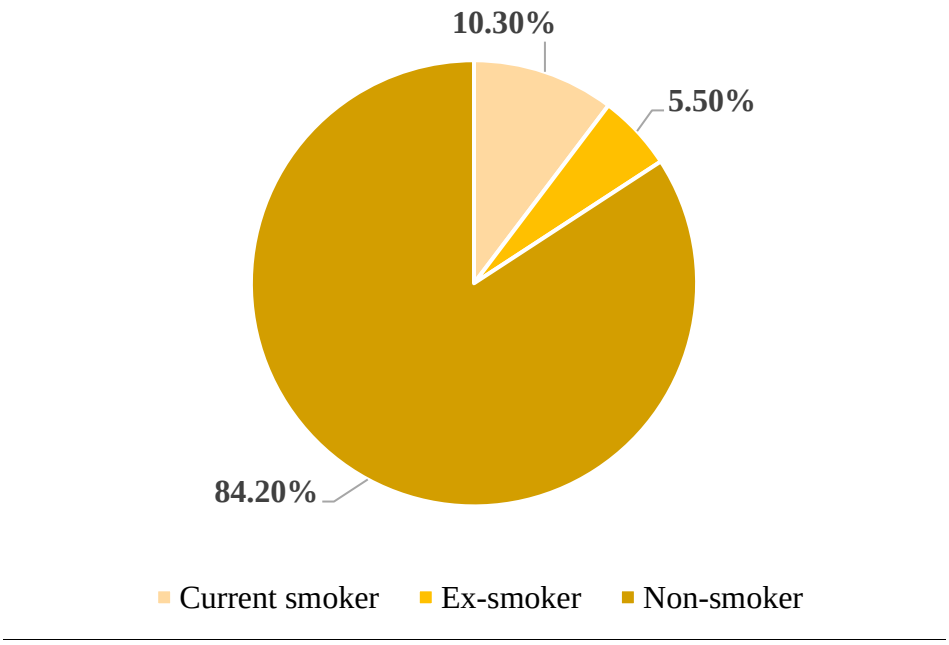


Figure 1. Prevalence of smoking among the students of University of Cyberjaya

Table 1. Sociodemographic description of respondents among students in University of Cyberjaya

| Socio-Demographic Variables | | Frequency (n) | Percentage (%) |
|---|---|---|---|
| Sex | Male | 51 | 35.2 |
| | Female | 94 | 64.8 |
| Age | 18-21 | 24 | 16.6 |
| | 22-25 | 117 | 80.7 |
| | >25 | 4 | 2.8 |
| Race | Malay | 121 | 83.4 |
| | Chinese | 11 | 7.6 |
| | Indian | 8 | 5.5 |
| | Others | 5 | 3.4 |
| Religion | Islam | 125 | 86.2 |
| | Hinduism | 7 | 4.8 |
| | Buddhism | 6 | 4.1 |
| | Christianity | 7 | 4.8 |
| Faculty | Centre of Foundation Studies | 6 | 4.1 |
| | Medicine | 84 | 57.9 |
| | Pharmacy | 17 | 11.7 |
| | Allied Health Sciences | 19 | 13.1 |
| | Occupational Safety and Health | 7 | 4.8 |
| | Traditional and Complementary Medicine | 5 | 3.4 |
| | Others | 7 | 4.8 |
| Year of Study | Year 1 | 8 | 5.5 |
| | Year 2 | 10 | 6.9 |
| | Year 3 | 43 | 29.7 |
| | Year 4 | 74 | 51.0 |
| | Year 5 | 10 | 6.9 |

