

Knowledge, Attitude and Practice of Vaping among Youth in Section 13, Shah Alam

Mohammed FaezBaobaid^{*1}, Mohammed A. Abdalqader², Mohammed Ali Abdulkhaleq³, Hasanain Faisal Ghazi⁴, Hassan O. Ads⁵, HaithamAssem Abdalrazak⁶
^{1,2,4,5,6}International Medical School, Management and Science University, Seksyen 13, 40100, Shah Alam, Selangor, Malaysia.
³ Department of Engh, Faculty of Education, Thamar University, Yemen

ABSTRACT

Background: In Malaysia, the prevalence of vaping and dual users has been increasing since 2015 with the highest prevalence among young students. Hence, this study measured the prevalence of vaping and dual users, and the sociodemographic factors lead to vaping also how this will affect the knowledge, attitude, the practice of vaping among youth. **Methods and results:** An observational cross-sectional data were collected from a total of 431 Malaysian youths aged 18-40 years old who are studying, working, or living in Shah Alam. A validated questionnaire was adopted. Results: In this study, out of the 431 respondents, 139 respondents reported having ever vaped, and 59 respondents reported as current vaper while 15 of the respondents were dual users. It is revealed that male respondents were the majority of vapers (n=45) with most of them being under the age of fewer than 30 years old (n=52). Most of the vapers were Malay followed by Chinese, Indian, and lastly other races. Most vapers had a positive smoking history in family members (74.5%) and the majority of the current vapers were past smokers (52.63%). Among the ever user, the most common reason to vape was smoking cessation (43.2%) followed by peer pressure (24.5%), miscellaneous (15.8%), being stylish (10.1%), and satisfaction (6.5%). Overall, 287 (66.6%) respondents had good knowledge about vaping and 87.1% of them were non-vapers with a negative attitude towards vaping (90.7%). **Conclusion:** The study shows that the respondents have knowledge of vaping, and most of them are never smoke. There is also an association between vaping and gender and family history of smoking.

Keywords:

Knowledge, attitude, and practice of vaping, youth, smoking status, nicotine, Malaysia.

Introduction

An electronic cigarette (e-cigarette) or vape is described as a “battery-operated device that generates an aerosol for inhalation typically containing nicotine” (Ramo, Young-Wolff & Prochaska, 2014). Vape includes an electronic vaporization framework, a chargeable battery and charger, electronic controls, and replaceable cartridges that may contain nicotine and different synthetic substances (Ministry of Health, 2011). The process of utilizing e-cigarette is called *vaping*, and it imitates smoking aside from that there is no burning and the users breathe in vapor rather than smoke (Cahn & Siegel, 2011).

In 2011, the Ministry of Health Malaysia expressed that about 21% of adults in Malaysia had heard of vaping, and the predominance of utilizing these gadgets was simply 0.8%. Generally, in Malaysia, there is an augmentation of vaping to 18.2% from the year 2011 to the year 2014 (Gravelly et al., 2014). In comparison, studies that have tackled vape users after a specific period of time have discovered that most users were utilizing the two combustible and vaping items rather than totally changing to vape

In comparison, the prevalence of dual users, studies that have pursued vape users after some time has discovered that most were utilizing the two combustibles and vaping items rather than totally changing to vape (National Academies and of Sciences E Medicine, 2018, Weaver et al., 2018).

In Malaysia, the major reason for using vape was to explore the vape and only 16.2% of vaping reported was an effort to stop consuming tobacco cigarettes (Institute of Public Health, 2016). As

for dual users, vaping is to help smokers to quit or decrease their intake of cigarettes (Etter and Bullen, 2011) as well as to satisfy their cravings and handle the withdrawal symptoms related to nicotine dependence (McNeill et al., 2018). Some miscellaneous factors are unique flavors (Ambrose et al., 2015), for leisure (Choi et al., 2012) and popularity (Dutra et al., 2014).

