

NATIONAL E-CIGARETTE SURVEY (NECS) 2016:

PREVALENCE, PATTERN AND PERCEPTION
REGARDING E-CIGARETTE AND VAPE USE
AMONG MALAYSIAN ADULTS

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Contents

Contributors.....	iii
Acknowledgement.....	v
Contents	vii
List of Tables	ix
List of Figures	x
Chapter 1 Introduction and Methodology.....	1
1.1 Introduction	4
1.2 Objectives.....	5
1.3 Methodology.....	5
1.3.1 Sample size	5
1.3.2 Sampling plan	6
1.3.3 Sample distribution.....	7
1.3.4 Plan for data collection	9
1.4 Data Management and Quality Control.....	15
1.5 Statistical Analysis.....	16
1.6 Ethical Approval.....	16
1.7 Privacy and Confidentiality	16
1.8 Grant.....	16
1.9 Population Characteristics	16
Chapter 2 Prevalence of E-Cigarette and Vape Use	19
2.1 Introduction	22
2.2 Prevalence of ECV Users	22
2.3 Characteristics of Current ECV Users.....	22
2.3.1 Age group	22
2.3.2 Gender.....	22
2.3.3 Education.....	22
2.3.4 Occupation.....	22
2.3.5 Race.....	23
2.3.6 Religion.....	23
2.3.7 Marital status.....	23
2.4 Conclusion	23
2.5 Recommendation.....	23
Chapter 3 Pattern of Current E-Cigarette and Vape Use.....	25
3.1 Introduction	28
3.2 History of ECV Use	28
3.2.1 Age of initiation.....	28
3.2.2 Main reasons for using ECV among current users	28
3.2.3 Type of device	28
3.2.4 Sharing of ECV liquid.....	28
3.2.5 Source of ECV liquid.....	28
3.3 Patterns and Cost of ECV Use	29
3.3.1 Flavour of ECV liquid.....	29
3.3.2 Brand of ECV device	29
3.3.3 Frequency (how many times per day)	29
3.3.4 Number of puff per session	29
3.3.5 Volume (ml) of ECV liquid per bottle.....	29
3.3.6 Average days of ECV liquid last (days)	29

3.3.7	Preferred nicotine strength (in mg/ ml).....	29
3.3.8	Favourite places for ECV use	29
3.3.9	Cost of ECV use.....	29
3.4	ECV Quit Attempts	30
3.4.1	Previous quit attempts in the last 12 months	30
3.4.2	Longest duration of abstinence	30
3.4.3	Methods used for ECV quit attempt.....	30
3.5	Second-hand ECV vapour exposure	30
3.5.1	At home.....	30
3.5.2	In the workplace	30
3.6	Conclusion	31
3.7	Recommendation.....	31
Chapter 4	Public Exposure to Media and Perception of E-Cigarette and Vape Use	33
4.1	Introduction	36
4.2	Media.....	36
4.2.1	Ever seen ECV on any media.....	36
4.2.2	Observed any advertisements promoting ECV	36
4.2.3	Observed any information about the dangers of ECV.....	36
4.2.4	Observed any information motivating people to quit ECV.....	36
4.2.5	Effectiveness of health information on ECV use	36
4.3	Perception	36
4.3.1	ECV helps people quit smoking tobacco cigarettes	37
4.3.2	ECV helps people maintain cigarette abstinence.....	37
4.3.3	ECV helps people reduce urge to smoke tobacco cigarettes	37
4.3.4	People react more positively to ECV users than tobacco smokers.....	37
4.3.5	ECV is beneficial and less harmful to the health of the user compared to tobacco smoking	37
4.3.6	Craving, quitting urgency, and addictiveness of using ECV compared to tobacco cigarettes.....	37
4.3.7	Harmfulness of ECV vapour exposure and liquid compared to tobacco cigarettes.....	37
4.3.8	Regulation of ECV	37
4.4	Conclusion	38
4.5	Recommendation.....	38
Chapter 5	Nicotine Analysis.....	39
5.1	Introduction	41
5.2	Material and Methods.....	41
5.2.1	Sample collection	41
5.2.2	Standard nicotine for calibration	41
5.2.3	Internal standard diphenylamine.....	42
5.2.4	Sample preparation	42
5.2.5	Nicotine estimation by GC-MS.....	42
5.3	Results	42
5.4	Conclusion	42
5.5	Recommendation.....	42
Appendix 1	Result Tables	45
Appendix 2	NECS Questionnaire Form	99
Appendix 3	Approval Letter from NIH	151
Appendix 4	Approval Letter from MREC	155
References		159

List of Tables

Table 1. Sample size calculation	6
Table 2. Response rate for LQ visit.....	8
Table 3. Summary of response.....	9
Table 4. Questionnaire structure	10
Table 5. List of Zone Liaison Office.....	13
Table 6. Nicotine analysis.....	43
Table 7. Population characteristics	46
Table 8. Population by residence.....	48
Table 9. Population characteristics by residence.....	48
Table 10. Prevalence of ECV and cigarette smokers	50
Table 11. Prevalence of ECV and cigarette smokers by residence.....	51
Table 12. Prevalence of current ECV users by population characteristics	51
Table 13. Distribution of current ECV users by demographic characteristics	54
Table 14. Pattern of ECV use among current users	56
Table 15. Population characteristics of current ECV users by residence	59
Table 16. Pattern of current ECV users by residence	61
Table 17. Pattern of current ECV use.....	64
Table 18. Favourite places to smoke ECV	65
Table 19. Side effects of ECV use.....	66
Table 20. Quit attempt methods among current ECV users.....	67
Table 21. Withdrawal symptoms experienced by current ECV users	67
Table 22. Prevalence of dual users by population characteristics	68
Table 23. Population characteristics of dual users by residence	70
Table 24. Perceptions of dual users on ECV	73
Table 25. Prevalence of ever ECV use by population characteristics	74
Table 26. Population characteristics of ever ECV users by residence.....	76
Table 27. Prevalence of former ECV users by population characteristics.....	78
Table 28. Population characteristics of former ECV users by residence.....	80
Table 29. Main reasons for quitting ECV.....	82
Table 30. Quit methods among former ECV users	82
Table 31. Second-hand ECV vapour exposure.....	83
Table 32. Prevalence of current cigarette smokers by population characteristics	84
Table 33. Population characteristics of current cigarette smokers by residence	87
Table 34. Characteristics of current cigarette smokers	89
Table 35. Methods of quit smoking attempt among current cigarette smokers.....	90
Table 36. Prevalence of former cigarette smokers by population characteristics.....	91
Table 37. Population characteristics of former cigarette smokers by residence.....	93
Table 38. Quit methods among former cigarette smokers.....	95
Table 39. Have seen media on ECV	95
Table 40. Media exposure on ECV.....	96
Table 41. Perception on ECV	97

List of Figures

Figure 1. Definition of ECV smoker	12
Figure 2. Data collection flow chart	14
Figure 3. Overview of NECS IT-based Procedures.....	15
Figure 4. Distribution of respondents by age and gender.....	17
Figure 5. Distribution of respondents by age and gender in urban	17
Figure 6. Distribution of respondents by age and gender in rural	17
Figure 7. Calibration curve for nicotine.....	41

CHAPTER I

Introduction and Methodology

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Summary

- E-cigarette is defined as a battery-operated device which vaporizes a nicotine solution into a form of inhalable aerosol.
- Vape is defined as a battery-operated device which vaporizes a non-nicotine solution into a form of inhalable aerosol.
- NECS2016 was conducted mainly to measure the prevalence of e-cigarette and vape (ECV) users in Malaysia.
- This study also describes the characteristics of current, former, and dual users.
- The questionnaire was developed together with experts on smoking from both the Ministry of Health and universities.
- 6,000 samples were planned to represent 22 million household adults at national and locality (urban/rural) levels.
- Six centres were selected as the coordinating zones for data collection. They are at USM Kubang Kerian, USM Penang, UiTM Sungai Buloh, UTM Skudai, UNIMAS, and UMS.
- Pre-testing and training were done prior to data collection.
- 10,471 adults were visited but only 6,906 were eligible and, of these, 4,288 respondents were successfully interviewed, yielding the overall response rate of 63.4%.
- Data quality was assured at all levels. Data collection was monitored using the NECS IT system developed in-house. This included the double data entry technique.
- Complex sampling analysis was performed using weight calculated from base or design weight and adjusted for response weight.
- The 4,288 respondents interviewed represent 19 million Malaysians.
- Majority of the respondents were 25-44 years old (44%), had completed at least secondary level education (69%), were of Malay ethnicity (73%), were Muslim (79%), and were married (68%). Males and females were equally represented.

1.1 Introduction

The electronic cigarette (EC) is a battery-operated device which vaporizes a nicotine solution into a form of inhalable aerosol. This product contains nicotine and also a variety of flavourings such as tobacco, menthol, fruit, and coffee which are dissolved in propylene glycol, glycerine, or a mixture of these two substances. The Malaysian Ministry of Health defines the e-cigarette as nicotine-containing while vape is considered non-nicotine-containing.

The EC was developed with the goal of mimicking the action of smoking, including nicotine delivery, with less toxic effects than tobacco smoke, which is responsible for nearly all of tobacco smoking's damaging effects (Cahn & Siegel, 2011; Siegel, Tanwar, & Wood, 2011; Wagener, Siegel, & Borrelli, 2012). Furthermore, ECs create vapour which visually resembles smoke and can replace most of the sensory, behavioural, and social components associated with smoking. A typical EC consists of an electronic vaporization system, rechargeable batteries, electronic controls, and cartridges of the liquid that will be vaporized. The level of nicotine in the cartridges may vary and some also contain flavourings. The manufacturers report that the cartridges typically contain between 6 and 24 mg of nicotine, but they sometimes can contain more than 100 mg (Goniewicz et al., 2015).

Since the introduction of the EC into the global market, its use has increased rapidly around the world. Evidence to date suggests that EC use is increasing rapidly. A study found high awareness of e-cigarettes but low levels of trial and usage (3% overall, 4% in UK) among adults (Adkison et al., 2013). However, a population survey of a British sample demonstrated that current use of ECs doubled between 2010 and 2012 from approximately 3% to 7% (Dockrell, Morrison, Bauld, & McNeill, 2013). A similar pattern was also observed in the United States, in which the proportion of respondents who had ever used an EC increased from 2-3% to 6% in 2010; an even greater increase was found among adult smokers—7-10% in 2010 to 21% in 2011 (King, Patel, Nguyen, & Dube, 2014). There is also evidence that e-cigarette use increased dramatically from 7% in 2011 to around 30% in 2013 amongst New Zealand adult smokers and recent quitters aged 18 years or older (J. Li, Bullen, Newcombe, Walker, & Walton, 2013; Judy Li, Newcombe, & Walton, 2014).

Studies on awareness and factors associated with the use of EC have found several similar associated factors. These factors include reduction in conventional cigarette-smoking, reduction in the number of cigarettes smoked, claims that ECs helped smokers to quit, cheaper, less hazardous to health and curiosity about ECs. (Dockrell et al., 2013; Wang et al., 2015).

Despite available evidence showing an increasing prevalence of EC use internationally, published data on Malaysian populations is limited. For example, the Global Adult Tobacco Survey (GATS), which was conducted in 2011 among 4,250 Malaysians aged 15 years and above, revealed that 21% of Malaysian adults were aware of e-cigarettes and 3.9% of them were current users (IPH, 2012). Alarming, the National Health and Morbidity Survey 2015 revealed that the prevalence of smokeless tobacco users, including ECs, was 10.9%.

On the other hand, the International Tobacco Control study from 10 countries including Malaysia (2011-2012) reported that awareness of ECs among Malaysians aged 18 years and above was 62%, of which 19% of them were ever users and 14% were current users (Gravely et al., 2014). However, the rapid spread in EC use both internationally and nationally increases the need to elucidate the current picture of EC use among Malaysian adults.

Therefore, the current study aims to determine the prevalence of ever users and current users and factors associated with e-cigarette and vape (ECV) use among Malaysian adults. This will provide evidence for policy makers to formulate appropriate measures towards regulation of ECs and vape in Malaysia.

1.2 Objectives

NECS was proposed to achieve the following objectives:

1. To describe demographic characteristics of respondents by age, gender, ethnicity, urbanity, religion, education, marital status, occupation, and income;
2. To measure the prevalence of ECV use, including among current users, former users, dual users, and never users;
3. To describe the current pattern of and perception towards ECV use;
4. To describe the tobacco-smoking status of the respondents, and
5. To determine the nicotine content in ECV solutions.

1.3 Methodology

The methodology was designed to represent all Malaysian adults aged 18 years and above based on household populations at national and urbanity (urban and rural) levels.

1.3.1 Sample size

Sample size was calculated using a formula for one-sample proportion. Sample size was based on the prevalence (p) of 5% with the precision (d) of 1.5%, 2 strata (s) and design effect (DEFF) of 2.0 at 95% confidence interval.

The sample size was increased to accommodate for estimated availability of living quarters (LQ) as 90%, household response rate of 70%, and individual eligibility rate of 90%; therefore the final sample size after anticipating a 57% response rate was **5722 $\approx$ 6000**.

Table 1 Sample size calculation

$n = \frac{1.96^2 * p (1-p)}{d^2} * DEFF * s = 812 * 2 * 2 = 3,248$		
Estimated prevalence, p	=	0.05
Precision, d	=	0.015
Confidence interval, z	=	1.96
Sample size per stratum, n	=	811
Design effect, $DEFF$	=	2
Strata, s	=	2
Response rate		
Eligibility	=	0.90
Household	=	0.70
Missing LQ	=	0.90
Overall, r	=	0.567
Final sample size, n	=	5,722

1.3.2 Sampling plan

The target population included all Malaysian adults aged 18 years and above. Eligible respondents included those who had lived in the selected residences for at least 6 months in the past one year, understood Bahasa Melayu or English, and agreed to participate. Institutional populations such as those staying in hotels, hostels, hospitals, etc. were excluded from the survey. A multistage stratified cluster random sampling with probabilities proportional to size (PPS) was used in this survey, stratified by state and by urban/rural areas. The Primary Sampling Unit (PSU) was the administrative district. Three districts were randomly selected from each state.

The Secondary Sampling Unit (SSU) was the Enumeration Blocks (EB) within the selected districts. An EB is a geographical area which is artificially created and usually consists of specific boundaries such as natural boundaries, administrative boundaries, man-made boundaries, and imaginary boundaries. On average an EB consists of 80 to 120 living quarters. The number of EBs selected per state was proportionate to the population size.

The Final Sampling Unit (FSU) was the Living Quarters (LQ) within the selected EB. LQ are defined as separate and independent structures which are usually used as places of abode. The essential features of living quarters are independence and separateness. A structure is considered separate if it is surrounded by walls, a fence, etc. and is covered by a roof. A structure is said to be independent if it has direct access to a public staircase, communal passageway, or landing—that is, occupants can come in or go out of their living quarters without passing through others' premises (Department of Statistics Malaysia). Twelve 12 LQs were randomly selected from each selected EB. All eligible respondents in the selected living quarters were selected for the study.

1.3.3 Sample distribution

In this survey, in order to get the expected sample size of 6,000 respondents, the distribution was calculated based on a 3,000-sample for urban areas and 3,000-sample for rural areas at the national level. Table 2 shows the distribution and response rate of the selected LQs. Altogether 3,795 LQs were identified, but the number of valid LQs were 2,028 (93%) in urban and 1,466 (91%) in rural areas. Of this number, 1,324 and 1,185 LQs had at least one respondent, yielding LQ response rates of 65% and 81% for urban and rural areas respectively. An unsuccessful survey at the LQ level could be due to:

1. Not an LQ: The selected sample was found not to be a Living Quarter.
2. LQ destroyed: The selected sample was found to be destroyed.
3. Empty LQ: The selected sample was found to be unoccupied.
4. Locked LQ: The selected sample was found to be locked.
5. Refusal: The selected sample refused at the household level.
6. Others: E.g. hostile environment/danger.

Table 2 Response rate for LQ visit

State		LQ			Eligible LQ			Responded		
		Urban	Rural	Total	Urban	Rural	Total	Urban	Rural	Total
1	Johor	204	229	433	203	207	410	182	145	327
2	Kedah	192	168	360	182	154	336	136	127	263
3	Kelantan	48	120	168	48	118	166	43	114	157
4	Melaka	48	12	60	48	12	60	42	12	54
5	Negeri Sembilan	36	84	120	35	79	114	11	51	62
6	Pahang	74	159	233	73	157	230	68	150	218
7	Pulau Pinang	156	36	192	146	33	179	88	21	109
8	Perak	144	144	288	117	131	248	67	100	167
9	Perlis	12	36	48	12	36	48	8	35	43
10	Selangor	636	192	828	594	165	759	316	122	438
11	Terengganu	36	84	120	36	83	119	35	82	117
12	Sabah	147	156	303	118	123	241	89	106	195
13	Sarawak	165	177	342	159	157	316	91	111	202
14	WPKL	252	-	252	222	-	222	126	-	126
15	Labuan	12	12	24	12	11	23	9	9	18
16	Putrajaya	24	-	24	23	-	23	13	-	13
Total		2,186	1,609	3,795	2,028 (92.8%)	1,466 (91.1%)	3,494	1,324 (65.3%)	1,185 (80.8%)	2,509

There were 10,471 adults identified from this survey but only 3,604 and 3,302 were eligible (as per selection criteria) for urban and rural areas respectively. Out of these numbers, 2,123 and 2,165 agreed to participate in the survey, yielding response rates of 59% and 65% for urban and rural areas respectively.

Table 3 Summary of response

	Urban	Rural
LQ planned	2186	1609
Not at home	307	106
Refused to participate	397	175
Not LQ	14	8
Destroyed LQ	10	8
LQ not found	22	18
Others – e.g. not visited due to safety reasons	112	109
Responded LQ	1324	1185
Individuals identified	3604	3306
Individuals responded	2123	2165

An unsuccessful survey at the individual level was due to at least one of the following reasons:

1. Not at home - the individual was not at home after three visits.
2. Refusal - the individual refused to be interviewed.

An information sheet and consent form was made available to every respondent.

1.3.4 Plan for data collection

1.3.4.1 Questionnaire

The NECS Questionnaire Survey Form was developed with input from experts in tobacco control and smoking cessation from the Ministry of Health and academics. The structured questionnaire was accompanied by a bilingual manual to guide the data collectors (Bahasa Melayu and English). This questionnaire was then pre-tested and validated. Table 4 shows the structure of the questionnaire.

Table 4 Questionnaire Structure

No	Section	Description
	Respondent ID	No name or personal identification was collected to retain confidentiality and to attract respondents to answer willingly.
A	Background details	1. Age 2. Gender 3. Urbanity 4. Ethnicity 5. Occupation 6. Education 7. Monthly income 8. Marital status
B	E-cigarette use pattern and perception	1. User status 2. Age of initiation 3. Types of device 4. Frequency 5. Preferred flavour type, brand and cost 6. Amount used (ml of liquid used per day, number of puff per use) of current use 7. How long a bottle of liquid last (days) 8. Sharing of liquid 9. Reasons for use 10. Preferred nicotine strength (in mg/mL) 11. Most common places for ECV use 12. Level of addictiveness (modified from FTCD) 13. Cost (start-up cost and monthly cost) 14. Source of ECV liquid (online, shop, others) 15. Quit attempt a. Number of attempt b. Longest duration of abstinence c. Method used for quit attempt 16. Method used for successful quitting 17. Level of nicotine withdrawal
C	Tobacco smoking status	1. Smoking status (current smoker, ex-smoker, never smoker) 2. Age of smoking initiation 3. Level of cigarette addiction (FTCD) 4. Cost of cigarette (monthly cost) 5. Quit attempt a. Number of attempt b. Longest duration of abstinence c. Method used for quit attempt 6. Method used for successful quitting 7. Level of nicotine withdrawal

D	Dual users	Characteristics of dual users
E	Second-hand ECV exposure	Exposure to ECV vapour
F	Media	Information and source of information on ECV
G	Perception on ECV	Perception of users and non-users on ECV
F	E-cigarette liquid analysis	All bottles of ECV liquid acquired from respondent were analysed for nicotine content.

1.3.4.2 Variables definition

1. E-cigarette and vape

The e-cigarette is a battery-operated device which vaporizes a nicotine solution into a form of inhalable aerosol. This product contains nicotine and also a variety of flavourings such as tobacco, menthol, fruit, and coffee which are dissolved in propylene glycol, glycerine, or a mixture of two substances. The Malaysian Ministry of Health defines the e-cigarette as nicotine-containing while vape is considered non-nicotine-containing.

2. E-cigarette and vape smoking status

Working definitions for ECV in this study were adopted from an NCHS Data Brief (Schoenborn & Gindi, 2015) (Figure 1).

Current ECV smoker – Has smoked at least a puff of ECV and has been smoking in the last 30 days.

Former ECV smoker – Has smoked ECV but stopped more than 30 days ago.

Ever ECV smoker – Has smoked at least one puff of ECV.

3. Tobacco smoking status

Working definitions used for tobacco-smoking status in this study were adopted from CDC (Malarcher, Shah, Tynan, Maurice, & Rock, 2009) (Figure 1).

Current smoker – Reported having smoked at least 100 cigarettes in their lifetime and who has smoked at least one cigarette in the past 30 days.

Ex-smoker – Has quit smoking for the past 6 months or more.

Never smoker – Has never smoked even a single puff of tobacco.

Second-hand smoker – Is exposed to tobacco smoke on a frequent basis.

4. Dual user

Those who are currently smoking both tobacco cigarettes and ECV.

5. Second-hand ECV vapour exposure

Those who are exposed to ECV vapour on a frequent basis.

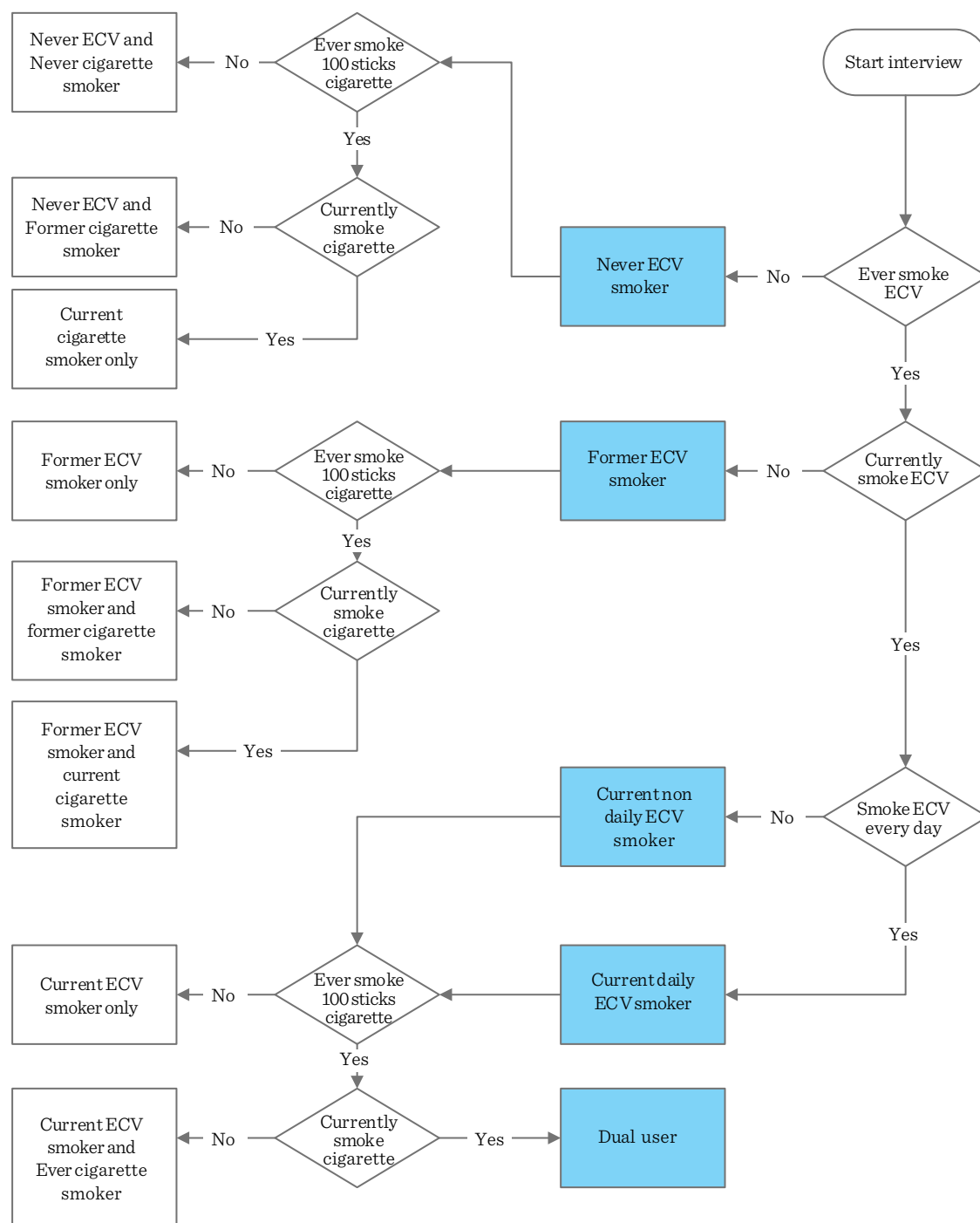


Figure 1 Definition of ECV and cigarette smoker

1.3.4.3 Pre-test

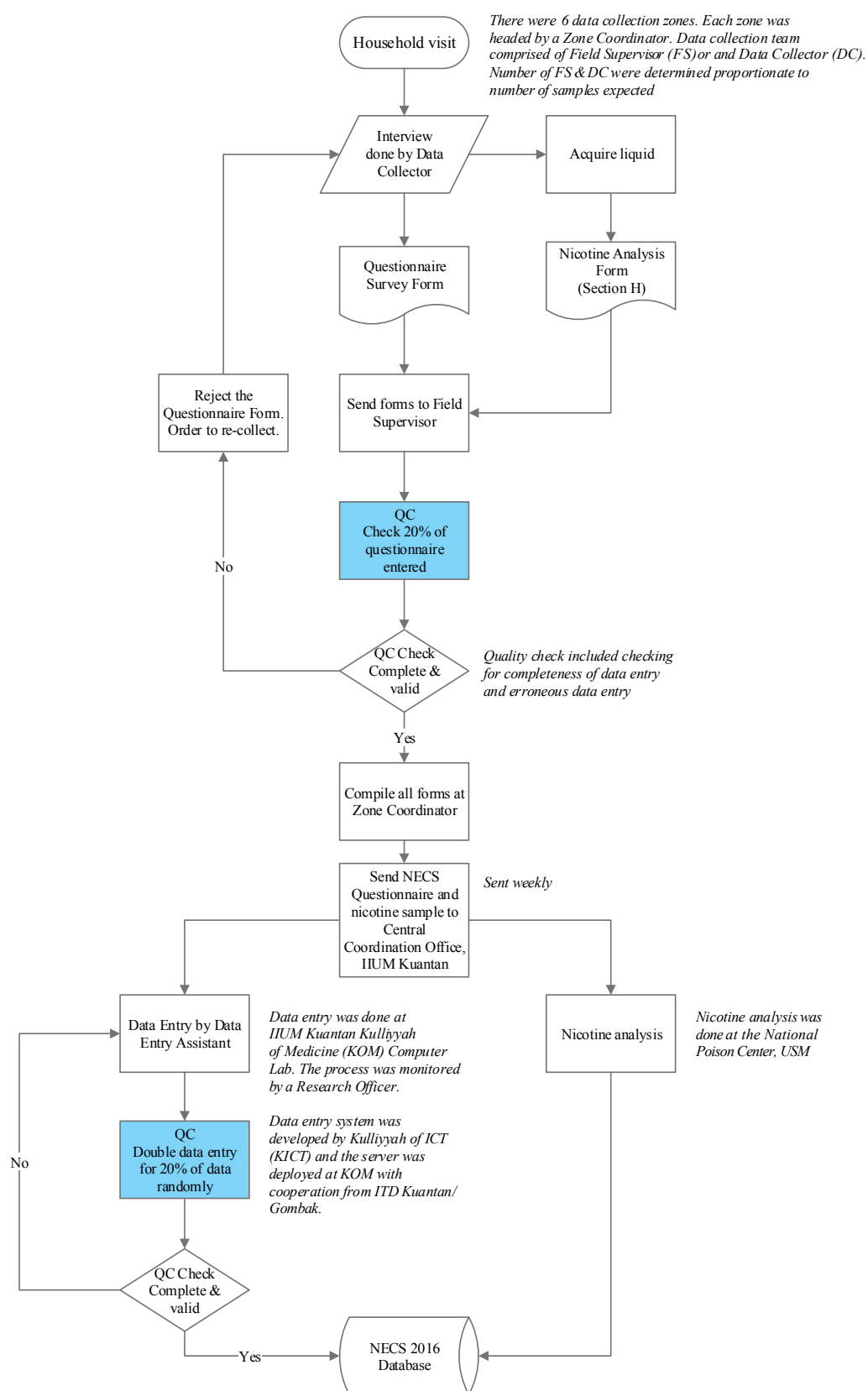
The questionnaire was pre-tested among staff at the International Islamic University Malaysia in Kuantan. Weaknesses and problems were identified, and improvements were made to the questionnaire.

