

ORIGINAL ARTICLE

Implementation of MPOWER Approach for Tobacco Control in Malaysia: Findings from the Global Adult Tobacco Survey (GATs)

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ABSTRACT

Introduction: Tobacco induced illness remains a major contribution to premature death and global burden of diseases. The introduction of MPOWER policies by World Health Organization held the value to monitor the implementation of the anti-smoking measures in all signatory countries. This paper aimed to investigate the application of the six MPOWER indicators among Malaysia population. **Methods:** We utilized the data of Global Adult Tobacco Survey-Malaysia (GATS-M) which recruited 5112 nationally representative samples of Malaysians of 15 years old and above. Descriptive statistical analysis was used to illustrate the social demographic characteristic of the respondents while cross tabulation was employed to describe all elements of the MPOWER indicators. **Results:** About one quarter (23.1%) of Malaysian adults were current tobacco users. The SHS exposure at home (38.4%) and restaurant (42.1%) were high. Approximately eight in ten (80.2%) of the smokers intended to quit, while for those attempted to quit in past one year, 9.0% utilized pharmacotherapy and 4.4% attended counseling. The awareness about tobacco related diseases was generally excellent. The overall tax make up of the cigarettes' retail price ranging from 41.7% up to 80%. **Conclusion:** Tobacco consumption remains prevalent and plateau among Malaysian adults over the last two decades with substantial proportion of the population exposed to SHS. The inadequacy in the current anti-smoking policies needs urgent improvement in order to reduce the smoking norms among Malaysians population besides to achieve the ultimate goal of tobacco control end game by year 2045.

Keywords: MPOWER, GATS-M, Smoking, Malaysian adults

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tobacco products, marketing and sponsorship of tobacco products, as well as the international shift of contraband and illicit cigarettes (3).

INTRODUCTION

Numerous scientific studies have revealed that tobacco induced diseases are among the main contributors to premature death and various preventable diseases globally (1,2). Approximately five million deaths secondary to tobacco related illness had been reported per annum globally, with majority of the mortality from developing countries in line with higher smoking prevalence (2). As a result, the World Health Organization (WHO) had led the effort to initiate the ground-breaking Framework Convention on Tobacco Control (FCTC) in year 2003 (3), and a total of 168 countries including Malaysia have ratified the treaty until March 2016., representing 92.11% of the world's population (4). The FCTC consists of 38 articles which encompass the restriction of the demand and supply of

Malaysia had ratified the convention in year 2003 and 2005, primarily to address the tobacco-induced health problem, which became the major causes of mortality and burden of diseases among Malaysian population since 1980 (5). As a signatory of the treaty, the Malaysian government has introduced several policies in order to strengthen anti-smoking measures within the country, such as amendments to smoking regulations 1993 to expand the smoke-free zones into more public areas, and the prohibition of purchase or possess tobacco products among individuals less than 18 years (6). In addition, the regulators had also restructured the cigarette tax from per kilogram to per stick, as well as the public health sector had intensified various health promotion besides strengthened the smoking cessation services in primary health care settings.

In 2008, WHO had introduced the MPOWER policies,

namely: Monitor of tobacco use and prevention policies(M); Protect people from exposure to second-hand tobacco smoke(P) (Article 8); Offer help to quit tobacco use (O) (Article 14); Warn about the dangers of tobacco(W) (Articles 11 and 12); Enforce bans on tobacco advertising, promotion and sponsorship (E) (Articles 13) ; and Raise taxes on tobacco (R) (Article 6). MPOWER as an instrument for each signatory country to monitor the implementation of those anti-smoking measures under the FCTC (7), however MPOWER implementation among the Malaysian population has not been investigated. Hence, this paper aimed to apply the six MPOWER indicators to document the smoking condition in Malaysia utilizing data from GATs-M survey.

MATERIALS AND METHODS

The current study utilized the data of Global Adults Tobacco Survey- Malaysia (GATs-M), conducted in 2011 (8). GATs-M survey employed a cross sectional study design with Multistage proportionate to size sampling in order to select a representative sample of Malaysian adult aged 15 years and above. The first strata of sampling had included a total of 15 states in Malaysia whilst the second stage involved the categorization into the localization of both urban and rural areas by each state. The primary sampling units (PSUs) utilized enumeration blocks (EBs) created by the Department of Statistics referring to the population census in year in 2010. The artificial geographical area sketched was made up of 80-120 living quarters (LQs) which represent the secondary sampling unit. As a result, a total of 426 EBs (222 urban and 204 rural) and 5,112 LQs were randomly selected for the GATs-M.

Face to face interview was carried out by trained research assistants (RA) using handheld computers (IPAQ) to obtain the data from the selected respondents. Prior to the interview session, RA explained to each respondent the objectives of the study, as well as pertinent issues such as voluntary participation, data confidentiality, and the use of their information only for research purposes. Written informed consent was obtained before the data collection procedure. The written consent was first obtained from the parent or guardian for all respondents aged less than 18 years. All responses were entered by the interviewer in the IPAQ, with the help of a stylus for touching the keyboard on the screen. The minutiae of the study methodology and research protocol were described by Omar et al. (9). Ethical approvals for the surveys were granted by Medical Research and Ethic Committee (MREC), Ministry of Health, Malaysia.

The study instrument was adapted from the core and optional GATS questionnaire (10), translated into Malay language and back- translated into English language by the panel of expert. The face validity of the instrument was established through a pre-test in both localities of

urban and rural involving 120 respondents who were equally distributed by the age group, gender, and the smoking status. Minor correction of the questionnaire was carried out based on the response of pre-testing. The questionnaire consisted of several parts: the social demographic characteristics, types of tobacco products consumed SHS exposure at home and selected public areas, their level of knowledge on smoking hazards and SHS, the intention to quit smoking, and also the exposure to advertisement, promotion and sponsorship of tobacco product. The items selected for MPOWER implementation as Table I.

Table I: Selected MPOWER indicators and measurements

MPOWER	Measurement indicators
Monitor tobacco use and prevention policies	i. The proportion of Malaysian adults who currently smoke cigarette on daily basis, less than daily or not at all? ii. The proportion of Malaysian adults who currently smoke any tobacco product every day, less than every day or not at all? iii. The age when Malaysian adults first started smoking on daily basis iv. Total number of cigarettes that Malaysian adults smoke in a day? v. The types of tobacco product used by Malaysian adults
Protect people from tobacco smoke	i. The proportion of Malaysian adults exposed to secondhand smoke at home and indoor working area in past 30 days ii. The proportion of Malaysian adults exposed to secondhand smoke while visited public places (government building, Health care facilities, Restaurants, Bar or night club) in past 30 days
Offer help to quit tobacco use	i. Proportion of smoking respondents who made quit attempt in the last 12 months ii. Proportion of smoking respondents who reported being advised to quit by medical practitioner during the past 12 months iii. Proportion of smoking respondents with intent to quit within next 12 months iv. Proportion of smoking respondents who attempted to quit using a specific method (pharmacotherapy, counseling/advice)
Warn about the dangers of	i. The percentage of respondents who belief that tobacco smoking causes serious illness ii. The percentage of respondents who belief that smoking causes heart attack iii. The percentage of respondents who belief that smoking causes lung cancer iv. The percentage of respondents who belief that smoking causes stroke v. The percentage of respondents who belief that breathing other peoples' smoke causes serious illness vi. The percentage of respondents who noticed information on the dangers of smoking on television, newspaper and magazine vii. The percentage of respondents thought about quitting after seeing the health warnings on cigarette packages
Enforce bans on tobacco advertising, promotion and sponsorship	i. The percentage of respondents who noticed tobacco marketing in store ii. The percentage of respondents who noticed smoking promotion (Free sample & low price) during the last 30 days iii. The percentage of respondents who was having Clothing/items with cigarette brand name or logo
Raise taxes on tobacco	i. The percentage of tax increment during the last 10 years

Source: Framework Convention of Tobacco Control (FCTC), World Health Organization (WHO), 2008

The data was inspected and cleaned prior to analysis. It had been weighted, considering the study design, non-response rate as well as the social demographic status based on Malaysian population census in year 2010. The descriptive statistical analysis was used to illustrate the the social demographic data of all respondents. Cross tabulations were employed to describe the elements in MPOWER which were reported with 95% confidence intervals. The p value was not reported since the huge sample size could generate significant results even with the small statistical differences or associations. This is due to the standard error (SE) tends to be extremely small for huge sample size therefore will increase the possibility of the significance level (p value). The confidence interval (CI) hence is more meaningful since it provides evidence on the interval of prevalence. All analyses were carried out by SPSS statistical software version 20.