Table 2. Prevalence of smoking according to socio-demographic status

| Socio-Demographic Variables | | Smoking | | Total n(%) | OR (CI) | p value |
|---|---|---|---|---|---|---|
| | | Yes n(%) | No n(%) | | | |
| Sex | Male | 11(21.6) | 40(78.4) | 51(100.0) | 6.2(1.9-20.6) | 0.003 |
| | Female | 4(4.3) | 90(95.7) | 94(100.0) | 1 | |
| Age | 18-21 | 0(0.0) | 24(100.0) | 24(100.0) | - | 0.134 |
| | 22-25 | 14(12.0) | 103(88.0) | 117(100.0) | 1 | |
| | >25 | 1(25.0) | 3(75.0) | 4(100.0) | 2.5(0.2-25.2) | |
| Race | Malay | 13(10.7) | 108(89.3) | 121(100.0) | 1 | 0.293 |
| | Chinese | 0(0.0) | 11(100.0) | 11(100.0) | - | |
| | Indian | 2(25.0) | 6(75.0) | 8(100.0) | 2.8(0.5-15.2) | |
| | Others | 0(0.0) | 5(100.0) | 5(100.0) | - | |
| Faculty | Centre of Foundation Studies | 0(0.0) | 6(100.0) | 6(100.0) | - | 0.642 |
| | Medicine | 7(8.3) | 77(91.7) | 84(100.0) | 1 | |
| | Pharmacy | 2(11.8) | 15(88.2) | 17(100.0) | 1.47(0.3-7.8) | |
| | Allied Health Sciences | 4(21.1) | 15(78.9) | 19(100.0) | 2.9(0.8-11.3) | |
| | Occupational Safety and Health | 1(14.3) | 6(85.7) | 7(100.0) | 1.8(0.2-17.5) | |
| | Traditional and Complementary Medicine | 0(0.0) | 5(100.0) | 5(100.0) | - | |
| | Others | 1(14.3) | 6(85.7) | 7(100.0) | 1.8(0.2-17.5) | |
| Year of Study | Year 1 | 0(0.0) | 8(100.0) | 8(100.0) | - | 0.438 |
| | Year 2 | 1(10.0) | 9(90.0) | 10(100.0) | 1.1(0.1-9.7) | |
| | Year 3 | 7(16.3) | 36(83.7) | 43(100.0) | 1.9(0.6-5.7) | |
| | Year 4 | 7(9.5) | 67(90.5) | 74(100.0) | 1 | |
| | Year 5 | 0(0.0) | 10(100.0) | 10(100.0) | - | |

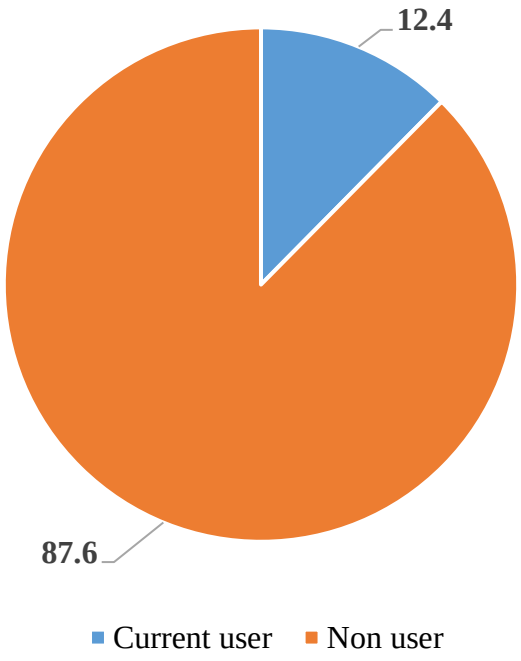


Figure 2. Prevalence of vaping among the students of University of Cyberjaya

Table 3. Prevalence of vaping according to socio-demographic status

| Socio-Demographic Variables | | Vaping | | Total n(%) | OR (CI) | p value |
|---|---|---|---|---|---|---|
| | | Yes n(%) | No n(%) | | | |
| Sex | Male | 12(23.5) | 39(76.5) | 51(100.0) | 4.5(1.6-12.9) | 0.007 |
| | Female | 6(6.4) | 88(93.6) | 94(100.0) | 1 | |
| Age group | 18-21 | 1(4.2) | 23(95.8) | 24(100.0) | 1 | 0.324 |
| | 22-25 | 16(13.7) | 101(86.3) | 117(100.0) | 3.6(0.5-28.9) | |
| | >25 | 1(25.0) | 3(75.0) | 4(100.0) | 7(0.4-157.4) | |
| Race | Malay | 17(14.0) | 104(86.0) | 121(100.0) | 1.1(0.1-9.9) | 0.464 |
| | Chinese | 0(0.0) | 11(100.0) | 11(100.0) | - | |
| | Indian | 1(12.5) | 7(87.5) | 8(100.0) | 1 | |
| | Others | 0(0.0) | 5(100.0) | 5(100.0) | - | |
| Faculty | Centre of Foundation Studies | 0(0.0) | 6(100.0) | 6(100.0) | - | 0.127 |
| | Medicine | 10(11.9) | 74(88.1) | 84(100.0) | 2.2(0.3-18.1) | |
| | Pharmacy | 1(5.9) | 16(94.1) | 17(100.0) | 1 | |
| | Allied Health Sciences | 2(10.5) | 17(89.5) | 19(100.0) | 1.9(0.2-22.8) | |
| | Occupational Safety and Health | 2(28.6) | 5(71.4) | 7(100.0) | 6.4(0.5-86.3) | |
| | Traditional and Complementary Medicine | 0(0.0) | 5(100.0) | 5(100.0) | - | |
| | Others | 3(42.9) | 4(57.1) | 7(100.0) | 12(1.0-148.3) | |
| Year of Study | Year 1 | 0(0.0) | 8(100.0) | 8(100.0) | - | 0.234 |
| | Year 2 | 0(0.0) | 10(100.0) | 10(100.0) | - | |
| | Year 3 | 8(18.6) | 35(81.4) | 43(100.0) | 1.5(0.5-4.0) | |
| | Year 4 | 10(13.5) | 64(86.5) | 74(100.0) | 1 | |
| | Year 5 | 0(0.0) | 10(100.0) | 10(100.0) | - | |