1.3.4.4 Field data collection

The study population was divided into six zones for data collection (Table 5). Each zone was headed by a Zone Coordinator (ZC) appointed as a NECS2016 Research Team Member. One or two Field Supervisors (FS) and six to 14 Data Collectors (DC), depending on the number of samples to be collected, were assigned to each zone for data collection purposes. The data collections were run concurrently in all zones in May and June 2016. Data were collected using the NECS Questionnaire Survey Form, and ECV liquid samples were acquired. All data and specimens were collected at the zone level before being posted to the Central Coordination Office (CCO) in IIUM Kuantan. In Kuantan, the data were entered into the NECS Database twice (double data entry) while ECV liquid samples were analysed in a certified laboratory at the National Poison Centre in Penang. Figure 2 shows the flow of the data collection process.

Table 5 List of Zone Liaison Office

	Zone	States	Liaison Office
1	North (N)	Perlis, Kedah, Penang, Perak	USM Penang
2	Central (C)	Selangor, WPKL and Putrajaya	UiTM
3	South (S)	Melaka, Negeri Sembilan, Johor	UTM
4	East (E)	Kelantan, Terengganu, Pahang	USM Kelantan
5	Sabah (SA)	Sabah and WP Labuan	UMS
6	Sarawak (SR)	Sarawak	UniMAS

**Figure 2** Data collection flow chart

1.4 Data Management and Quality Control

Data quality in a national survey is of prime importance in order to generate accurate, reliable, and valid results. In this study, the team implemented a systematic IT-based procedure to prevent unacceptable practices and to minimize errors in data collection. Such procedures were implemented in the following steps:

- Training for Data Collectors
- Survey implementation
- Data entry/data capturing

Figure 3 depicts the highlights of the above-mentioned steps in phases of survey implementation.

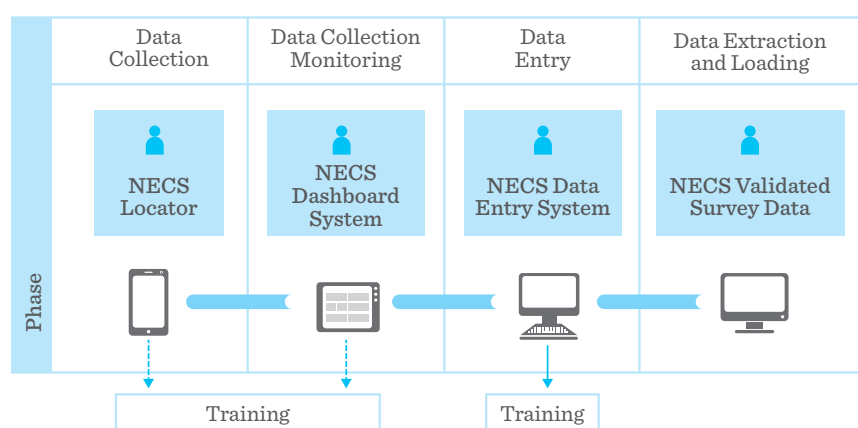


Figure 3 Overview of NECS IT-based Procedures

In the *Data Collection* phase, all Data Collectors (DCs) and Zone Coordinators (ZCs) were briefed on the use of a mobile application called *NECS locator*. As the name suggests, the main purpose of this mobile application was to identify and record the locations of these DCs during the data collection period. The application also recorded each booklet identification number that was filled by each DC.

Data collected from the NECS locator enabled the team and all ZCs to identify and monitor the number of questionnaires completed each day from each location. A real-time online dashboard that displayed all of these details was used in the *Data Collection Monitoring* phase.

After the data collection was completed, the team proceeded to the *Data Entry* phase. In this phase, a data entry system with a double-entry validation method was used. A training session was conducted around two weeks before the actual data entry session began. In each data entry session, each booklet was entered by two different Data entry Assistants (DEA)s. To ensure the integrity of the double-entry validation method, a Research Officer (RO) randomly assigned each stack of booklets to different DEAs. Thus, none of the DEAs knew who had been paired with him/her to key in the data into the system.

Through the double-entry method, an average of about 40% of the data was found to have filtered into a conflicted data pool. The conflicting attributes were mostly regarding values which had to be handwritten (such as phone number, respondent ID, IC Number, and so on). Two Data Verifiers (DVs) were recruited to rectify and verify the conflicting data.

After all data entry sessions were completed, the team proceeded to the *Data Extraction and Loading* phase. A program was executed to go through all data entered and map the attributes. Such an approach was adopted

for security purposes. This meant that if the server was compromised, the data would be of no value to the intruder since attribute descriptors were not stored on the server.

Once the data- and attribute-mapping process was completed, a comma separated values (csv) file was produced and ready for analysis.

1.5 Statistical Analysis

Data was exported to statistical software such as SPSS and STATA for analysis. The data was examined for quality control and was cleaned. The distributions and frequencies were examined. Categories with small sample size and skewed distribution were checked. Outliers were identified from the distribution and based on acceptable values of the variables. Meaningful combination of categories was done when it was indicated. Analysis was performed according to the terms, working definitions, and dummy tables prepared by the research groups. Complex sample analysis procedures were used. The sample weight was calculated, first by calculation of the base or design weight, which was then adjusted for the non-response. In general, the weight of a sampled unit is the reciprocal of its probability of selection into the sample. The final weight used in the analysis was the post-stratification weight based on the 2015 projected population.

1.6 Ethical approval

Approval for the study was obtained from the Medical Research and Ethics Committee of the Ministry of Health Malaysia (NMRR-16-171-28819 (IIR)).

1.7 Privacy and Confidentiality

All information obtained in this survey was kept and handled in a confidential manner, in accordance with applicable laws and/or regulations. Respondents' identity will not be revealed during publishing or presenting of the survey results.

1.8 Grant

The grant for this project was awarded by the National Institute of Health, Ministry of Health Malaysia (NIH/IPH/16-002).

1.9 Population Characteristics

Overall, a total of 4,288 individuals responded to this household survey, representing 19 million Malaysians. Majority of the respondents were 25-44 years old (44%), had completed at least a secondary level of education (69%), were of Malay ethnicity (73%), were Muslim (79%), and were married (68%). Males and females were equally represented. (Table 7 in Appendix 1).

Seventy-two percent of the respondents were from urban residential areas (n=2,123). In terms of the pattern of distribution by age and gender, there were fewer young males from the rural residential areas (Figure 4-6). In rural areas, there were more elderly respondents (12%), those with no formal education (12%), Malays (82%), and Muslims (88%) (Table 9 in Appendix 1).

Figure 4 Distribution of respondents by age and gender

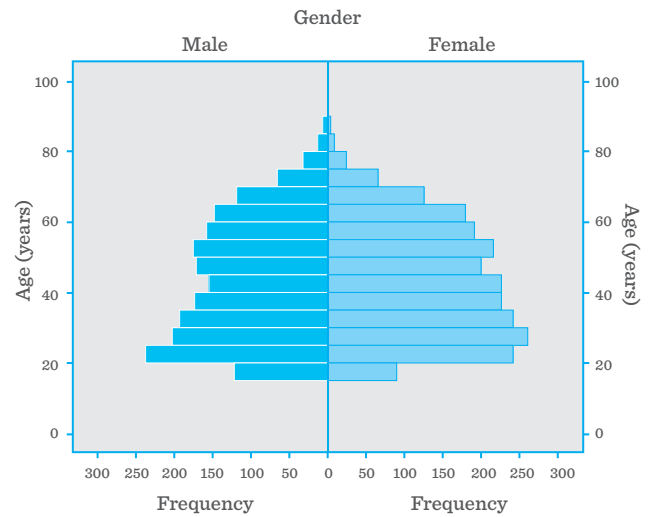


Figure 5 Distribution of respondents by age and gender in urban

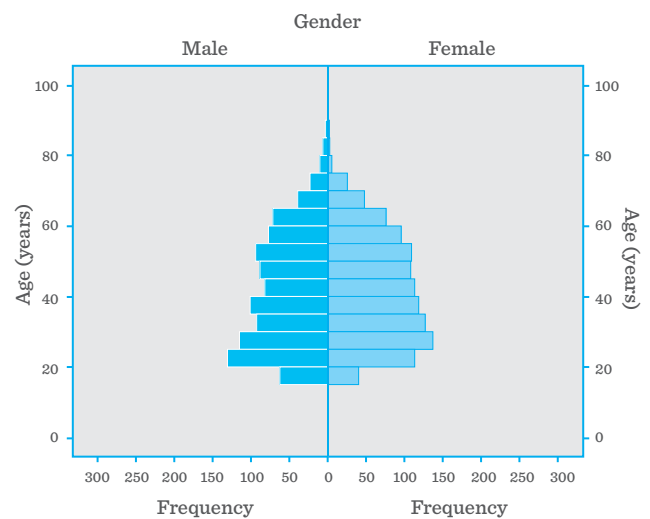
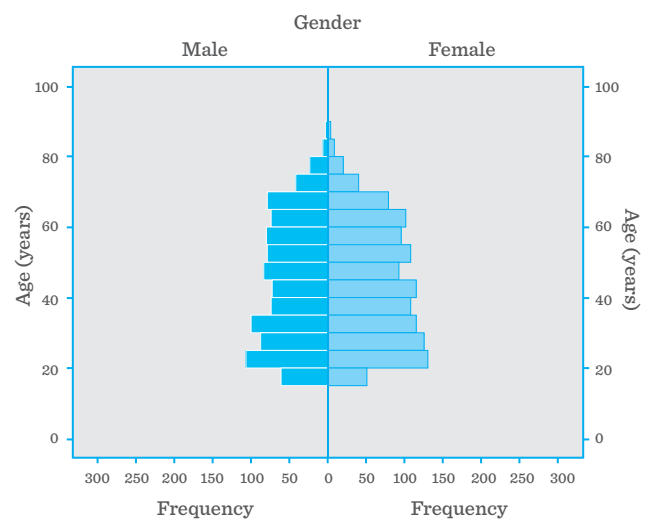


Figure 6 Distribution of respondents by age and gender in rural



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CHAPTER 2

Prevalence of E-Cigarette and Vape Use

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Key Findings

- The prevalence of current ECV users among Malaysian adults aged 18 years and above is 3.2%, with an estimated number of 602,122 in the population.
- In terms of residence, the prevalence of current ECV users in urban areas is 3.3%, compared to 2.9% in rural areas.
- Current ECV use is most prevalent among those in the age range of 18 to 24 years old, those who are male, and those who have completed college/university education.
- Based on occupational status, students and non-governmental employees have the highest prevalence of current ECV use, at 5.5% and 5.4% respectively.
- Among the current ECV users, the majority are single (60.0%), Malay (74.9%), and Muslim (84.9%).
- Approximately two-fifths (42.0%) of current ECV users started at the age range of 12–15 years.
- Almost half (47.0%) of current ECV users reported that the main reason they used ECV was to try it out.
- Majority (71.9%) of the current ECV users reported using the 3rd generation ECV device.
- The prevalence of ever ECV user is 11.9%, with 12.3% from urban and 10.9% from rural areas.
- The prevalence of former ECV user is 8.6%, with 8.8% from urban and 7.7% from rural areas.
- The prevalence of dual user is 2.3%, with 2.5% from urban and 1.8% from rural areas.
- Majority of Malaysian adults are never ECV user (88.1%), with 87.7% from urban and 89.1% from rural areas.

2.1 Introduction

This chapter presents prevalence of e-cigarette and vape (ECV) use among Malaysian adults. It describes ECV use by residence and details the characteristics of current users; including age, gender, religion, education, occupation and marital status. The information should assist policy makers in targeting interventions regarding ECV use in Malaysia.

2.2 Prevalence of ECV Users

The prevalence of current ECV users among Malaysian adults is 3.2%, with an estimated number of 602,122 in the population (Table 10). The prevalence of current ECV users is 3.3% in urban areas and 2.9% in rural areas. The prevalence of those who have never used ECV for urban and rural areas is 87.7% and 89.1% respectively. For ever ECV users, the prevalence is 11.9% (Table 10), with 12.3% and 10.9% for urban and rural areas respectively (Table 11). The prevalence of former ECV users is 8.6% (Table 10), with almost the same for both urban (8.8%) and rural areas (7.7%) (Table 11). For dual users, the prevalence is 2.3% (Table 10), and similar between urban (2.5%) and rural areas (1.8%) (Table 11).

2.3 Characteristics of Current ECV Users

The distribution of current ECV users and their sub-group characteristics is reported below.

2.3.1 Age group

Majority of current ECV users are 25-44 years old (55.3%), followed by those who are 18-24 years old (39.3%). Smaller proportions belonged to the older age groups (Table 13).

Within each category of age group: the prevalence of current ECV users is 6.5% (95%CI: 4.5-9.2) within the age group 18-24 years, 4.0% (95%CI: 2.9-5.6) for the age group 25-44 years, and 0.5% (95%CI: 0.2-0.9) for the age group 45-64 years. Among those who are 65 years and above, the prevalence of current ECV use is 0.4% (95%CI: 0.1-3.2) (Table 12).

2.3.2 Gender

Among current ECV users, the majority are males (95%) (Table 13). The prevalence of current ECV users among males and females are 6.1% (95%CI: 4.7-7.8) and 0.3% (95%CI: 0.1-0.6) respectively (Table 12).

2.3.3 Education

Majority of the current ECV users (almost 88%) had at least a secondary level of education (Table 13). Comparing education levels, the highest proportion of current ECV users are those with college/university education at 5.4% (95%CI: 3.9-7.6), followed by secondary school graduates at 3.2% (95%CI: 2.3-4.5) (Table 12).

2.3.4 Occupation

In terms of the categories of occupation among ECV users, the majority (45.0%) are working in non-governmental organizations, followed by the self-employed (23.8%), students (13.0%), and those working for government organizations (11.9%) (Table 13). The prevalence of current ECV users is highest among students at 5.5% (95%CI: 2.9-10.1), followed by those with non-governmental occupations at 5.4% (95%CI: 3.8-7.6), 3.7% (95%CI: 1.8-7.4) for the government sector, and 3.7% (95%CI: 2.4-5.8) for self-employed workers (Table 12).

2.3.5 Race

Among the current ECV users, it was shown that the majority are Malays (74.9%), followed by the Chinese (6%) and Indians (4.8%) (Table 13). Within each ethnic group, the proportions of current ECV users among the Kadazans, Ibans, Malays, Indians, and Chinese are 7.9%, 3.7%, 3.3%, 2.6%, and 1.5% respectively (Table 12).

2.3.6 Religion

Among current ECV users, the majority are Muslims (84.9%), followed by Christians (6.3%), Hindus (4.8%), and Buddhists (2.7%) (Table 13).

Prevalence of current ECV users among Muslims is 3.4%, while the prevalence among Christians, Hindus, and Buddhists are 4.0%, 2.8%, and 0.9% respectively (Table 12).

2.3.7 Marital status

Among current ECV users, the majority are singles (60.0%) (Table 13). Comparing marital status, the highest prevalence is found among the divorced at 8.7% (95%CI: 2.5-26.0), followed by singles at 7.2% (95%CI: 5.2-9.9), and the married at 1.8% (95%CI: 1.2-2.6) (Table 12).

2.5 Conclusion

The prevalence of current ECV users among Malaysian adults is highest among those between 18 and 24 years old, males, and those who have completed college/university education. Students and non-governmental employees have the highest prevalence of current ECV use. Malays and Muslim adults form the highest proportion among current ECV users.

2.6 Recommendation

Based on the findings, policy and cessation intervention strategies regarding ECV use should focus on young, educated, Malay, Muslim males who are either students or non-governmental employees.

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CHAPTER 3

Pattern of Current E-Cigarette and Vape Use

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Key Findings

- Majority of the current ECV users (86.5%) started to use ECV at the age of 19 years and above.
- Most of the current ECV users preferred third generation devices or mechanical mods (71.9%).
- The brand of device most used by current ECV users were IPV® and Subox Kangartech®.
- The mean amount spent on ECV device was RM432.60 and per bottle on ECV liquid was RM52.90.
- The most preferred flavour of ECV liquid among current ECV users was fruity flavours: mango, strawberry, and apple.
- The mean amount of liquid per bottle was 33.1 ml.
- The mean cost for each bottle of the preferred ECV liquid was RM 52.90.
- The amount spent per bottle of ECV liquid was higher for rural (RM 60.30) users than urban (RM 50.80) ECV users.
- The mean frequency of ECV used was 19 sessions per day.
- The mean number of inhalations was 16.2 puff/session, higher for urban (17.7 puff/session) than rural (10.6 puff/session) ECV users.
- A bottle of ECV liquid could last for 17.2 days.
- Overall, the preferred nicotine strength among ECV users was 7.3 mg/ml.
- About 55% of the ECV users shared their ECV liquid, mostly among friends.
- The three main reasons for using ECV: to experiment (47.0%), to quit tobacco cigarette smoking (16.2%), and to reduce tobacco cigarette smoking (9.6%).
- No respondents reported using ECV to smoke in places where tobacco cigarette smoking is prohibited. A minority reported using ECV mainly to reduce costs of (7.3%) or to replace (5.4%) tobacco cigarette smoking.
- Nearly half (48.4%) of current ECV users tried quitting in the last 12 months.
- The most favourite places for ECV use were outside (25.3%) and inside (19.1%) of homes and restaurants without air-conditioning (17.5%).
- The current ECV users obtained their ECV liquid from vape shops (48.3%), kiosks (6.0%), night markets (2.8%), and other sources (35.2%). Majority of the 'other sources' were from friends (75%) and salesmen (6%).
- The exposure to ECV vapour was 35.8% at the workplace and 16.2% at home.
- Three out of four ECV users attempted quitting without assistance.
- The mean duration of abstinence among current ECV users was 58.5 days.

3.1 Introduction

This chapter presents pattern of current e-cigarette and vape (ECV) users in Malaysia. It describes ECV use-related behaviours in the Malaysian adult population: 1) history of ECV use, 2) patterns and cost of ECV use, 3) quit attempts, and 4) second-hand ECV vapour exposure. Findings from this study provide knowledge and evidence to support and further advocate for specific policies on ECV use in Malaysia.

3.2 History of ECV Use

3.2.1 Age of initiation

The majority of the current ECV users (86.5%) started to use ECV at the age of 19 years and above. A quarter of current ECV users were daily users (Table 14).

Among the current ECV users, the urban-to-rural ratio was 1:1. However, among the daily ECV users, 63% were from urban areas. The mean age to start using ECV daily was 26.8 (urban) and 25.9 (rural) years old (Table 17).

3.2.2 Main reasons for using ECV among current users

Overall, the main reason to use ECV was to try or experiment (47.0%). Other reasons included to quit tobacco cigarette smoking (16.2%), to reduce tobacco cigarette consumption (9.6%), to reduce the cost of smoking (7.3%), and to replace tobacco smoking (5.4%) (Table 14). Surprisingly, nobody reported using ECV as a reason to smoke in places where tobacco smoking is prohibited.

3.2.3 Type of device

Most of the current ECV users preferred third generation devices or mechanical mods (71.9%). Among urban users, the majority preferred mechanical mods (68.3%), followed by preference for second generation (14.9%) and first generation (7.6%) devices. For rural users, mechanical mods was the preferred device (85.2%), followed by first generation (8.2%) and second generation (4.1%) devices (Table 16).

3.2.4 Sharing of ECV liquid

Overall, 55.2% of current ECV users shared their ECV liquid, mainly among friends (Table 14). Similar patterns were observed among both urban and rural ECV users (55.0% vs. 55.8% respectively) (Table 16).

3.2.5 Source of ECV liquid

Overall, 48.3% or 268,000 current ECV users obtained their ECV liquid from vape shops, 7.7% from online sources, 6.0% from kiosks at shopping centres, and 2.8% from night markets (Table 14). The remaining 35.2% were from other sources, such as friends (75.0%) and salesmen (6.0%).

The most common source of ECV liquid among both urban and rural current ECV users was vape shops (Table 16).

3.3 Patterns and Cost of ECV Use

3.3.1 Flavour of ECV liquid

There are various brands and types of ECV liquid flavours available on the market (fruit-based and non-fruit-based). The most preferred was fruit-based flavours, especially mango, strawberry, and apple.

3.3.2 Brand of ECV device

ECV device are available in various brands. For instance, IPV[®], Snow[®], Smoke[®], and Subox Kangartech[®]. Among the current ECV users, IPV and Subox Kangartech[®] were used the most.

3.3.3 Frequency (how many times per day)

Overall, the mean frequency of ECV use was 18.6 session/day. Urban ECV users had slightly more sessions of ECV use (19.3 session/day) compared to rural ECV users (16.3 session/day) (Table 15).

3.3.4 Number of puff per session

Overall, mean puff per ECV session was reported to be 16.2 puff/session. Urban ECV users puffed more than the rural ECV users (17.7 puff/session vs. 10.6 puff/session) (Table 17).

3.3.5 Volume (ml) of ECV liquid per bottle

On average, there was 33.1ml of ECV liquid per bottle (Table 17).

3.3.6 Average days of ECV liquid last (days)

Overall, a bottle of ECV liquid could last for 17.2 days (Table 17).

3.3.7 Preferred nicotine strength (in mg/ml)

Overall, 83.9% of ECV users preferred ECV liquid with nicotine (Table 16) and the preferred nicotine strength among ECV users was 7.3 mg/ ml (Table 17).

3.3.8 Favourite places for ECV use

Overall, the most favourite places for ECV use was outside (25.3%) and inside (19.1%) of the homes, followed by restaurants without air-conditioning (17.5%) and workplaces (16.3%). The least favourite places for ECV use were shopping complexes (0.4%) and government buildings (0.4%) (Table 18).

3.3.9 Cost of ECV use

Overall, the mean amount of money spent on each bottle of ECV liquid was RM 52.90, and RM432.60 for the device. Interestingly, urban ECV users spent 19.7% higher on devices (RM449.10 vs. RM375.10) but 15.8% lower on ECV liquid compared to rural users (RM 50.80 per bottle vs. RM60.30 per bottle) (Table 17).

The annual ECV liquid cost per person (calculated by dividing the average money spent on ECV liquid with an average duration of ECV liquid usage) was RM1,122.59. If the device expenditure was included (assumed to be recurring every two years), the total annual cost was RM1,338.89 per person.

In order to assess the affordability of ECV use, the annual expenditure in proportion to the national gross domestic income per capita was calculated. It was estimated that 3.01% (GDP per capita = US\$10,222 per capita, World Bank 2015; ¹US\$1=RM3.65) of the GDP was spent on the purchase of ECV liquid, or 3.59% if both device and liquid expenses were considered.

3.4 ECV Quit Attempts

3.4.1 Previous quit attempts in the last 12 months

Among current ECV users, nearly half (48.4%) had made quit attempts in the last 12 months (Table 14).

3.4.2 Longest duration of abstinence

The mean duration of abstinence was 58.5 days, ranging from one day to 360 days. Among current ECV users, the percentage who successfully abstained from ECV for one month or more was 60.4%. (Table 14).

3.4.3 Methods used for ECV quit attempt

Among those who attempted to quit ECV use, the majority tried quitting without any assistance (76.6%). Similar proportions (2.1%) sought advice from ECV vendors, tried other medications, or contacted a quitline. Others who tried to abstain reported other methods (17.0%), which included switching to cigarette smoking, being influenced by friends, and financial problems (Table 20).

3.5 Second-hand ECV vapour exposure

3.5.1 At home

Overall, 16.2% of adults in Malaysia (3.02 million) were exposed to ECV at home. The frequency of exposure to ECV was every day (6.8%), every week (2.3%), every month (2.0%), or less than once a month (5.1%) (Table 31).

The daily exposure to ECV vapour among adults in urban residences (7.1%) was higher than that in rural (5.9%) residences.

3.5.2 In the workplace

Overall, 35.8% of adults in Malaysia (3.62 million) were exposed to ECV vapour in their workplaces. The prevalence of exposure to ECV vapour was 25.2% every day, 4.5% every week, 1.4% every month, or 4.6% less than once a month (Table 31).

The daily and weekly exposure to ECV vapour among urban residents (26.7% and 4.8%, respectively) was higher than that among rural residents (19.7% and 3.6%, respectively). The percentage of ECV vapour exposure among rural residents (5.3%) less than once a month was higher than that of urban residents (4.5%).

1 World Bank. (2016, October 28). Countries Overview: Malaysia. Retrieved from <http://www.worldbank.org/en/country/malaysia/overview>

3.6 Conclusion

Most Malaysian ECV users started to use ECV at the age of 19 and above. The main reason for its use was to experiment with ECV. Among various types of ECV devices, Malaysian ECV users preferred third generation devices. The majority preferred ECV liquids with an average nicotine strength of 7.3 mg/ml. Half of the current ECV users tried quitting in the last 12 months, and the majority remained abstinent for more than one month. There is higher exposure to ECV in the workplace than at home.

Malaysians spent substantial amounts of their income on ECV. As frequency and sharing habits are comparable between urban and rural consumers, the higher expense of the latter could be attributed to the difference in price of ECV in rural areas.

3.7 Recommendation

The current ECV users start as early as school age. This shows that awareness of the dangers of ECV use is still low; therefore more education and awareness campaigns should target children as young as school age. Furthermore, since the majority of ECV users begin at the age of 19 years old or older and obtained their ECV supplies through friends, intervention via peer support group might be an effective strategy to combat this.

Most exposure to ECV vapour occurred outside the home. Hence, tobacco-free policies should include prohibition of ECV use in public places and workplaces.

Since almost one-third of ECV users used ECV as a method to quit tobacco cigarette smoking, further research should be conducted on the effectiveness of ECV use as a quitting method for tobacco cigarettes. In addition, the Ministry of Health should develop a clear position on the use of ECV in the current smoking cessation guideline.

The cost of a device was calculated by assuming the consumer is using a single device that lasts for two years. It is possible that some consumers use multiple devices for different occasions that reflects their lifestyle. Thus, the current estimate might overestimate the device cost. This estimate could be improved by exploring further the patterns of device usage by consumers in a future study.

The use of ECV is commonly associated with lower costs compared to the use of cigarettes. Although a general deduction can be made from the present data, as the present report only focuses on ECV this analysis will not be reported here.

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CHAPTER 4

Public Exposure to Media and Perception of E-Cigarette and Vape Use

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Key Findings

- Promotions and advertisements for ECV that reached the respondents came from social media (18.4%), the Internet (16.3%), and vape shops (13.4%).
- Information on the dangers of ECV and motivation for users to quit ECV came from TV (21.0%), social media (15.0%), and newspapers and magazines (14.0%).
- After obtaining information about ECV effects on health, more than half (54.6%) of the respondents thought a lot about its health risks.
- About 75% of the respondents felt that ECV does not help tobacco cigarette smokers to quit smoking or maintain abstinence upon quitting.
- Most of the respondents (91.8%) wanted ECV to be prohibited in places where tobacco cigarette smoking is banned.
- Almost two-thirds of the respondents (63.4%) wanted ECV to be banned completely.

4.1 Introduction

The researchers of this study investigated sources of information for the general public to learn about e-cigarette and vape (ECV), as well as people's opinions on ECV. It is hoped that the findings of this study can help the government in making well-informed policies so as to reduce the use of ECV among Malaysians. This chapter will explain the public's exposure to media about ECV as well as public perception of ECV.

4.2 Media

4.2.1 *Ever seen ECV on any media*

Overall, 41.5% of the adults 18 years or older had ever seen ECV on any media. Rural residents (42.5%) had a slightly higher percentage of observing ECV on the media.