RESULTS

Sample Description

A total of 4250 respondents completed the GATs-M survey, yielding the response rate of 83.1% (4250/5112). The gender distribution was nearly equal with a half-to-half proportion between male and female respondents (Table II). The distribution by age was higher within the productive age group of 25-44 years (41.5%). Over half of the respondents were Malay ethnic (58.9%), married (58.5%), achieved at least secondary education attainment (59.2%) as well as with lower socio-economic background (52.6% which fulfilled income level of Quintile 2 and below). Approximately three quarter of the respondents resided in urban locality (72.1%).

Monitor of Tobacco Use

About one quarter (23.1%, 95CI 21.2-25.2) of the respondents were current users of tobacco product. This proportion was reported to be higher among males (43.9%, 95CI 40.6-47.3), the rural dweller (24.3%, 95CI 22.0-26.7) and among the most productive age group of 25-44 years (29.0%, 95 CI 26.1-32.2). Among current tobacco users, more than one fifth (22.9%, 95CI 21.0-25.0) were cigarette smokers, with the average number of 13.9 (95 CI 13.1-14.7) cigarettes smoked per day .

Protect from SHS

In overall, about two-fifth of the respondents reported SHS exposure at home (38.4%, 95CI 35.9-41.1) and at indoor workplace (39.8, 95CI 35.9-43.9) respectively, in the last 30 days. SHS exposure at home was higher among those without formal education. The SHS exposure ranged from 2.4% to 42.1% among the respondents who visited selected public places in the recent 30 days. Respondents documented highest SHS exposure in the restaurant (42.1% 95CI 39.3-44.9), and the least exposure at bars or night clubs (2.4% 95CI 1.8-3.3).

Table II : Social and demographic characteristics of respondents

Variable	Estimated Population	n	%	95% CI	
				Lower	Upper
Gender					
Male	10515362	2086	51.2	49.3	53.1
Female	10014859	2164	48.8	46.9	50.7
Ethnicity					
Malay	12083159	2531	58.9	55.0	62.6
Chinese	3808990	641	18.6	15.7	21.8
Indian	1923013	263	9.4	7.5	11.6
Others	2715058	815	13.2	11.2	15.6
Marital status					
Married	12003068	2712	58.5	56.2	60.8
Single	7195865	1042	35.1	32.9	37.4
Widow/er	1302970	490	6.4	5.6	7.2
Education attainment					
-Less than primary	2061180	651	10.1	8.9	11.4
-primary	6286532	1393	30.8	28.7	32.8
-secondary	9515856	1779	46.6	44.4	48.7
College and above	2576026	406	12.6	10.9	14.6
Occupation					
Government	1807870	397	8.8	7.7	10.1
Private	6576085	1112	32.1	29.6	34.7
Self employed	3108055	843	15.2	13.7	16.7
Home maker	8123079	1707	39.6	37.4	41.9
Retiree	886674	187	4.3	3.5	5.4
Age group					
15-24	5689674	742	27.7	25.7	29.8
25-44	8525991	1768	41.5	39.4	43.7
45-64	4860331	1326	23.8	22.0	25.5
65+	1454225	414	7.1	6.1	8.2
Income level					
Quintile 1	5946366	846	29.3	26.9	31.9
Quintile 2	4718554	842	23.3	21.6	25.1
Quintile 3	4184595	822	20.6	18.9	22.5
Quintile 4	3120933	829	15.4	13.9	17.0
Quintile 5	2304748	844	11.4	10.0	12.9
Residential area					
Urban	14807892	2065	72.1	70.6	73.6
Rural	5722329	2185	27.9	26.4	29.4

Offer help to quit tobacco use

Almost half of the current smokers (48.6% 95CI 44.0-53.2) in our study attempted to quit smoking in the past 12 months, and this proportion increased with the level of education attainment. The quit attempt in past-a year was reported to be highest among those who achieved tertiary education (56.2% 95CI 42.0-69.5). More than three quarter (77.8%, 95CI 68.4-85.1) of the current smokers who visited health care facilities in past 12 months were given a quit advice by the health care providers, however only little amount of past-year smokers attempted to quit by utilizing cessation product or quit smoking service: 9.0% (95CI 5.8-13.8)