Table 4. Perception of reasons to start smoking and vaping

| Reason to start | | No. of student (n) | Percentage (%) |
|---|---|---|---|
| Reason to start smoking (n=15) | Curiosity | 1 | 6.7 |
| | Smokers in the family | 3 | 20.0 |
| | Takeout psychological stress | 2 | 13.3 |
| | Friend's influence | 4 | 26.7 |
| | Helps in concentration of study | 2 | 13.3 |
| | Others | 3 | 20.0 |
| Reason to start vaping (n=18) | Curiosity | 3 | 16.7 |
| | To try to quit using tobacco products | 7 | 38.9 |
| | They cost less than other tobacco products | 1 | 5.6 |
| | Famous people on TV or in movies use them. | 1 | 5.6 |
| | They are less harmful than other forms of tobacco | 2 | 11.1 |
| | They are available in flavours | 4 | 22.2 |

Table 5. Association of e-cigarette use on the cessation of cigarette smoking.

| Aim use E-cigarette to quit smoking | Success quitting smoking with E-cigarette | | Total n(%) | Chi value (df) | P-value |
|---|---|---|---|---|---|
| | Yes n(%) | No n(%) | | | |
| Yes n (%) | 8 (80.0) | 2 (20.0) | 10(100.0) | 11.5(1) | 0.001* |
| No n(%) | 0 (0.0) | 8 (100.0) | 8(100.0) | | |
| Total n(%) | 8 (44.4) | 10 (55.6) | 18(100.0) | | |

*Fisher exact test

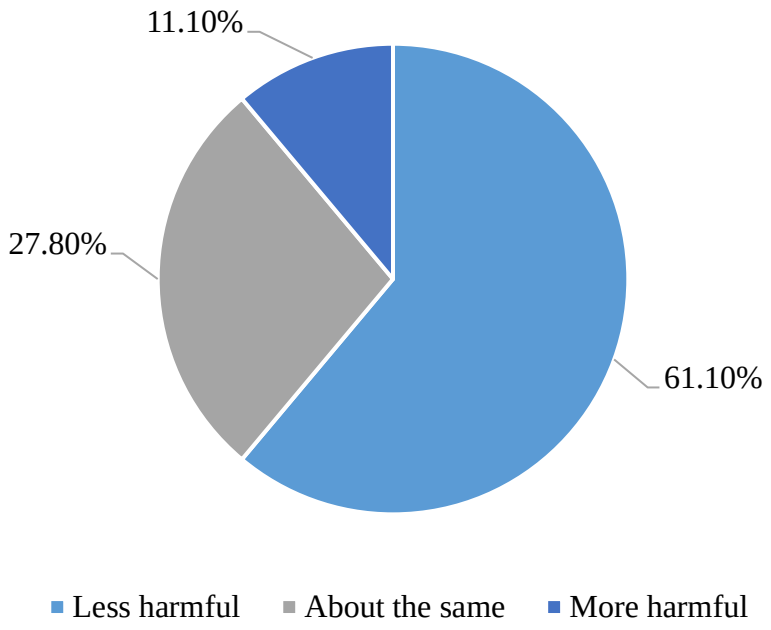


Figure 3. Perception of harmfulness of E-cigarette in relation to smoking among vapers

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