4.2.2 *Observed any advertisements promoting ECV*

The most frequently used platform to promote ECV was social media (Facebook, Instagram, and Twitter at 18.4%), followed by other sources on the Internet (16.3%), and vape shops (13.4%). Cinemas were the least frequently used platform to promote ECV (see Table 40). Generally, urban respondents (63%) had a higher percentage of observing advertisements promoting ECV than rural respondents (57.7%). However, rural respondents had higher percentages of observing advertisements promoting ECV via television (47.7%), radio (18.2%), and newspapers (32.4%).

4.2.3 *Observed any information about the dangers of ECV*

As shown in Table 40, more than one fifth of the respondents (21.7%) received information on the dangers of using ECV from television. A higher percentage of rural respondents observed information on the dangers of smoking ECV on television (80.4% vs 72.6%) and through vape shops (6.2% vs 3.8%) than urban residents did.

4.2.4 *Observed any information motivating people to quit ECV*

A higher percentage of rural respondents observed information aimed at motivating users to quit ECV via television (80.0% vs 70.5%) and vape shops (5.0% vs 3.8%) than urban respondents did.

4.2.5 *Effectiveness of health information on ECV use*

More than half (54.6%) of the respondents thought a lot about the health risks of using ECV after obtaining information on its health effects. Rural respondents had a higher percentage of 'somewhat thinking' about the health risks of using ECV compared to their urban counterparts (25.6% vs 20.7%) but lower percentages of 'thought a lot' (49.1% vs 56.5%).

4.3 Perception

In this section, the findings on the public perception of ECV (Table 41) are discussed regarding the following statements:

4.3.1 *ECV helps people quit smoking tobacco cigarettes*

Majority of the respondents disagreed that ECV helps people to quit (74.5%) or to cut down on tobacco cigarette smoking (63.0%). Furthermore, 85.3% of the respondents disagreed that ECV is more effective than medication for quitting smoking.

4.3.2 *ECV helps people maintain cigarette abstinence*

Overall, 79.7% of the respondents disagreed that ECV helps people maintain cigarette abstinence, and 50% of the respondents agreed that ECV is not an effective aid to quitting nicotine.

4.3.3 *The urge to smoke is reduced by using ECV*

Overall, 67.1% of the respondents disagreed that the urge to smoke is reduced by using ECV. More than half (51.9%) of the respondents agreed that ECV is less satisfying than tobacco smoking.

4.3.4 *People react more positively to ECV users than tobacco smokers*

More than a quarter (26.7%) of the respondents agreed that people react more positively to ECV users than to tobacco smokers. Majority of the respondents (64.6%) agreed that the smell of an ECV is better than the smell of a tobacco cigarette.

4.3.5 *ECV is beneficial and less harmful to the health of the user compared to tobacco smoking*

The use of ECV is perceived by only some of respondents to improve breathing (15.4%) and coughing (14.2%). However, majority of the respondents disagreed that ECV is less harmful to health (77.1%).

4.3.6 *Craving, quitting urgency, and addictiveness of using ECV compared to tobacco cigarettes*

More than half (54.8%) of the respondents agreed that craving for ECV is as strong as for tobacco cigarettes. Also, 35.2% of them agreed that the sense of urgency to quit ECV is not the same, and 33.2% agreed that ECV is more addictive.

4.3.7 *Harmfulness of ECV vapour exposure and liquid compared to tobacco cigarettes*

Slightly more than half (55.6%) of the respondents agreed that ECV is more harmful to others compared to tobacco smoke. Majority (80.8%) of the respondents agreed that ECV solutions cause poisoning and allow more nicotine use (55.1%) compared to tobacco cigarettes.

4.3.8 *Regulation of ECV*

63.4% of the respondents agreed that ECV should be banned completely rather than regulated, and 91.8% of the respondents agreed that ECV should be prohibited in places where smoking is banned.

4.4 Conclusion

ECV is still a new invention, yet evidence has already shown that its risks outweigh its benefits to users. It is also feared that irreversible health damage could occur when ECV is used on a long-term basis. Immense efforts must be put in by authorities from the government to educate people about ECV's negative effects on the society as well as on health.

One of the greatest ambitions of the Malaysian government is to succeed as a developed country by the year 2020. To fulfil this dream, the people of this nation must be healthy physically, mentally, and also socially. ECV use may simply impair the quality of the people. At the very least, the use of ECV is perceived by this survey's respondents to worsen breathing (84.6%) and coughing (85.8%).

In addition, as suggested by more than half of the respondents in this study, ECV use should be banned completely in this country so that people can thrive in a cleaner, purer environment.

This study concludes that social media, the Internet, and vape shops are the main platforms where ECV has been effectively promoted and advertised to the general public. Meanwhile, television (21.7%) played an important role in providing information on the dangers of using ECV. It is also a powerful instrument in providing information to motivate people to quit smoking ECV. Social media, newspapers, magazines, as well as the Internet are sources of information for the general public to learn about the dangers of ECV.

Respondents in this study were aware of the negative effects of ECV and were not positive about its use.

4.5 Recommendation

This study showed that only half of the respondents gave some thought to the negative effects of ECV after receiving information about it. It is important for the authorities to increase efforts to highlight the dangers of ECV so people will be more alert and concerned about its negative consequences. For the government to educate the general public about ECV, television, social media, newspapers, and magazines, and the Internet are potentially effective tools. The government should spread awareness of the negative effects of ECV through these means.

However, educating the public would not be enough. Sources where ECV is advertised and sold must be strictly controlled, or better still, eliminated. Thus, advertisements through social media, the Internet, and other means must be banned though strict enforcement of relevant regulations. It is also important for the government to limit and reduce the number of vape shops in this country.

Ultimately, the easiest and the most effective step would be banning ECV use entirely in this country.

CHAPTER 5

Nicotine Analysis

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5.1 Introduction

Analysis of the nicotine content in ECV liquids was done to quantitatively determine the amount of nicotine available in the samples obtained from respondents.

5.2 Material and Methods

The analysis of nicotine in ECV liquid samples was performed according to USM/NPC/TM 22 method using Gas Chromatography Mass Spectrometry (GC-MS) in Selective Ion Mode (SIM). All collected samples were analysed in Toxicology Laboratory, National Poison Centre (NPC), University Sains Malaysia (USM), certification number SAMM 523: MS ISO/IEC 17025.

5.2.1 Sample collection

Samples of ECV liquids were collected from NECS respondents. A total of 81 ECV liquid samples were received from data collectors, and each sample was given a unique code number for identification purposes. All samples were stored in their original containers and refrigerated between 4°C to 8°C to minimize nicotine degradation prior to analysis.

5.2.2 Standard nicotine for calibration

10 mg of standard nicotine (Acros Organics, purity 99%) was transferred to a 10 ml volumetric flask (VF) and mixed with methanol up to the mark. Further dilutions were done to prepare the calibration curve of standard nicotine solutions in the range of 50, 100, 500, 1000, 2500, and 5000 ng/ml. The linearity of calibration curve was found to be excellent, $R^2 = 0.998$ (Figure 7).

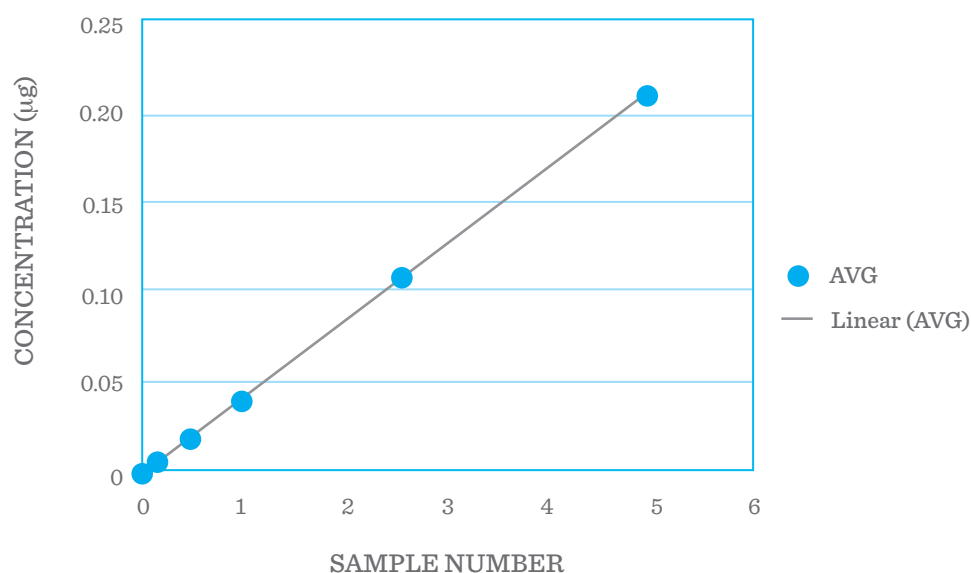


Figure 7 Calibration curve for nicotine

AVG = Average

5.2.3 Internal standard (IS) diphenylamine

2.5 gm of diphenylamine was mixed with 10 ml methanol in VF. Then 100 µl of stock solution was pipetted out and mixed with 10 ml methanol to prepare an IS working solution of 250 ng/ml.

5.2.4 Sample preparation

10 µl samples were diluted in 10ml V.F with methanol. 50 µl of sample solution was pipetted out and mixed with 50 µl internal standard (IS) diphenylamine (250 ng/ml). A pinch of anhydrous sodium sulphate was added and vortexed briefly, followed by 5 minutes centrifuge at 2500 rpm. The supernatant was transferred into a glass insert of the labelled auto sampler vial and then analysed by GC-MS.

5.2.5 Nicotine estimation by GC-MS

The nicotine estimation was measured by a Hewlett Packard® 6890 series Gas Chromatograph with autosampler and 5973 Mass Selective Detector (MSD) running on a ChemStation data system. A capillary column of HP-5 cross linked 5% phenyl methyl siloxane fused silica 30 m × 0.32 × 0.25 µm with a carrier gas helium flow rate of 2.4/min was used. Injector port temperature was set at 250°C. Interface temperature was set at 280°C, and the oven temperature was set initially at 70°C and increased by 25°C/min to 230°C, and it was held for 1 minute. Then, it was further held for another 5 minutes at 300°C. The sample injection mode was splitless with 1 µl injection volume. The retention time for nicotine and diphenylamine were 4.23 and 4.94 minutes respectively.

5.3 Results

Out of 81 samples analysed for nicotine content, a total of 13 samples had no label for nicotine but was found to contain nicotine. Two samples labelled as having zero nicotine but were found to also contain nicotine. A total of nine samples contained a level of nicotine higher than what their labels indicated. However, 57 samples had nicotine concentrations that were lower than what their labels indicated. The nicotine concentration percentage difference between what stated on the label and the result from analysis was found to be as low as from -99.16% to -1.28% in 64 samples, while in 4 samples the difference was higher (+163.0% to +0.083%), and the remaining 13 samples had no mention of nicotine concentration on their labels.

5.4 Conclusion

There was a large discrepancy in nicotine concentration between the labelled and analysed values among the collected ECV samples.

5.5 Recommendation

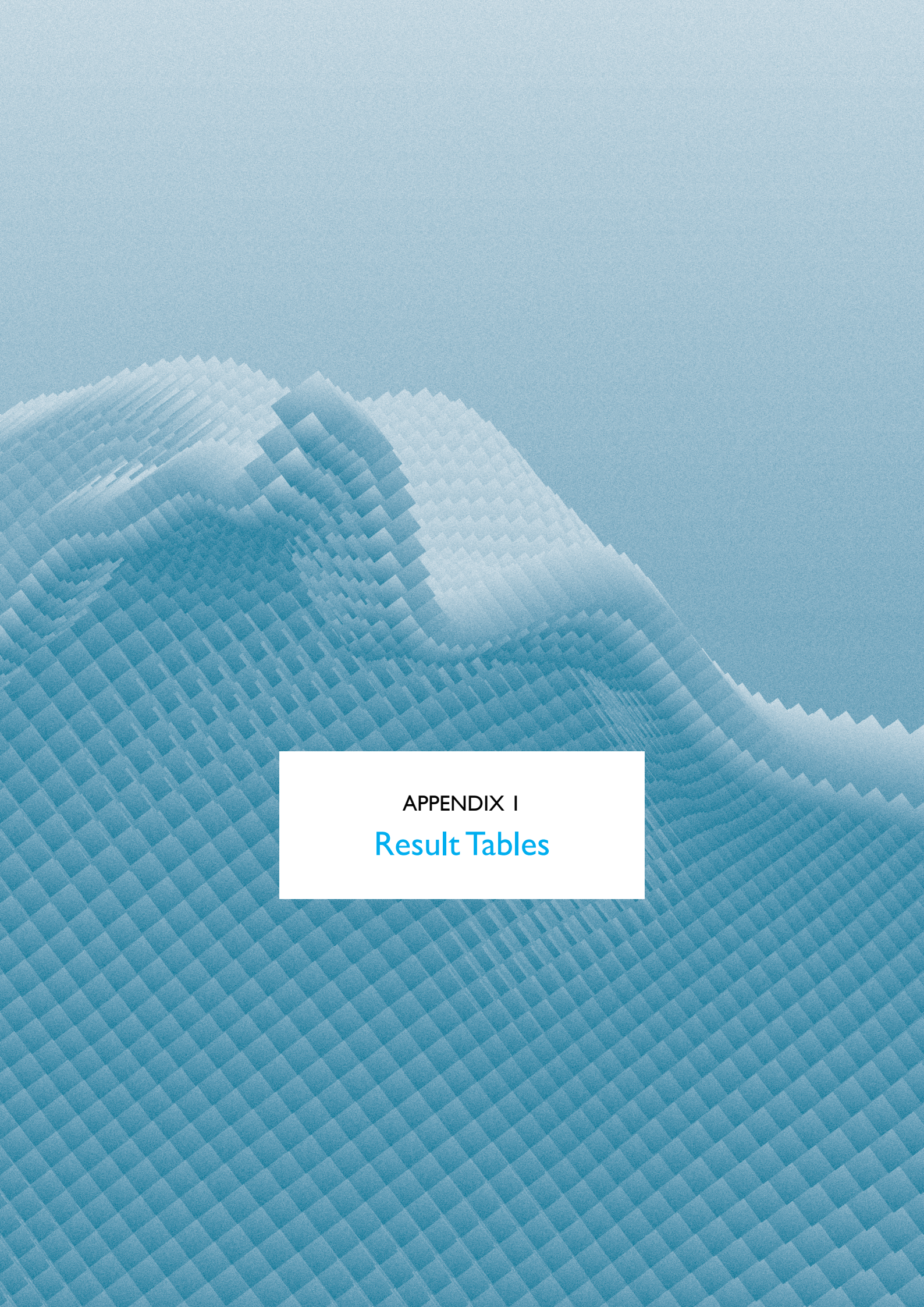
Strict enforcement is needed for ECV liquid, based on the current regulations of nicotine, to ensure safety of users.

Table 6 Nicotine analysis

No	Nicotine area	International standard area	Ratio	Label value	Calculated value	% Difference
1	147,948.00	933,209.00	0.16	6	3.77	-37.22
2	841.73	181,132.00	0.00	0	0.16	+
3	157,913.00	621,501.00	0.25	6	6.01	0.08
4	222,317.00	1,369,263.00	0.16	9	3.86	-57.16
5	45,702.00	553,041.00	0.08	6	1.99	-66.90
6	37,903.00	661,870.00	0.06	6	1.39	-76.83
7	32,189.00	569,403.00	0.06	6	1.37	-77.12
8	149,348.00	1,850,890.00	0.08	9	1.93	-78.51
9	86,226.00	1,177,673.00	0.07	3	1.76	-41.20
10	207,827.00	917,926.00	0.23	6	5.36	-10.68
11	81,780.00	714,890.00	0.11	6	2.73	-54.50
12	463,838.00	690,400.00	0.67	6	15.81	163.47
13	103,254.00	588,985.00	0.18	6	4.16	-30.73
14	227,196.00	1,224,646.00	0.19	6	4.40	-26.68
15	90,834.00	964,125.00	0.09	6	2.26	-62.37
16	351,796.00	1,404,280.00	0.25	6	5.92	-1.28
17	76,999.00	893,829.00	0.09	3	2.07	-31.07
18	230,839.00	1,258,676.00	0.18	NO	4.35	
19	203,939.00	720,192.00	0.28	NO	6.69	
20	311,173.00	736,042.00	0.42	12	9.96	-16.97
21	146,616.00	1,821,687.00	0.08	NO	1.93	
22	7,636.00	784,978.00	0.01	NO	0.28	
23	144,659.00	1,075,715.00	0.13	9	3.20	-64.43
24	851.52	719,922.00	0.00	9	0.08	-99.17
25	43,616.00	1,200,614.00	0.04	NO	0.90	
26	116,037.00	962,837.00	0.12	6	2.78	-53.60
27	257,986.00	1,466,181.00	0.18	9	4.17	-53.62
28	185,147.00	942,584.00	0.20	6	4.65	-22.43
29	123,850.00	834,984.00	0.15	6	3.53	-41.22
30	154,463.00	1,132,134.00	0.14	6	3.25	-45.87
31	162,181.00	606,837.00	0.27	6	6.32	-5.27
32	102,079.00	1,058,016.00	0.10	6	2.31	-61.50
33	72,095.00	823,778.00	0.09	3	2.10	-30.03
34	22,114.00	1,207,780.00	0.02	NO	0.48	
35	220,113.00	767,037.00	0.29	9	6.78	-24.68
36	190,785.00	916,495.00	0.21	6	4.93	-17.83
37	188,046.00	715,163.00	0.26	6	6.25	-4.18
38	187,808.00	1,229,278.00	0.15	NO	3.63	
39	52,426.00	660,059.00	0.08	6	1.91	-68.17

Table 6 (continue)

No	Nicotine area	International standard area	Ratio	Label value	Calculated value	% Difference
40	852.61	885,940.00	0.00	6	0.07	-98.83
41	49,209.00	535,276.00	0.09	6	2.31	-61.58
42	99,997.00	731,962.00	0.14	6	3.25	-45.82
43	146,563.00	693,942.00	0.21	6	5.00	-16.65
44	133,523.00	706,084.00	0.19	NO	4.48	
45	2,001.00	1,355,815.00	0.00	3	0.08	-97.30
46	1,967.00	799,669.00	0.00	12	0.10	-99.15
47	200,745.00	809,876.00	0.25	NO	5.84	
48	91,063.00	953,374.00	0.10	6	2.29	-61.87
49	36,716.00	952,647.00	0.04	NO	0.95	
50	317,790.00	788,758.00	0.40	9	9.49	-5.44
51	139,534.00	965,822.00	0.14	NO	3.44	
52	23,941.00	1,120,154.00	0.02	6	0.55	-90.87
53	127,208.00	1,523,343.00	0.08	12	2.01	-83.29
54	113,028.00	1,108,715.00	0.10	6	2.44	-59.37
55	632,522.00	822,315.00	0.77	NO	18.09	
56	34,310.00	609,232.00	0.06	6	1.37	-77.20
57	1,763.00	809,767.00	0.00	0	0.10	
58	131,930.00	971,575.00	0.14	9	3.23	-64.09
59	29,320.00	1,094,695.00	0.03	6	0.68	-88.75
60	57,864.00	609,656.00	0.09	6	2.27	-62.12 61
61	35,031.00	1,199,577.00	0.03	6	0.73	-87.82
62	255,959.00	1,421,056.00	0.18	18	4.27	-76.27
63	165,696.00	1,227,825.00	0.13	6	3.21	-46.47
64	142,229.00	887,292.00	0.16	NO	3.81	
65	324,528.00	883,769.00	0.37	6	8.66	-44.35
66	159,879.00	790,987.00	0.20	6	4.79	-20.25
67	56,472.00	826,833.00	0.07	9	1.65	-81.67
68	398,978.00	1,780,987.00	0.22	6	5.30	-11.67
69	2,957.00	981,978.00	0.00	6	0.12	-98.05
70	199,135.00	1,155,909.00	0.17	6	4.09	-31.87
71	156,162.00	841,019.00	0.19	6	4.40	-26.63
72	298,798.00	1,198,489.00	0.25	6	5.90	-1.67
73	74,980.00	636,590.00	0.12	6	2.81	-53.17
74	186,292.00	919,137.00	0.20	12	4.80	-59.99
75	327,876.00	812,874.00	0.40	9	9.51	5.67
76	65,875.00	759,491.00	0.09	6	2.08	-65.32
77	215,566.00	694,609.00	0.31	6	7.33	-22.13
78	176,474.00	1,062,428.00	0.17	6	3.94	-34.28
79	205,140.00	924,643.00	0.22	6	5.25	-12.48
80	385,158.00	961,486.00	0.40	12	9.44	-21.30
81	91,678.00	609,736.00	0.15	6	3.57	-40.43



APPENDIX I

Result Tables

Table 7 Population characteristics

	n	N	%	95% CI		DEFF
				Lower	Upper	
Age Group						
18-24	693	3,676,358	19.4	17.9	21.0	1.723
25-44	1,684	8,268,976	43.6	41.3	45.9	2.393
45-64	1,437	5,280,969	27.9	25.9	29.9	2.243
65 and above	464	1,728,000	9.1	7.7	10.8	3.119
Gender						
Male	1,984	9,533,557	50.2	48.2	52.3	1.870
Female	2,298	9,444,650	49.8	47.7	51.8	1.870
Education						
No formal education	429	1,351,823	7.1	6.1	8.2	1.835
Completed primary	1,163	4,472,862	23.6	21.5	25.8	2.842
Completed secondary	1,820	8,402,672	44.3	42.1	46.4	2.061
Completed college/university	871	4,753,257	25.0	22.6	27.6	3.720
Occupation						
Government	384	1,945,052	10.2	8.5	12.2	4.054
Non-government	958	5,002,612	26.3	24.3	28.4	2.409
Self-employed	928	3,830,211	20.2	18.2	22.2	2.694
Student	267	1,427,397	7.5	6.4	8.8	2.267
Homemaker	1,106	4,114,501	21.7	20.1	23.3	1.634
Retiree	208	931,590	4.9	4.1	5.9	2.024
Not working	436	1,751,746	9.2	8.1	10.5	1.963

Table 7 (continue)

	n	N	%	95% CI		DEFF
				Lower	Upper	
Race						
Malay	3,215	13,783,021	72.6	67.8	77.0	11.685
Chinese	419	2,323,697	12.2	9.9	15.1	6.886
Indian	188	1,126,055	5.9	4.4	7.9	5.892
Iban	49	169,998	0.9	0.4	1.9	5.916
Kadazan	51	175,889	0.9	0.5	1.8	4.255
Other Bumiputera	348	1,351,770	7.1	4.8	10.4	12.797
Others	13	44,064	0.2	0.1	0.5	1.701
Religion						
Islam	3,483	14,951,196	78.9	74.9	82.3	8.994
Buddha	330	1,809,317	9.5	7.4	12.2	7.127
Kristian	254	953,256	5.0	3.7	6.8	5.598
Hindu	174	1,051,885	5.5	4.1	7.5	6.023
Others	39	191,886	1.0	0.6	1.7	2.795
Marital status						
Married	3,057	12,916,105	68.1	66.0	70.1	2.199
Living with partner	15	72,737	0.4	0.2	0.9	3.149
Separated	13	65,132	0.3	0.2	0.6	1.517
Divorced	43	162,991	0.9	0.6	1.3	1.378
Widowed	190	701,685	3.7	3.0	4.6	2.051
Single	964	5,049,944	26.6	24.7	28.6	2.145

Table 8 Population by residence

	n	N	%	95% CI	
				Lower	Upper
Urban	2,123	14,478,772	76.2	72.3	79.6
Rural	2,165	4,526,484	23.8	20.4	27.7

Table 9 Population characteristics by residence

	Urban						Rural					
	n	N	%*	95% CI		DEFF	n	N	%*	95% CI		DEFF
				Lower	Upper					Lower	Upper	
Age Group												
18-24	346	2,663,578	18.5	16.7	20.4	1.946	347	1,012,780	22.4	19.9	25.1	1.028
25-44	887	6,557,607	45.4	42.5	48.4	2.868	797	1,711,369	37.8	35.3	40.5	.768
45-64	722	4,007,200	27.8	25.3	30.4	2.674	715	1,273,769	28.2	25.6	30.8	.877
65 and above	160	1,203,000	8.3	6.6	10.5	4.147	304	525,000	11.6	9.9	13.5	.832
Gender												
Male	1,000	7,255,708	50.2	47.6	52.8	2.248	984	2,277,849	50.4	47.9	52.9	.662
Female	1,119	7,199,352	49.8	47.2	52.4	2.248	1,179	2,245,298	49.6	47.1	52.1	.662
Education												
No formal education	132	830,559	5.7	4.6	7.1	2.458	297	521,264	11.5	9.7	13.6	.981
Completed primary	481	3,147,214	21.8	19.1	24.6	3.743	682	1,325,648	29.3	26.9	31.9	.794
Completed secondary	936	6,427,377	44.4	41.8	47.1	2.447	884	1,975,294	43.7	40.9	46.6	.849
Completed college/ university	572	4,057,381	28.1	24.9	31.4	4.377	299	695,876	15.4	13.4	17.6	.891

Table 9 (continue)

	Urban						Rural					
	n	N	%*	95% CI		DEFF	n	N	%*	95% CI		DEFF
				Lower	Upper					Lower	Upper	
Occupation												
Government	228	1,603,398	11.1	8.9	13.7	4.751	156	341,654	7.6	6.1	9.4	1.007
Non-government	572	4,107,444	28.4	25.9	31.0	2.697	386	895,168	19.8	17.2	22.7	1.254
Self-employed	384	2,665,895	18.4	16.1	21.0	3.445	544	1,164,315	25.7	23.1	28.5	.989
Student	142	1,062,373	7.3	6.0	8.9	2.476	125	365,024	8.1	6.2	10.5	1.620
Homemaker	495	3,027,096	20.9	19.0	23.0	2.017	611	1,087,405	24.0	22.1	26.0	.544
Retiree	123	779,130	5.4	4.3	6.7	2.277	85	152,460	3.4	2.5	4.5	.814
Not working	179	1,233,435	8.5	7.1	10.2	2.469	257	518,311	11.5	9.9	13.2	.717
Race												
Malay	1,454	10,080,063	69.8	63.8	75.2	13.004	1,761	3,702,958	81.8	75.5	86.8	5.684
Chinese	327	2,142,406	14.8	11.8	18.5	7.293	92	181,291	4.0	2.3	6.9	3.416
Indian	163	1,074,797	7.4	5.5	10.0	6.046	25	51,259	1.1	0.4	3.0	2.969
Iban	13	89,757	0.6	0.2	1.6	4.883	36	80,240	1.8	0.5	5.9	7.070
Kadazan	16	98,814	0.7	0.3	1.5	3.651	35	77,075	1.7	0.6	4.8	5.055
Other Bumiputera	142	939,726	6.5	3.8	10.9	16.185	206	412,045	9.1	5.8	14.0	5.099
Others	4	24,380	0.2	0.0	0.6	2.118	9	19,685	0.4	0.2	1.2	1.235
Religion												
Islam	1,589	10,980,571	76.1	71.2	80.3	9.669	1,894	3,970,625	87.8	82.2	91.8	5.518
Buddha	251	1,653,239	11.5	8.8	14.8	7.507	79	156,077	3.5	1.8	6.4	3.626
Kristian	103	634,774	4.4	3.0	6.3	5.165	151	318,482	7.0	3.9	12.3	6.561
Hindu	150	1,002,461	6.9	5.1	9.5	6.199	24	49,424	1.1	0.4	3.0	2.919
Others	24	163,658	1.1	0.7	2.0	2.962	15	28,228	0.6	0.2	1.8	1.852

Table 9 (continue)

	Urban						Rural					
	n	N	%*	95% CI		DEFF	n	N	%*	95% CI		DEFF
				Lower	Upper					Lower	Upper	
Marital Status												
Married	1,502	9,898,677	68.5	65.9	71.1	2.619	1,555	3,017,428	66.7	64.0	69.3	.852
Living with partner	8	58,531	0.4	0.1	1.1	3.681	7	14,206	0.3	0.1	0.9	.980
Separated	9	57,760	0.4	0.2	0.8	1.660	4	7,372	0.2	0.1	0.4	.419
Divorced	18	114,075	0.8	0.5	1.3	1.786	25	48,917	1.1	0.7	1.6	.409
Widowed	74	487,780	3.4	2.5	4.6	2.672	116	213,905	4.7	3.8	5.8	.579
Single	508	3,828,798	26.5	24.2	29.0	2.495	456	1,221,147	27.0	24.3	29.9	1.033