Table III: GATS-M MPOWER indicators and demographic variable: Ethnicity

Variable	Ethnicity																				
	Overall				Malay				Chinese				Indian				Others				
	Count	Estimated Population	Prevalence %	95 CI% Lower Upper	Count	Estimated Population	Prevalence %	95 CI% Lower Upper	Count	Estimated Population	Prevalence %	95 CI% Lower Upper	Count	Estimated Population	Prevalence %	95 CI% Lower Upper	Count	Estimated Population	Prevalence %	95 CI% Lower Upper	
Monitor Tobacco use																					
Current tobacco use	989	4,746,505	23.1	21.18 25.18	604	2,971,076	24.6	22.10 27.26	89	595,541	15.4	12.02 19.46	51	376,235	19.6	14.16 26.40	245	813,652	30.0	25.15 35.27	
Current cigarette smokers	901	4,704,385	22.9	20.99 24.56	600	2,940,059	24.3	21.85 26.99	88	592,150	15.3	11.94 19.39	50	370,146	19.2	13.92 25.09	243	811,400	29.9	25.07 35.19	
Current manufactured cigarettes smokers	907	4,117,659	29.1	19.20 22.05	491	2,522,528	20.9	19.52 23.45	86	572,226	15.0	11.66 19.14	49	352,989	18.4	13.33 24.74	192	689,913	24.7	20.07 29.94	
Current smokeless tobacco use	40	148,105	0.7	0.47 1.18	15	53,408	0.5	0.19 1.10	2	21,447	0.6	0.13 2.76	6	28,233	1.5	0.61 3.68	17	45,018	1.7	0.89 3.14	
Average number of cigarettes smoked per day	891	4,244,563	13.9	13.08 14.66	541	2,689,880	14.0	12.98 15.03	83	538,606	14.4	12.29 16.57	46	324,540	13.1	10.15 15.99	221	711,537	13.3	11.65 14.92	
Average age of daily smoking initiation	1,056	4,915,279	18.3	17.90 18.66	669	3,152,101	18.2	17.84 18.53	100	611,802	19.1	18.20 19.96	53	388,476	19.0	17.74 20.19	234	762,899	17.7	16.29 19.10	
Protect from Second hand smoke																					
Exposure to SHS at home in at least monthly	1,663	7,638,287	38.4	35.89 41.07	1,071	5,116,069	43.9	40.87 46.91	142	837,667	22.5	17.83 28.08	55	433,627	23.1	16.33 31.66	395	1,250,924	47.8	41.63 54.14	
Exposure to SHS at workplace in last 30 days	398	2,297,601	39.8	35.88 43.95	255	1,445,214	39.9	34.64 45.37	76	501,217	44.7	37.23 52.49	27	177,994	32.7	21.74 45.96	40	173,176	36.2	26.09 47.78	
Exposure SHS in public places/facilities in past 30 days among those who visited/used public:																					
Government building/offices	170	989,842	4.9	3.88 6.06	124	723,409	6.0	4.71 7.63	14	97,026	2.6	1.37 4.74	13	87,243	4.6	2.41 8.61	19	82,164	3.1	1.62 5.77	
Health Care facilities	136	689,208	3.4	2.67 4.25	99	438,488	3.6	2.80 4.73	17	100,648	2.7	1.56 4.46	12	116,395	6.1	2.92 12.28	8	33,677	1.3	0.53 2.91	
Restaurants	1,515	8,611,629	42.1	39.34 44.89	924	5,358,845	44.5	40.95 48.04	243	1,468,185	38.7	33.17 44.49	121	908,302	47.5	38.86 56.29	227	876,297	32.4	27.30 38.02	
Bars or night club	77	457,862	2.4	1.75 3.29	15	85,839	0.8	0.41 1.50	29	217,062	5.9	3.72 9.20	10	85,415	4.7	2.20 9.61	23	69,547	2.7	1.45 4.94	
Offer help to quit tobacco use																					
Quit attempt in the last 12 months	417	2,307,434	48.6	44.06 53.21	270	1,513,858	50.5	45.03 56.02	32	231,548	38.6	25.28 53.93	25	222,433	60.6	43.13 75.68	90	339,595	43.3	34.66 52.47	
Advised to quit smoking by a health care provider	175	820,267	77.9	68.41 85.16	132	622,410	77.5	66.44 85.75	13	58,728	76.4	37.05 94.66	11	55,223	71.2	30.45 93.29	19	83,906	87.0	65.18 95.97	
Intent to quit smoking within next 12 months	708	3,334,789	80.2	76.02 83.73	457	2,179,601	83.1	77.79 87.31	51	361,874	71.9	57.27 82.94	35	256,630	83.0	63.58 93.16	165	536,684	74.1	64.81 81.68	
Attempt to quit smoking using a specific method																					
Pharmacotherapy	31	206,611	9.0	5.75 13.84	26	175,827	11.7	7.12 18.57	1	2,098	0.9	0.12 6.48	1	10,550	4.7	0.64 27.76	3	18,136	5.4	1.45 18.20	
Counselling/advice	29	102,237	4.4	2.80 6.97	20	75,896	5.0	3.00 8.27	3	5,477	2.4	0.69 7.82			6	20,864	6.2	2.10 17.09			
Warn about the danger of smoking																					
Belief that tobacco smoking causes serious illness	3,877	18,888,000	92.2	90.91 93.39	2,338	11,286,555	93.5	91.94 94.79	562	3,412,279	89.6	85.92 92.40	240	1,768,588	92.3	86.95 95.59	737	2,420,577	90.2	86.44 93.03	
Belief that smoking causes heart attack	3,737	18,199,077	88.8	87.08 90.25	2,291	11,071,167	91.7	90.02 93.13	525	3,192,342	83.8	79.49 87.36	231	1,635,802	85.1	78.76 89.82	690	2,299,766	85.2	80.52 88.87	
Belief that smoking causes lung cancer	3,943	19,220,839	93.7	92.58 94.64	2,384	11,512,824	95.3	94.08 96.29	578	3,506,034	92.0	88.93 94.34	237	1,729,544	90.0	83.99 93.91	744	2,472,439	91.4	88.08 93.81	
Belief that smoking causes strokes	3,361	16,545,007	80.7	78.55 82.67	2,095	10,162,276	84.2	81.67 86.27	467	2,854,009	75.0	69.39 79.86	216	1,556,413	81.0	74.40 86.19	583	1,972,308	72.9	67.38 77.77	
Belief that breathing other peoples' smoke causes serious illness	3,563	17,591,065	85.8	84.28 87.27	2,171	10,589,736	87.8	85.67 89.60	513	3,156,404	82.9	79.07 86.10	226	1,663,669	86.7	81.32 90.76	653	2,181,257	80.8	76.26 84.62	
Notice anti-cigarette smoking information at any location	3,996	19,246,563	94.0	92.68 95.05	2,397	11,472,394	95.2	93.71 96.36	580	3,435,562	90.6	86.92 93.32	249	1,790,539	93.1	87.64 96.26	770	2,548,067	93.8	90.14 96.22	
Thinking of quitting because of health warning on cigarette packages	421	2,117,273	45.8	41.33 50.34	290	1,462,712	50.4	45.00 55.75	29	188,702	33.3	22.20 46.63	25	182,217	49.3	32.79 65.89	77	283,641	36.2	27.52 45.97	
Enforce bans on tobacco advertising, promotion and sponsorship																					
Notice cigarette advertisement, sponsorship or promotion	1,298	7,255,431	35.6	32.85 38.48	803	4,534,804	37.9	34.54 41.43	100	1,120,499	29.5	24.38 35.21	85	738,244	38.4	29.27 48.45	230	861,863	32.0	25.98 38.64	

Table IV: GATS-M MPOWER indicators and demographic variable: Locality

Variable	Locality															
	Overall				Urban				Rural							
	Count	Estimated Population	Prevalence %	95 CI% Lower Upper	Count	Estimated Population	Prevalence %	95 CI% Lower Upper	Count	Estimated Population	Prevalence %	95 CI% Lower Upper	Count	Estimated Population	Prevalence %	95 CI% Lower Upper
Monitor Tobacco use																
Current tobacco use	989	4,746,505	23.1	21.18 25.18	453	3,357,187	22.7	20.16 25.39	536	1,389,318	24.3	21.99 26.72				
Current cigarette smokers	981	4,704,385	22.9	20.99 24.96	449	3,322,144	22.4	19.94 25.14	532	1,382,241	24.2	21.86 26.60				
Current manufactured cigarettes smokers	907	4,117,659	20.1	18.20 22.05	395	3,005,195	20.3	17.88 22.95	412	1,112,464	19.4	17.40 21.65				
Current smokeless tobacco use	40	148,105	0.7	0.47 1.18	18	100,316	0.7	0.37 1.32	22	47,790	0.8	0.51 1.41				
Average number of cigarettes smoked per day	891	4,244,563	13.9	13.08 14.66	411	3,005,456	14.0	13.03 15.03	480	1,239,107	13.5	12.29 14.67				
Average age of daily smoking initiation	1,056	4,915,279	18.3	17.90 18.66	482	3,465,893	18.1	17.58 18.58	574	1,449,386	18.8	18.28 19.24				
Protect from Second hand smoke																
Exposure to SHS at home in at least monthly	1,663	7,638,287	38.4	35.89 41.07	700	5,105,594	35.7	32.48 39.13	963	2,532,693	45.4	41.74 49.08				
Exposure to SHS at workplace in last 30 days	398	2,297,601	39.8	35.88 43.95	266	1,900,540	41.6	36.88 46.53	132	397,061	33.1	27.18 39.55				
Exposure SHS in public places/facilities in past 30 days among those who visited/used public:																
Government building/offices	170	989,842	4.9	3.88 6.06	110	801,614	5.5	4.18 7.10	60	188,228	3.3	2.40 4.52				
Health Care facilities	136	689,208	3.4	2.67 4.25	73	519,613	3.5	2.64 4.71	63	169,595	3.0	2.14 4.09				
Restaurants	1,515	8,611,629	42.1	39.34 44.89	942	6,870,008	46.5	42.97 50.12	573	1,741,621	30.6	27.39 33.97				
Bars or night club	77	457,862	2.4	1.75 3.29	60	415,197	3.0	2.12 4.22	17	42,665	0.8	0.46 1.47				
Offer help to quit tobacco use																
Quit attempt in the last 12 months	417	2,307,434	48.6	44.06 53.21	210	1,714,038	51.0	44.97 56.93	207	593,396	42.9	37.45 48.56				
Advised to quit smoking by a health care provider	175	820,267	77.8	68.36 85.10	78	559,301	75.8	62.53 85.41	97	260,966	82.7	74.25 88.82				
Intent to quit smoking within next 12 months	708	3,334,789	80.2	76.02 83.73	320	2,334,488	80.3	74.55 84.94	388	1,000,301	79.9	75.27 83.87				
Attempt to quit smoking using a specific method																
Pharmacotherapy	31	206,611	9.0	5.75 13.84	17	159,773	9.3	5.36 15.80	14	46,838	8.0	4.42 14.10				
Counselling/advice	29	102,237	4.4	2.80 6.97	13	64,198	3.7	1.94 7.12	16	38,039	6.5	3.79 10.80				
Warn about the danger of smoking																
Belief that tobacco smoking causes serious illness	3,877	18,888,000	92.2	90.91 93.39	1,907	13,703,836	92.8	91.08 94.20	1,970	5,184,165	90.8	88.75 92.53				
Belief that smoking causes heart attack	3,737	18,199,077	88.8	87.08 90.25	1,846	13,208,163	89.3	87.12 91.18	1,891	4,990,914	87.3	84.96 89.37				
Belief that smoking causes lung cancer	3,943	19,220,839	93.7	92.58 94.64	1,933	13,907,390	94.0	92.51 95.14	2,010	5,313,449	93.0	91.37 94.30				
Belief that smoking causes strokes	3,361	16,545,007	80.7	78												

