

# GENDER DIFFERENCES ON KNOWLEDGE, ATTITUDE AND PRACTICE (KAP) OF ABOUT SMOKING AND AWARENESS ABOUT GENERATION ENDGAME POLICY AMONG UNIVERSITY STUDENTS

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## ABSTRACT

Smoking among students seems to have increased, which threatens public health. Therefore, we should investigate the knowledge, attitudes, and practices associated with smoking habits. The new proposed legislation to ban smoking and the possession of tobacco and vape products for those born in 2005 or later is known as the Generational End Game (GEG). The study aims to compare males' and females' knowledge, attitudes, practices, and awareness about Generational Endgame (GEG) policies among university students. Methodology: The study is a cross-sectional study design that involved 104 UiTM Shah Alam students. The data were analysed using descriptive statistics and the Mann-Whitney test. Result: The mean for male and female knowledge scores were 16.91 (2.48) and 17.04 (1.86), attitude 4.11 (1.87) and 4.06 (1.79), and practice scores for male and female were 10.01 (3.65) and 11.09 (3.09), respectively. While gender differences in smoking knowledge and attitude are not significant, there is a significant difference in smoking practice across genders ( $p < 0.01$ ). This study also found that university students are less likely to be aware of the Generation Endgame Policy. Conclusion: This study found there is no significant difference in gender differences in knowledge and attitude about smoking and unfamiliarity with the GEG policy.

**Keywords:** *Generation Endgame, KAP to smoking, Gender differences, university students*

## INTRODUCTION

Smoking is the major controllable cause of the worsening of a healthy person's physiology. It is the main risk factor for several deadly diseases, including lung cancer, chronic respiratory diseases, and cardiovascular diseases. Smoking causes 8 million deaths annually worldwide (Marshall, Gartner, 2023). In Malaysia, a recent survey showed in 2019 that approximately 4.9 million (21.3%) adults  $\geq 15$  years were

current smokers. The prevalence was consistently higher in males (40.5–43.9%) compared to females (1.0–1.4%) and those aged 25–44 years (25.4–29.0%) (Fadhli et al., 2022). Recently, the smoking rate among Malaysian university students has been slightly higher compared to countries like Jordan and Australia, raising concerns and prompting proactive measures (Al-naggar et al., 2011).

In 2005, Malaysia became a signatory to the WHO Framework Convention on Tobacco Control (FCTC), a legally binding multilateral treaty aimed at reducing tobacco use and exposure to tobacco smoke. For its part, Malaysia has developed a National Strategic Plan on Tobacco Control 2015-2020 (NSPTC) to strengthen the implementation of tobacco controls in the country. The NSPTC has a medium-term target to reduce smoking prevalence to 15% by 2025, as well as a long-term target to achieve the “endgame” of tobacco in Malaysia by 2045.

The Generational End Game, which aims to ban smoking for anyone born after 2007, is viewed as a game-changer and may be the start of the first Malaysian generation for which it is illegal to smoke. General Endgame is a policy that basically prevents Malaysians who turn 17 in 2022 and those who are younger from ever being able to purchase tobacco products legally for the rest of their lives. The smoking endgame concept changes the focus of the conversation from current tobacco control to strategies for controlling the pandemic and imagining a world without tobacco products.

Parliament tabled the Tobacco Product and Smoking Control Bill for its first reading on July 27, 2022. This was the first time the Malaysian parliament read it. Since then, there have been many discussions on the pros and cons of the bill. The most discussed tobacco control measure in the bill is what is touted as the Generation End Game (GEG), which seeks to prevent an entire generation from consuming all tobacco products.

The public health experts considered GEG as one of the world’s toughest crackdowns on the tobacco industry and “an endgame” in the fight against tobacco; it will see the country effectively banning the sale of tobacco to anyone aged 14 and below. On the other side, the proposed law to ban tobacco sales to people born after 2005 may appear harsh on legal tobacco companies; economists point out that the government has long been firm on its position to discourage smoking. There has been extensive discussion about the impact and challenges of implementing the GEG (Thomas et al., 2013).

Anti-smoking policies significantly influence knowledge, attitudes, and practices (KAP) regarding smoking cessation. A study by Mohmad et al. (2022) shows that a smoke-free campus has a high level of knowledge about smoking. Knowledge, attitudes, and practices (KAP) regarding cigarette smoking play a crucial role in influencing smoking behaviors and guiding public health strategies. Knowledge refers to an individual’s understanding of the harmful effects of smoking, while attitudes encompass the beliefs and perceptions that can impact smoking behaviors. Practices, however, reflect tangible actions, such as attempts to quit smoking, involvement in anti-smoking initiatives, or compliance with smoke-free policies (Nur et al., 2024). Gender factors reveal that women often exhibit greater awareness and concern about smoking’s health impacts compared to men. Additionally, generational shifts indicate that younger populations are more receptive to anti-smoking messages, aligning with evolving societal norms against smoking and attitudes towards smoking policies (Lin et al., 2023). Effective campaigns must consider these dynamics to enhance their impact on diverse demographics.

In Malaysia, the pilot study by online public poll, supported by the Southeast Asia Tobacco Control Alliance (SEATCA), showed that more than 97 percent of 928 respondents were in favour of the GEG. The study also found that 89 percent of smokers and vapers also supported the GEG (Arumugam, 2022). The tobacco endgame remains a contentious public health policy. Given the above, it is clear that one of the efforts is to decrease smoking prevalence in Malaysia.

The study is expected to examine the knowledge, attitude, and practice of students toward smoking and their awareness of the Generation Endgame policy to achieve a smoke-free and healthier lifestyle for future generations.