* Column %

Table 10 Prevalence of ECV users and cigarette smokers

	n	N	%	95% CI		DEFF
				Lower	Upper	
Current ECV user	110	602,122	3.2	2.5	4.1	2.232
Ever ECV	409	2,266,827	11.9	10.5	13.5	2.345
Never ECV user	3,874	16,713,338	88.1	86.5	89.5	2.343
Former ECV user	289	1,624,679	8.6	7.5	9.8	1.948
Dual ECV user	77	445,458	2.3	1.8	3.1	2.041
Ever cigarette smoker	1,396	5,496,692	32.3	30.5	34.2	1.785
Current cigarette smoker	957	3,627,746	21.3	19.8	22.9	1.584
Former cigarette smoker	183	7,572,237	4.5	3.7	5.4	1.772

Table 11 Prevalence of ECV and cigarette smokers by residence

	Urban						Rural					
	n	N	%	95% CI		DEFF	n	N	%	95% CI		DEFF
				Lower	Upper					Lower	Upper	
Current ECV user	63	473,431	3.3	2.4	4.4	2.67	47	128,691	2.9	2.1	3.8	0.68
Ever ECV	229	1,774,152	12.3	10.5	14.3	2.73	180	492,675	10.9	9.1	13.0	1.01
Never ECV user	1,891	12,683,235	87.7	85.7	89.5	2.73	1,983	4,030,104	89.1	87.0	90.9	1.01
Former ECV user	163	1,276,718	8.8	7.5	10.4	2.19	126	347,961	7.7	6.2	9.6	1.07
Dual user	49	366,452	2.5	1.8	3.5	2.35	28	79,007	1.8	1.2	2.6	0.75
Ever cigarette smoker	677	4,203,488	32.1	29.8	34.5	2.18	719	1,293,203	33.2	31.3	35.2	0.43
Current cigarette smoker	439	2,699,510	20.6	18.7	22.6	1.933	518	928,235	23.9	22.1	25.7	0.44
Former cigarette smoker	96	601,906	4.6	3.7	5.7	2.07	87	155,331	4.0	3.1	5.0	0.59

Table 12 Prevalence of current ECV users by population characteristics

	n	N	%	95% CI	
				Lower	Upper
Age group					
18-24	44	236,909	6.5	4.5	9.2
25-44	56	333,239	4.0	2.9	5.6
45-64	9	24,377	0.5	0.2	0.9
65 and above	1	7,598	0.4	0.1	3.2

Table 12 (continue)

	n	N	%	95% CI	
				Lower	Upper
Gender					
Male	103	577,525	6.1	4.7	7.8
Female	7	24,597	0.3	0.1	0.6
Education					
No formal education	1	2,195	0.2	0.0	1.2
Completed primary	15	72,535	1.6	0.9	3.0
Completed secondary	52	268,854	3.2	2.3	4.5
Completed college/ university	42	258,537	5.4	3.9	7.6
Occupation					
Government	14	71,777	3.7	1.8	7.4
Non-government	45	270,772	5.4	3.8	7.6
Self-employed	29	143,116	3.7	2.4	5.8
Student	15	78,314	5.5	2.9	10.1
Homemaker			0		
Retiree			0		
Not working	7	38,144	2.2	1.0	4.9
Race					
Malay	85	451,234	3.3	2.5	4.3
Chinese	6	35,924	1.5	0.7	3.4
Indian	4	29,075	2.6	0.8	8.0
Iban	1	6,358	3.7	0.7	18.5

Table 12 (continue)

	n	N	%	95% CI	
				Lower	Upper
Kadazan	3	13,267	7.9	2.4	22.7
Other Bumiputera	11	66,265	4.9	2.3	10.1
Others					
Religion					
Islam	95	511,085	3.4	2.7	4.4
Buddha	3	16,242	0.9	0.3	3.1
Kristian	7	37,925	4.0	1.6	9.5
Hindu	4	29,075	2.8	0.9	8.6
Others	1	7,796	4.1	0.7	20.6
Marital Status					
Married	47	227,545	1.8	1.2	2.6
Living with partner			0		
Separated			0		
Divorced	3	13,481	8.7	2.5	26.0
Widowed			0		
Single	60	361,096	7.2	5.2	9.9

Table 13 Distribution of current ECV users by demographic characteristics

	n	N	%	95% CI	
				Lower	Upper
Age group					
18-24	44	236,909	39.3	29.0	50.8
25-44	56	333,239	55.3	44.0	66.2
45-64	9	24,377	4.0	2.0	7.9
65 and above	1	7,598	1.3	0.2	8.6
Gender					
Male	103	577,525	95.9	90.4	98.3
Female	7	24,597	4.1	1.7	9.6
Education					
No formal education	1	2,195	0.4	0.0	2.6
Completed primary	15	72,535	12.0	7.0	20.0
Completed secondary	52	268,854	44.7	33.9	56.0
Completed college/university	42	258,537	42.9	33.0	53.5
Occupation					
Government	14	71,777	11.9	6.0	22.2
Non government	45	270,772	45.0	34.5	55.9
Self-employed	29	143,116	23.8	15.3	35.0
Student	15	78,314	13.0	6.9	23.1
Homemaker					
Retiree					
Not working	7	38,144	6.3	2.8	13.9

Table 13 (continue)

	n	N	%	95% CI	
				Lower	Upper
Race					
Malay	85	451,234	74.9	60.3	85.5
Chinese	6	35,924	6.0	2.7	12.6
Indian	4	29,075	4.8	1.5	14.3
Iban	1	6,358	1.1	0.1	7.3
Kadazan	3	13,267	2.2	0.6	7.5
Other Bumiputera	11	66,265	11.0	4.8	23.4
Others					
Religion					
Islam	95	511,085	84.9	75.4	91.1
Buddha	3	16,242	2.7	0.8	9.1
Kristian	7	37,925	6.3	2.6	14.5
Hindu	4	29,075	4.8	1.5	14.3
Others	1	7,796	1.3	0.2	8.4
Marital status					
Married	47	227,545	37.8	26.9	50.1
Living with partner					
Separated					
Divorced	3	13,481	2.2	0.6	8.3
Widowed					
Single	60	361,096	60.0	47.5	71.3

Table 14 Pattern of ECV use among current users

	n	N	%	95% CI	
				Lower	Upper
Age of initiation					
Below 12			0.0		
12-15	4	23,773	4.0	1.4	10.7
16-18	12	57,362	9.6	5.0	17.4
19 and above	93	518,820	86.5	77.7	92.1
Daily users					
Yes	19	120,198	27.0	17.6	39.1
No	58	325,260	73.0	60.9	82.4
Main reason for smoking e-cigarette/ vape					
To try	52	281,813	47.0	38.1	56.0
To quit tobacco smoking	19	97,244	16.2	9.8	25.5
To reduce tobacco smoking	9	57,347	9.6	4.6	18.9
To reduce cost of smoking	6	43,735	7.3	3.1	16.4
To replace tobacco smoking	7	32,137	5.4	2.3	11.8
Others	16	87,680	14.6	8.6	23.7
Type of device					
1st gen (cigarette-like)	7	43,475	7.8	3.3	17.1
2nd gen (pen-like)	10	70,641	12.6	5.6	25.8
3rd gen (mod)	78	403,397	71.9	58.6	82.3
Others	7	43,216	7.7	3.7	15.5

Table 14 (continue)

	n	N	%	95% CI	
				Lower	Upper
Sharing cost of e-liquid					
Yes	25	145,817	25.5	17.7	35.1
No	78	426,449	74.5	64.9	82.3
Sharing e-liquid					
Yes	58	315,612	55.2	43.0	66.7
No	45	256,654	44.8	33.3	57.0
Preferred e-liquid with nicotine					
Yes	68	388,469	83.9	71.6	91.4
No	15	74,804	16.1	8.6	28.4
Source of e-liquid					
Online	7	42,952	7.7	3.3	17.1
Vape shops	51	267,773	48.3	36.0	60.8
Kiosk at shopping centre	4	33,215	6.0	1.6	19.5
Night market	3	15,300	2.8	0.7	10.6
Others	32	195,199	35.2	25.0	46.9
E-liquid storage at home					
Close cabinet	25	123,481	23.2	15.1	33.8
On shelf	8	53,241	10.0	4.2	22.1
On table	14	82,864	15.6	8.9	25.9
No specific place	13	69,049	13.0	7.0	22.9
Others	34	203,590	38.3	27.2	50.7

Table 14 (continue)

	n	N	%	95% CI	
				Lower	Upper
E-cigarette/vape quit attempt (for the last 12 months)					
Yes	45	254,994	48.4	36.9	60.1
No	49	271,529	51.6	39.9	63.1
Duration of abstinence of recent quit attempt					
Less than a months	17	90,700	39.6	26.6	54.3
One month or more	25	138,110	60.4	45.7	73.4
Modified FTND status					
None	42	211,395	47.2	34.5	60.4
Low	31	182,158	40.7	28.7	54.0
Moderate	9	50,345	11.3	5.5	21.8
High	1	3,572	0.8	0.1	5.4

Table 15 Population characteristics of current ECV users by residence

	Urban					Rural				
	n	N	%	95% CI		n	N	%	95% CI	
				Lower	Upper				Lower	Upper
Total	63	473,431	3.3	2.4	4.5	47	128,691	2.9	2.1	3.8
Age Group										
18-24	28	187,001	7.0	4.5	10.7	16	49,907	5.0	3.0	8.1
25-44	32	268,991	4.1	2.8	6.1	24	64,248	3.8	2.5	5.6
45-64	2	9,841	0.2	0.1	1.0	7	14,536	1.1	0.6	2.3
65 and above	1	7,598	0.6	0.1	4.6					
Gender										
Male	61	459,656	6.3	4.7	8.6	42	117,869	5.2	3.9	7.0
Female	2	13,775	0.2	0.0	0.8	5	10,822	0.5	0.2	1.1
Education										
No formal education						1	2,195	0.4	0.1	2.9
Completed primary	8	52,840	1.7	0.8	3.6	7	19,696	1.5	0.7	3.4
Completed secondary	28	204,085	3.2	2.1	4.9	24	64,769	3.3	2.3	4.7
Completed college/university	27	216,506	5.3	3.6	7.8	15	42,031	6.1	3.9	9.3
Occupation										
Government	6	49,251	3.1	1.2	7.8	8	22,526	6.7	2.9	14.7
Non-government	32	237,893	5.8	4.0	8.5	13	32,879	3.7	2.0	6.7
Self-employed	12	95,977	3.6	1.9	6.6	17	47,139	4.1	2.5	6.6

Table 15 (continue)

	Urban					Rural				
	n	N	%	95% CI		n	N	%	95% CI	
				Lower	Upper				Lower	Upper
Student	9	59,420	5.6	2.5	11.9	6	18,893	5.2	2.3	11.4
Homemaker										
Retiree										
Not working	4	30,890	2.5	0.9	6.6	3	7,253	1.4	0.5	4.1
Race										
Malay	44	337,674	3.4	2.4	4.7	41	113,560	3.1	2.2	4.3
Chinese	5	33,370	1.6	0.7	3.6	1	2,554	1.4	0.3	7.4
Indian	4	29,075	2.7	0.8	8.4					
Iban	1	6,358	7.1	1.8	24.5					
Kadazan	1	8,146	8.9	1.3	41.3	2	5,121	6.6	3.3	13.0
Other Bumiputera	8	58,808	6.3	2.7	13.6	3	7,457	1.8	0.6	5.4
Others										
Religion										
Islam	51	389,839	3.6	2.6	4.9	44	121,246	3.1	2.2	4.2
Buddha	2	13,688	0.8	0.2	3.4	1	2,554	1.7	0.3	8.1
Kristian	5	33,033	5.3	1.9	13.5	2	4,892	1.5	0.4	6.3
Hindu	4	29,075	2.9	0.9	9.0					
Others	1	7,796	4.8	0.8	22.8					

Table 15 (continue)

	Urban					Rural				
	n	N	%	95% CI		n	N	%	95% CI	
				Lower	Upper				Lower	Upper
Marital status										
Married	21	160,554	1.6	1.0	2.7	26	66,991	2.2	1.4	3.4
Living with partner										
Separated										
Divorced	1	8,449	8.0	1.3	36.4	2	5,033	10.3	2.5	33.6
Widowed										
Single	41	304,428	8.0	5.4	11.5	19	56,668	4.7	3.0	7.3

Table 16 Pattern of current ECV users by residence

	Urban					Rural				
	n	N	%	95% CI		n	N	%	95% CI	
				Lower	Upper				Lower	Upper
Age started smoking ECV										
12-15	3	20,863	4.4	1.4	13.1	1	2,911	2.3	.3	15.1
16-18	6	39,389	8.3	3.7	17.8	6	17,973	14.2	5.4	32.4
19 and above	54	413,180	87.3	76.7	93.5	39	105,640	83.5	65.5	93.1
Main reason for smoking ECV										
To quit tobacco smoking	10	71,746	15.2	8.1	26.7	9	25,498	20.2	9.8	36.9
To replace tobacco smoking	3	19,880	4.2	1.3	12.8	4	12,257	9.7	3.6	23.5
To reduce tobacco smoking	7	51,526	10.9	4.9	22.6	2	5,821	4.6	1.1	16.7

Table 16 (continue)

	Urban					Rural				
	n	N	%	95% CI		n	N	%	95% CI	
				Lower	Upper				Lower	Upper
To try	31	227,485	48.1	37.5	58.7	21	54,328	42.9	29.6	57.3
To reduce cost of smoking	4	38,193	8.1	3.0	19.8	2	5,542	4.4	1.1	15.6
Others	8	64,602	13.6	6.9	25.1	8	23,078	18.2	9.4	32.5
Type of device										
1st gen (cigarette-like)	4	33,494	7.6	2.8	19.3	3	9,981	8.2	1.8	30.0
2nd gen (pen-like)	8	65,623	14.9	6.3	31.5	2	5,018	4.1	0.9	16.4
3rd gen (mod)	40	299,946	68.3	52.0	81.0	38	103,451	85.2	66.0	94.5
Others	6	40,228	9.2	4.1	19.0	1	2,988	2.5	0.3	16.0
Sharing cost of e-liquid										
Yes	16	122,489	27.0	17.8	38.8	9	23,328	19.6	10.6	33.6
No	44	331,028	73.0	61.2	82.2	34	95,421	80.4	66.4	89.4
Sharing e-liquid										
Yes	34	249,357	55.0	40.2	68.9	24	66,255	55.8	40.7	69.9
No	26	204,160	45.0	31.1	59.8	19	52,494	44.2	30.1	59.3
Preferred e-liquid with nicotine										
Yes	41	314,747	85.8	69.7	94.1	27	73,721	76.5	59.6	87.8
No	7	52,168	14.2	5.9	30.3	8	22,636	23.5	12.2	40.4
Source of e-liquid										
Online	4	33,988	7.6	2.8	19.1	3	8,964	8.4	1.9	30.0
Vape shops	28	203,238	45.4	31.1	60.4	23	64,535	60.5	41.6	76.7

Table 16 (continue)

	Urban					Rural				
	n	N	%	95% CI		n	N	%	95% CI	
				Lower	Upper				Lower	Upper
Kiosk at shopping centre	4	33,215	7.4	2.0	23.6			0.0		
Night market	1	10,192	2.3	0.3	14.8	2	5,107	4.8	1.2	17.4
Others	22	167,082	37.3	25.3	51.2	10	28,117	26.3	13.3	45.4
E-liquid storage at home										
Close cabinet	12	88,804	20.7	12.3	32.8	13	34,677	33.6	16.4	56.6
On shelf	6	47,810	11.1	4.2	26.2	2	5,431	5.3	1.3	18.8
On table	9	67,568	15.7	8.1	28.4	5	15,296	14.8	6.1	31.7
No specific place	7	51,527	12.0	5.4	24.6	6	17,522	17.0	7.8	33.1
Others	23	173,365	40.4	27.3	55.0	11	30,225	29.3	15.2	48.9
ECV quit attempt (for the last 12 months)										
Yes	26	202,399	48.0	34.3	62.1	19	52,595	50.1	35.0	65.1
No	30	219,085	52.0	37.9	65.7	19	52,444	49.9	34.9	65.0
Duration of abstinence of recent quit attempt										
Less than a months	10	70,896	40.2	24.8	57.9	7	19,804	37.7	18.8	61.1
One month or more	13	105,319	59.8	42.1	75.2	12	32,791	62.3	38.9	81.2
Modified FTND status										
None	22	157,351	45.5	29.9	62.1	20	54,044	53.0	39.6	65.9
Low	19	148,927	43.1	28.4	59.2	12	33,230	32.6	18.8	50.3
Moderate	5	39,209	11.3	4.6	25.2	4	11,136	10.9	4.2	25.7
High			0.0			1	3,572	3.5	0.6	18.8

Table 17 Pattern of current ECV use

	Total				Urban				Rural			
	n	Mean	95% CI		n	Mean	95% CI		n	Mean	95% CI	
			Lower	Upper			Lower	Upper			Lower	Upper
Age (years)	4,278	40.3	39.5	41.2	2,115	40.1	39.0	41.2	2,163	41.1	39.9	42.2
Age started smoking ECV (years)	401	27.8	26.7	29.0	226	27.7	26.3	29.0	175	28.4	26.3	30.6
Age started smoking ECV daily (years)	26	26.7	23.6	29.7	16	26.8	23.2	30.5	10	25.9	22.3	29.5
Frequency of smoking ECV per day	98	18.6	11.0	26.2	54	19.3	9.8	28.8	44	16.3	7.4	25.2
How many puff per smoking session	101	16.2	9.1	23.4	59	17.7	8.9	26.5	42	10.6	3.6	17.7
Total cost on ECV devices (RM)	68	432.6	316.3	548.8	38	449.1	300.4	597.8	30	375.1	282.2	468.0
Average money spent for e-liquid (RM)	66	52.9	36.9	68.9	37	50.8	32.8	68.9	29	60.3	25.4	95.1
Volume for ECV liquid (mL/bottle)	60	33.1	29.6	36.6	33	33.4	29.1	37.6	27	32.1	27.5	36.8
Average days of ECV liquid lasts	78	17.2	12.4	21.9	45	17.3	11.4	23.2	33	16.5	12.2	20.9
Preferred nicotine strength (mg/mL)	54	7.3	6.6	8.0	33	7.1	6.3	8.0	21	7.8	6.5	9.2
Days of abstinence	43	54.4	36.6	72.1	23	50.0	29.8	70.1	20	69.0	30.6	107.5

Table 18 Favourite places to smoke ECV

	Responses		% of respondents
	n	%	
Outside home	65	25.3	63.7
Inside home	49	19.1	48.0
Restaurant without air-condition	45	17.5	44.1
Workplace	42	16.3	41.2
Private vehicle	32	12.5	31.4
Restaurant with air-condition	13	5.1	12.7
Inside public transport	6	2.3	5.9
Others	3	1.2	2.9
Government buildings	1	0.4	1.0
Shopping complex	1	0.4	1.0
	257	100.0	

Table 19 Side effects of ECV use

	Responses		% of respondents
	N	%	
Sore throat	24	25.5	48.0
Cough	24	25.5	48.0
Dry mouth	13	13.8	26.0
Breathing problem	8	8.5	16.0
Bloating	6	6.4	12.0
Nausea	6	6.4	12.0
Headache	5	5.3	10.0
Others	4	4.3	8.0
Anxiety	2	2.1	4.0
Stomach disturbance	1	1.1	2.0
Vomiting	1	1.1	2.0
	94	100.0	

Table 20 Quit attempt methods among current ECV users

	Responses		% of respondents
	N	%	
Quit without any assistance (willpower)	36	76.6	87.8
Others	8	17.0	19.5
Advise by ECV vendor	1	2.1	2.4
Other medication	1	2.1	2.4
Quit line	1	2.1	2.4
	47	100.0	

Table 21 Withdrawal symptoms xperienced by current ECV users

	Responses		% of respondents
	N	%	
Craving for tobacco smoking	28	30.1	51.9
Increased appetite	22	23.7	40.7
Insomnia	10	10.8	18.5
Sleepiness	9	9.7	16.7
Awakening at night	9	9.7	16.7
Difficulty in concentration	8	8.6	14.8
Bad temper	3	3.2	5.6
Others	3	3.2	5.6
Anger	1	1.1	1.9
	93	100.0	

Table 22 Prevalence of dual users by population characteristics

	n	N	%	SE	95% CI	
					Lower	Upper
Age Group						
18-24	35	196,921	5.4	1.0	3.6	7.8
25-44	36	227,610	2.8	0.5	1.9	4.1
45-64	5	13,330	0.3	0.1	0.1	0.7
65 and above	1	7,598	0.4	0.4	0.1	3.1
Gender						
Male	75	434,905	4.6	0.6	3.5	6.0
Female	2	10,554	0.1	0.1	0.0	0.6
Education						
No formal education	1	2,195	0.2	0.2	0.0	1.2
Completed primary	12	61,754	1.4	0.4	0.7	2.5
Completed secondary	35	195,575	2.3	0.5	1.5	3.5
Completed college/university	29	185,934	3.9	0.8	2.6	5.8
Occupation						
Government	9	55,417	2.9	1.2	1.2	6.7
Non-government	32	195,539	3.9	0.8	2.6	5.8
Self-employed	20	103,496	2.7	0.8	1.5	4.7
Student	11	58,012	4.1	1.5	1.9	8.3
Homemaker			0.0			
Retiree			0.0			
Not working	5	32,995	1.9	0.9	0.7	4.7

Table 22 (continue)

	n	N	%	SE	95% CI	
					Lower	Upper
Race						
Malay	62	340,054	2.5	0.4	1.8	3.4
Chinese	3	20,046	0.9	0.5	0.3	2.7
Indian	2	16,970	1.5	1.1	0.4	6.0
Iban	1	6,358	3.7	3.2	0.7	18.5
Kadazan	1	3,222	1.9	1.7	0.3	10.4
Other Bumiputera	8	58,808	4.4	1.8	1.9	9.8
Others						
Religion						
Islam	70	395,440	2.6	0.4	2.0	3.6
Buddha	2	13,688	0.8	0.5	0.2	3.1
Kristian	3	19,359	2.0	1.1	0.7	5.8
Hindu	2	16,970	1.6	1.2	0.4	6.5
Others						
Marital status						
Married	31	162,542	1.3	0.3	0.8	1.9
Living with partner			0.0			
Separated			0.0			

Table 22 (continue)

	n	N	%	SE	95% CI	
					Lower	Upper
Divorced	2	11,582	7.1	5.0	1.7	25.3
Widowed			0.0			
Single	44	271,334	5.4	1.0	3.8	7.6

Table 23 Population characteristics of dual users by residence

	Urban						Rural					
	n	N	%	SE	95% CI		n	N	%	SE	95% CI	
					Lower	Upper					Lower	Upper
All	49	366,452	2.5	0.4	1.8	3.5	28	79,007	1.8	0.4	1.2	2.6
Age Group												
18-24	24	161,650	6.1	1.4	3.8	9.5	11	35,270	3.5	1.1	1.9	6.4
25-44	23	192,283	2.9	0.7	1.9	4.6	13	35,327	2.1	0.5	1.3	3.4
45-64	1	4,920	0.1	0.1	0.0	0.9	4	8,410	0.7	0.3	0.3	1.7
65 and above	1	7,598	0.6	0.6	0.1	4.5						
Gender												
Male	48	358,003	4.9	0.8	3.5	6.8	27	76,902	3.4	0.6	2.3	4.9
Female	1	8,449	0.1	0.1	0.0	0.8	1	2,105	0.1	0.1	0.0	0.7
Education												
No formal education							1	2,195	0.4	0.4	0.1	2.9
Completed primary	7	47,312	1.5	0.6	0.7	3.2	5	14,442	1.1	0.6	0.4	3.0

Table 23 (continue)

	Urban						Rural					
	n	N	%	SE	95% CI		n	N	%	SE	95% CI	
					Lower	Upper					Lower	Upper
Completed secondary	21	157,108	2.4	0.6	1.5	4.0	14	38,467	2.0	0.5	1.2	3.2
Completed college/university	21	162,032	4.0	0.9	2.6	6.2	8	23,902	3.5	1.2	1.7	6.7
Occupation												
Government	5	43,723	2.7	1.4	0.9	7.6	4	11,694	3.5	2.1	1.0	11.0
Non-government	24	173,973	4.2	0.9	2.7	6.5	8	21,566	2.4	0.9	1.1	5.0
Self-employed	9	72,740	2.7	1.1	1.3	5.8	11	30,756	2.7	0.8	1.5	4.6
Student	7	45,125	4.2	1.9	1.7	10.0	4	12,887	3.5	2.0	1.2	10.2
Homemaker												
Retiree												
Not working	4	30,890	2.5	1.3	0.9	6.6	1	2,105	0.4	0.4	0.1	2.9
Race												
Malay	35	264,269	2.6	0.5	1.8	3.9	27	75,784	2.1	0.4	1.4	3.0
Chinese	3	20,046	0.9	0.5	0.3	2.9						
Indian	2	16,970	1.6	1.1	0.4	6.3						
Iban	1	6,358	7.1	4.8	1.8	24.5						
Kadazan							1	3,222	4.2	3.2	0.9	17.7
Other Bumiputera	8	58,808	6.3	2.6	2.7	13.6						
Others												

Table 23 (continue)

	Urban						Rural					
	n	N	%	SE	95% CI		n	N	%	SE	95% CI	
					Lower	Upper					Lower	Upper
Religion												
Islam	42	316,434	2.9	0.5	2.0	4.1	28	79,007	2.0	0.4	1.3	3.0
Buddha	2	13,688	0.8	0.6	0.2	3.4						
Kristian	3	19,359	3.1	1.6	1.1	8.4						
Hindu	2	16,970	1.7	1.2	0.4	6.8						
Others												
Marital status												
Married	16	123,703	1.2	0.3	0.7	2.1	15	38,839	1.3	0.4	0.7	2.3
Living with partner												
Separated												
Divorced	1	8,449	7.4	6.6	1.2	34.7	1	3,134	6.4	6.2	0.9	34.5
Widowed												
Single	32	234,300	6.1	1.2	4.1	9.1	12	37,034	3.1	0.9	1.7	5.4

Table 24 Perceptions of dual users on ECV

	n	N	%	SE	95% CI	
					Lower	Upper
Is ECV satisfying?						
Yes	13	73,879	38.5	7.7	24.8	54.3
No. Tobacco cigarette is better	19	108,128	56.3	7.9	40.6	70.8
No. Both are the same	2	9,963	5.2	4.1	1.0	22.4
Why e-cigarette is better?						
Smells better	3	12,627	17.1	10.3	4.7	46.4
More 'kick' feeling	4	25,210	34.1	13.7	13.4	63.3
Trendy	1	5,528	7.5	6.7	1.2	35.5
Control crave better			0.0			
Others	5	30,514	41.3	15.8	16.3	71.8
Why e-cigarette is not satisfying?						
Less convenient	2	13,840	11.9	8.1	2.9	38.1
Less 'kick'	13	76,616	66.1	11.5	41.5	84.3
Less at controlling crave	1	2,485	2.1	2.2	0.3	14.3
Others	4	22,982	19.8	9.8	6.8	45.6
How many sticks of cigarette smoked before you use ECV	62		11.9	2.7	6.5	17.3

Table 25 Prevalence of ever ECV use by population characteristics

	n	N	%	SE	95% CI	
					Lower	Upper
Total	408	2,261,101	11.9	0.8	10.5	13.5
Age Group						
18-24	159	840,949	22.9	2.0	19.2	27.0
25-44	209	1,261,459	15.3	1.2	13.1	17.7
45-64	36	135,127	2.6	0.6	1.7	3.9
65 and above	4	23,567	1.4	0.7	0.5	3.8
Gender						
Male	365	2,041,746	21.4	1.3	18.9	24.2
Female	43	219,355	2.3	0.5	1.6	3.4
Education						
No formal education	5	23,824	1.8	0.9	0.6	5.0
Completed primary	69	351,017	7.9	1.1	6.0	10.3
Completed secondary	204	1,102,136	13.1	1.1	11.1	15.5
Completed college/university	130	787,002	16.6	1.5	13.8	19.8
Occupation						
Government	50	308,421	15.9	2.5	11.5	21.5
Non-government	167	945,850	18.9	1.4	16.3	21.8
Self-employed	97	500,663	13.1	1.6	10.3	16.5
Student	52	277,502	19.4	3.4	13.6	27.1
Homemaker	9	46,844	1.1	0.5	0.5	2.5
Retiree	5	22,766	2.4	1.3	0.9	6.7
Not working	29	164,782	9.4	1.9	6.4	13.8