Table V: GATS-M MPOWER indicators and demographic variable:Gender

Variable	Gender														
	Overall							Male				Female			
	Count	Estimated Population	Prevalence %	95 CI%		Count	Estimated Population	Prevalence %	95 CI%		Count	Estimated Population	Prevalence %	95 CI%	
				Lower	Upper				Lower	Upper				Lower	Upper
Monitor Tobacco use															
Current tobacco use	989	4,746,505	23.1	21.18	25.18	955	4,642,145	43.9	40.63	47.28	34	104,359	1.0	0.67	1.63
Current cigarette smokers	981	4,704,385	22.9	20.99	24.96	949	4,605,032	43.6	40.29	46.92	32	99,353	1.0	0.63	1.57
Current manufactured cigarettes smokers	807	4,117,659	20.1	18.20	22.05	788	4,050,009	38.3	35.09	41.66	19	67,649	0.7	0.38	1.21
Current smokeless tobacco use	40	148,105	0.7	0.47	1.18	21	91,217	0.9	0.47	1.72	19	56,888	0.6	0.33	1.03
Average number of cigarettes smoked per day	891	4,244,563	13.9	13.08	14.66	867	4,176,361	13.9	13.15	14.73	24	68,203	9.5	7.04	11.87
Average age of daily smoking initiation	1,056	4,915,279	18.3	17.90	18.66	1019	4,805,177	18.2	17.82	18.59	37	110,102	21.4	18.41	24.44
Protect from Second hand smoke															
Exposure to SHS at home in at least monthly	1,663	7,638,287	38.4	35.89	41.07	928	4,448,301	43.3	39.90	46.75	735	3,189,986	33.3	30.20	36.44
Exposure to SHS at workplace in last 30 days	398	2,297,601	39.8	35.88	43.95	271	1,612,210	46.2	41.07	51.48	127	685,391	30.1	24.69	36.07
Exposure SHS in public places/facilities in past 30 days among those who visited/used public:															
Government building/offices	170	989,842	4.9	3.88	6.06	105	639,180	6.1	4.71	7.88	65	350,662	3.5	2.56	4.86
Health Care facilities	136	689,208	3.4	2.67	4.25	59	287,809	2.7	1.86	4.01	77	401,400	4.1	3.05	5.37
Restaurants	1,515	8,611,629	42.1	39.34	44.89	846	4,853,522	46.1	42.60	49.72	669	3,758,106	37.8	34.64	41.07
Bars or night club	77	457,862	2.4	1.75	3.29	60	360,531	3.7	2.59	5.19	17	97,331	1.1	0.55	2.03
Offer help to quit tobacco use															
Quit attempt in the last 12 months	417	2,307,434	48.6	44.06	53.21	402	2,262,719	48.7	44.02	53.36	15	44,715	45.7	24.85	68.26
Advised to quit smoking by a health care provider	175	820,267	77.8	68.36	85.10	168	791,873	77.5	67.78	84.91	7	28,394	89.6	62.84	97.76
Intent to quit smoking within next 12 months	708	3,334,789	80.2	76.02	83.73	681	3,253,814	79.9	75.70	83.52	27	80,975	92.5	73.94	98.15
Attempt to quit smoking using a specific method															
Pharmacotherapy	31	206,611	9.0	5.75	13.84	31	206,611	9.2	5.86	14.10					
Counseling/advice	29	102,237	4.4	2.80	6.97	26	98,545	4.4	2.72	6.93	3	3,692	8.3	2.28	25.75
Warn about the danger of smoking															
Belief that tobacco smoking causes serious illness	3,877	18,888,000	92.2	90.91	93.39	1,889	9,542,456	90.7	88.49	92.44	1,988	9,345,544	93.9	92.47	95.10
Belief that smoking causes heart attack	3,737	18,199,077	88.8	87.08	90.25	1,836	9,165,519	86.9	84.43	88.99	1,901	9,033,559	90.8	88.94	92.32
Belief that smoking causes lung cancer	3,943	19,220,839	93.7	92.58	94.64	1,947	9,788,753	92.7	90.96	94.07	1,996	9,432,086	94.8	93.41	95.86
Belief that smoking causes stroke	3,361	16,545,007	80.7	78.55	82.67	1,643	8,356,511	79.2	76.32	81.74	1,718	8,188,496	82.3	79.77	84.61
Belief that breathing other peoples' smoke causes serious illness	3,563	17,591,065	85.8	84.28	87.27	1,742	8,863,174	84.1	81.71	86.15	1,821	8,727,892	87.7	85.75	89.47
Notice anti-cigarette smoking information at any location	3,996	19,246,563	94.0	92.68	95.05	1,984	9,862,298	93.5	91.47	95.05	2,012	9,384,264	94.5	92.86	95.77
Thinking of quitting because of health warning on cigarette packages	421	2,117,273	45.8	41.33	50.34	407	2,063,290	45.7	41.18	50.22	14	53,983	51.7	30.69	72.17
Enforce bans on tobacco advertising, promotion and sponsorship															
Notice cigarette advertisement, sponsorship or promotion	1,298	7,255,431	35.6	32.85	38.48	687	4,091,032	39.0	35.42	42.71	611	3,164,399	32.0	28.73	35.51

Table VI: GATS-M MPOWER indicators and demographic variable: Education attainment

