

# Prevalence and Associated Factors of Smoking Among Male Undergraduate Students in International Islamic University Malaysia

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## ABSTRACT

**Objective:** The aims of this study were to determine the prevalence and associated factors of smoking among male undergraduate students in International Islamic University Malaysia. **Methods:** A cross-sectional survey was done on 552 samples of male undergraduate students of International Islamic University Malaysia, using a set of questionnaire and further verification of breath carbon monoxide (CO) level using PiCO Smokerlyzer was done. Questions concerned socio-demographic variables, religiosity level, and nicotine addiction level for smokers. Data entry and analysis were done using SPSS version 25 and were presented in descriptive statistics, chi-square, and logistic regression test results. **Results:** The overall prevalence of smokers was 12%. The most demanding reason for smoking was stress (47%) followed by peer pressure (31.8%). In multiple logistic regression, significant predictors of smoking in the model were study background ( $p = 0.020$ ) and religiosity level ( $p = 0.001$ ). **Conclusion:** The findings provide baseline data to develop a new cessation program to overcome smoking problem at the university level for future tobacco control strategy.

**Keywords:** Smoking prevalence, university students, carbon monoxide level, FTND, Malaysian youth

## 1. INTRODUCTION

Smoking is a major moral issue globally and has been linked to various kind of chronic diseases. Smoking-related diseases include cancer, lung diseases, heart diseases, erectile dysfunction, and others [1]. Not only had it affected the health of the smokers, secondary smokers' health are also being badly affected by the cigarette smoke. Tobacco use kills more than 7 million people each year where 6 million of those deaths are the result from direct cigarette smoking while around 890 000 are the result of non-smokers being exposed to second-hand smoke [2]. The negative effects of cigarette smoking are continuing to increase in developing country. Hence, it is crucial to take appropriate measure that will effectively tackle the issue.

There has been an increase in numbers of tobacco products used among adolescents and young adults

recently, especially the e-cigarettes. Nearly one in three young smokers will eventually die early from a tobacco-related disease nowadays [3]. This is a shocking figure that needs prompt actions to minimize the negative implications on our future generations.

In Malaysia, smoking cessation program is well established in clinical settings, as the health-care system is serious in handling this issue. However, smoking cessation program at the university level targeting the young adult smokers is not quite established yet as compared to the school level, where they have "Doktor Muda" program for smoking prevention program targeting adolescent smokers. This grants the need for the development of smoking cessation program targeting university students in Malaysia.

In order to develop a smoking cessation program specifically tailored to the university students (the

young adults' population), our study's aims are to determine the prevalence and associated factors of smoking among male undergraduate students in International Islamic University Malaysia (IIUM).

**2. METHOD**

**2.1. Research Design and Participants**

A cross-sectional study was conducted among 552 students from IIUM. Self-administered questionnaire were randomly distributed throughout the university male students and carbon monoxide (CO) breath level were taken upon completing the questionnaire. Data were collected between October 2019 and March 2020. The participants were recruited from a range of faculties including; Kulliyyah of Nursing, Kulliyyah of Medicine, Kulliyyah of Dentistry, Kulliyyah of Science, Kulliyyah of Allied Health Science, Kulliyyah of Pharmacy, and also a few programs in the Centre of Foundation Studies (CFS) including Engineering and Computer Sciences, Architecture and Environmental Design, Islamic Revealed Knowledge and Human Sciences, Education and Human Development, Economics and Management Science, Laws, Mass Communication, and Tourism Planning and Hospitality Management. These courses were later classified as health-based and non health-based courses to establish the base for knowledge background of the participants.

**2.2. Instruments**

The participants were given a set of questionnaires consisting of 3 parts that include; demographic data, religiosity level (IIUMReIS) by Diana et al., (2017), and nicotine addiction (FTND) level by Anne Yee H.A et al., (2011) for those who smoke [4&5]. The participants' breath CO level were also analysed by using the PiCO Smokerlyzer.

**2.3. Data Analysis**

The data was analysed using SPSS version 25. Descriptive statistics, Chi-square test, simple logistic regression, and multiple logistic regression test were used to analyse the data. Statistical significance level was  $p < 0.05$ .

**2.4. Data Analysis**

The survey was fully approved by the university's research ethic committee and informed consent was obtained from all of the participants prior to the data collection process. Participants were informed that the information collected will be kept confidential and their participations were totally voluntary.

**3. RESULTS**

Majority of the participants were Malay (96%) aged between 17 to 28 years with a mean of 18.98 ( $\pm 1.60$ ) years. Most of the participants are single (94.8%) while only 1.6% of them were married. Almost half of the participants (48.9%) have a normal body mass index (BMI), while the other 13.8% were underweight, and the rest were overweight (23.6%) and obese (13.8%). Half of the participants (51.1%) received a monthly allowance of RM 200 to RM 500 of range. A 40.2% of them received a monthly allowance of less than RM 200 while the rest 8.7% of them received more than RM 500 as their monthly allowance. More than half of the participants (59.1%) are studying in non-health and medical courses. Majority (88.6%) of the participants still have both of their parents, while 4.5% are living with their divorced parents, 6.7% have either deceased mom or dad, and only one ( $n = 1$ ) participant is an orphan. Majority of the participants (88%) are non-smokers while the other 12% ( $n = 66$ ) of them are smokers (refer to Table 1).