Table 25 (continue)

	n	N	%	SE	95% CI	
					Lower	Upper
Race						
Malay	312	1,734,751	12.6	0.9	10.9	14.5
Chinese	21	132,128	5.7	1.4	3.4	9.3
Indian	13	98,096	8.7	2.2	5.3	14.0
Iban	5	23,820	14.0	6.3	5.5	31.4
Kadazan	11	47,179	28.0	5.9	17.9	41.0
Other Bumiputera	46	224,209	16.6	2.6	12.1	22.4
Others	1	6,643	15.1	11.5	2.9	51.2
Religion						
Islam	355	1,965,030	13.2	0.9	11.6	14.9
Buddha	12	70,376	3.9	1.4	1.9	7.7
Kristian	27	117,733	12.4	2.8	7.9	19.1
Hindu	13	98,096	9.3	2.3	5.6	15.0
Others	2	15,592	8.1	7.1	1.3	36.7
Marital status						
Married	187	995,309	7.7	0.7	6.4	9.2
Living with partner	1	3,016	4.1	4.2	0.5	25.5
Separated	1	10,751	16.5	14.6	2.4	61.5
Divorced	6	27,549	16.9	6.8	7.3	34.5
Widowed						
Single	213	1,220,010	24.2	2.0	20.6	28.2

Table 26 Population characteristics of ever ECV users by residence

	Urban						Rural					
	n	N	%	SE	95% CI		n	N	%	SE	95% CI	
					Lower	Upper					Lower	Upper
Total	228	1,768,426	12.3	1.0	10.5	14.3	180	492,675	10.9	1.0	9.1	13.0
Age Group												
18-24	85	612,964	23.0	2.6	18.3	28.4	74	227,985	22.5	2.5	17.9	27.9
25-44	124	1,039,105	15.9	1.4	13.2	18.9	85	222,354	13.0	1.6	10.2	16.4
45-64	16	94,559	2.4	0.7	1.3	4.1	20	40,568	3.2	0.8	1.9	5.2
65 and above	3	21,799	1.8	1.0	0.6	5.3	1	1,768	0.3	0.3	0.0	2.4
Gender												
Male	206	1,598,732	22.0	1.7	18.9	25.5	159	443,015	19.4	1.7	16.3	23.0
Female	22	169,695	2.4	0.6	1.5	3.8	21	49,660	2.2	0.5	1.4	3.4
Education												
No formal education	2	18,075	2.2	1.5	0.6	8.0	3	5,749	1.1	0.6	0.4	3.2
Completed primary	33	254,652	8.1	1.4	5.7	11.4	36	96,365	7.3	1.4	5.0	10.5
Completed secondary	112	851,012	13.3	1.4	10.7	16.3	92	251,124	12.7	1.4	10.3	15.6
Completed college/ university	82	650,414	16.0	1.7	12.9	19.7	48	136,588	19.6	2.6	14.9	25.4
Occupation												
Government	32	259,602	16.2	2.9	11.2	22.8	18	48,818	14.3	3.8	8.4	23.4
Non-government	96	759,377	18.5	1.6	15.5	21.9	71	186,473	20.8	2.4	16.5	26.0
Self-employed	46	361,859	13.6	2.1	9.9	18.3	51	138,805	11.9	1.7	9.0	15.6
Student	29	202,413	19.1	4.3	12.0	28.9	23	75,089	20.6	4.9	12.6	31.8
Homemaker	6	39,837	1.3	0.6	0.5	3.3	3	7,007	0.6	0.4	0.2	2.1

Table 26 (continue)

	Urban						Rural					
	n	N	%	SE	95% CI		n	N	%	SE	95% CI	
					Lower	Upper					Lower	Upper
Retiree	2	14,961	1.9	1.3	0.5	7.2	3	7,805	5.1	3.8	1.2	20.0
Not working	18	136,105	11.1	2.6	6.9	17.4	11	28,677	5.5	1.5	3.2	9.5
Race												
Malay	169	1,338,211	13.3	1.2	11.2	15.7	143	396,541	10.7	1.2	8.6	13.2
Chinese	17	121,421	5.7	1.5	3.3	9.6	4	10,707	5.9	2.4	2.6	12.9
Indian	12	95,080	8.8	2.3	5.3	14.5	1	3,016	5.9	3.7	1.7	18.8
Iban	2	14,154	15.8	10.8	3.6	48.1	3	9,666	12.0	5.6	4.6	27.8
Kadazan	4	27,346	29.9	10.4	13.8	53.2	7	19,832	25.7	3.3	19.8	32.7
Other Bumiputera	24	171,297	18.2	3.3	12.5	25.7	22	52,913	12.8	3.2	7.7	20.7
Others	1	6,643	27.2	15.8	7.2	64.2						
Religion												
Islam	196	1,531,460	14.0	1.1	11.9	16.3	159	433,570	10.9	1.1	9.0	13.3
Buddha	8	59,669	3.6	1.5	1.6	7.8	4	10,707	6.9	2.5	3.2	13.9
Kristian	11	72,350	11.5	4.0	5.7	21.9	16	45,382	14.2	2.6	9.8	20.2
Hindu	12	95,080	9.5	2.4	5.6	15.5	1	3,016	6.1	3.7	1.8	18.8
Others	2	15,592	9.5	8.2	1.6	40.5						
Marital status												
Married	100	774,943	7.8	0.9	6.3	9.7	87	220,366	7.3	0.9	5.8	9.2
Living with partner							1	3,016	21.2	13.4	5.2	56.8
Separated	1	10,751	18.6	16.3	2.7	65.6						
Divorced	2	16,898	14.8	8.9	4.1	41.1	4	10,651	21.8	9.2	8.8	44.6
Widowed												
Single	125	961,369	25.1	2.5	20.6	30.3	88	258,642	21.2	2.2	17.1	25.9

Table 27 Prevalence of former ECV users by population characteristics

	n	N	%	SE	95% CI	
					Lower	Upper
Total	288	1,618,952	8.6	0.6	7.5	9.8
Age Group						
18-24	112	597,132	16.3	1.6	13.3	19.8
25-44	149	906,158	11.0	1.0	9.2	13.1
45-64	26	109,226	2.1	0.5	1.3	3.3
65 and above	1	6,436	0.4	0.4	0.1	2.7
Gender						
Male	256	1,443,727	15.2	1.1	13.2	17.4
Female	32	175,226	1.9	0.4	1.2	2.9
Education						
No formal education	3	19,861	1.5	0.9	0.4	5.0
Completed primary	50	257,833	5.8	0.9	4.2	7.9
Completed secondary	148	818,805	9.8	0.9	8.2	11.7
Completed college/ university	87	525,331	11.1	1.3	8.7	13.9
Occupation						
Government	35	233,510	12.0	2.1	8.5	16.7
Non-government	119	662,632	13.3	1.3	11.0	16.0
Self-employed	67	354,859	9.3	1.2	7.1	12.0
Student	37	199,188	14.0	2.4	9.9	19.3
Homemaker	7	37,529	0.9	0.4	0.4	2.3
Retiree	4	15,001	1.6	1.0	0.5	5.4
Not working	20	121,960	7.0	1.6	4.5	10.8

Table 27 (continue)

	n	N	%	SE	95% CI	
					Lower	Upper
Race						
Malay	218	1,246,402	9.1	0.7	7.7	10.7
Chinese	14	93,294	4.0	1.1	2.4	6.7
Indian	9	69,021	6.1	1.8	3.4	10.7
Iban	4	17,462	10.3	4.2	4.4	22.1
Kadazan	8	33,911	20.1	6.1	10.6	34.9
Other Bumiputera	35	157,945	11.7	1.5	9.0	15.0
Others	1	6,643	15.1	11.5	2.9	51.2
Religion						
Islam	251	1,416,830	9.5	0.7	8.2	11.0
Buddha	8	51,224	2.8	1.0	1.4	5.8
Kristian	20	79,808	8.4	1.8	5.5	12.8
Hindu	9	69,021	6.6	1.9	3.7	11.4
Others	1	7,796	4.1	3.6	0.7	20.6
Marital status						
Married	135	745,782	5.8	0.6	4.7	7.1
Living with partner	1	3,016	4.1	4.2	0.5	25.5
Separated	1	10,751	16.5	14.6	2.4	61.5
Divorced	2	5,619	3.6	2.6	0.9	13.9
Widowed						
Single	149	849,318	16.9	1.5	14.1	20.0

Table 28 Population characteristics of former ECV users by residence

	Urban						Rural					
	n	N	SE		95CI		n	N	SE		95CI	
					Lower	Upper					Lower	Upper
All	162	1,270,992	8.8	0.7	7.5	10.4	126	347,961	7.7	0.9	6.2	9.6
Age group												
18-24	57	425,962	16.0	2.1	12.3	20.6	55	171,170	17.0	2.2	13.0	21.9
25-44	90	753,875	11.5	1.2	9.4	14.1	59	152,284	8.9	1.3	6.7	11.8
45-64	14	84,718	2.1	0.6	1.2	3.7	12	24,507	1.9	0.6	1.0	3.6
65 and above	1	6,436	0.5	0.5	0.1	3.9			0.0			
Gender												
Male	144	1,131,311	15.6	1.3	13.2	18.4	112	312,415	13.8	1.5	11.0	17.1
Female	18	139,680	2.0	0.5	1.1	3.3	14	35,545	1.6	0.4	0.9	2.7
Education												
No formal education	2	18,075	2.2	1.5	0.6	8.0	1	1,786	0.3	0.3	0.0	2.3
Completed primary	23	185,599	5.9	1.2	3.9	8.9	27	72,234	5.5	1.2	3.6	8.3
Completed secondary	83	639,136	10.0	1.1	8.0	12.3	65	179,669	9.1	1.4	6.8	12.2
Completed college/ university	55	433,907	10.7	1.5	8.1	14.0	32	91,424	13.2	2.1	9.6	17.9
Occupation												
Government	26	210,351	13.1	2.4	9.0	18.7	9	23,159	6.8	2.2	3.6	12.5
Non-government	63	513,035	12.5	1.5	9.9	15.7	56	149,597	16.8	2.1	13.1	21.3
Self-employed	34	265,882	10.0	1.6	7.2	13.7	33	88,977	7.7	1.5	5.2	11.3
Student	20	142,992	13.5	2.9	8.7	20.3	17	56,196	15.4	3.7	9.4	24.3
Homemaker	5	32,047	1.1	0.6	0.4	3.0	2	5,483	0.5	0.4	0.1	2.0

Table 28 (continue)

	Urban						Rural					
	n	N	SE	95CI			n	N	SE	95CI		
				Lower	Upper					Lower	Upper	
Retiree	1	7,196	0.9	0.9	0.1	6.4	3	7,805	5.1	3.8	1.2	20.0
Not working	14	105,214	8.6	2.2	5.1	14.1	6	16,746	3.3	1.2	1.6	6.7
Race												
Malay	122	976,533	9.7	1.0	8.0	11.8	96	269,869	7.3	1.0	5.6	9.6
Chinese	12	88,051	4.1	1.1	2.4	7.0	2	5,243	2.9	1.8	0.9	9.6
Indian	8	66,005	6.1	1.8	3.4	11.0	1	3,016	5.9	3.7	1.7	18.8
Iban	1	7,796	8.7	5.9	2.1	29.4	3	9,666	12.0	5.6	4.6	27.8
Kadazan	3	19,200	21.0	11.2	6.6	50.2	5	14,711	19.1	1.5	16.4	22.1
Other Bumiputera	16	112,489	12.0	1.8	8.9	16.0	19	45,456	11.0	2.7	6.7	17.7
Others	1	6,643	27.2	15.8	7.2	64.2			0.0			
Religion												
Islam	142	1,117,618	10.2	0.9	8.6	12.1	109	299,212	7.6	0.9	5.9	9.6
Buddha	6	45,981	2.8	1.1	1.2	6.1	2	5,243	3.4	2.1	1.0	10.8
Kristian	6	39,317	6.3	2.2	3.1	12.4	14	40,491	12.7	2.6	8.4	18.7
Hindu	8	66,005	6.6	2.0	3.6	11.7	1	3,016	6.1	3.7	1.8	18.8
Others	1	7,796	4.8	4.1	0.8	22.8			0.0			
Marital status												
Married	77	598,834	6.1	0.7	4.8	7.7	58	146,949	4.9	0.7	3.7	6.5
Living with partner			0.0				1	3,016	21.2	13.4	5.2	56.8
Separated	1	10,751	18.6	16.3	2.7	65.6			0.0			
Divorced			0.0				2	5,619	11.5	7.5	3.0	35.6
Widowed			0.0						0.0			
Single	84	656,941	17.2	1.9	13.8	21.2	65	192,377	15.9	1.9	12.4	20.1

Table 29 Main reasons for quitting ECV

	n=282	N	%	SE	95% CI	
					Lower	Upper
ECV is not satisfying	79	470,531	29.4	3.1	23.6	36.0
Cost	53	284,975	17.8	2.6	13.2	23.6
Health	49	221,924	13.9	2.1	10.2	18.6
Was just trying	31	193,443	12.1	2.7	7.8	18.4
Others	28	175,537	11.0	2.4	7.1	16.7
Tedious to maintain	14	90,862	5.7	1.5	3.3	9.5
Law & regulation	7	45,088	2.8	1.1	1.3	6.0
Religion	5	36,498	2.3	1.0	0.9	5.4
Tobacco cigarette is better	5	26,147	1.6	0.8	0.6	4.2
Friends	3	21,824	1.4	0.9	0.4	4.6
Social pressure	3	14,255	0.9	0.6	0.2	3.3
Safety reason	2	9,484	0.6	0.5	0.1	2.7
Family	3	8,616	0.5	0.3	0.2	1.6

Table 30 Quit methods among former ECV users

	n	% response	% cases n=274
Without assistance	278	94.9	98.6
Counselling	5	1.7	1.8
Advice from vendor	3	1.0	1.1
Nicotine replacement therapy	3	1.0	1.1
Traditional medication*	2	0.7	0.7
Others**	2	0.7	0.7

* One claimed using Aquamen, ** Not specified any

Table 31 Second-hand ECV exposure

	n	N	SE	95CI		
				Lower	Upper	
Smoking ECV regulation at home						
Allowed	456	2,103,180	11.2	0.9	9.6	13.1
Usually not allowed	219	979,028	5.2	0.5	4.3	6.3
Not allowed	2,811	12,596,806	67.1	1.2	64.8	69.4
No regulation	735	3,087,269	16.5	1.1	14.5	18.6
How often someone smoke ECV in your house?						
Everyday	247	1,267,867	6.8	0.8	5.4	8.5
Every week	90	428,591	2.3	0.3	1.8	3.0
Every month	81	371,672	2.0	0.3	1.5	2.7
Less than a month	216	949,354	5.1	0.5	4.2	6.2
Never	3,528	15,574,696	83.8	1.2	81.3	86.0
Exposed at home						
Yes	634	3,017,484	16.2	1.2	14.0	18.7
No	3,528	15,574,696	83.8	1.2	81.3	86.0
Regulation at the work place						
Allowed	393	1,904,064	18.2	1.5	15.4	21.3
Usually not allowed	217	1,105,035	10.6	0.9	9.0	12.4
Not allowed	1,129	5,382,687	51.5	1.6	48.4	54.5
No regulation	437	2,066,735	19.8	1.3	17.2	22.6

Table 31 (continue)

	n	N	SE	95CI		
				Lower	Upper	
Exposed at work						
Yes	688	3,617,622	35.8	1.8	32.4	39.4
No	1,416	6,487,517	64.2	1.8	60.6	67.6
How often someone smoke ECV at your work place?						
Everyday	473	2,544,452	25.2	1.8	21.9	28.8
Every week	85	458,672	4.5	0.5	3.6	5.7
Every month	30	145,608	1.4	0.3	0.9	2.2
Less than a month	100	468,889	4.6	0.6	3.7	5.9
Never	1,416	6,487,517	64.2	1.8	60.6	67.6

Table 32 Prevalence of current cigarette smokers by population characteristics

	n	N	%	SE	95% CI	
					Lower	Upper
Total	954	4,428,187	23.4	0.9	21.8	25.1
Age Group						
18-24	158	788,868	21.5	1.8	18.1	25.2
25-44	431	2,365,941	28.6	1.4	26.0	31.4
45-64	288	1,053,848	20.0	1.3	17.7	22.6
65 and above	77	219,530	12.8	1.8	9.7	16.8

Table 32 (continue)

	n	N	%	SE	95% CI	
					Lower	Upper
Gender						
Male	920	4,309,076	45.2	1.5	42.3	48.2
Female	35	128,404	1.4	0.3	0.9	2.0
Education						
No formal education	78	224,959	16.7	2.0	13.2	21.0
Completed primary	276	1,091,188	24.5	1.6	21.5	27.7
Completed secondary	430	2,101,314	25.0	1.5	22.3	28.0
Completed college/university	172	1,024,565	21.6	1.7	18.5	25.1
Occupation						
Government	93	558,237	28.7	3.8	21.8	36.8
Non-government	321	1,609,279	32.2	1.8	28.7	35.9
Self-employed	372	1,545,482	40.3	2.2	36.1	44.7
Student	37	198,900	13.9	2.7	9.4	20.2
Homemaker	7	34,606	0.8	0.3	0.4	1.8
Retiree	45	173,861	18.8	3.2	13.3	25.9
Not working	82	324,509	18.6	2.2	14.7	23.2
Race						
Malay	769	3,530,543	25.6	1.1	23.6	27.8
Chinese	57	310,795	13.4	1.7	10.3	17.2
Indian	18	134,299	11.9	2.2	8.3	16.9
Iban	14	56,701	33.4	4.8	24.6	43.5
Kadazan	10	29,763	18.5	5.3	10.2	31.2

Table 32 (continue)

	n	N	%	SE	95% CI	
					Lower	Upper
Other Bumiputera	85	363,622	27.0	2.4	22.6	32.0
Others	3	11,956	27.1	10.4	11.6	51.3
Religion						
Islam	838	3,866,406	25.9	1.0	24.0	27.9
Buddha	47	256,115	14.2	2.0	10.7	18.5
Kristian	45	144,204	15.3	2.7	10.7	21.4
Hindu	18	134,299	12.8	2.3	8.9	18.0
Others	8	36,655	19.1	7.1	8.7	36.8
Marital status						
Married	659	2,926,125	22.7	0.9	21.0	24.5
Living with partner	1	3,016	4.1	4.2	0.5	25.5
Separated	2	13,194	20.3	14.7	4.0	60.5
Divorced	12	48,953	30.0	7.5	17.5	46.4
Widowed	10	23,324	3.4	1.2	1.7	6.6
Single	271	1,418,276	28.1	1.8	24.6	31.9

Table 33 Population characteristics of current cigarette smokers by residence

	Urban						Rural					
	n	N	%	SE	95% CI		n	N	%	SE	95% CI	
					Lower	Upper					Lower	Upper
Total	436	3,213,400	22.3	1.1	20.3	24.5	518	1,214,788	26.9	1.0	24.9	28.9
Age Group												
18-24	80	550,974	20.7	2.3	16.4	25.7	78	237,894	23.5	2.2	19.5	28.0
25-44	218	1,809,414	27.6	1.7	24.5	31.0	213	556,527	32.5	1.5	29.6	35.6
45-64	121	730,383	18.3	1.6	15.4	21.6	167	323,465	25.4	1.8	22.1	29.1
65 and above	17	122,629	10.3	2.4	6.5	16.0	60	96,902	18.5	1.9	15.0	22.5
Gender												
Male	424	3,136,836	43.2	1.9	39.6	46.9	496	1,172,240	51.5	1.8	47.9	55.1
Female	14	87,525	1.2	0.3	0.7	2.1	21	40,879	1.8	0.4	1.2	2.8
Education												
No formal education	17	112,627	13.7	2.8	9.1	20.1	61	112,332	21.5	2.7	16.7	27.4
Completed primary	99	696,643	22.2	2.1	18.4	26.6	177	394,546	29.8	1.9	26.1	33.8
Completed secondary	208	1,543,564	24.1	1.8	20.6	27.9	222	557,750	28.2	1.5	25.3	31.3
Completed college/ university	115	877,254	21.6	1.9	18.1	25.7	57	147,311	21.2	2.7	16.4	26.9
Occupation												
Government	60	475,177	29.6	4.6	21.5	39.3	33	83,060	24.3	3.8	17.5	32.7
Non-government	162	1,210,021	29.5	2.1	25.6	33.8	159	399,258	44.7	2.8	39.4	50.2
Self-employed	139	1,017,207	38.2	2.9	32.7	44.0	233	528,275	45.4	2.6	40.4	50.4
Student	22	149,555	14.1	3.5	8.5	22.5	15	49,345	13.5	3.3	8.3	21.3
Homemaker	6	32,808	1.1	0.4	0.5	2.4	1	1,798	0.2	0.2	0.0	1.2

Table 33 (continue)

	Urban						Rural					
	n	N	%	SE	95% CI		n	N	%	SE	95% CI	
					Lower	Upper					Lower	Upper
Retiree	19	123,085	16.0	3.5	10.2	24.1	26	50,776	33.3	5.6	23.3	45.0
Not working	31	222,234	18.1	2.9	13.1	24.5	51	102,275	19.7	2.5	15.2	25.2
Race												
Malay	335	2,505,167	24.9	1.4	22.3	27.7	434	1,025,375	27.7	1.2	25.4	30.1
Chinese	41	275,861	12.9	1.8	9.6	17.0	16	34,934	19.5	3.9	12.9	28.4
Indian	18	134,299	12.5	2.2	8.7	17.6						
Iban	4	29,746	33.1	8.1	19.4	50.5	10	26,955	33.6	4.8	24.9	43.5
Kadazan	2	9,478	11.3	5.4	4.2	26.8	8	20,285	26.3	8.2	13.5	45.1
Other Bumiputera	37	261,697	28.0	3.2	22.3	34.7	48	101,925	24.7	3.0	19.3	31.1
Others	1	6,643	27.2	15.8	7.2	64.2	2	5,312	27.0	12.7	9.4	56.8
Religion												
Islam	374	2,775,577	25.3	1.3	22.9	27.9	464	1,090,830	27.5	1.2	25.3	29.8
Buddha	32	223,666	13.5	2.1	9.9	18.3	15	32,449	20.8	4.7	13.0	31.5
Kristian	10	61,154	9.7	3.2	5.0	18.2	35	83,050	26.2	3.6	19.8	33.8
Hindu	18	134,299	13.4	2.4	9.4	18.7						
Others	4	28,196	17.2	8.0	6.4	38.7	4	8,459	30.0	7.0	18.1	45.3
Marital status												
Married	291	2,117,233	21.5	1.1	19.3	23.7	368	808,892	26.8	1.1	24.7	29.0
Living with partner							1	3,016	21.2	13.4	5.2	56.8
Separated	1	10,751	18.6	16.3	2.7	65.6	1	2,443	33.1	25.7	4.8	83.0
Divorced	5	33,027	29.0	9.7	13.8	50.9	7	15,926	32.6	10.5	15.8	55.3
Widowed	1	4,138	0.9	0.9	0.1	6.1	9	19,186	9.0	2.9	4.6	16.6
Single	140	1,054,745	27.5	2.3	23.2	32.3	131	363,531	29.8	2.3	25.5	34.4

Table 34 Characteristics of current cigarette smokers

	n	N	SE	95% CI	
				Lower	Upper
Age started smoking (mean years)	1,147		18.0	0.3	17.5 18.5
Age started smoking daily (mean years)	941		22.9	0.8	21.3 24.5
Daily smoker					
Yes	852	3,988,656	89.7	1.2	87.1 91.9
No	105	456,219	10.3	1.2	8.1 12.9
FTND status					
None	156	809,337	19.1	1.4	16.4 22.0
Low	346	1,664,649	39.2	1.8	35.7 42.8
Low to moderate	262	1,111,717	26.2	1.8	22.8 29.9
Moderate	135	587,842	13.8	1.3	11.5 16.6
High	12	72,737	1.7	0.5	1.0 3.1
Recent quit attempt					
Yes	469	2,211,372	49.8	1.9	46.1 53.5
No	487	2,225,699	50.2	1.9	46.5 53.9
Thought of quitting					
Within next month	125	582,474	28.2	2.9	22.7 34.3
Within 3 months	29	146,467	7.1	1.3	4.9 10.2

Table 34 (continue)

	n	N	SE		95% CI	
					Lower	Upper
Within 6 months	15	67,182	3.2	1.0	1.8	5.8
Within 12 months	29	148,621	7.2	1.5	4.7	10.9
One day but not the next 12 days	204	979,481	47.4	3.5	40.7	54.2
Not interested to quit	37	143,380	6.9	1.3	4.7	10.1
Days of abstinence on the last quit attempt (mean days)	442		14.3	1.7	10.9	17.7
Total cost on cigarette (mean RM)	904		100.1	5.9	88.5	111.6

Table 35 Methods of quit smoking attempt among current cigarette smokers

	n responses (n=530)	% response	% cases (n=455)
Without assistance	422	79.6	92.7
Using ECV	46	8.7	10.1
Nicotine replacement therapy	26	4.9	5.7
Counselling	25	4.7	5.5
Other medication*	5	0.9	1.1
Traditional	5	0.9	1.1
Others**	1	0.2	0.2

* All failed to remember the exact medication but claimed it was not nicotine, ** Not specified

Table 36 Prevalence of former cigarette smokers by population characteristics

	n	N	%	SE	95% CI	
					Lower	Upper
Total	183	862,909	4.6	0.4	3.8	5.5
Age Group						
18-24	7	36,246	1.0	0.4	0.5	2.1
25-44	62	370,648	4.5	0.7	3.3	6.2
45-64	76	328,212	6.2	0.8	4.9	7.9
65 and above	38	127,803	7.5	1.3	5.2	10.6
Gender						
Male	170	806,876	8.5	0.8	7.0	10.2
Female	13	56,033	0.6	0.2	0.3	1.2
Education						
No formal education	23	71,151	5.3	1.6	2.9	9.6
Completed primary	56	255,802	5.7	0.7	4.5	7.4
Completed secondary	62	290,564	3.5	0.6	2.5	4.8
Completed college/university	42	245,392	5.2	0.9	3.6	7.4
Occupation						
Government	21	108,510	5.6	1.3	3.5	8.8
Non-government	49	260,936	5.2	0.9	3.8	7.2
Self-employed	54	232,780	6.1	0.9	4.5	8.1
Student	3	12,187	0.9	0.5	0.3	2.8
Homemaker	9	42,053	1.0	0.4	0.5	2.1
Retiree	23	107,677	11.7	2.4	7.7	17.3
Not working	24	98,765	5.7	1.4	3.5	9.0

Table 36 (continue)

	n	N	%	SE	95% CI	
					Lower	Upper
Race						
Malay	132	603,481	4.4	0.5	3.5	5.5
Chinese	23	130,505	5.6	1.1	3.8	8.2
Indian	5	28,602	2.5	1.2	1.0	6.2
Iban	1	4,760	2.8	2.4	0.5	14.2
Kadazan	3	17,616	10.9	6.8	3.0	32.8
Other Bumiputera	18	70,748	5.3	1.3	3.2	8.6
Others	1	7,196	16.3	15.1	2.2	63.3
Religion						
Islam	147	671,752	4.5	0.5	3.6	5.6
Buddha	16	79,538	4.4	1.2	2.6	7.4
Kristian	14	74,624	7.9	2.2	4.6	13.4
Hindu	4	23,682	2.3	1.2	0.8	6.1
Others	2	13,313	6.9	4.9	1.6	25.2
Marital status						
Married	152	713,180	5.5	0.6	4.5	6.8
Living with partner						
Separated						
Divorced	4	18,332	11.2	6.4	3.5	30.8
Widowed	5	18,577	2.7	1.4	1.0	7.3
Single	22	112,820	2.2	0.5	1.5	3.4