Many smokers perceive vaping to be less harmful than cigarettes and some use them as an alternative to cigarettes (Goniewicz et al., 2013). Nonetheless, many smokers believe that vaping is less harmful (Wackowski et al., 2015). Previous studies stated that between 7% to 27% of adult smokers have discussed knowledge of vaping with their physicians (Wackowski et al., 2015; Berg et al., 2015).

The study regarding attitude towards vaping by Bullen et al., 2010, the claim to the fame of vaping is due to its e-liquid that contains nicotine, propylene glycol or glycerol yet additionally has flavouring agents, for example, mint, fruits, and tobacco. Other than that, there are potential substances or material that have been found by the United States Food and Drugs Administration (FDA), for example, nitrosamines and diethylene glycol inside the e-liquid and the cartridge. In light of the examination, the FDA has regulated vaping under the Federal Food Drugs and Cosmetic Act (Palazzolo et al., 2013).

A study by Shahab et al., 2017, stated that prolonged use of only vape was associated with less exposure to carcinogens and toxins compared to cigarette only use; but the nicotine level in vape was quite similar in these two products. However, according to Wadsworth et al., 2016, the practice of vaping relieves nicotine cravings, while at the same time replaces the behavioural aspects of smoking.

According to a study done by Yong et al. (2019), it was found that there was an association between sociodemographic factors and vaping among the Malaysian population. It was stated that vaping is highly associated with sociodemographic factors including age, gender, ethnicity, income, education level, marital status, and smoking status. From research done by Rutten et al. (2008), it was found that based on the age factor, the elderly population has less understanding about vaping as compared to the youth. Thus, the elderly are less exposed to vaping as compared to the youth.

Moreover, based on a study done by Yong et al. (2019), men are more likely to be more aware of vaping as compared to women because men are more exposed to the habits of smoking. Therefore, they are more exposed to information related to vaping. While a study conducted done by Yong et al. (2019), Malay and Chinese ethnic are more aware of vaping compared to other ethnicities in Malaysia. Whereas a study by Wong et al., 2016; ZainolAbidin et al., 2018; Nurasyikin et al., 2019 shows that two-thirds of vapers were from the poor income family as it is more economical in the long run compared to smoking tobacco cigarettes (ZainolAbidin et al., 2018).

Furthermore, a study done by Yong et al. (2019) shows that education level also plays an important role in awareness towards vaping as it was stated that well-educated individuals are more aware of vaping compared to the less educated. These findings are consistent with previous studies, which stated individuals with higher academic qualifications are more aware of the risks of vaping compared to the contrary. Also, according to Yong et al. (2019), nearly a quarter of single individuals are aware of vaping compared to the married or widowed individuals. In addition, Yong et al. (2019), also stated that there was a higher proportion of smokers of a regular cigarette having a higher percentage of awareness regarding vaping as compared to a non-smoker who vapes.

METHODOLOGY

An observational cross-sectional study was conducted among youth in Section 13, Shah Alam. Questionnaires were used to assess the knowledge, attitude, and practice of vaping among youth in Section 13, Shah Alam. Self-administered questionnaires were distributed to our team members, where they will distribute the questionnaires in Management & Science University (MSU), AEON Shah Alam, Tesco Shah Alam, & most of the shophouses and street in Section 13, Shah Alam.

Malaysian young adults aged 18-40 years old who are studying, working or living in Section 13, Shah Alam were selected as the sample frame through a non-probability convenience sampling method and around 431 samples were collected.

The questionnaire consisted of 5 parts. Part A consisted of 7 questions of sociodemographic information. Part B and C consisted of 10 questions regarding knowledge of vaping and attitude towards vaping respectively revised from Hafiz et al. For part B, 1 mark is given for right answer and the cumulative score is used to determine knowledge of vaping. In comparison, part C, 0 marks for No, 1 mark for Unsure, 2 marks for Yes and also cumulative were used to determine attitude towards vaping. Part 4 consisted of 4 questions for the practice of vaping. Part 5 consisted of 2 questions for the use of conventional smoking.