**Table 1** Socio-demographic Characteristics of the Respondents ( $n = 552$ )

Variables		Frequency (n)	Percentage (%)
Age	<20	438	79.3
	$\geq 20$	114	20.7
BMI	Underweight	76	13.8
	Normal	270	48.9
	Overweight	130	23.6
	Obese	76	13.8
Race	Malay	530	96.0
	Chinese	2	0.4
	Others	20	3.6
Marital Status	Single	543	98.4
	Married	9	1.6
Monthly Allowance	<RM 200	222	40.2
	RM 200-RM 500	282	51.1
	500	48	8.7
	>RM 500		
Faculty	Health &	226	40.9

	Medical Faculties	326	59.1
	Non-Health & Medical Faculties		
Parents' Status	Both present	489	88.6
	Divorced	25	4.5
	Deceased	37	6.7
	Mom or Dad Deceased	1	0.2
Smoking Status	Smokers	66	12.0
	Non-Smokers	486	88.0

The average age for smoking initiation was 15.88 years ( $\pm 1.77$ ). Initiation of tobacco smoking was found to be the highest during the age of 15 - 17 years old. Majority (47%) of the smokers reported that they start smoking due to personal reasons such as their own curiosity, due to stress, and following trend. A number of 21 (31.8%) participants reported to have started smoking due to social reason such as peer pressure, family influence, or influenced by social media, while 18.2% of the smokers reported to have started smoking due both personal and social reasons. Majority of the smokers have smoked for 3.77 years. Most of them are cigarette smokers (83.5%), 12.1% are vapers, and the rest 4.5% of them smoked both cigarettes and vape. The average number of cigarette smokes is 4.52 sticks per day while the expenditure for cigarette per week is RM 17.14. A 56.1% of the smokers reported to have quitting attempts with average numbers of quitting attempt of 1.7 times while 43.9% of them have never tried to quit previously. Majority (90.9%) of the participants had never used nicotine replacement therapy (NRT) before while only 9.1% ( $n = 6$ ) have tried using NRT in their previous quit attempt. The average breath CO level is 5.03. Majority (68.2%) of the participants have very low level of FTND. A 6.1% of them have high level of FTND while the rest scored moderate (9.1%) and low (16.7%) on their FTND. The participants' average marks for IIUMReIS is 23 marks out of 40 marks (Table 2).

**Table 2** Characteristics of Smokers among University Students (n=66)

Variables		Frequency (n)	Percentage (%)	Mean (sd)	Median
Age of smoking initiation (years)				15.88 (1.77)	16.00
Reason for smoking	Personal (curiosity, stress, trendy)	31	47.0		
	Social (peer pressure, family influence, media)	21	31.8		
	Others	2	3.0		
	Both Personal & Social	12	18.2		
Length of years of smoking (years)				3.77 (2.49)	3.00
Type of tobacco product smoked	Cigarettes	55	83.5		
	Vape	8	12.1		
	Both Cigarettes & Vape	3	4.5		
Average number of cigarettes smoked per day (stick)				4.52 (3.88)	4.00
Expenditure for cigarette per week (RM)				17.14 (15.28)	14.50
Quitting attempt (times)	Yes	37	56.1	1.70 (2.36)	1.00
	No	29	43.9		
NRT	Yes	6	9.1		
	No	60	90.9		
Breath CO level				5.03 (3.46)	4.00
FTND	Very low	45	68.2		
	Low	11	16.7		
	Moderate	6	9.1		
	High	4	6.1		
IIUMREIS				23.00 (11.57)	20.00

The final multiple logistic regression test (Table 3) showed that undergraduate university students who are in non health-based course have increase odds of smoking by 2.9 times than students who are in health-based course. Apart from that, undergraduate university students with higher IIUMReIS marks have decreased odds of smoking by 25% than students with lower IIUMReIS marks.

**Table 3** Predictors of Smoking among University Students from Multiple Logistic Regression analysis

Variables		Crude OR <sup>a</sup> (95% CI)	Adjusted OR <sup>b</sup> (95% CI)	Wald statistics <sup>b</sup> (df)	P value <sup>b</sup>
Course	Health-based	1.00	1.00		
	Non-health-based	3.54 (1.85, 6.79)	2.87 (1.18, 6.97)	5.45 (1)	0.020
IIUMReIS		0.79 (0.75, 0.84)	0.80 (0.75, 0.84)	66.17 (1)	0.001

OR= odd ratio, 95% CI= 95% confidence interval

<sup>a</sup>Simple logistic regression, <sup>b</sup>Multiple logistic regression

The model reasonably fits well. Model assumptions are met. There are no interaction and multicollinearity problems.