Table 37 Population characteristics of former cigarette smokers by residence

	Urban						Rural					
	n	N	%	SE	95% CI		n	N	%	SE	95% CI	
					Lower	Upper					Lower	Upper
Total	96	685,669	4.8	0.6	3.8	6.0	87	177,240	3.9	0.5	3.1	5.0
Age Group												
18-24	4	26,676	1.0	0.5	0.4	2.6	3	9,570	1.0	0.5	0.3	2.9
25-44	37	308,572	4.7	0.9	3.3	6.8	25	62,076	3.6	0.9	2.2	5.9
45-64	43	263,153	6.6	1.0	4.9	8.8	33	65,058	5.1	0.9	3.7	7.1
65 and above	12	87,268	7.3	1.8	4.5	11.8	26	40,535	7.8	1.4	5.4	11.0
Gender												
Male	88	638,823	8.8	1.0	7.0	11.0	82	168,053	7.4	0.9	5.8	9.5
Female	8	46,846	0.7	0.3	0.3	1.4	5	9,187	0.4	0.2	0.2	1.1
Education												
No formal education	7	45,013	5.5	2.5	2.2	13.2	16	26,138	5.0	1.3	3.0	8.4
Completed primary	29	205,534	6.6	1.0	4.9	8.8	27	50,268	3.8	0.7	2.6	5.5
Completed secondary	33	226,044	3.5	0.7	2.4	5.2	29	64,520	3.3	0.7	2.1	5.0
Completed college/ university	27	209,077	5.2	1.1	3.4	7.7	15	36,315	5.2	1.5	3.0	9.0
Occupation												
Government	10	83,635	5.2	1.5	2.9	9.1	11	24,876	7.3	2.6	3.5	14.4
Non-government	29	214,694	5.2	1.0	3.6	7.7	20	46,242	5.2	1.2	3.2	8.2
Self-employed	25	176,416	6.6	1.2	4.6	9.5	29	56,364	4.9	0.9	3.3	7.1
Student	1	5,528	0.5	0.5	0.1	3.7	2	6,660	1.8	1.3	0.4	7.4

Table 37 (continue)

	Urban						Rural					
	n	N	%	SE	95% CI		n	N	%	SE	95% CI	
					Lower	Upper					Lower	Upper
Homemaker	6	36,759	1.2	0.5	0.5	2.8	3	5,293	0.5	0.3	0.1	2.0
Retiree	15	95,116	12.3	2.8	7.8	18.9	8	12,561	8.2	4.0	3.1	20.2
Not working	10	73,520	6.0	1.8	3.2	10.8	14	25,245	4.9	1.4	2.8	8.4
Race												
Malay	62	460,094	4.6	0.7	3.4	6.1	70	143,387	3.9	0.6	2.9	5.1
Chinese	18	120,174	5.6	1.2	3.7	8.4	5	10,331	5.8	2.3	2.6	12.5
Indian	5	28,602	2.7	1.2	1.1	6.5						
Iban	1	4,760	5.3	3.6	1.3	18.9						
Kadazan	2	14,789	17.6	12.5	3.8	53.9	1	2,827	3.7	3.5	0.5	20.9
Other Bumiputera	7	50,054	5.4	1.8	2.7	10.3	11	20,694	5.0	1.5	2.8	8.8
Others	1	7,196	29.5	26.7	3.2	84.0						
Religion												
Islam	70	516,813	4.7	0.6	3.6	6.1	77	154,939	3.9	0.5	3.0	5.1
Buddha	11	69,206	4.2	1.3	2.3	7.5	5	10,331	6.6	2.6	3.0	13.8
Kristian	9	62,654	10.0	3.2	5.3	18.2	5	11,970	3.8	1.5	1.8	7.9
Hindu	4	23,682	2.4	1.2	0.9	6.4						
Others	2	13,313	8.1	5.8	1.9	29.1						
Marital status												
Married	81	575,189	5.8	0.7	4.5	7.5	71	137,991	4.6	0.6	3.6	5.8
Living with partner												
Separated												
Divorced	2	14,177	12.4	8.4	3.0	39.5	2	4,155	8.5	8.1	1.2	41.7
Widowed	2	12,570	2.6	1.9	0.6	10.2	3	6,006	2.8	1.6	0.9	8.5
Single	11	83,733	2.2	0.6	1.3	3.7	11	29,087	2.4	0.8	1.2	4.7

Table 38 Quit methods among former cigarette smokers

	n responses (n=529)	% responses	n cases (n=454)
Without assistance	422	79.8	93.0
Using ECV	45	8.5	9.9
Counselling	25	4.7	5.5
Nicotine replacement therapy	24	4.5	5.3
Other medication*	6	1.1	1.3
Traditional	5	0.9	1.1
Others	2	0.4	0.4

* Unknown medication

Table 39 Have seen media on ECV

	n	N	%	SE	95% CI	
					Lower	Upper
Total	1,777	7,826,945	41.5	1.8	38.0	45.2
Urban	886	5,921,924	41.2	2.3	36.8	45.8
Rural	891	1,905,021	42.5	2.1	38.4	46.8

Table 40 Media exposure on ECV

	Observed advertisement promoting ECV			Observed advertisement on danger of ECV			Observed advertisement motivate quit ECV		
	n responses (n=4,245)	% response	n cases (n=1,293)	n responses (n=5,463)	% response	n cases (n=1,553)	n responses (n=5,262)	% response	n cases (n=1,472)
Vape shop	567	13.4	43.9	77	1.4	5.0	65	1.2	4.4
Television	527	12.4	40.8	1,188	21.7	76.5	1,108	21.1	75.3
Radio	221	5.2	17.1	482	8.8	31.0	502	9.5	34.1
Billboard	290	6.8	22.4	352	6.4	22.7	346	6.6	23.5
Posters	382	9.0	29.5	399	7.3	25.7	413	7.8	28.1
Newspapers & magazine	411	9.7	31.8	810	14.8	52.2	750	14.3	51.0
Cinemas	50	1.2	3.9	59	1.1	3.8	60	1.1	4.1
Internet	694	16.3	53.7	786	14.4	50.6	742	14.1	50.4
Social media	782	18.4	60.5	871	15.9	56.1	812	15.4	55.2
Public transport	119	2.8	9.2	155	2.8	10.0	164	3.1	11.1
Public notice board	130	3.1	10.1	206	3.8	13.3	218	4.1	14.8
Others	72	1.7	5.6	78	1.4	5.0	82	1.6	5.6

Table 41 Perception on ECV

	n	N	%	SE	95% CI	
					Lower	Upper
ECV helps people quit smoking tobacco cigarette	867	4,253,392	25.5	1.0	23.5	27.5
ECV helps people maintain cigarette abstinence	690	3,389,422	20.3	0.9	18.6	22.1
The urge to smoke is reduced by using ECV	1034	5,296,624	32.9	1.1	30.7	35.1
ECV is be more effective than medication for quitting smoking (eg NRT, varenicline)	440	2,224,552	14.7	0.9	13.0	16.6
ECV is not a transition to quit nicotine	1276	6,134,719	41.1	1.8	37.6	44.6
ECV helps people cut down tobacco smoking	1201	5,978,589	37.0	1.2	34.6	39.5
Breathing is improved after using ECV	428	2,162,319	15.4	0.8	13.9	17.1
Coughing is improved by using ECV	391	1,943,600	14.2	0.8	12.7	15.9
ECV use is less satisfying than tobacco smoking	1211	5,934,373	51.9	1.7	48.5	55.3
People react more positively to ECV users than that to tobacco smokers	940	4,509,927	26.7	1.2	24.4	29.1
The smell of an ECV is better than a tobacco cigarette	2129	10,009,710	64.6	1.4	61.8	67.3
ECV should be allowed in places where smoking is banned	320	1,481,549	8.2	0.7	7.0	9.7
ECV is less harmful to health of the user compared to tobacco smoking	713	3,536,617	22.9	1.1	20.7	25.2
ECV is less addictive than tobacco cigarettes	982	4,811,152	33.2	1.2	30.9	35.5
Craving for using ECV is as much as for tobacco cigarette	1640	7,704,488	54.8	1.3	52.2	57.3
ECV allows for more nicotine use compared to tobacco cigarette	1378	6,670,130	55.1	1.5	52.2	58.0
ECV vapour is more harmful to others compared to tobacco smoke	1827	8,093,553	55.6	1.3	53.0	58.1
The urgency of quitting ECV is not the same as with tobacco cigarettes	1064	5,091,284	35.2	1.5	32.3	38.3
ECV solutions causes poisoning	2415	10,853,898	80.8	0.9	78.9	82.5
ECV should be regulated rather than banned completely	1410	6,582,099	36.6	1.3	34.2	39.2

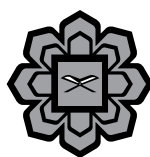
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APPENDIX 2

NECS Questionnaire Form

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**TINJAUAN KEBANGSAAN ROKOK ELEKTRONIK
2016: PREVALEN DAN CORAK PENGGUNAAN
ROKOK ELEKTRONIK DAN VAPE DALAM
KALANGAN PENDUDUK DEWASA DI MALAYSIA**

***NATIONAL ELECTRONIC CIGARETTE SURVEY
(NECS) 2016: PREVALENCE AND PATTERN OF E-
CIGARETTE AND VAPE USE AMONG MALAYSIAN
ADULTS***

Respondent ID																			
	<i>Negeri</i>		<i>DP</i>		<i>DB</i>		<i>BP</i>			<i>Strata</i>		<i>UB</i>		<i>TK</i>			<i>Res</i>		

Data Collector's ID:			
	<i>Zone</i>		<i>ID</i>

Date							
	<i>D</i>	<i>D</i>	<i>M</i>	<i>M</i>	<i>Y</i>	<i>Y</i>	<i>Y</i>

Isi kandungan Table of Content

KEBENARAN	
<i>CONSENT</i>	2
A MAKLUMAT LATAR BELAKANG	
<i>BACKGROUND DETAILS</i>	4
B MEROKOK ROKOK ELEKTRONIK/VAPE	
<i>SMOKING E-CIGARETTE/VAPE</i>	8
C MEROKOK TEMBAKAU	
<i>SMOKING TOBACCO</i>	27
D PENGGUNA 'DUAL'	
<i>DUAL USER</i>	35
E PENDEDAHAN KEPADA WAP ROKOK ELEKTRONIK/VAPE SECARA PASIF	
<i>SECONDHAND E-CIGARETTE/VAPE VAPOUR EXPOSURE</i>	38
F MEDIA	
<i>MEDIA</i>	40
G PERSEPSI	
<i>PERCEPTION</i>	45
H BORANG E-LIQUID	
<i>E-LIQUID FORM</i>	47
SOAL-SELIDIK INDIVIDU TAMAT	
<i>END INDIVIDUAL QUESTIONNAIRE</i>	48

KEBENARAN *CONSENT*

KEBENARAN1. BACAKAN KEPADA RESPONDEN YANG TERPILIH

CONSENT1. RECITE TO THE SELECTED RESPONDENT

Saya bekerja untuk Universiti Islam Antarabangsa Malaysia (UIAM). Universiti ini sedang menjalankan kajian soal-selidik ke atas penggunaan rokok elektronik atau vape dan produk tembakau di Malaysia. Maklumat yang diperolehi akan digunakan untuk membekalkan maklumat yang berkaitan kepada pihak-pihak yang bertanggung jawab.

I am working for the International Islamic University Malaysia. This university is conducting a survey on the usage of electronic cigarette or vape and tobacco products in Malaysia. Information gathered will be used to provide information on the said matters to relevant authorities in Malaysia.

Isi rumah anda dan anda telah dipilih secara rawak. Maklum balas anda adalah amat bermakna kepada kami dan komuniti. Soal-selidik ini akan mengambil masa lebih kurang 35 minit. Penglibatan anda dalam kajian ini adalah secara sukarela. Maklumat yang anda berikan akan dirahsiakan dan anda tidak akan dikenalpasti berdasarkan maklum balas yang diberikan. Maklumat diri anda tidak akan dikongsi dengan pihak lain termasuklah ahli keluarga anda. Anda boleh menarik diri daripada kajian ini pada bila-bila masa, dan anda boleh untuk tidak menjawab sebarang soalan.

Your household and you have been randomly selected. Your response is very important to us and the community. This interview will take approximately 35 minutes. Your participation in this study is voluntary. The confidentiality of the information you provide is assured and you will not be identified through your feedback. Your personal information will not be shared with anyone including your family. You can withdraw from this study at any time, and you may refuse to answer any question.

Sekiranya anda mempunyai sebarang soalan berkenaan kajian ini, anda boleh menghubungi nombor telefon yang tersenarai di bawah:

We will leave the necessary contact information with you. If you have any questions about this survey, you can contact the telephone number listed below:

Assoc. Prof Dr. Mohamad Haniki Nik Mohamed : 019-3448062 (Principal Investigator)
Assoc. Prof Dr. Jamalludin Ab. Rahman : 019-9888292 (Co-Principal Investigator)

[illegible]

Kod responden:
Respondent code:

.....
Nama saksi:
Witness name:

Tandatangan Responden:
Respondent signature:

Tandatangan saksi:
Witness signature:

.....
Tarikh:
Date:

.....
Tarikh:
Date:

INTLANG. [BAHASA TEMURAMAH]
[INTERVIEW LANGUAGE]

Melayu <i>Malay</i>	☐	1
Bahasa Inggeris <i>English</i>	☐	2

A MAKLUMAT LATAR BELAKANG *BACKGROUND DETAILS*

Saya akan mula dengan menanyakan beberapa soalan berkenaan latar belakang anda.

I will start by asking a few questions regarding your background.

A01 Jantina

Gender

[Tandakan jantina berdasarkan pemerhatian anda. tanya sekiranya perlu]

[Note the gender through observation. ask only if necessary]

Lelaki <i>Male</i>	☐	1
Perempuan <i>Female</i>	☐	2

A02 Berapakah umur anda?

What is your age?

[Sekiranya responden menyatakan tidak pasti, selidik lebih lanjut untuk anggaran dan rekodkan jawapan. sekiranya responden enggan untuk menjawab, tamatkan temuramah kerana ia tidak dapat diteruskan tanpa umur].

[If respondent state unsure, probe deeper for estimates and records answer. if respondent refused, end the interview as the interview could not proceed without age]

			TAHUN <i>YEARS</i>
----------------------	----------------------	----------------------	-----------------------

NO KAD PENGENALAN:

NRIC NO:

						-			-				
----------------------	----------------------	----------------------	----------------------	----------------------	----------------------	---	----------------------	----------------------	---	----------------------	----------------------	----------------------	----------------------

A03 Apakah bulan dan tahun tarikh lahir anda?
What is the month and year of your date of birth?

A.03.1 **BULAN**
MONTH

--	--

A.03.2 **TAHUN**
YEAR

--	--	--	--

[Jika tidak tahu, tulis "77"]
[If don't know, enter "77"]
 [Jika enggan, tulis "99"]
[If refused, enter "99"]
 [Jika tidak tahu, tulis "7777"]
[If don't know, enter "7777"]
 [Jika enggan, tulis "9999"]
[If refused, enter "9999"]

A04 Apakah tahap pendidikan tertinggi anda?
What is your highest level of education?

[Jangan baca pilihan berikut kepada responden. Hanya tandakan satu kategori berdasarkan jawapan daripada responden.]

[Do not read the following selections to the respondent. Select only one category based on the respondent's answer]

Tiada pendidikan formal

No formal schooling

Tidak tamat sepenuhnya sekolah rendah

Less than primary school completed

Tamat sekolah rendah

Primary school completed

Tidak tamat sepenuhnya sekolah menengah

Less than secondary school completed

Tamat sekolah menengah

Secondary school completed

Tamat kolej/university

College / university completed

Tidak tahu

Don't know

Enggan menjawab

Refused to answer

1

2

3

4

5

6

77

99

A05 Apakah status pekerjaan anda dalam masa 12 bulan yang lalu?*What is your employment status within the last 12 months?*

[Jangan bacakan setiap di bawah. Tandakan pekerjaan dalam kotak berdasarkan jawapan responden. Petani tergolong dalam kategori bekerja sendiri]

[Do not read the followings. State the occupation in the cell based on respondent's answer. Farmer is included in the self-employed category]

Kakitangan kerajaan <i>Government servant</i>		1
Bukan kakitangan kerajaan <i>Not a government servant</i>		2
Bekerja sendiri <i>Self-employed</i>		3
Pelajar <i>Student</i>		4
Suri rumah <i>Homemaker</i>		5
Pesara <i>Retiree</i>		6
Tidak bekerja <i>Not working</i>		7
Tidak tahu <i>Don't know</i>		77
Enggan menjawab <i>Refused to answer</i>		99

A06 Apakah bangsa/kumpulan etnik anda?*What is your race/ethnic background?*

Melayu <i>Malay</i>		1
Cina <i>Chinese</i>		2
India <i>Indian</i>		3
Iban <i>Iban</i>		4
Kadazan <i>Kadazan</i>		5
Lain-lain bumiputera <i>Other bumiputera</i>		6
Lain-lain. Sila nyatakan. <i>Others. Please specify.</i>		7
.....		
Tidak tahu <i>Don't know</i>		77
Enggan menjawab <i>Refused to answer</i>		99

A07 Apakah agama anda?*What is your religion?***Islam***Islam***Buddha***Buddhism***Kristian***Christianity***Hindu***Hinduism***Lain-lain. Sila nyatakan:***Others. Please specify:*

	1
	2
	3
	4
	5

Tiada*None***Tidak tahu***Don't know***Enggan menjawab***Refused to answer*

	77
	99

A08 Apakah status perkahwinan anda? Anda boleh nyatakan samada anda sudah berkahwin, tinggal bersama pasangan, sudah berpisah, bercerai, balu, atau bujang?*What is your marital status? You may state married, living with partner, separated, divorced, widowed, or single?***Sudah berkahwin***Married***Tinggal bersama pasangan***Living with partner***Sudah berpisah***Separated***Bercerai***Divorced***Balu***Widowed***Bujang***Single***Tidak tahu***Don't know***Enggan menjawab***Refused to answer*

	1
	2
	3
	4
	5
	6
	77
	99

B MEROKOK ROKOK ELEKTRONIK/VAPE *SMOKING E-CIGARETTE/VAPE*

B01 Dalam masa 30 hari yang lepas, adakah anda menghisap shisha/hookah walaupun satu sedutan?

In the last 30 days, have you smoked shisha/hookah even one puff?

Ya <i>Yes</i>	☐	1
Tidak <i>No</i>	☐	2
Tidak tahu <i>Don't know</i>	☐	77
Enggan menjawab <i>Refused to answer</i>	☐	99

B02 Pernahkah anda menghisap rokok elektronik/vape walaupun hanya satu sedutan?

Have you ever smoked e-cigarette/vape even one puff in your life?

Ya <i>Yes</i>	☐	1	<i>Terus ke soalan B04 pada Muka Surat 9 Go to Question 0 on Page 9</i>
Tidak <i>No</i>	☐	2	
Tidak tahu <i>Don't know</i>	☐	77	
Enggan menjawab <i>Refused to answer</i>	☐	99	

B03 Adakah anda ada sebarang niat untuk menggunakan/menghisap rokok elektronik/vape dalam masa terdekat?

Do you have any intention to use e-cigarette/vape in the near future?

Ya <i>Yes</i>	☐	1
Tidak <i>No</i>	☐	2
Tidak berkaitan <i>Not applicable</i>	☐	88
Tidak tahu <i>Don't know</i>	☐	77
Enggan menjawab <i>Refused to answer</i>	☐	99

*Terus ke seksyen C pada Muka Surat 27
Go to section C at Page 27*

B04 Berapakah umur anda ketika pertama kali menghisap rokok elektronik/vape?*What is your age when you first started smoking e-cigarette/vape?*

[Jika tidak tahu atau enggan menjawab, isikan 99]

[If don't know or refused to answer, enter 99]

		TAHUN YEARS
--	--	----------------

B05 Dalam 30 hari yang lepas, pernahkah anda menghisap rokok elektronik/vape?*In the past 30 days, have you smoked e-cigarette/vape?*

Ya

Yes

		1
--	--	---

Tidak

No

		2
--	--	---

*Terus ke B30 pada Muka Surat 24**Go to B30 on Page 24*

Tidak tahu

Don't know

		77
--	--	----

*Terus ke Soalan C01 pada Muka Surat 27**Go to Question C01 on Page 27*

Enggan menjawab

Refused to answer

		99
--	--	----

*Terus ke Soalan C01 pada Muka Surat 27**Go to Question C01 on Page 27***B06 Adakah anda menghisap rokok elektronik/vape setiap hari atau bukan setiap hari?***Do you smoke e-cigarette/vape every day or less than every day?*

Setiap hari

Every day

		1
--	--	---

Bukan setiap hari

Less than every day

		2
--	--	---

*Terus ke Soalan B08**Go to Question B08*

Tidak tahu

Don't know

		77
--	--	----

*Terus ke Soalan C01 pada Muka Surat 27**Go to Question C01 on Page 27*

Enggan menjawab

Refused to answer

		99
--	--	----

*Terus ke Soalan C01 pada Muka Surat 27**Go to Question C01 on Page 27***B07 Berapakah umur anda ketika pertama kali menghisap rokok elektronik/vape *setiap hari*?***How old were you when you first started smoking e-cigarette/vape *every day*?*

[Jika tidak tahu atau enggan menjawab, isikan 99]

[If don't know or refused to answer, enter 99]

		TAHUN YEARS
--	--	----------------

B08 Apakah SATU (1) sebab UTAMA anda menghisap rokok elektronik/vape?*What is your MAIN reason for smoking e-cigarette/vape?**[Jangan baca pilihan berikut kepada responden. Tandakan SATU (1) pilihan sahaja.]**[Do not read the following selections to the respondent. Tick 1 (ONE) selection only.]*

Untuk berhenti menghisap rokok/produk tembakau <i>To quit tobacco cigarette/product</i>	☐	1
Untuk menggantikan rokok/produk tembakau <i>To replace tobacco cigarette/product</i>	☐	2
Untuk mengurangkan jumlah penggunaan rokok/produk tembakau <i>To reduce/cut down tobacco cigarette/product used</i>	☐	3
Untuk mencuba <i>Just to try</i>	☐	4
Untuk kurangkan kos merokok <i>To reduce cost of smoking</i>	☐	5
Untuk merokok di tempat larangan merokok <i>To smoke in places prohibited for tobacco smoking</i>	☐	6
Lain-lain (Sila nyatakan_____) <i>Others (Please specify_____)</i>	☐	7

.....		
Tidak tahu <i>Don't know</i>	☐	77
Enggan menjawab <i>Refused to answer</i>	☐	99

[CORAK PENGGUNAAN] [PATTERN]**B09 Pada hari-hari anda menggunakan rokok elektronik/vape, berapa kalikah anda menggunakannya?***On the days you smoke using e-cigarette/vape, how many times do you usually use it?**[Jika tidak tahu atau enggan menjawab, isikan 99]**[If don't know or refused to answer, enter 99]*

			KALI/HARI TIMES/DAY
--	--	--	------------------------

B10 Berapa banyak sedutan yang anda ambil untuk setiap sesi penggunaan rokok elektronik/vape?*How many puffs do you smoke for each session of e-cigarette/vape use?**[Jika tidak tahu atau enggan menjawab, isikan 999]**[If don't know or refused to answer, enter 999]*

			SEDUTAN PUFF(S)
--	--	--	--------------------

B11 Apakah jenis dan bilangan ALAT rokok elektronik yang sedang DIGUNAKAN SEKARANG?*What is the type and number of e-cigarette DEVICE you are currently USING?**[Sila rujuk pada catalog yang diberi. Tentukan jenis ALAT dan catatkan BILANGAN dalam kotak.]**[Please refer to the given catalogue. Determine the type of DEVICE and state the number in the box.]*

	Number
Seperti rokok: Pakai buang atau boleh dicas kembali (Generasi pertama) <i>Cig-like: Disposable or rechargeable (1st generation)</i>	1
Seperti pen: Boleh dicas kembali dengan bekas/tangki cecair yang boleh diisi ulang (Generasi kedua) <i>Pen-like: Rechargeable with refillable liquid tank (2nd generation)</i>	2
Mods atau alat pengewapan peribadi maju <i>Mods or Advanced Personalised Vaporisers (3rd generation)</i>	3
Lain-lain. Sila nyatakan <i>Others. Please specify</i>	5

Tidak tahu <i>Don't know</i>	77
Enggan menjawab <i>Refused to answer</i>	99

B12 Secara keseluruhannya, berapa banyakkah yang telah anda belanjakan untuk membeli alat-alat rokok elektronik/vape?

In total, how much have you spent on e-cigarette/vape device(s)?

[Jika tidak tahu atau enggan menjawab, isikan 999]

[If don't know or refused to answer, enter 999]

RM

--	--	--	--	--

B13 Apakah jenama rokok elektronik/cecair vape yang sering anda gunakan sekarang?

What is the brand of e-cigarette/vape liquid that you currently use the most?

[Minta kebenaran responden untuk melihat botol cecair rokok elektronik/vape]

[Ask the respondent's permission to look at the e-liquid/vape bottle]

[Jika tidak tahu atau enggan menjawab, isikan 999]

[If don't know or refused to answer, enter 999]

B.13.1 (i) Jenama rokok elektronik/vape *Brand of e-cigarette/vape:*

B.13.2 (ii) Jenama cecair rokok elektronik/vape *Brand of e-cigarette/vape liquid:*

B14 Apakah perisa cecair rokok elektronik/ vape yang anda sering digunakan sekarang?

What is the preferred flavour of e-cigarette/vape liquid you currently use the most?

[Jika tidak tahu atau enggan menjawab, isikan 999]

[If don't know or refused to answer, enter 999]

B15 Secara purata, berapa yang anda bayar untuk setiap botol rokok elektronik/cecair vape kesukaan anda yang sering digunakan sekarang?

On average, how much do you pay for each bottle of the preferred e-cigarette/vape liquid you currently use the most?

[Jika tidak tahu atau enggan menjawab, isikan 999]

[If don't know or refused to answer, enter 999]

RM

Isipadu/volume
(mL)

B16 Secara purata, berapa harikah satu botol rokok elektronik/cecair vape mampu bertahan?

On average, how many days does a bottle of e-cigarette/vape liquid last?

[Jika tidak tahu atau enggan menjawab, isikan 999]

[If don't know or refused to answer, enter 999]

			HARI DAYS
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B17 Adakah anda berkongsi kos membeli cecair rokok elektronik/ vape dengan rakan-rakan anda?

Do you share the cost of e-cigarette/vape liquid with your friends?

Ya <i>Yes</i>	☐	1
Tidak <i>No</i>	☐	2
Tidak tahu <i>Don't know</i>	☐	77
Enggan menjawab <i>Refused to answer</i>	☐	99

B18 Adakah anda berkongsi cecair rokok elektronik/ vape anda dengan rakan-rakan anda?

Do you share your e-cigarette/vape liquid with your friends?

Ya <i>Yes</i>	☐	1
Tidak <i>No</i>	☐	2
Tidak tahu <i>Don't know</i>	☐	77
Enggan menjawab <i>Refused to answer</i>	☐	99

B19 Adakah cecair rokok elektronik/ vape kesukaan/pilihan anda mengandungi nikotin?

Does your preferred e-cigarette/vape liquid contain nicotine?

Ya <i>Yes</i>	☐	1	
Tidak <i>No</i>	☐	2	Terus ke Soalan B21 <i>Go to Question B21</i>
Tidak tahu <i>Don't know</i>	☐	77	Terus ke Soalan B21 <i>Go to Question B21</i>
Enggan menjawab <i>Refused to answer</i>	☐	99	Terus ke Soalan B21 <i>Go to Question B21</i>

B20 Apakah kekuatan/kepekatan nikotin yang menjadi pilihan untuk cecair rokok elektronik/ vape anda?

What is your preferred strength of nicotine in your e-cigarette/vape liquid?

[Jika tidak tahu atau enggan menjawab, isikan 999]

[If don't know or refused to answer, enter 999]

			mg/mL
--	--	--	-------

B21 Apakah TIGA (3) tempat di mana anda biasa menghisap rokok elektronik/vape?

What are the THREE (3) most common places you usually smoke e-cigarette/vape?

[Tandakan pilihan yang bersesuaian. Tidak perlu baca pilihan berikut kepada responden]

[Check the appropriate option. Do not read the following selections to the respondent]

- | | | |
|---------|---|----|
| B.21.1 | Di rumah (dalam)
<i>At home (Inside)</i> | 1 |
| B.21.2 | Di rumah (luar)
<i>At home (Outside)</i> | 2 |
| B.21.3 | (Di tempat kerja)
<i>Workplace</i> | 3 |
| B.21.4 | (Fasiliti kesihatan) *cth: Hospital/klinik
<i>Health care facilities</i> | 4 |
| B.21.5 | Bangunan /pejabat kerajaan
<i>Government buildings/offices</i> | 5 |
| B.21.6 | Restoran (berhawa dingin)
<i>Restaurant (with air conditioning)</i> | 6 |
| B.21.7 | Premis-premis makanan (tidak berhawa dingin)
<i>Food premises (without air conditioning)</i> | 7 |
| B.21.8 | Kompleks membeli-belah
<i>Shopping complexes</i> | 8 |
| B.21.9 | Pengangkutan awam
<i>Public transports</i> | 9 |
| B.21.10 | Kenderaan persendirian
<i>Private vehicle</i> | 10 |
| B.21.11 | Lain-lain.(Sila nyatakan)
<i>Others. (Please specify)</i> | 11 |
| B.21.12 | | |

B22 Di manakah anda sering membeli cecair rokok elektronik/ vape?*Where do you usually buy your e-cigarette/vape liquid?*

[Pilih satu (1) jawapan sahaja. Tidak perlu baca pilihan berikut kepada responden]

[Choose one (1) answer only. Do not read the following selections to the respondent]

Pembelian atas talian/online/internet*Online shopping***Kedai-kedai vape***Vape shops***Toko kecil/pusat beli-belah***Kiosk/Shopping centre***Pasar malam***Night market***Lain-lain (Sila nyatakan_____)***Others (Please specify_____)*

	1
	2
	3
	4
	5

.....