Copyright permission for using Hafiz et al., 2019 questionnaire in the study was requested. Ethical approval was obtained from the International Medical School of Management and Science University. Participants were briefed and assured on the confidentiality of participation and they had been provided a formal written consent for answering the questionnaire. As all the details were for research purposes only. The confidentiality of the respondents was maintained throughout the entire course of this research.

STATISTICAL ANALYSIS

The data was entered and analyzed by IBM Statistical Package for the Social Sciences (SPSS) Program version 26.0 software for mac. Frequencies and percentages were calculated. Chi-square was used to study the association of sociodemographic factors (age, gender, ethnicity, income, educational level, marital status, smoking in family, level of knowledge and attitude towards vaping) with vaping among young adults in Section 13, Shah Alam. A 'p-value' of <0.05 was considered statistically significant.

RESULTS

Table 1: Socio-demographic characteristics of respondents (n=431).

VARIABLES		N	%
Age	18-30	365	84.7
	31-40	66	15.3
Gender	Male	194	45.0
	Female	237	55
Race	Malay	256	59.4
	Indian	116	26.9
	Chinese	45	10.4
	Others	14	3.2
Marital status	Single	337	78.2
	Married	88	20.4
	Divorced	6	1.4

Level of education	Primary	5	1.2
	Secondary	43	10.0
	University	381	88.4
	No formal	2	0.5
Income	<Rm1000	243	56.4
	Rm1000- Rm4999	145	33.6
	Rm5000- Rm7999	22	5.1
	>Rm8000	19	4.4
Smoking in family	Yes	218	50.6
	No	213	49.4
Level of knowledge	Good	287	66.6
	Poor	144	33.4
Support vaping	Yes	86	20
	No	345	80

Table 2: Relationship between vaping and conventional cigarette smoking.

Conventional Cigarette	Vaping, N (%)			
	N	Current user	Past user	Never use
Current smoker	43	15 (34.88%)	22 (51.16%)	6 (13.95%)
Past smoker	57	30 (52.63%)	22 (38.6%)	5 (8.77%)
Never smoke	330	14 (4.24%)	35 (10.61%)	281 (85.15%)
TOTAL	430	59	79	292

Table 3: Respondents by factors of vaping (n=139).

Factors for Vaping	Frequency	%
Smoking cessation	60	43.2
Peer pressure	34	24.5
Stylish	14	10.1
Satisfaction	9	6.5
Miscellaneous	22	15.8

Table 4: Percentage distribution of respondents by item-wise: knowledge on vaping (n=431).

Item of Questions	Yes	No	UNSURE
Do you know what is vaping?	93.0	3.9	3.0
Vaping is addictive	76.8	13.0	10.2
Vaping has potential to cause of asthma attacks and allergies	72.2	9.7	18.1
Vaping can contain nicotine	71.7	9.3	19.0
Health risk of vaping is same as normal cigarettes smoking	42.7	29.2	28.1
Vaping have same chemicals as the normal cigarettes smoking	37.6	32.9	29.5
Are you aware of any regulation by government on vaping?	56.6	21.6	21.8
Vaping is less harmful to health than normal cigarettes smoking (F)	33.6	44.5	21.8
Vaping is not harmful to health (F)	16.7	61.7	21.6
Can vaping be used at smoke free place (F)	24.4	57.5	18.1

Table 5: Percentage distribution of respondents by item-wise: attitude towards vaping (n=431).

Item of Questions	Yes	No	Unsure
Vaping is fun	22.0	59.4	18.6
Vaping adverts make vaping look cool	25.5	62.4	12.1
Vaping has problem solving effect	21.1	61.9	16.9
Vaping helps to cut down tobacco smoking	39.9	39.7	20.4
Vaping relieves one's stress	30.6	43.9	25.5
Vaping enhances one's performance	15.8	58.7	25.5
Vaping increases one's concentration	20.0	51.5	28.5
Vaping improves one's image	13.5	65.9	20.6
Vaping should be banned in Malaysia ®	56.8	27.1	16.0
Vaping make someone look stylish	15.5	65.0	19.5

Table 6: Percentage distribution of respondents by item-wise: practice towards vaping based on volume of e-liquid (n= 59).