#### 4. DISCUSSION

The prevalence of smokers among undergraduate students was 12% which is quite similar with the current cigarette smoking prevalence among young adults (18 - 24 years of age) in the US [3]. Almost no one starts smoking after age 25. According to Surgeon General on Tobacco Prevention Among Youth (2012), nearly 9 out of 10 smokers started smoking by age 18, and progression from occasional to daily smoking almost always occurs by age 26 [6]. These figures showed that it is very crucial to cater the smoking problem at the university level in order to prevent the progression of the smoking problem in early adulthood.

Majority of them started smoking due to personal factors including stress, curious to smoke, and the thought that it is trendy to smoke. A Report on the Surgeon General also found the same associated factor very prominent in this age group smokers [3]. This could be happening when young people expect positive things from smoking, such as coping with stress better or losing weight, that they engaged themselves in this behaviour.

Apart from the personal factors, most of them reported to have initiated smoking due to social factors such as peer pressure, family influence, and influence from the mass media. Young people tend to be very influenced by their surroundings. The way mass media show smoking as a normal activity can make them curious and want to try it. Youth are more likely to smoke if their parent smoke or trying to fit in with their peers [3].

Study background and religiosity level seems to be strong predicting factors of smoking among the young adult population. Students with health-based study background (students may have better knowledge regarding the negative health effects of smoking and health benefits of not smoking), and higher religiosity level showed less association with smoking activity. The results are consistent with the Surgeon General Report of Preventing Tobacco Use Among Youth and Young Adults where they reported that some social and environmental factors such as; being part of a religious group, racial/ethnic pride and strong racial identity, and higher academic achievement are related to lower smoking activities among youth [3]. Apart from that, a few studies have shown that religiosity plays an important role in determining the smoking practices especially among university students [7,8,9,10].

#### 5. CONCLUSION

Since the prevalence of smokers among young adults are very prominent, this clearly warrant that cessation intervention need to be focused on young adults aged 18 - 25 too, apart from the adults and school aged smokers. Intervention should be focused on how to overcome the main reason that leads them to smoke in conjunction with the knowledge regarding health effects of smoking and advantages of early quitting, and also with addition of religious elements in the cessation program.

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#### REFERENCES

- [1] CDC. (2015). Your Guide to the 50th Anniversary Surgeon General's; Report on Smoking and Health.
- [2] WHO. (2017). WHO Report on the Global Tobacco Epidemic, 2017; Monitoring tobacco use and prevention policies.
- [3] U.S. Department of Health and Human Services. (2020). Smoking Cessation: A Report of the Surgeon General. <https://doi.org/10.1097/ju.0000000000001114>
- [4] Diana, N., Mahudin, M., Noor, N. M., Dzulkifli, M. A., & Shari, N. (2017). Religiosity among Muslims: A Scale Development and Validation Study Religiosity among Muslims: A Scale Development and Validation Study Religiusitas pada Muslim: Pengembangan Skala dan Validasi Studi. December 2016. <https://doi.org/10.7454/mssh.v20>
- [5] Anne Yee H.A, Ng CG &, & Rusdi AR. (2011). Validation of The Malay Version of Fagerstrom Test for Nicotine Dependence (FTND-M) Among a Group of Male Staffs in a University Hospital. *MJP Online Early*.
- [6] U.S. Department of Health and Human Services. (2012). Preventing Tobacco

Use Among Youth and Young Adults: A Report of the Surgeon General.

- [7] Aida Maziha, Z., Imran, A., Azlina, I., & Harmacy, M. Y. (2018). Randomized controlled trial on the effect of Al-Quran recitation vs counseling on smoking intensity among Muslim men who are trying to quit smoking. *Malaysian Family Physician*, 13(2), 19–25.
- [8] Aldwin, C. M., Park, C. L., Jeong, Y.-J., & Nath, R. (2014). Differing Pathways Between Religiousness, Spirituality, and Health: A Self-Regulation Perspective. 6(1), 9–21. <https://doi.org/10.1037/a0034416>
- [9] Elkalmi, R. M., Alkoudmani, R. M., Elsayed, T. M., Ahmad, A., & Khan, M. U. (2016). Effect of Religious Beliefs on the Smoking Behaviour of University Students: Quantitative Findings From Malaysia. *Journal of Religion and Health*, 55(6), 1869–1875. <https://doi.org/10.1007/s10943-015-0136-0>
- [10] Ismail, S., Abdul Rahman, H., Abidin, E. Z., Isha, A. S. N., Abu Bakar, S., Zulkifley, N. A., & Fuad, A. F. A. (2016). The effect of faith-based smoking cessation intervention during Ramadan among Malay smokers. *Qatar Medical Journal*, 2016(2), 1–10. <https://doi.org/10.5339/qmj.2016.16>