Variable	Education Attainment																								
	Overall					No Formal Education				Primary				Secondary				College							
	Count	Estimated Population	Prevalence %	95 CI%		Count	Estimated Population	Prevalence %	95 CI%		Count	Estimated Population	Prevalence %	95 CI%		Count	Estimated Population	Prevalence %	95 CI%						
				Lower	Upper				Lower	Upper				Lower	Upper				Lower	Upper					
Monitor Tobacco use																									
Current tobacco use	982	4,721,804	23.1	21.16	25.16	122	406,951	19.7	15.92	24.23	351	1,528,387	24.3	21.05	27.91	442	2,392,653	25.1	22.37	28.13	67	393,812	15.3	11.58	19.91
Current cigarette smokers	974	4,679,684	22.9	20.96	24.95	118	399,875	19.4	15.60	23.67	348	1,497,590	23.8	20.60	27.38	441	2,388,407	25.1	22.33	28.09	67	393,812	15.3	11.58	19.91
Current manufactured cigarettes smokers	802	4,095,422	20.8	18.18	22.03	70	273,000	13.2	9.80	17.66	279	1,310,462	20.8	17.78	24.29	390	2,141,674	22.5	19.82	25.44	63	370,286	14.4	10.68	19.07
Current smokeless tobacco use	40	148,105	0.7	0.47	1.18	10	29,153	1.5	0.68	3.18	18	52,484	0.9	0.50	1.53	9	42,751	0.5	0.19	1.10	3	23,718	0.9	0.17	5.15
Average number of cigarettes smoked per day	885	4,221,520	13.8	13.05	14.64	109	359,170	15.6	11.84	19.35	316	1,348,466	13.5	12.18	14.91	401	2,182,796	13.6	12.68	14.57	59	331,088	14.6	12.59	16.60
Average age of daily smoking initiation	1,049	4,890,578	18.3	17.90	18.66	146	459,406	19.4	17.92	20.81	379	1,598,667	18.4	17.79	19.06	455	2,422,871	18.0	17.45	18.62	69	409,634	18.0	17.39	18.51
Protect from Second hand smoke																									
Exposure to SHS at home in at least monthly	1,666	7,613,528	38.5	35.90	41.08	271	845,768	43.8	37.82	50.02	594	2,426,270	39.7	35.61	43.99	691	3,688,898	40.0	36.72	43.40	100	662,142	25.7	20.35	31.84
Exposure to SHS at workplace in last 30 days	396	2,289,405	39.9	35.97	44.06	18	65,577	69.2	45.36	85.93	93	503,437	47.1	38.71	55.70	205	1,155,602	37.2	32.03	42.70	80	564,430	38.6	30.94	46.90
Exposure SHS in public places/facilities in past 30 days among those who visited/used public:																									
Government building/offices	170	989,842	4.9	3.90	6.08	8	39,448	1.9	0.94	3.93	49	258,239	4.1	2.87	5.87	79	495,885	5.3	3.91	7.05	34	196,269	7.7	5.02	11.52
Health Care facilities	136	689,208	3.4	2.68	4.27	15	50,878	2.5	1.38	4.41	40	158,443	2.5	1.69	3.78	61	339,143	3.6	2.45	5.21	20	140,744	5.5	3.25	9.17
Restaurants	1,511	8,591,837	42.2	39.40	44.96	84	346,497	16.9	12.89	21.75	384	2,140,674	34.1	30.37	38.14	791	4,488,767	47.3	43.43	51.26	252	1,615,899	62.8	56.07	69.10
Bars or night club	77	457,862	2.4	1.76	3.31	1	2,202	0.1	0.02	0.85	17	96,068	1.6	0.85	3.10	50	291,810	3.3	2.20	4.87	9	67,783	2.9	1.22	6.66
Offer help to quit tobacco use																									
Quit attempt in the last 12 months	415	2,304,809	48.8	44.25	53.41	46	146,848	36.7	26.60	48.03	148	680,929	44.8	37.70	52.21	187	1,247,716	52.1	46.00	58.15	34	229,315	56.2	42.03	69.50
Advised to quit smoking by a health care provider	175	820,267	77.9	68.41	85.16	23	72,096	93.4	75.51	98.48	62	300,746	77.7	60.92	88.62	80	396,300	77.9	64.10	87.38	10	51,125	64.2	25.28	90.46
Intent to quit smoking within next 12 months	705	3,325,224	80.2	76.02	83.75	79	262,897	81.9	71.99	88.81	244	977,475	73.2	65.43	79.78	335	1,797,395	84.5	78.15	89.27	47	287,457	78.8	60.79	89.92
Attempt to quit smoking using a specific method																									
Pharmacotherapy	31	206,611	9.0	5.75	13.86	1	1,451	1.0	0.14	7.12			0.0	0.00	0.00	22	139,149	11.2	6.60	18.35	8	66,012	28.8	13.53	51.09
Counseling/advice	29	102,237	4.4	2.80	6.98	5	10,752	7.6	2.84	18.64	7	20,304	3.0	1.34	6.49	15	64,765	5.2	2.85	9.28	2	6,415	2.8	0.64	11.45
Warn about the danger of smoking																									
Belief that tobacco smoking causes serious illness	3,861	18,804,927	92.2	90.90	93.40	524	1,639,659	79.9	74.47	84.47	1,262	5,729,760	91.5	89.26	93.28	1,692	9,063,302	95.3	93.58	96.54	383	2,382,206	92.7	87.68	95.76
Belief that smoking causes heart attack	3,724	18,126,341	88.8	87.12	90.28	495	1,593,932	77.5	72.34	81.97	1,215	5,519,154	87.8	84.95	90.22	1,650	8,733,052	91.8	89.60	93.63	364	2,280,203	89.0	83.52	92.77
Belief that smoking causes lung cancer	3,928	19,146,211	93.7	92.62	94.69	531	1,667,508	81.1	76.18	85.20	1,291	5,867,682	93.2	91.00	94.91	1,717	9,163,154	96.4	94.93	97.40	389	2,457,887	96.4	91.88	97.45
Belief that smoking causes stroke	3,348	16,472,271	80.7	78.55	82.68	427	1,389,821	67.7	62.36	72.54	1,095	5,074,089	80.8	77.60	83.56	1,490	7,914,350	83.2	80.40	85.76	336	2,094,012	81.5	75.34	86.43
Belief that breathing other peoples' smoke causes serious illness	3,546	17,506,825	85.8	84.24	87.25	448	1,454,582	70.6	65.42	75.24	1,159	5,275,355	84.2	81.25	86.84	1,572	8,444,447	88.9	86.57	90.80	367	2,332,441	90.5	86.07	93.68
Notice anti-cigarette smoking information at any location	3,977	19,158,513	94.0	92.67	95.05	565	1,787,043	87.1	82.77	90.43	1,319	5,953,103	95.0	93.11	96.37	1,704	8,96								