Volume (mL)	N	%
1-2	27	45.8
3-5	25	42.4
>5	7	11.9

Table 7: Percentage distribution of respondents by item-wise: practice towards vaping based on year of vaping initiation (n= 139).

Year Of Vaping Initiation	N	%
<18 years old	27	19.4
>18 years old	112	80.6

Table 8: Relationship between vaping and selected socio-demographic characteristics.

Variables	Total	Vaper	Non-Vaper	P Value
		(%)	(%)	
Age (Years)				
18-30	365	52 (14.2%)	313 (85.8%)	0.428
31-40	66	7 (10.6%)	59 (89.4%)	
Gender				
Male	194	45 (23.2)	149 (76.8%)	0.001
Female	237	14 (5.9%)	223 (94.1%)	
Race				
Malay	256	36 (14.1%)	220 (85.9%)	0.076

Indian	116	12 (10.3%)	104 (89.7%)	
Chinese	45	6 (13.3%)	39 (86.7%)	
Others	14	5 (35.7%)	9 (64.3%)	
Marital Status				
Single	337	49 (14.5%)	288 (85.5%)	0.154
Married	88	8 (9.1%)	80 (90.9%)	
Divorced	6	2 (33.3%)	4 (66.7%)	
Level of Education				
Primary School	5	0 (0%)	5 (100%)	0.261
Secondary School	43	8 (18.6%)	35 (81.4%)	
University	381	50 (13.1%)	331 (86.9%)	
No Formal Education	2	1 (50%)	1 (50%)	
Income				
<Rm1000	243	28 (11.5%)	215 (88.5%)	0.167
Rm1000-Rm4999	145	27 (18.6%)	118 (81.4%)	
Rm5000-Rm7999	22	3 (13.6%)	19 (86.4%)	
>Rm8000	19	1 (5.3%)	18 (94.7%)	
Smoking in Family				
Yes	218	44 (20.2%)	174 (79.8%)	0.001
No	213	15 (7.0%)	198 (93%)	
Level of Knowledge				
Poor	144	22 (15.3%)	122 (84.7%)	0.497
Good	287	37 (12.9%)	250 (87.1%)	
Supporting Vaping				
Yes	86	27 (31.4%)	59 (68.6%)	0.0001
No	345	32 (9.3%)	313 (90.7%)	

DISCUSSION

The study assessed knowledge, attitude, practice and factors related to vaping. In our study, it is revealed that male respondents were the majority vapers (23.2%) with most of them being under the age of 30 years old (14.2%) which was consistent with study done by King et al (2012) and Wong et al (2012). In Malaysia, smoking among females is culturally unacceptable, which affirms the low number of female vapers (5.9%) found in the study. Moreover, based on the study done by Yong et al. (2019), men are more likely to be more aware about vaping as compared to

women this is because men are more exposed to the habits of smoking as compared to women, thus they are more exposed to information related to vaping.

Involvement of vaping among different ethnicity in our study were predominantly involved by Malay (14.1%) and Chinese (13.3%) followed by Indian (10.3%) which corresponds to a study done by Yong et al (2019) which states that Malay and Chinese ethnic groups are more aware about vaping as compared to other ethnicities in Malaysia.

Based on a study done by Yong et al. (2019), the education level also plays an important role in awareness towards vaping as it was stated that a well-educated individual is more aware about vaping as compared to less educated individual. However, a study reported by Wong et al (2016) is indirectly proportionate as evidenced by 39.9% of vape usage among young students of higher institutions and 36% of vape usage among young professional in Selangor and Kuala Lumpur area.

This study also revealed that majority of non-vaper respondents have good knowledge regarding vaping with negative attitude towards vaping which is consistent with their belief against vaping with majority of them (90.7%) shows a non-supportive answer of vaping. AsimShaikh et al (2017) furthermore concluded that many people were aware of what vapes are but still, it was evident that there was a lack of proper knowledge along with negative attitude towards vape use among youth in Pakistan due to cultural and social stigmas as well as lack of advertising.