B23 Di rumah, di manakah anda sering menyimpan cecair rokok elektronik/vape?*At home, where do you usually keep your e-cigarette/vape liquid?*

[Tidak perlu baca pilihan berikut kepada responden]

[Do not read the following selections to the respondent]

Kabinet/almari bertutup*Close cabinet***Atas rak***On the shelf***Atas meja***On the table***Tiada tempat yang spesifik***No specific place***Lain-lain (Sila nyatakan_____)***Others (Please specify_____)*

	1
	2
	3
	4
	5

.....

B24 Pernahkah anda mengalami sebarang kesan sampingan sepanjang menggunakan rokok elektronik/vape?

Have you suffered from any side effects during e-cigarette/vape use?

[Bacakan pilihan berikut kepada responden]

[Read the following selections to the respondent]

		Ya <i>Yes</i> (1)	Tidak <i>No</i> (2)	Tidak tahu <i>Don't know</i> (77)	Enggan menjawab <i>Refused to answer</i> (99)
B.24.1	Mulut kering <i>Dry Mouth</i>				
B.24.2	Sakit tekak <i>Sore Throat</i>				
B.24.3	Batuk <i>Cough</i>				
B.24.4	Sakit kepala <i>Headache</i>				
B.24.5	Kembung perut <i>Bloating</i>				
B.24.6	Sakit perut <i>Stomach disturbances</i>				
B.24.7	Loya <i>Nausea</i>				
B.24.8	Muntah <i>Vomiting</i>				
B.24.9	Gelisah <i>Anxiety</i>				
B.24.10	Masalah pernafasan <i>Breathing Problem</i>				
B.24.11	Lain-lain (Sila nyatakan) <i>Other (Please specify)</i>				
B.24.12					

[CUBAAN BERHENTI DAN NIAT UNTUK BERHENTI]**[QUIT ATTEMPT AND INTENTION]**

Soalan-soalan di bawah adalah berkaitan dengan cubaan untuk berhenti menghisap rokok elektronik/vape yang pernah dilakukan dalam masa 12 bulan yang lepas. Sila fikirkan tentang penggunaan rokok elektronik/vape.

The following questions are regarding the attempt to quit smoking e-cigarette/vape you had carried out in the last 12 months. Please think about e-cigarette/vape smoking.

B25 Dalam masa 12 bulan yang lepas, pernahkah anda mencuba untuk berhenti menghisap rokok elektronik/vape?

In the last 12 months, have you ever tried to quit smoking e-cigarette/vape?

Ya <i>Yes</i>	☐	1	
Tidak <i>No</i>	☐	2	Terus ke B29 pada muka surat 20 <i>Go to B29 on page 20</i>
Tidak tahu <i>Don't know</i>	☐	77	Terus ke B29 pada muka surat 20 <i>Go to B29 on page 20</i>
Enggan menjawab <i>Refused to answer</i>	☐	99	Terus ke B29 pada muka surat 20 <i>Go to B29 on page 20</i>

B26 Berapa lamakah anda berjaya berhenti menghisap rokok elektronik/vape berdasarkan cubaan terbaru anda?

How long were you able to quit smoking e-cigarette/vape based on your most recent attempt?

Hari <i>Days</i>	☐	☐	
Minggu <i>Weeks</i>	☐	☐	
Bulan <i>Months</i>	☐	☐	
Tidak tahu <i>Don't know</i>	☐	☐	77
Enggan menjawab <i>Refused to answer</i>	☐	☐	99

B27 Dalam masa 12 bulan yang lepas, pernahkah anda menggunakan kaedah-kaedah berikut untuk berhenti menghisap rokok elektronik/vape?

In the last 12 months, have you used the following methods to quit smoking e-cigarette/vape?

[Bacakan setiap kaedah berikut kepada responden]

[Read each of the following methods to the respondent]

	Ya <i>Yes</i> (1)	Tidak <i>No</i> (2)	Tidak tahu Don't know (77)	Enggan menjawab <i>Refused to answer</i> (99)
B.27.1 Kaunseling (termasuk di klinik berhenti merokok) <i>Counselling (including at a smoking cessation clinic)</i>				
B.27.2 Nasihat oleh penjual rokok elektronik/vape <i>Advice by e-cigarette/vape vendor</i>				
B.27.3 Terapi penggantian nikotin (contoh pelekat nikotin atau nikotin gam) <i>Nicotine replacement therapy (e.g. nicotine patch or gum)</i>				
B.27.4 Lain-lain ubat. Jika Ya, sila nyatakan. <i>Other medication. If yes, please specify</i>				
B.27.5				
B.27.6 Ubat tradisional. Jika Ya, sila nyatakan. <i>Traditional medication. If yes, please specify.</i>				
B.27.7				
B.27.8 Talian berhenti merokok (talian telefon sokongan berhenti merokok) <i>Quit line (smoking telephone support line)</i>				
B.27.9 Berhenti tanpa sebarang bantuan (jati diri) <i>Quit without assistance (willpower)</i>				
B.27.10 Lain-lain. (Sila nyatakan) <i>Other. (Please specify:)</i>				
B.27.11				

B28 Yang mana satukah antara berikut menerangkan fikiran anda tentang berhenti menghisap rokok elektronik/vape?

Which of the following describes your thoughts about quitting smoking e-cigarette/vape?

[Bacakan pilihan berikut kepada responden. Tandakan SATU (1) pilihan sahaja]

[Read the following selections to the respondent. Tick ONE (1) only]

Saya bercadang untuk berhenti menghisap rokok elektronik/vape:

I intend to quit smoking e-cigarette/vape:

- dalam bulan hadapan.
within next month
- dalam masa 3 bulan akan datang.
within next 3 months
- dalam masa 6 bulan akan datang.
within next 6 months
- dalam masa 12 bulan akan datang.
within next 12 months

Saya akan berhenti menghisap rokok elektronik/vape suatu hari nanti, tetapi bukan dalam masa 12 bulan akan datang.

I shall quit smoking e-cigarette/vape one day, but not within the next 12 months.

Saya tidak berminat untuk berhenti menghisap rokok elektronik/vape.

I am not interested to quit smoking e-cigarette/vape

Tidak tahu

Don't know

Enggan menjawab

Refused to answer

☐	1
☐	2
☐	3
☐	4
☐	5
☐	6
☐	77
☐	99

[PENARIKAN]
[WITHDRAWAL]

B29 Pernahkah anda mengalami simptom-simptom (tanda-tanda) berikut sepanjang penggunaan rokok elektronik/vape?

Have you experienced any of these symptoms during e-cigarette/vape use?

[Bacakan setiap simptom/tanda-tanda berikut kepada responden]

[Read each of the following symptoms to the respondent]

		Ya <i>Yes</i> (1)	Tidak <i>No</i> (2)	Tidak tahu <i>Don't know</i> (77)	Enggan menjawab <i>Refused to answer</i> (99)
B.29.1	Gian untuk menghisap rokok tembakau <i>Craving for tobacco smoking</i>				
B.29.2	Tekanan perasaan <i>Depressed mood</i>				
B.29.3	Kesukaran dalam memberi tumpuan <i>Difficulty in concentration</i>				
B.29.4	Selera makan bertambah <i>Increased appetite</i>				
B.29.5	Panas baran <i>Bad temper</i>				
B.29.6	Kesukaran untuk tidur <i>Sleeplessness (Insomnia)</i>				
B.29.7	Mengantuk <i>Sleepiness</i>				
B.29.8	Kecewa <i>Frustration</i>				
B.29.9	Marah <i>Anger</i>				
B.29.10	Terjaga tengah malam <i>Awakening at night</i>				
B.29.11	Lain-lain. Jika Ya, sila nyatakan: <i>Other. If yes, please specify:</i>				
B.29.12					

[KEBERGANTUNGAN]**[DEPENDENCE]**

Berikut adalah soalan-soalan untuk menilai tahap kebergantungan terhadap rokok elektronik/vape:

The followings are questions to test dependence on e-cigarette/vape:

[Bacakan setiap soalan berikut kepada responden. Tandakan SATU (1) pilihan jawapan untuk setiap soalan]

[Read each of the following questions to the respondent. Tick ONE (1) answer for each question]

B.29.1	Selepas bangun daripada tidur, bilakah anda mula menghisap rokok elektronik/vape? <i>How soon after waking up do you smoke your e-cigarette/vape?</i>	Dalam masa 5 minit <i>Within 5 minutes</i>		3
		5-30 minit <i>5-30 minutes</i>		2
		31-60 minit <i>31-60 minutes</i>		1
		Selepas 60 minit <i>After 60 minutes</i>		0
B.29.2	Adakah anda berasa sukar untuk menahan diri daripada menghisap rokok elektronik/vape di kawasan larangan merokok (seperti masjid, gereja, dalam perpustakaan atau dalam panggung wayang)? <i>Do you find difficulty to refrain from smoking e-cigarette/vape in places where it is forbidden (like mosque, church, at the library or in the cinema)?</i>	Ya <i>Yes</i>		1
		Tidak <i>No</i>		0
B.29.3	Waktu menghisap rokok elektronik/vape yang mana satu paling sukar untuk dielakkan? <i>Which smoking e-cigarette/vape would you hate to give up?</i>	Yang pertama pada waktu pagi <i>The first in the morning</i>		1
		Yang lain <i>Any other</i>		0
B.29.4	Berapa kalikah (sesi) dalam sehari anda menghisap rokok elektronik/vape? <i>How many times (session) a day do you smoke e-cigarette/vape?</i>			Sehari <i>Per day</i>
B.29.5	Adakah anda menghisap rokok elektronik/vape lebih kerap pada waktu pagi? <i>Do you smoke e-cigarette/vape more frequently in the morning?</i>	Ya <i>Yes</i>		1
		Tidak <i>No</i>		0
B.29.6	Adakah anda menghisap rokok elektronik /vape meskipun ketika anda sakit dan terlantar di katil sepanjang sehari? <i>Do you smoke e-cigarette/vape even if you are sick in bed most of the day?</i>	Ya <i>Yes</i>		1
		Tidak <i>No</i>		0

Berikut adalah soalan-soalan berkenaan tingkah laku kebergantungan terhadap rokok elektronik.

The followings are questions regarding behavioural dependence to electronic cigarette.

[Soal selidik tingkah laku merokok 'Modified Glover Nilsson']

[Modified Glover Nilsson smoking behavioural questionnaire]

		Ya Yes (1)	Tidak No (2)	Tidak tahu Don't know (77)	Enggan menjawab Refused to answer (99)
B.29.7	Adakah tabiat menghisap vape sangat penting untuk anda? <i>Is your vaping habit very important to you?</i>				
B.29.8	Adakah anda mengendalikan rokok elektronik/vape sebagai sebahagian daripada aktiviti merokok? <i>Do you handle and manipulate your e-cigarette/vape as part of the ritual of smoking?</i>				
B.29.9	Adakah anda meletakkan sesuatu dalam mulut untuk mengalihkan perhatian daripada menghisap rokok elektronik/vape? <i>Do you place something in your mouth to distract you from vaping?</i>				
B.29.10	Adakah anda menghadahi diri sendiri dengan cara menghisap rokok elektronik/vape selepas menyelesaikan sesuatu tugas? <i>Do you reward yourself with vaping after accomplishing a task?</i>				
B.29.11	Sekiranya anda mendapati diri anda tanpa rokok elektronik/vape, adakah anda akan menghadapi kesukaran untuk memberi tumpuan sebelum melakukan sesuatu tugas? <i>If you find yourself without e-cigarette/vape, will you have difficulties in concentrating before attempting a task?</i>				
B.29.12	Sekiranya anda tidak dibenarkan untuk menghisap rokok elektronik/vape di tempat-tempat tertentu, adakah anda akan bermain-main dengan alat rokok elektronik itu? <i>If you are not allowed to smoke your e-cigarette/vape in certain places, do you then play with your e-cigarette device?</i>				
B.29.13	Adakah persekitaran/keadaan tertentu mempengaruhi tindakan anda untuk menghisap rokok elektronik/vape, cth. kerusi kegemaran, sofa, bilik, kereta, atau minuman beralkohol? <i>Do certain environmental cues trigger your vaping, e.g., favourite chair, sofa, room, car, or drinking alcohol?</i>				

		Ya Yes (1)	Tidak No (2)	Tidak tahu Don't know (77)	Enggan menjawab Refused to answer (99)
B.29.14	Adakah anda mendapati diri anda menghisap rokok elektronik/vape secara kebiasaan (walaupun tanpa gian)? <i>Do you find yourself vaping routinely (without craving)?</i>				
B.29.15	Adakah anda mendapati diri anda meletakkan rokok elektronik/vape pada mod 'off' atau objek-objek lain (pen, pencungkil gigi, dsb) dalam mulut anda dan menghisapnya untuk melegakan diri daripada tekanan atau kekecewaan. <i>Do you find yourself placing an e-cigarette/vape in off mode or other objects (pen, toothpick, etc) in your mouth and sucking to get relief from stress, tension or frustration etc?</i>				
B.29.16	Adakah sebahagian keseronokan daripada menghisap rokok elektronik/vape datang daripada langkah anda memetik suis 'on' pada rokok elektronik/vape anda? <i>Does part of your enjoyment of vaping come from the steps when switching on your e-cigarette/vape?</i>				
B.29.17	Apabila anda bersendirian di restoran, terminal bas, parti, dll., adakah anda berasa selamat, aman, atau lebih berkeyakinan sekiranya anda memegang rokok elektronik/vape? <i>When you are alone in a restaurant, bus terminal, party, etc., do you feel safe, secure, or more confident if you are holding an e-cigarette/vape?</i>				

[Terus ke seksyen C pada Muka Surat 27]
[To section C in Page 27]

[BEKAS PENGGUNA ROKOK ELEKTRONIK/VAPE]
[FORMER E-CIGARETTE/VAPE USER]

B30 Berapa lamakah anda sudah berhenti menghisap rokok elektronik/vape?

How long have you stopped smoking e-cigarette/vape?

[Tidak perlu baca pilihan berikut kepada responden. Pilih satu dan nyatakan nombor dalam kotak]
 [Do not read the following selections to respondent. Choose one and state the number in the cells]

Tahun <i>Years</i>			<i>TAHUN</i> <i>YEARS</i>
Bulan <i>Months</i>			<i>BULAN</i> <i>MONTHS</i>
Minggu <i>Weeks</i>			<i>MINGGU</i> <i>WEEKS</i>
Hari <i>Days</i>			<i>HARI</i> <i>DAYS</i>
Tidak tahu <i>Don't know</i>			<i>77</i>
Enggan menjawab <i>Refused to answer</i>			<i>99</i>

B31 Dalam masa 12 bulan yang lepas, pernahkah anda menggunakan kaedah-kaedah berikut untuk berhenti menghisap rokok elektronik/vape?

In the last 12 months, have you used the following methods to quit smoking e-cigarette/vape?

[Bacakan setiap kaedah berikut kepada responden]

[Read each of the following methods to the respondent]

		Ya Yes (1)	Tidak No (2)	Tidak tahu Don't know (77)	Enggan menjawab Refuse to answer (99)
B.31.1	Kaunseling (termasuk di klinik berhenti merokok) <i>Counselling (including at a smoking cessation clinic)</i>				
B.31.2	Nasihat oleh penjual rokok elektronik/vape <i>Advice by e-cigarette/vape vendor</i>				
B.31.3	Terapi penggantian nikotin (contoh pelekat nikotin atau nikotin gam) <i>Nicotine replacement therapy (e.g. nicotine patch or gum)</i>				
B.31.4	Lain-lain ubat. Jika Ya, sila nyatakan. <i>Other medication. Please specify.</i>				
					
B.31.5	Ubat tradisional. Jika Ya, sila nyatakan. <i>Traditional medication. Please specify</i>				
					
B.31.6	Berhenti tanpa sebarang bantuan (jati diri) <i>Quit without assistance (willpower)</i>				
B.31.7	Lain-lain. Sila nyatakan: <i>Other. Please specify:</i>				
					

B32 Apakah SATU (1) sebab UTAMA anda berhenti menggunakan rokok elektronik/vape?*What is the MAIN reason for quitting e-cigarette/vape use?*

[Jangan baca pilihan berikut kepada responden. Tandakan SATU (1) pilihan sahaja.]

[Do not read the following selections to the respondent. Tick 1 (ONE) selection only.]

Kos	☐	1
<i>Cost</i>		
Kesihatan	☐	2
<i>Health</i>		
Agama	☐	3
<i>Religion</i>		
Keluarga	☐	4
<i>Family</i>		
Rakan-rakan	☐	5
<i>Friends</i>		
Tekanan sosial	☐	6
<i>Societal pressure</i>		
Lain-lain. Sila nyatakan:	☐	7
<i>Other. Please specify:</i>		

B.32.1

Tidak tahu	☐	77
<i>Don't know</i>		
Enggan menjawab	☐	99
<i>Refused to answer</i>		

C MEROKOK TEMBAKAU *SMOKING TOBACCO*

Saya ingin menanyakan beberapa soalan berkenaan *merokok* tembakau, termasuklah rokok keluaran syarikat tembakau, rokok gulung, kretek, paip, curut, 'cigarillos', dan shisha/hookah. (Rujuk katalog yang diberi jika perlu)

*I would like to ask a few questions about *smoking* tobacco, including manufactured cigarettes, hand rolled cigarettes, kreteks, pipes, curuts, cigars, cigarillos, and shisha/hookah. (Refer to the given catalog, if necessary)*

C01 Pernahkah anda menghisap rokok tembakau walaupun satu sedutan?

Have you ever smoked tobacco cigarette even one puff in your life?

Ya <i>Yes</i>		1	
Tidak <i>No</i>		2	Terus ke seksyen E di Muka Surat 38 <i>Go to section E on Page 38</i>
Tidak tahu <i>Don't know</i>		77	Terus ke seksyen E di Muka Surat 38 <i>Go to section E on Page 38</i>
Enggan menjawab <i>Refused to answer</i>		99	Terus ke seksyen E di Muka Surat 38 <i>Go to section E on Page 38</i>

C02 Sepanjang usia anda, pernahkah anda menghisap 100 batang rokok tembakau?

Have you ever smoked 100 sticks of tobacco cigarette in your life?

Ya <i>Yes</i>		1	
Tidak <i>No</i>		2	Terus ke seksyen E di Muka Surat 38 <i>Go to section E on Page 38</i>
Tidak tahu <i>Don't know</i>		77	Terus ke seksyen E di Muka Surat 38 <i>Go to section E on Page 38</i>
Enggan menjawab <i>Refused to answer</i>		99	Terus ke seksyen E di Muka Surat 38 <i>Go to section E on Page 38</i>

C03 Berapakah umur anda ketika pertama kali menghisap rokok tembakau?

What is your age when you first started smoking tobacco cigarette?

[Jika tidak tahu atau enggan menjawab, isikan 99]

[If don't know or refused to answer, enter 99]

		TAHUN YEARS
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C04 Adakah anda kini menghisap rokok tembakau?*Do you currently smoke tobacco cigarette?*

Ya <i>Yes</i>	☐	1	
Tidak <i>No</i>	☐	2	<i>Terus ke Soalan C12 pada Muka Surat 33</i> <i>Go to Question C12 on Page 33</i>
Tidak tahu <i>Don't know</i>	☐	77	<i>Terus ke Seksyen E pada Muka Surat 38</i> <i>Go to Section E on Page 38</i>
Enggan menjawab <i>Refused to answer</i>	☐	99	<i>Terus ke Seksyen E pada Muka Surat 38</i> <i>Go to Section E on Page 38</i>

C05 Adakah anda merokok setiap hari atau bukan setiap sehari?*Do you smoke cigarette every day or less than every day?*

Setiap hari <i>Every day</i>	☐	1	
Bukan setiap sehari <i>Less than every day</i>	☐	2	
Tidak tahu <i>Don't know</i>	☐	77	
Enggan menjawab <i>Refused to answer</i>	☐	99	

C06 Berapakah umur anda ketika pertama kali menghisap rokok *setiap hari*?*How old were you when you first started smoking cigarette *every day*?*

[Jika tidak tahu atau enggan menjawab, isikan 99]

[If don't know or refused to answer, enter 99]

		TAHUN YEARS
----------------------	----------------------	----------------

C07 Secara purata, berapa banyakkah wang yang dibelanjakan untuk membeli rokok?*On average, how much money do you spend on cigarette?*

[Sila bulatkan 'bulanan' atau 'mingguan']

[Please circle either 'weekly' or 'monthly']

RM						MINGGUAN / BULANAN WEEKLY / MONTHLY
----	----------------------	----------------------	----------------------	----------------------	----------------------	--

*Julat harga *Price range*: RM_____ hingga RM_____

**[KEBERGANTUNGAN]
[DEPENDENCE]**

C.07	Selepas bangun dari tidur, bilakah anda menghisap rokok pertama anda? <i>How soon after you wake up do you smoke your first cigarette?</i>	Dalam masa 5 minit <i>Within 5 minutes</i>		3
		5-30 minit <i>5-30 minutes</i>		2
		31-60 minit <i>31-60 minutes</i>		1
		Selepas 60 minit <i>After 60 minutes</i>		0
C.07	Adakah anda berasa sukar untuk menahan diri daripada merokok di kawasan larangan merokok (seperti masjid, gereja, dalam perpustakaan atau dalam panggung wayang)? <i>Do you find it difficult to refrain from smoking in places where it is forbidden (e.g., in mosque, church, at the library, in the cinema)?</i>	Ya <i>Yes</i>		1
		Tidak <i>No</i>		0
C.07	Waktu merokok yang mana satu paling sukar untuk dielakkan? <i>Which cigarette would you hate most to give up?</i>	Yang pertama pada waktu pagi <i>The first in the morning</i>		1
		Yang lain <i>Any other</i>		0
C.07	Berapa kalikah dalam sehari anda menghisap rokok? <i>How many times a day do you smoke?</i>			Sehari <i>Per day</i>
C.07	Adakah anda merokok lebih kerap semasa beberapa jam pertama selepas bangun dari tidur berbanding pada waktu lain? <i>Do you smoke more frequently during the first hours after waking than during the rest of the day?</i>	Ya <i>Yes</i>		1
		Tidak <i>No</i>		0
C.07	Adakah anda merokok meskipun ketika anda sakit dan terlintar di katil sepanjang hari? <i>Do you smoke when you are so ill that you are in bed most of the day?</i>	Ya <i>Yes</i>		1
		Tidak <i>No</i>		0

[CUBAAN BERHENTI MEROKOK]

[QUIT ATTEMPT]

Berikut adalah soalan-soalan berkaitan cubaan berhenti merokok yang telah anda lakukan dalam masa 12 bulan yang lepas. Sila fikirkan tentang penggunaan rokok tembakau.

The following questions are regarding quit smoking attempt you had made in the last 12 months. Please think about tobacco smoking.

C08 Dalam masa 12 bulan yang lepas, pernahkah anda mencuba untuk berhenti merokok?

In the last 12 months, have you ever tried to quit smoking tobacco cigarette?

Ya <i>Yes</i>	☐	1	
Tidak <i>No</i>	☐	2	<i>Terus ke seksyen E pada Muka Surat 38</i> <i>Go to section E on Page 38</i>
Tidak tahu <i>Don't know</i>	☐	77	<i>Terus ke seksyen E pada Muka Surat 38</i> <i>Go to section E on Page 38</i>
Enggan menjawab <i>Refused to answer</i>	☐	99	<i>Terus ke seksyen E pada Muka Surat 38</i> <i>Go to section E on Page 38</i>

C09 Berapa lamakah tempoh anda berjaya berhenti merokok berdasarkan cubaan terbaru anda?

*How long were you able to quit smoking the *last time* you tried to quit smoking?*

[Catatkan nombor (tempoh masa) dalam kotak yang sesuai]

[State the number (period) in the suitable box]

Bulan <i>Months</i>			
Minggu <i>Weeks</i>			
Hari <i>Days</i>			
Kurang dari sehari <i>Less than one day</i>			
Tidak tahu <i>Don't know</i>			77
Enggan menjawab <i>Refused to answer</i>			99

C10 Dalam masa 12 bulan yang lepas, pernahkah anda menggunakan kaedah-kaedah berikut untuk berhenti merokok?

In the last 12 months, have you used the following methods to quit smoking?

[Bacakan setiap kaedah berikut kepada responden]

[Read each of the following methods to the respondent]

	Ya Yes (1)	Tidak No (2)	Tidak tahu Don't know (77)	Enggan menjawab Refuse to answer (99)
C.10.1 Kaunseling (termasuk di klinik berhenti merokok) <i>Counselling (including at a smoking cessation clinic)</i>				
C.10.2 Terapi penggantian nikotin (contoh pelekat nikotin atau nikotin gam) <i>Nicotine replacement therapy (e.g. nicotine patch or gum)</i>				
C.10.3 Lain-lain ubat. Jika Ya, sila nyatakan. <i>Other medication. Please specify.</i>				
C.10.4				
C.10.5 Ubat tradisional. Jika Ya, sila nyatakan. <i>Traditional medication. Please specify</i>				
C.10.6				
C.10.7 Menggunakan rokok elektronik/ vape <i>Use e-cigarette/vape</i>				
C.10.8 Berhenti tanpa sebarang bantuan (jati diri) <i>Quit without assistance (will power)</i>				
C.10.9 Lain-lain. Sila nyatakan: <i>Other. Please specify:</i>				
C.10.10				

C11 Berikut, yang mana satukah menerangkan fikiran* anda tentang berhenti merokok tembakau?

Which of the following describes your current thoughts about quitting tobacco smoking?

[Bacakan pilihan berikut kepada responden. Tandakan SATU (1) pilihan sahaja]

[Read the following selections to the respondent. Tick ONE (1) only]

Saya bercadang untuk berhenti merokok:

I intend to quit smoking:

- dalam bulan hadapan.
within next month
- dalam masa 3 bulan akan datang.
within next 3 months
- dalam masa 6 bulan akan datang.
within next 6 months
- dalam masa 12 bulan akan datang.
within next 12 months

Saya akan berhenti merokok suatu hari nanti, tetapi bukan dalam masa 12 bulan selepas ini.

I shall quit smoking one day, but not within the next 12 months.

Saya tidak berminat untuk berhenti merokok.

I am not interested to quit smoking.

Tidak tahu

Don't know

Enggan menjawab

Refused to answer.

☐	1
☐	2
☐	3
☐	4
☐	5
☐	6
☐	77
☐	99

[Terus ke seksyen D pada Muka Surat 35]

[Go to section D on Page 35]

[BEKAS PENGGUNA TEMBAKAU]
[FORMER TOBACCO USER]

C12 Berapa lamakah anda sudah berhenti merokok?

How long have you stopped smoking?