Table VI: GATS-M MPOWER indicators and demographic variable: Locality

Variable	Age Group																									
	Overall					15-24 years					25-44 years					45-64 years					65 and older					
	Count	Estimated Population	Prevalence %		95 CI%		Count	Estimated Population	Prevalence %		95 CI%		Count	Estimated Population	Prevalence %		95 CI%		Count	Estimated Population	Prevalence %		95 CI%			
			Lower	Upper	Lower	Upper			Lower	Upper	Lower	Upper			Lower	Upper	Lower	Upper								
Monitor Tobacco use																										
Current tobacco use	989	4,746,505	23.1	21.18	25.18	138	948,904	16.7	13.57	20.32	486	2,474,247	29.0	26.07	32.16	303	1,105,145	22.7	19.83	25.93	62	218,209	15.0	11.16	19.89	
Current cigarette smokers	981	4,704,385	22.9	20.99	24.96	137	944,657	16.6	13.50	20.25	484	2,462,300	28.9	25.93	32.02	300	1,095,504	22.5	19.66	25.70	60	201,844	13.9	10.26	18.52	
Current manufactured cigarettes smokers	807	4,117,659	20.1	18.20	22.05	121	870,432	15.3	12.26	18.93	425	2,232,122	26.2	23.33	29.25	230	885,409	18.2	15.58	21.18	31	129,696	8.9	5.93	13.20	
Current smokeless tobacco use	40	148,105	0.7	0.47	1.18	2	6,813	0.1	0.03	0.51	21	91,543	1.1	0.58	2.07	10	29,171	0.6	0.29	1.33	7	20,578	1.5	0.58	3.61	
Average number of cigarettes smoked per day	891	4,244,563	13.9	13.08	14.66	118	814,403	11.7	9.69	13.74	440	2,229,094	13.8	12.89	14.65	284	1,035,749	15.5	13.81	17.23	49	165,318	15.4	10.58	20.19	
Average age of daily smoking initiation	1,056	4,915,279	18.3	17.90	18.66	131	874,575	16.1	15.60	16.62	489	2,467,120	18.3	17.70	18.81	345	1,263,775	19.4	18.77	20.04	91	309,809	20.0	18.21	21.81	
Protect from Second hand smoke																										
Exposure to SHS at home in at least monthly	1,663	7,638,287	38.4	35.89	41.07	309	2,159,188	39.3	34.60	43.97	726	3,399,929	41.1	37.60	44.73	496	1,649,467	35.2	30.92	39.70	132	429,703	30.3	24.01	37.50	
Exposure to SHS at workplace in last 30 days	396	2,297,601	39.8	35.88	43.95	58	504,511	37.8	28.82	47.78	233	1,313,056	40.0	34.98	45.27	100	455,332	41.3	33.79	49.26	7	24,702	50.0	18.28	81.77	
Exposure SHS in public places/facilities in past 30 days among those who visited/used public:																										
Government buildings/offices	398	2,297,601	39.8	35.88	43.95	58	504,511	37.8	28.82	47.78	233	1,313,056	40.0	34.98	45.27	100	455,332	41.3	33.79	49.26	7	24,702	50.0	18.28	81.77	
Health Care facilities	136	689,208	3.4	2.67	4.25	25	216,999	3.8	2.42	6.04	59	288,043	3.4	2.39	4.81	41	124,932	2.6	1.76	3.77	11	59,235	4.1	1.87	8.68	
Restaurants	1,515	8,611,629	42.1	39.34	44.89	329	2,746,620	48.5	43.45	53.53	777	3,969,518	46.7	43.36	50.12	361	1,667,354	34.4	30.51	36.46	48	228,137	15.7	10.09	23.72	
Bars or night club	77	457,862	2.4	1.75	3.29	20	175,073	3.3	1.84	5.73	45	238,814	3.0	2.07	4.37	11	35,825	0.8	0.40	1.64	1	8,150	0.6	0.09	4.22	
Offer help to quit tobacco use																										
Quit attempt in the last 12 months	417	2,307,434	48.6	44.06	53.21	68	593,352	60.8	50.08	70.64	203	1,133,622	46.6	39.94	53.35	124	513,696	46.0	37.24	54.98	22	66,765	30.4	18.14	46.16	
Advised to quit smoking by a health care provider	175	820,267	77.8	68.36	86.10	18	140,213	74.5	45.55	91.05	70	367,465	72.8	57.62	84.08	69	258,442	86.7	73.01	93.99	18	54,157	86.3	63.53	95.77	
Intent to quit smoking within next 12 months	708	3,334,789	80.2	76.02	83.73	100	888,979	80.2	68.01	88.59	347	1,725,470	79.3	73.66	83.95	220	776,255	81.6	74.33	87.16	41	144,085	82.8	61.98	93.47	
Attempt to quit smoking using a specific method																										
Pharmacotherapy	31	206,611	9.0	5.75	13.84	7	82,708	14.0	6.27	28.48	17	107,293	9.5	5.56	15.90	7	16,610	3.2	1.37	7.46						
Counseling/advice	29	102,237	4.4	2.80	6.97	4	21,277	3.6	1.16	10.52	10	36,065	3.2	1.53	6.56	12	38,107	7.4	3.52	14.95	3	6,788	10.2	2.80	30.74	
Warn about the danger of smoking																										
Belief that tobacco smoking causes serious illness	3,877	18,888,000	92.2	90.91	93.39	697	5,327,587	93.6	90.87	95.60	1,652	7,951,566	93.7	91.80	95.11	1,191	4,374,788	90.3	87.86	92.28	337	1,234,060	85.0	79.65	89.10	
Belief that smoking causes heart attack	3,737	18,199,077	88.8	87.08	90.25	659	5,108,414	89.8	85.66	92.24	1,604	7,632,279	89.7	87.29	91.70	1,151	4,282,182	88.2	85.63	90.44	323	1,176,203	81.0	74.99	85.83	
Belief that smoking causes lung cancer	3,943	19,220,839	93.7	92.58	94.64	712	5,470,629	96.2	93.92	97.58	1,682	8,101,828	95.1	93.51	96.27	1,205	4,428,151	91.3	88.94	93.13	343	1,220,230	84.0	77.49	88.93	
Belief that smoking causes stroke	3,361	16,545,007	80.7	78.55	82.67	617	4,784,641	84.1	80.34	87.25	1,435	6,900,006	81.1	77.98	83.82	1,033	3,833,571	79.0	75.44	82.17	276	1,026,790	70.8	64.43	76.45	
Belief that breathing other people's smoke causes serious illness	3,563	17,591,065	85.8	84.28	87.27	639	4,964,999	87.4	84.05	90.13	1,531	7,373,528	86.7	84.23	88.80	1,106	4,186,944	86.3	83.57	88.64	287	1,065,594	73.3	65.97	79.50	
Notice anti-cigarette smoking information at any location	3,996	19,246,563	94.0	92.68	95.05	712	5,455,882	96.2	93.77	97.66	1,685	7,966,380	93.6	91.43	95.25	1,241	4,548,889	93.9	91.78	95.47	358	1,275,411	87.9	81.30	92.42	
Thinking of quitting because of health warning on cigarette packages	421	2,117,273	45.8	41.33	50.34	65	448,365	47.6	36.85	58.64	213	1,098,085	45.7	39.97	51.62	120	468,240	44.0	36.17	52.19	23	102,583	47.4	31.37	63.91	
Enforce bans on tobacco advertising, promotion and sponsorship																										
Notice cigarette advertisement, sponsorship or promotion	1,288	7,255,431	35.6	32.85	38.48	277	2,316,581	40.9	36.26	45.74	574	3,102,764	36.7	33.10	40.45	375	1,519,250	31.5	27.40	36.00	72	316,835	22.0	15.80	29.83	

used pharmacotherapy while only 4.4% (95CI 2.8-7.0) attended counseling/ advice. In addition, among current smokers, approximately eight in ten (80.2%, 95 CI 76.0-83.7) had the intention to quit smoking within the next one year.