Vape marketers often advertise it as a safe and healthier alternative to conventional smoking and that it aids smoking cessation. The study shows that reasons contributing to vaping encompasses of smoking cessation, peer pressure, stylish, satisfaction and other miscellaneous reasons. Using it as a means of smoking cessation is popular among dual users (34.88%) as it was stated by Giovenco et al (2014) that there is an increase in adult vapers with majority of them being a current and former cigarette smoker. Chapman et al (2014) stated that vaping is not consistent with attempting to quit tobacco smoking among young adults, as adults most often report vaping as a substitute as for conventional smoking and not as a means of quitting. Institute of Public Health of Malaysia (2016) stated that the major reason for vape use is to explore on vape and only 16.2% of vaping reported was an effort to stop consuming tobacco cigarette. Moreover, vaping is not without risk, but much less dangerous than tobacco, as it has less carcinogenic chemicals such as acetone, acrolein, benzene, cadmium, carbon monoxide, toluene and etcetera. Lynn et al (2017) suggested that the mistaken perception of lesser risk may be the influencing factor for vaping use as a substitute for tobacco smoking. Further research on the health effects of vaping usage should be conducted to ascertain its severity on human health.

Few limitations had been encountered in the interpretation of findings of this study. Data was collected via questionnaires from the respondents. Therefore, the information was given fully dependent on the memory of the respondents. This would cause a subjective error by respondent especially the older ones, who may have difficulty to remember past event, for example age of initiation of cigarette or how many cigarettes they smoked per day. Due to the limitation of study location, the finding from this study might not be representing the whole general population or the whole district because the study involved selected Seksyen 13 Shah Alam localities. The result might be different if the whole districts have been covered in this study. The result also did not depict the scenarios of vaping in Selangor.

This study has involved all the community members, regardless of their smoking status or vaping status. Therefore, there is a possibility that answers given by non-smoker or never use vaper might not be accurate because they were not familiar with both products.

CONCLUSION

Overall, as we can see from the research we conducted, we can conclude that the prevalence of vaping were being used as a style statement by the young adults in Seksyen 13, Shah Alam between 18-30 years of age and as an alternative to quitting conventional cigarette however we fail to reject the null hypothesis since the value of P is more than 0.05. The assessment of the study of participants showed that most of them are non-smokers of the conventional cigarettes and for the dual users, it was an alternative way to quit tobacco smoking which was the leading factor to vaping among youth but we fail to reject the null hypothesis for the objective for the prevalence of the dual users among youths in Seksyen 13, Shah Alam. Most of them had good knowledge on vaping as they knew about the ill-effects of nicotine, that it is harmful to health and also aware that it is prohibited to be smoked at free places. However, the value is more than 0.05 so we fail to reject the null hypothesis for the knowledge of vaping among the youths. In addition, similar attitude was also reflected towards the use of e-cigarettes as most of them want it to be banned in Malaysia. However, enacting a ban on e-cigarettes in future may harm current e-cigarette users and it may revert them to the use of conventional cigarettes. Null hypothesis however failed to be rejected for the attitude on vaping. Most of the youths in Seksyen 13 either never practiced or practiced the usage of vaping but the alternative hypothesis is not accepted since we fail to reject the null hypothesis on the practice of vaping among youths in Seksyen 13. Moreover, there is a significant association of vaping to sociodemographic factors as it shows more men are vaping compared with women, Malays are higher in vaping compared to other ethnicities in Seksyen 13 and the study also provides a strong association between the education level and the usage of vape among the youths as it plays an important role in increasing the exposure to vape more significantly compared to other factors. Majority of vapers are also single with a low source of income and coming from a history of smoking in family. Overall, majority of the participants do not support the usage of e-cigarette as they want it to be banned in Malaysia. Hence, there is an association between gender, family history of smoking and vaping as the P value is less than 0.05. Therefore, we reject the null hypothesis and accept the alternative hypothesis. For other objectives, we fail to reject null hypothesis. In conclusion, the objectives of the research study are accepted as it correlates with our purpose of our research.

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