[Jangan bacakan setiap di bawah. Nyatakan nombor dalam kotak berdasarkan jawapan responden]
 [Do not read the followings. State the number in the cell based on respondent's answer]

Tahun <i>Years</i>			
Bulan <i>Months</i>			
Minggu <i>Weeks</i>			
Hari <i>Days</i>			
Kurang dari sehari <i>Less than a day</i>			
Tidak tahu <i>Don't know</i>			77
Enggan menjawab <i>Refused to answer</i>			99

C13 Apakah kaedah-kaedah yang telah anda gunakan untuk berhenti merokok?*What methods did you use to quit smoking?**[Bacakan setiap kaedah berikut kepada responden]**[Read each of the following methods to the respondent]*

	Ya Yes (1)	Tidak No (2)	Tidak tahu Don't know (77)	Enggan menjawab Refuse to answer (99)
C.13.1 Kaunseling (termasuk di klinik berhenti merokok) <i>Counselling (including at a smoking cessation clinic)</i>				
C.13.2 Terapi penggantian nikotin (contoh pelekat nikotin atau nikotin gam) <i>Nicotine replacement therapy (e.g. nicotine patch or gum)</i>				
C.13.3 Lain-lain ubat. Jika Ya, sila nyatakan: <i>Other medication. Please specify:</i>				
C.13.4				
C.13.5 Ubat tradisional. Jika Ya, sila nyatakan: <i>Traditional medication. Please specify:</i>				
C.13.6				
C.13.7 Menggunakan rokok elektronik/ vape <i>E-cigarette/vape</i>				
C.13.8 Berhenti tanpa sebarang bantuan (jati diri) <i>Quit without assistance (will power)</i>				
C.13.9 Lain-lain. Sila nyatakan: <i>Other. Please specify:</i>				
C.13.10				

[Terus ke Seksyen D pada muka surat 35]**[Go to Section D in page 35]**

D PENGGUNA 'DUAL' DUAL USER

D01 Adakah anda menghisap rokok elektronik/vape dan rokok tembakau?

Do you currently smoke both e-cigarette/vape and tobacco cigarette?

Ya <i>Yes</i>	☐	1	
Tidak <i>No</i>	☐	2	Terus ke seksyen E pada Muka Surat 38 <i>Go to section E on Page 38</i>
Tidak tahu <i>Don't know</i>	☐	77	Terus ke seksyen E pada Muka Surat 38 <i>Go to section E at Page 38</i>
Enggan menjawab <i>Refused to answer</i>	☐	99	Terus ke seksyen E pada Muka Surat 38 <i>Go to next section at Page 38</i>

D02 Adakah rokok elektronik/vape lebih memuaskan hati anda berbanding rokok buatan kilang?

Does e-cigarette/vape satisfy you better than manufactured cigarettes?

Ya <i>Yes</i>	☐	1	
TIDAK (Rokok lebih baik) <i>NO (Cigarette is better)</i>	☐	2	Terus ke Soalan D04 <i>Go to Question D04</i>
TIDAK (Kedua-duanya adalah sama) <i>NO (They are the same)</i>	☐	3	Terus ke Soalan D04 <i>Go to Question D04</i>
Tidak tahu <i>Don't know</i>	☐	77	Terus ke Soalan D05 <i>Go to Question D05</i>
Enggan menjawab <i>Refused to answer</i>	☐	99	Terus ke Soalan D05 <i>Go to Question D05</i>

D03 Jika Ya, kenapa?*If yes, why?*

[JANGAN baca pilihan berikut kepada responden. Tandakan pilihan berdasarkan jawapan responden.]

[DO NOT read the following selections to the respondent. Tick selection based on the respondent's answer]

Bau lebih enak/harum*Smells better****Lebih 'kick'/nikmat***More kick/feeling 'high'***Ia lebih mengikut tren***It is a more trendy***Lebih baik dalam mengawal gila /desakan untuk rokok tembakau***Better at controlling urges/craving for tobacco cigarette***Lain-lain***Others.***Jika lain-lain, Sila nyatakan:***If other, please specify:*

.....

Tidak tahu*Do not know***Enggan menjawab***Refused to answer*

	1
	2
	3
	4
	5

D.03.1

[Terus ke Soalan D05]*[Go to Question D05]***D04 Jika Tidak, kenapa?***If no, why?*

[JANGAN baca pilihan berikut kepada responden. Tandakan pilihan berdasarkan jawapan responden.]

[DO NOT read the following selections to the respondent. Tick selection based on the respondent's answer]

Lebih menyusahkan*Less convenient***Kurang 'kick'/nikmat***Less kick/feeling 'high'***Kurang mampu mengawal gila/desakan untuk rokok tembakau***Less at controlling urges/craving for tobacco cigarette***Lain-lain***Others.***Jika lain-lain, sila nyatakan:***If other, please specify:*

.....

Tidak tahu*Do not know***Enggan menjawab***Refused to answer*

	1
	2
	3
	4

**Secara purata, berapa banyak rokok tembakau yang telah anda hisap setiap hari
SEBELUM menghisap rokok elektronik/vape?**

D05 *On average, how many tobacco cigarette you *previously* smoked each day BEFORE smoking e-cigarette/vape?*

[Sekiranya responden bermula dengan menghisap rokok elektronik/vape dan bukan rokok tembakau, catatkan '0' dalam kotak]

[If respondent starts with e-cigarette/vape before tobacco cigarette, state '0' in the box]

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BATANG SEHARI
STICKS PER DAY

E PENDEDAHAN KEPADA WAP ROKOK ELEKTRONIK/VAPE SECARA PASIF SECONDHAND E-CIGARETTE/VAPE VAPOUR EXPOSURE

Sekarang, saya akan menanyakan soalan tentang pendedahan terhadap wap rokok elektronik/vape.

Now I shall ask questions about exposure to smoking e-cigarette/vape.

E01 Yang mana satukah antara berikut menerangkan peraturan menghisap rokok elektronik/vape dalam rumah anda.

Which of the following describes the regulation about smoking e-cigarette/vape in your house.

Dibenarkan <i>Allowed</i>		1
Biasanya tidak dibenarkan tetapi ada pengecualian <i>Usually is not allowed but there are exceptions</i>		2
Tidak dibenarkan di dalam rumah <i>Not allowed in the house</i>		3
Tiada peraturan menghisap rokok elektronik/vape dalam rumah <i>No smoking e-cigarette/vape regulation in the house</i>		4
Tidak tahu <i>Do not know</i>		77
Enggan menjawab <i>Refused to answer</i>		99

E02 Berapa kerapkah 'seseorang' menghisap rokok elektronik/vape dalam rumah anda? Adakah

How often does "someone" smoke e-cigarette/vape in your house? Is it.....

Setiap hari <i>Every day</i>		1
Setiap minggu <i>Every week</i>		2
Setiap bulan <i>Every month</i>		3
Kurang daripada 1 bulan <i>Less than 1 month</i>		4
Tidak pernah <i>Never</i>		5
Tidak tahu <i>Do not know</i>		77
Enggan menjawab <i>Refused to answer</i>		99

E03 Yang mana satukah di antara berikut menerangkan peraturan menghisap rokok elektronik/vape di tempat kerja anda?
Which of the following describes the regulation about smoking e-cigarette/vape in your work place.

[Soalan E03 hanya perlu ditanya kepada responden yang BEKERJA SAHAJA]

[Question E03 only for respondent who is WORKING ONLY]

Dibenarkan <i>Allowed</i>		1
Biasanya tidak dibenarkan tetapi ada pengecualian <i>Usually is not allowed but there are exceptions</i>		2
Tidak dibenarkan di tempat kerja/pejabat <i>Not allowed in the office/work place</i>		3
Tiada peraturan menghisap rokok elektronik/vape di tempat kerja/pejabat <i>No smoking e-cigarette/vape regulation in the office/work place</i>		4
Tidak tahu <i>Do not know</i>		77
Enggan menjawab <i>Refused to answer</i>		99

E04 Berapa kerapkah 'seseorang' menghisap rokok elektronik/vape di tempat kerja anda? Adakah

How often does "someone" smoke e-cigarette/vape in your workplace? Is it.....

[Soalan E04 hanya perlu ditanya kepada responden yang BEKERJA SAHAJA]

[Question E04 only for respondent who is WORKING ONLY]

Setiap hari <i>Every day</i>		1
Setiap minggu <i>Every week</i>		2
Setiap bulan <i>Every month</i>		3
Kurang daripada 1 bulan <i>Less than 1 month</i>		4
Tidak pernah <i>Never</i>		5
Tidak tahu <i>Do not know</i>		77
Enggan menjawab <i>Refused to answer</i>		99

F MEDIA MEDIA

Soalan-soalan berikut adalah berkenaan pendedahan anda terhadap media dan iklan dalam 30 hari yang lepas.

The following questions are about your exposure to media and advertisements in the last 30 days.

F01 Pernahkah anda melihat sebarang media berkenaan rokok elektronik/vape?

Have you ever seen any media on e-cigarette/vape?

Ya <i>Yes</i>	☐	1	
Tidak <i>No</i>	☐	2	<i>Terus ke Seksyen G pada Muka Surat 45</i> <i>Go to Section G on Page 45</i>
Tidak tahu <i>Don't know</i>	☐	77	<i>Terus ke Seksyen G pada Muka Surat 45</i> <i>Go to Section G on Page 45</i>
Enggan menjawab <i>Refused to answer</i>	☐	99	<i>Terus ke Seksyen G pada Muka Surat 45</i> <i>Go to Section G on Page 45</i>

F02 Dalam masa 30 hari yang lepas, adakah anda terlihat sebarang iklan mempromosi rokok elektronik/vape di media/tempat-tempat berikut?

In the last 30 days, did you observe any advertisements promoting e-cigarette/vape in the following media/places?

[Bacakan setiap media/tempat berikut kepada responden]

[Read each of the following methods to the respondent]

		Ya Yes (1)	Tidak No (2)	Tidak tahu Don't know (77)	Enggan jawab Refuse to answer (99)
F.02.1	Kedai vape <i>A vape shop</i>				
F.02.2	Televisyen <i>Television</i>				
F.02.3	Radio <i>Radio</i>				
F.02.4	Papan iklan <i>Billboards</i>				
F.02.5	Poster-poster <i>Posters</i>				
F.02.6	Surat khabar atau majalah <i>Newspapers or magazine</i>				
F.02.7	Di panggung wayang <i>At the cinemas</i>				
F.02.8	Dalam internet <i>On the internet</i>				
F.02.9	Media sosial (Facebook, Instagram, Twitter, E-mail, dsb.) <i>Social media (Facebook, Instagram, Twitter, e-mail, etc.)</i>				
F.02.10	Pengangkutan awam atau stesen pengangkutan awam <i>Public transport or public transport stations</i>				
F.02.11	Papan notis awam <i>Public notice board</i>				
F.02.12	Lain-lain. Sila nyatakan: <i>Other. Please specify:</i>				
F.02.12					

F03 Dalam masa 30 hari yang lepas, adakah anda terlihat sebarang maklumat di media/tempat-tempat berikut tentang bahaya menghisap rokok elektronik/vape?
In the last 30 days, did you observe any information about the danger of smoking e-cigarette/vape in the following media/place?

[Bacakan setiap media/tempat berikut kepada responden]
 [Read each of the following methods to the respondent]

		Ya <i>Yes</i> (1)	Tidak <i>No</i> (2)	Tidak tahu <i>Don't know</i> (77)	Enggan jawab <i>Refuse to answer</i> (99)
F.03.1	Kedai vape <i>A vape shop</i>				
F.03.2	Televisyen <i>Television</i>				
F.03.3	Radio <i>Radio</i>				
F.03.4	Papan iklan <i>Billboards</i>				
F.03.5	Poster-poster <i>Posters</i>				
F.03.6	Surat khabar atau majalah <i>Newspapers or magazine</i>				
F.03.7	Di panggung wayang <i>At the cinemas</i>				
F.03.8	Dalam internet <i>On the internet</i>				
F.03.9	Media sosial (Facebook, Instagram, Twitter, E-mail, dsb.) <i>Social media (Facebook, Instagram, Twitter, e-mail, etc.)</i>				
F.03.10	Pengangkutan awam atau stesen pengangkutan awam <i>Public transport or public transport stations</i>				
F.03.11	Papan notis awam <i>Public notice board</i>				
F.03.12	Lain-lain. Sila nyatakan: <i>Other. Please specify:</i>				
F.03.12					

F04 Dalam masa 30 hari yang lepas, adakah anda terlihat sebarang maklumat di media/tempat-tempat berikut yang menggalakkan masyarakat untuk berhenti menghisap rokok elektronik/vape?

In the last 30 days, did you observe any information motivating people to quit smoking e-cigarette/vape in the following media/places?

[Bacakan setiap media/tempat berikut kepada responden]

[Read each of the following methods to the respondent]

		Ya Yes (1)	Tidak No (2)	Tidak tahu Don't know (77)	Enggan menjawab Refuse to answer (99)
F.04.1	Kedai vape <i>A vape shop</i>				
F.04.2	Televisyen <i>Television</i>				
F.04.3	Radio <i>Radio</i>				
F.04.4	Papan iklan <i>Billboards</i>				
F.04.5	Poster-poster <i>Posters</i>				
F.04.6	Surat khabar atau majalah <i>Newspapers or magazine</i>				
F.04.7	Di panggung wayang <i>At the cinemas</i>				
F.04.8	Dalam internet <i>On the internet</i>				
F.04.9	Media sosial (Facebook, Instagram, Twitter, E-mail, dsb.) <i>Social media (Facebook, Instagram, Twitter, e-mail, etc.)</i>				
F.04.10	Pengangkutan awam atau stesen pengangkutan awam <i>Public transport or public transport stations</i>				
F.04.11	Papan notis awam <i>Public notice board</i>				
F.04.12	Lain-lain. Sila nyatakan : <i>Other. Please specify:</i>				
F.04.12					

F05 Sejauh manakah maklumat kesan menghisap rokok elektronik/vape terhadap kesihatan membuatkan anda berfikir tentang bahaya menghisap rokok elektronik/vape?

How far does information on health effect of smoking e-cigarette/vape make you think about health risks from smoking e-cigarette/vape?

[Bacakan setiap pilihan berikut kepada responden. Tandakan SATU (1) jawapan sahaja]

[Read each of the following methods to the respondent. Tick ONE (1) answer only]

Tiada langsung <i>Not at all</i>	☐	1
Sedikit <i>A little</i>	☐	2
Lebih kurang <i>Somewhat</i>	☐	3
Sangat banyak <i>A lot</i>	☐	4
Tidak tahu <i>Do not know</i>	☐	77
Enggan menjawab <i>Refused to answer</i>	☐	99

G PERSEPSI PERCEPTION

Adakah anda bersetuju dengan pernyataan-pernyataan berikut?

Do you agree with the following statements?

		Setuju <i>Agree</i> (1)	Tidak setuju <i>Don't agree</i> (2)	Tidak tahu <i>Don't Know</i> (77)	Enggan jawab <i>Refuse to answer</i> (99)
Saya rasa..... <i>I think.....</i>					
G.01.1	Rokok elektronik/vape membantu untuk berhenti menghisap rokok tembakau. <i>E-cigarette/vape helps people quit smoking tobacco cigarette</i>				
G.01.2	Rokok elektronik/vape membantu seseorang kekal bebas rokok. <i>E-cigarette/vape helps people maintain cigarette abstinence.</i>				
G.01.3	Keinginan/desakan untuk merokok dikurangkan dengan menggunakan rokok elektronik/vape. <i>The urge to smoke is reduced by using e-cigarette/vape</i>				
G.01.4	Rokok elektronik/vape adalah lebih berkesan daripada ubat berhenti merokok (cth. NRT, varenicline). <i>E-cigarette/vape is be more effective than medication for quitting smoking (eg NRT, varenicline)</i>				
G.01.5	Rokok elektronik/vape bukan peralihan untuk berhenti menggunakan nikotin. <i>E-cigarette/vape is not a transition to quit nicotine.</i>				
G.01.6	Rokok elektronik/vape membantu untuk kurangkan menghisap tembakau. <i>E-cigarette/vape helps people cut down tobacco smoking.</i>				
G.01.7	Pernafasan bertambah baik selepas menggunakan rokok elektronik/vape. <i>Breathing is improved after using e-cigarette/vape.</i>				
G.01.8	Batuk berkurang dengan menggunakan rokok elektronik/vape. <i>Coughing is improved by using e-cigarette/vape.</i>				
G.01.9	Penggunaan rokok elektronik/vape kurang memberikan kepuasan berbanding menghisap tembakau. <i>E-cigarette/vape use is less satisfying than tobacco smoking</i>				
G.01.10	Masyarakat memberikan reaksi yang lebih positif terhadap pengguna rokok elektronik/vape berbanding perokok tembakau. <i>People react more positively to e-cigarette/vape users than that to tobacco smokers.</i>				
G.01.11	Bau rokok elektronik/vape adalah lebih menyenangkan berbanding rokok tembakau. <i>The smell of an e-cigarette/vape is better than a tobacco cigarette.</i>				
G.01.12	Rokok elektronik/vape hendaklah dibenarkan di tempat-tempat larangan merokok. <i>E-cigarette/vape should be allowed in places where smoking is banned.</i>				
G.01.13	Rokok elektronik/vape kurang berbahaya kepada kesihatan pengguna berbanding rokok tembakau. <i>E-cigarette/vape is less harmful to health of the user compared to tobacco smoking.</i>				

Saya rasa..... I think.....		Setuju <i>Agree</i> (1)	Tidak setuju <i>Don't agree</i> (2)	Tidak tahu <i>Don't Know</i> (77)	Enggan jawab <i>Refuse to answer</i> (99)
G.01.14	Rokok elektronik/vape kurang menyebabkan ketagihan berbanding rokok tembakau. <i>E-cigarette/vape is less addictive than tobacco cigarettes.</i>				
G.01.15	Gian untuk menggunakan rokok elektronik/vape adalah sama kuat seperti rokok tembakau. <i>Craving for using e-cigarette/vape is as much as for tobacco cigarette.</i>				
G.01.16	Rokok elektronik/vape membolehkan nikotin diguna dengan lebih banyak berbanding rokok tembakau. <i>E-cigarette/vape allows for more nicotine use compared to tobacco cigarette.</i>				
G.01.17	Wap rokok elektronik/vape adalah lebih berbahaya kepada orang lain berbanding asap tembakau. <i>E-cigarette/vape vapour is more harmful to others compared to tobacco smoke.</i>				
G.01.18	Tiada keperluan yang mendesak untuk berhenti rokok elektronik/vape berbanding berhenti rokok tembakau. <i>The urgency of quitting e-cigarette/vape is not the same as with tobacco cigarettes.</i>				
G.01.19	Cecair rokok elektronik/vape menyebabkan keracunan. <i>E-cigarette/vape solutions cause poisoning.</i>				
G.01.20	Rokok elektronik/vape perlu dikawal selia dan bukannya diharamkan. <i>E-cigarette/vape should be regulated rather than banned completely .</i>				

H BORANG E-LIQUID *E-LIQUID FORM*

Tarikh pengumpulan:

Date of collection:

<i>D</i>	<i>D</i>	<i>M</i>	<i>M</i>	<i>Y</i>	<i>Y</i>	<i>Y</i>	<i>Y</i>

Jenama:

Brand name:

Isipadu:

Volume:

--	--

 mL

Kandungan/kepekatan nikotin (pada label):

Nicotine content (on label):

--	--

 mg

Jenis perisa/flavour:

Flavour type:

SOAL-SELIDIK INDIVIDU TAMAT *END INDIVIDUAL QUESTIONNAIRE*

- 100.** Itu sahaja soalan-soalan yang perlu saya tanya. Terima kasih kerana mengambil bahagian di dalam soal-selidik ini.
Those are all the questions that I need to ask. Thank you for participating in this important survey.
- 101.** Kualiti data dalam soal-selidik ini adalah sangat penting kepada kami. Oleh itu, bolehkah anda berikan nombor telefon? Nombor telefon ini mungkin akan dihubungi untuk tujuan pemantauan kerja saya.
The quality of data in this survey is very important to us, could you please give us your telephone number. This number might be used only to monitor my work.

PENEMURAMAH: TOLONG REKODKAN NOMBOR TELEFON RESPONDEN

INTERVIEWER: PLEASE RECORD THE RESPONDENT'S TELEPHONE NUMBER

[illegible]

- 102. TULIS SEBARANG CATATAN BERKENAAN TEMURAMAH INI:**
WRITE ANY NOTES REGARDING THE INTERVIEW:

[illegible]

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APPENDIX 3

Approval Letter from NIH

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URUSETIA NIH
Secretariat National Institutes of Health (NIH)
KEMENTERIAN KESIHATAN MALAYSIA
 d/a Institut Pengurusan Kesihatan
 Jalan Rumah Sakit, Bangsar
 59000 Kuala Lumpur

Tel : 03 2282 9082 / 03 2282 9085
 03 2287 4032 / 03 2282 0491
 Faks : 03 2287 4030 / 03-2282 8072

Rujukan Kami: IMR/P/21/2102/01/08/01/01 Jld 1 (145)
 Tarikh: 12 JANUARI 2016

Prof Madya Dr Mohamad Haniki Nik Mohamed
Universiti Islam Antarabangsa Malaysia
Kuantan, Pahang

Tuan,

KELULUSAN PROJEK PENYELIDIKAN

Dengan segala hormatnya adalah saya merujuk perkara di atas.

2. Berdasarkan semakan dari pembetulan/pindaan yang telah dibuat, dimaklumkan bahawa projek penyelidikan tuan telah **DISOKONG** seperti maklumat yang berikut;

Kod Projek:	NIH/IPH/16-002
Tajuk Projek:	Prevalence and Pattern of e-Cigarette and Vape Use Among Malaysian Adults
Ketua Projek:	Prof Madya Dr Mohamad Haniki Nik Mohamed (UIA)
Penyelidik Bersama:	SEPERTI DI LAMPIRAN
Tarikh Mula:	Jan 2016
Tarikh Tamat:	Okt 2016
Tempoh:	10 bulan

3. Untuk makluman tuan, kelulusan peruntukan projek penyelidikan adalah tertakluk kepada Jawatankuasa Panel Geran KKM setelah mendapat kelulusan Jawatankuasa Etika dan Penyelidikan Perubatan (MREC). Di samping itu, sebarang perubahan dan pindaan proposal projek hendaklah mendapat kelulusan daripada Panel JPP-NIH. Kerjasama tuan adalah dipohon agar mematuhi semua garis panduan yang berkaitan.

Sekian, terima kasih.

"BERKHIDMAT UNTUK NEGARA"

Saya yang menurut perintah,

(DR TAHIR BIN ARIS)
 Pengerusi Panel JPP-NIH
 National Institutes of Health (NIH)
 Kementerian Kesihatan Malaysia

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APPENDIX 4

Approval Letter from MREC

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JAWATANKUASA ETIKA & PENYELIDIKAN PERUBATAN
 (Medical Research & Ethics Committee)
 KEMENTERIAN KESIHATAN MALAYSIA
 d/a Institut Pengurusan Kesihatan
 Jalan Rumah Sakit, Bangsar
 59000 KUALA LUMPUR



Tel.: 03-2287 4032/2282 0491/2282 9086
 03-2282 9082/2282 1402/2282 1449
 Faks: 03-2282 0015

Ruj. Kami : (5) KKM/NIHSEC/P16-279
 Tarikh : 4hb Mac 2016

MOHAMAD HANIKI NIK MOHAMED
INTERNATIONAL ISLAMIC UNIVERSITY MALAYSIA (IIUM)
KUANTAN CAMPUS

TUAN/PUAN,

NMRR-16-171-28819 (IIR)
NATIONAL ELECTRONIC CIGARETTE SURVEY 2016: PREVALENCE, PATTERN
AND PERCEPTION REGARDING E-CIGARETTE AND VAPE USE AMONG
MALAYSIAN ADULTS.

Lokasi Kajian: INSTITUTE FOR PUBLIC HEALTH (IPH)
INTERNATIONAL ISLAMIC UNIVERSITY MALAYSIA (IIUM) -
KUANTAN CAMPUS

Dengan hormatnya perkara di atas adalah dirujuk.

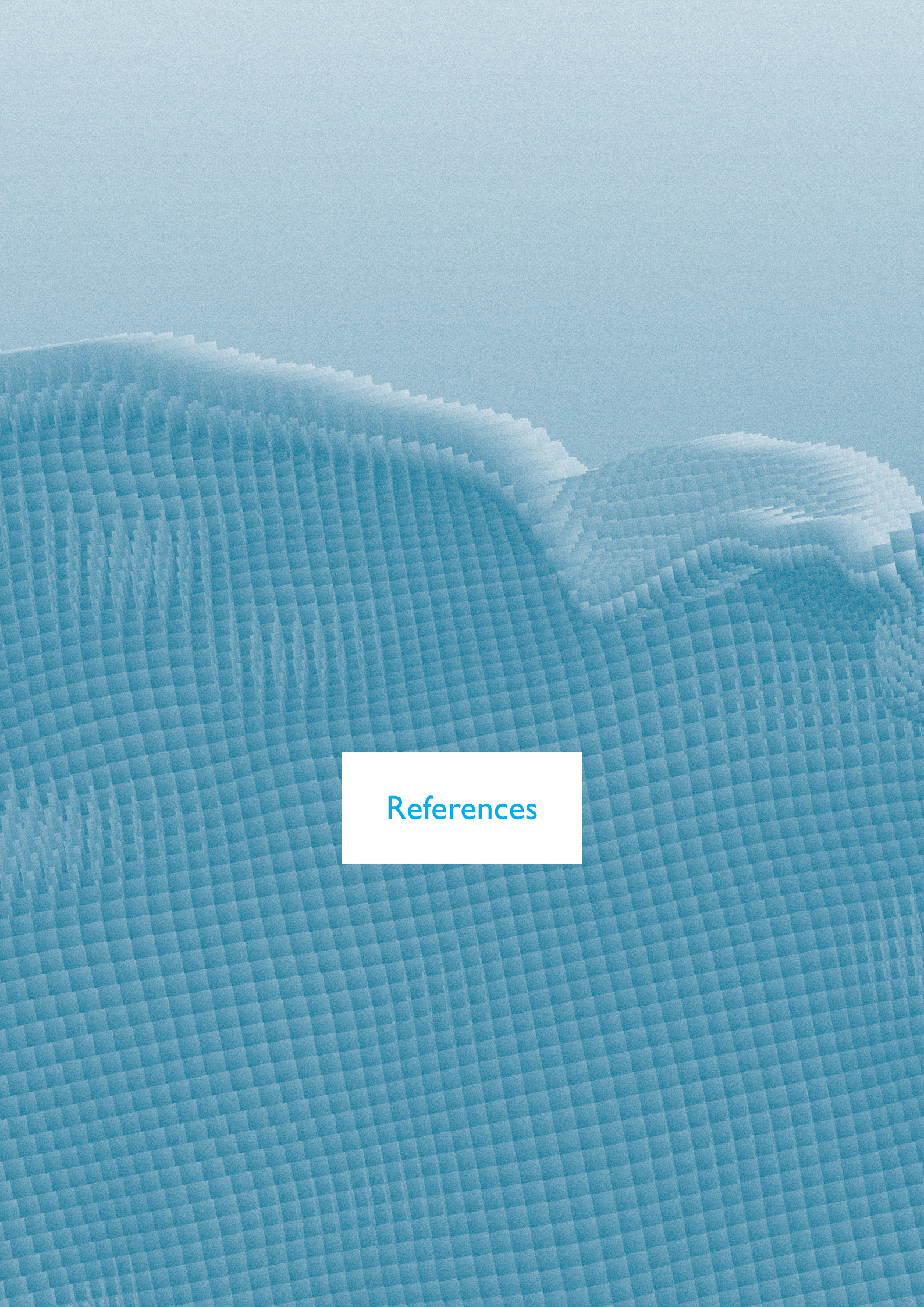
2. Jawatankuasa Etika & Penyelidikan Perubatan (JEPP), Kementerian Kesihatan Malaysia (KKM) tiada halangan, dari segi etika, ke atas pelaksanaan kajian tersebut. JEPP mengambil maklum bahawa kajian tersebut hanya melibatkan pengumpulan data menggunakan **borang soal selidik** sahaja.

3. Segala rekod dan data subjek adalah **SULIT** dan hanya digunakan untuk tujuan kajian ini dan semua isu serta prosedur mengenai *data confidentiality* mesti dipatuhi.

4. Kebenaran daripada Pegawai Kesihatan Daerah/Pengarah Hospital dan Ketua-Ketua Jabatan atau pegawai yang bertanggungjawab di setiap lokasi kajian di mana kajian akan dijalankan mesti diperolehi sebelum kajian dijalankan. Dato'/Dr/ Tuan/ Puan perlu akur dan mematuhi keputusan tersebut. Sila rujuk kepada garis panduan Institut Kesihatan Negara mengenai penyelidikan di Institusi dan fasiliti Kementerian Kesihatan Malaysia (Pindaan 01/2015) serta lampiran **Appendix 5** untuk templet surat memohon kebenaran tersebut.

5. Adalah dimaklumkan bahawa kelulusan ini adalah sah sehingga **3hb Mac 2017**. Dato'/Dr/ Tuan/ Puan perlu menghantar perkara-perkara berikut kepada JEPP selepas mengikut kesesuaian. Borang-borang berkaitan boleh dimuat turun daripada laman web MREC (<http://www.nih.gov.my/mrec>).

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