Warn about the danger of smoking

In general, the belief of tobacco smoking results in serious illness was documented high among Malaysian adults (92.2%, 95CI 90.9-93.4). The level of knowledge among the respondents about tobacco related diseases such as cardiopulmonary disease and cerebrovascular disease regardless of first-hand smoke or second-hand smoke exposure were generally good. 88.8% of them believed that smoking causes heart attack, 93.7% believed that smoking lead to lung cancer, and 80.7% understood that smoking causes strokes. There was more than three-quarter (85.8% 95 CI 84.3-87.3) of the respondents who held the belief of breathing other people's smoke causes serious illness. The belief of negative health impacts secondary to SHS exposure was increased with educational level, with the lowest proportion reported among respondents without formal education (87.1% 95 CI 82.8-90.4), and highest proportion among those with tertiary education attainment (90.5% 95 CI 86.1-93.7). The proportion of respondents living in urban locality (86.6% 95 CI 84.6-88.3) who belief that breathing SHS smoke causes serious illness was slightly higher compared to their rural counterparts. Nonetheless, This level of belief did

not difference much across population with different ethnicity and gender.

About nine in ten (94%, 95CI 92.7-95.1) of the respondents noticed the anti-cigarette smoking information at any location. This awareness was high especially among those who obtained formal education (95% of primary education, 94.4% of secondary education and 95.3 of tertiary education), compared to group without formal education (87.1%). Almost half (45.8%, 95CI 41.3-50.3) of the smokers, was thinking of quitting in view of health warning on cigarette package, with a higher proportion reported among female smokers (51.7%, 95CI 30.7-72.2) compared to male smokers (45.7%, 95CI 41.2-50.2).

Enforce bans on tobacco advertising, promotion and sponsorship

About one third (35.3%, 95CI 32.9-38.5) of Malaysian adults had noticed the cigarette advertisement, sponsorship or promotion. This proportion was observed to be higher among the urban dwellers (38.1%, 95CI 34.5-41.8) and males(39.0%, 95CI 35.4-42.75), however decreased with age (40.9%, 95CI 36.3-45.7) among the youngest age group of 15-24 years and the proportion was inversely proportional to age. Those with higher educational attainment (primary education of 36.1%,secondary education 37.7% and tertiary education of 37.1%) were also found to be more aware of cigarette advertisement, sponsorship or promotion,

compared to those without formal education (21.1%).

Raises taxes on tobacco

The taxation increment for cigarette was reported as much as 263.6% within a decade from year 2005 until 2016. The steady raise in tobacco taxation was applicable to cigarette per stick and also per packet. In overall, the current taxes make up 41.7% of premium cigarette since 2016, compared to only 31.4% in 2005. The tobacco taxes for “value to buy” cigarette are 51.6% of cigarettes’ retail price whereas taxes for cigarette with “minimum price” are up to 80%.

DISCUSSION

Monitor of Tobacco Use

This study disclosed that almost one in four (23.1 %) Malaysian adults were currently using any tobacco products. The prevalence rate was similar as the findings reported in National Health and Morbidity Survey 1996, and 2006, indicated that smoking rate was plateau since the last two decades. The prevalence in the study was nearly similar to 25% of current tobacco users among Vietnamese as well as Uruguayan adults (11). Our study showed that, gender is a strong independent determinant of current tobacco usage. The proportion of current tobacco users among Males respondents was far more predominant compared to female, with the prevalence ratios of 43.9. This findings was far greater than the gender ratio of 1.99 among current tobacco users as reported in Greece (12). Similarly lower ratio were also been addressed in Poland (1.5) , Uruguay (1.6) and Brazil (1.7), however a much higher gender prevalence ratio was reported in Egypt (63.5) (11). On the other hand, high smoking rates of more than 30% were also been observed among the males in sub-Saharan Countries (13). The gender difference might be associated with the culture and tradition difference across countries. Tobacco usage among woman is not accepted as a norm in Malaysia. Therefore, the traditional normative values and gender expectations may become less of a protective factor against smoking habit among Malaysian women. The result of this study revealed that Malaysia still in Phase II of Smoking Epidemic model since the last three decades. Although the prevalence plateau since the last 30 years, The number of smokers are increasing in tandem with population size in Malaysia. Our result showed that those anti-smoking policies implemented were unable to reduce the smoking prevalence in Malaysia. Therefore, more robust and comprehensive measures are urgently needed to achieve the target of end game of tobacco control by 2045 (14).

Protect from SHS

About two in five respondents reported SHS exposure at home (38.4%, 95CI 35.9-41.1) in the past one month. This figure was higher than the self-reported SHS exposure at home among the Nigerians (6.6%)(15) , somehow lower in comparison with the prevalence of

65.7% in Greece (12). On the other hand, 39.8% (95CI 35.9-43.9) of our respondents reported being exposed to SHS at indoor workplace in past 30 days, which was almost identical to the results reported in Turkey (37.3%). Nevertheless, our prevalence was lower compared to Vietnam (55.9%), and Egypt (59.9%) (11). Those who did not attend formal education were more prone to SHS exposure indicated the inequalities in term of socioeconomic status. The level of SHS intolerance decreases with the level of education (16). This finding was consistent with the study by Abdullah et al. (17) in Bangladesh which reported of population subset with lower educational attainment and poorer literacy were more than twice as likely to be exposed to SHS at home compared to their counterparts with higher educational level. Moreover, our finding was also in homogenous with another study among the Vietnamese utilizing GATS data which documented that respondents who attained at least secondary education were 30% - 60% less likely for the SHS exposure at home, as compared with those who had attained only primary education (18). The association observed between SHS exposure and the levels of education might best explained by the differences in social norms among the dissimilar socioeconomic background and settings (19). Therefore our finding reflected that not only an urgent necessity to educate the disadvantaged group with low socioeconomic status about the harmful impacts of SHS exposure, but also the need to administer culturally specific awareness program among this vulnerable subset.

Respondents in our study reported highest SHS exposure in the restaurant (42.1% 95CI 39.3-44.9). In parallel with GATS results from a few African countries including Kenya, Cameroun, Uganda and Senegal as well as Nigeria, social acceptance on smoking habit in the restaurant is wider compared to other public localities (15) . This indicated that smoking in various public places especially in the restaurants remained socially approved and allowed among our community (20). Study had shown that the risk of coronary artery disease will increase by 25-30% following even the lowest level of SHS exposure , among nonsmokers (21). The harmful health effects of SHS was also well recognized by the WHO FTCT (Article 8) therefore parties were being called to promote policies in order to protect people from SHS exposure. The implementation of comprehensive smoke-free environment as well as the enforcement of smoking bans in public places, together with the compliance monitoring will be one of the proven tools to eliminate SHS exposure. The Malaysian Government had initiated smoking ban on eateries beginning from 1st of January 2019 and this should be expanded to a wider coverage of public localities in Malaysia such as hotels, karaoke, pub and casino. Previous studies in United States (22) showed reduction in smoking and alter the perceptions of social acceptability on smoking after the implementation of smoke free regulation in eating

places (23 , 24)., In addition, Opp observed an inverse relationship between the local restaurant regulation with the perceived prevalence of smoking in the community and this strategy supported smoke-free environment besides conveying message to the community that smoking is socially unaccepted (25). Studies over years, clearly displayed that Law enforcement have a powerful influence on social attitudes and may alter smoking related social norms (26,27). Policies which reach large number of people evidently change the social norms of tobacco use. This evidence was supported by the enactment of clean indoor air regulations which could transform the norms which were only tentatively institutionalized at the social level, into a more authoritative social norms (28). On the other hand, the Theory of Normative Social Behavior (TNSB) , when applicable to the smoke-free laws, posited a much higher rate of compliance will be achieved when smoke-free descriptive norm (the perceptions of what others do) are supported by the injunctive norms (the perceptions of what one is expected to do) (29). As a result, the desired compliance behavior among communities towards smoking ban in public places can be improved by promoting the injunctive norm of obeying the laws.

Offer help to quit tobacco use

Nearly half (48.6%) of current smokers made an attempt-to-quit during the last one year. This result was in homogeneous with several developing countries such as Uruguay (48.6%), Thailand (49.8 %), Mexico (49.9%), Philippines (47.9 %), Bangladesh (47.3%) (Song et al., 2016), and Nigeria (45.4 %) (15). The quit attempt in past-a year was highest among those who achieved tertiary education (56.2%). Educational attainment acts as a fundamental to the socioeconomic status. Previous studies expounded that individuals attained higher educational level would have higher quality of socioeconomic status hence tend to take better care of own health (30). This group of smokers might have improved health literacy and higher level of awareness particularly on the adverse health effects of smoking. As a result, they were more capable to alert on the health hazards of tobacco use and were more into the quit attempt.

Quitting smoking brings immediate health benefits and it gradually reverses the associated negative health impacts on human body (31). However, the quit rate was found to be low in majority of the developing country as smokers who made the attempt to quit encountered difficulties secondary to the highly addictive properties of nicotine (7). This phenomenon is further challenged by the limited supply and also usability of the smoking cessation infrastructure including both pharmacological or non-pharmacological (counseling) modalities. The underdeveloped cessation services were seen more conspicuous among low and middle income countries as described by Abdullah and Husten, (32). The evidence from present study demonstrated as little as 9.0% of

the past year smokers used pharmacotherapy cessation aid, while only 4.4% attended counseling or advice by the professionals. The Quit smoking campaign was officially launched in 2004 in Malaysia. The cessation intervention was enhanced by the introduction of quit smoking services in both government and private healthcare facilities , the establishment of info-line, quit smoking clinic based in most of the health clinics and also the launch of mquit program initiated since 2015. Nevertheless, public might be unaware of the availability of the existing cessation services, following the impaired dissemination of health information especially among those with low educational level (33). Even after such information has been publicized, smokers tend to underestimate the risk and adverse health impacts of smoking compared to other causes of mortality and morbidity (34). Therefore, a more powerful and cost effective community based or population based Quit smoking interventions, need to be designed through multiple social structures. A comprehensive cessation intervention must include a combination of triple strategies as recommended by World Health Organization, namely the approach from the aspect of public health ,health system together with the surveillance, research and information (3).

Warn about the danger of smoking

The level of knowledge among the respondents about tobacco related diseases especially cardiorespiratory and cerebrovascular disease and also the health implications caused by SHS exposure were generally excellent (ranging from 80%-94%). The awareness on SHS exposure and the alertness on the anti-cigarette information at any location were noticeably higher among the group with higher educational attainment . The risk perception had been found to be influenced by various socioeconomic factors, such as education level and income status (35). Education was a strong and significant predictor on the level of knowledge and awareness. Brownson et al. discovered a lower knowledge about the health impacts of both smoking and passive smoking among the less-educated respondents while examining the socioeconomic differences in health beliefs about smoking (36). Moreover, the health behavior model (HBM) has been extensively applied as the theoretical predictors of individual preventive health actions. It is meaningful in evaluating and explaining individual differences in preventative health behavior (37, 38) . Moreover, HBM has been shown to be a good predictor for the belief and behavior in smoking (37). In present study, we postulate that socioeconomic status especially educational level has influential effect on various constructs in the HBM which includes perceived susceptibility, perceived benefits, perceived barriers perceived self-efficacy and cues to action, hence affect their belief , knowledge and the likelihood of taking recommended preventive action. Almost half (45.8%) of the smokers among our respondents were thinking of quitting in view of health warning on cigarette package.

Our figure was identical to that of reported in Turkey (46.3%) and Egypt (43.3%), higher than findings found in China (31.5%) and India (28.6%), however noticeably lower compared to Thailand (67.0%) and Vietnam (66.7%) (11). Health warnings have favourable effects on the knowledge, awareness and concerns about the harmful impacts of smoking therefore enhance the interest in quitting, at least within the short term (39). Malaysia first implemented graphic pictorial cigarette pack warning in 2009, with the text-only warning prior to that. Fathelrahman et al. demonstrated that the interest in quitting increased significantly among smokers who exposed to the pictorial health warnings, while examining the impacts of cigarette pack warning on the awareness of health risks and interest in quitting smoking. The effective health warning labels should be designed more effectively to increase the likelihood of smoking quitting although, when implementing with other enforcement strategies, may reduce tobacco consumption by increase smokers' thought about quitting as well as raise their alertness on the adverse health risks. Nevertheless, the thought about quitting smoking was influenced by multiple factors such as the baseline knowledge among smokers, tobacco addiction, level of interest in quitting and the social norms (40).

Enforce bans on tobacco advertising, promotion and sponsorship

About one third of the Malaysian adults still reported noticing cigarette advertisement, sponsorship or promotion. All forms of tobacco advertising, sponsorship and promotion are virtually prohibited since ever Malaysia became a Party to the WHO Framework Convention on Tobacco Control in 2005. Nevertheless, due to the lack of definition of "tobacco promotion" in Malaysian law, some forms of tobacco promotion may not be covered under the ban (Tobacco Control Laws Malaysia, 2017), resulting in the incomplete enforcement of the tobacco marketing restrictions. In comparison with those countries with the implementation of a complete ban on both direct and indirect tobacco advertising such as Thailand and Egypt, the exposure rates towards cigarette advertising, promotion and sponsorship were only reported at 17.8% and 13.6% respectively (11). Therefore the enactment of more stringent anti-tobacco legislation, as well as full implementation of total ban of advertisement should be introduced in view of literature had shown significant reduction of tobacco consumption by 7% up to 16% following comprehensive and complete ban alone (7).

Taxation on tobacco

Malaysian government has been implementing the strict tobacco tax and price measures over past one decade. The taxation system was rigidly maintained with steady increment over years to warrant a reduction in the demand towards tobacco products among Malaysian population. The policy intervention of tax increment holds an important value in encouraging smokers to

quit at the same time prevents smoking initiation among the youth (41, 42). In overall, Malaysian current tobacco taxes make up 41.7% up to 80% of the cigarettes' retail price depending on the various categories: the premium cigarette, "value to buy" cigarette and cigarette with "minimum price". Our figure were higher comparing to Russian Federation (37% tax) and China (36% tax) (11), where cigarette are still found very affordable in these countries. However, the WHO FCTC Best Practices which recommended the boost in tobacco tax to at least 75% of the retail prices to ensure an impactful quit rate typically among the low socio-economic populations (43). Therefore, Malaysia should raise countless efforts to strengthen and sustain the tobacco taxing strategy that fully complies with the Framework Convention on Tobacco Control towards success on tobacco control and prevention.

Several limitations had been encountered in this study. The nature of cross-sectional study design restricted the examination of cause and effect relationship. Besides, the use of self-reported survey data may induce biases from respondents due to the inaccurate recall. However, the sample size included in this study represented Malaysian adult population, therefore allowed for nationally representative estimates. The data collection procedure was also referred to the standardized global protocol and was conducted by trained interviewers utilizing personalized approach which facilitated a more trustworthy respond from the respondents.

CONCLUSION

In conclusion, Tobacco consumption remains prevalent and plateau among Malaysian adults over the last two decades despite the implementation of various anti-smoking policies and measures. This prevalence might potentially rise especially among the susceptible group as described in present study. These findings suggested that substantial actions are crucial in continuing the systematic monitoring of the tobacco consumption trend. Although the measures implemented have increased the reduction of sponsor activities related to tobacco, more comprehensive strategies must be adopted to prevent future increase in tobacco use at the same time to encourage quitting via the provision of effective cessation support.

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