## METHODOLOGY

The study employed a cross-sectional design with a purposive sampling method. This study has obtained the ethical approval from Faculty of Sport Science Ethical Research Review Committee (FERC/04/2023 (UG/MR/0179)). For sample size estimation, we referred to the Krejcie and Morgan table, which indicated that a total of 384 students should be involved; however, we managed to get only 104 students for the study time frame. For the survey, the questionnaire used included the following five sections: sociodemographic data, smoking status, awareness about GEG, knowledge, attitude, and practice of smoking policy as shown in Table 1. The knowledge level section consists of seven items. The attitude section posed six questions to the participants regarding smoking or anti-smoking behaviours, asking them to indicate whether they agreed, disagreed, or were unsure. The practice section consists of six questions with three rated scale (Yes, No, Don't Know). The questionnaires have been adopted from the Global Adult Tobacco Survey 2011 and Jankowski et al. (2021) and the practice questionnaires have been adapted from Hock et al. (2019).

**Table 1: Study questionnaires**

Variable	Questionnaires
Knowledge	Based on what you know or believe, does smoking tobacco cause serious illness? Based on what you know or believe, does smoking tobacco cause stroke (blood clots in the brain that may cause paralysis)? Based on what you know or believe, does smoking tobacco cause diabetes? Based on what you know or believe, does smoking tobacco cause heart attack? Based on what you know or believe, does smoking tobacco cause lung cancer? Do you think that some types of cigarettes (vape/ shisha) could be less harmful than other types? Do you think that all cigarettes equally harmful?
Attitude	Based on what you know or believe, does breathing other people's smoke cause heart disease in adults? Based on what you know or believe, does breathing other people's smoke cause lung illness in children? Based on what you know or believe, does breathing other people's smoke cause lung cancer in adults? During the past 30 days, did you visit any cafes, coffee shops, or tea houses? Did anyone smoke inside of any cafes, coffee shops, or tea houses that you visited in the past 30 days? Did anyone smoke on the grounds of any universities that you visited in the past 30 days?
Practise	Do you support the law that prohibits smoking in hospital? Do you support the law that prohibits smoking in universities? Do you support the law that prohibits smoking in schools? Do you support the law that prohibits smoking in workplaces? Do you support the law that prohibits smoking in restaurant? Do you support the law that prohibits smoking in indoor workplaces and public places?

## RESULTS AND DISCUSSION

A total of 104 respondents participated in this study. This study involved 61 male (58.7%) and 43 female (41.3%) participants. The majority of them were aged around 18-25 years old. This study was participated in by students of 11 faculties in UiTM Shah Alam. Most of them were sport science students (65.5%). Of 104, 99 were from degree programs and were non-smokers (77.9%). 83% of respondents were found to be unfamiliar with GEG, as shown in Table 2.

**Table 2: Sociodemographic of the participants and familiarity to GEG**

Gender	N(%)
Male	61(58.6)
Female	43(41.3)
Smoker	1(2.3)
Non-smokers	42(97.7)
Age (year)	
18-21	42 (40.4)
22-25	56 (53.6)
26-29	4(3.8)
>30	2(1.9)
Faculty	
Academic of contemporary Islamic studies	
Applied Sciences	9(8.7)
College of Engineering	
Communication and media study	2(1.9)
Computer Sciences and mathematics	6(5.8)
Faculty of hotel and Tourism	2 (1.9)
Faculty architecture, planning and surveying	
Faculty Art and Design	3(2.9)
Faculty of Law	
Faculty Business and management	1 (1.0)
Faculty of Sport Science and Recreation	
	4(3.8)
	1(1.0)
	3 (2.9)
	5(4.8)
	68 (65.5)
Ethnicity	
Malay	102(98.1)
Sabahan& Sarawakian	2 (1.9)
Current Program level	
Degree	99(95.5)
Diploma	4(3.8)
Master	1(1)
Smoking status	
Non-smokers	81(77.9)
Smokers	23(22.1)
Daily smokers	9 (39.1)
Social smokers	14(60.8)
Familiarity with GEG	
0 very unfamiliar	10(9.6)

1 unfamiliar	42 (40.4)
2 neutral	31(29.8)
3 familiar	16(15.4)
4 very familiar	5(4.8)

Table 3 demonstrates the mean and SD for knowledge, attitude and practise for male and female respectively.

**Table 3: Scoring for Knowledge, attitude and practice across gender**

Variables	Mean (SD)
Knowledge	
Male	16.91(2.48)
Female	17.04(1.86)
Attitude	
Male	4.11(1.89)
Female	4.06(1.79)
Practise	
Male	10.01(3.65)
female	11.09(3.09)

As Table 3 demonstrates, Mann Whitney-U test was used to determine whether Knowledge and attitude showed no a significant difference according to gender and significant difference was found in practise

**Table 3: Mann Whitney-U test result for comparing gender difference**

	Man Whitney (Sig.)	Mean rank	Sum rank
Knowledge			
Male	0.888	52.01	2236.50
Female		52.84	3223.50
Attitude			
Male	0.830	51.78	2226.50
Female		53.01	3233.50
Practise			
Male	0.017	58.80	2528.5
Female		48.06	2931.5

\*This study analysed using the Man Whitney test due to significant value of Levene Test ( $p < 0.05$ )

Male students know less about smoking than female students, according to this study. This might be due to Malaysian culture; females are unlikely to be smokers and more likely to support the smoke-free policy. It was supported by a previous study that found female respondents were less likely to become smokers because of their high awareness of the harm of smoking. This study has directly compared the males and females, but the previous study has compared smokers and non-smokers; however, female participants in this study were non-smokers (97.7%). This finding is similar to the previous study, which found no difference in knowledge between smokers and non-smokers (Alraeesi et al., 2020). Since UiTM Shah Alam is a smoke-free campus, the score of knowledge is high, as shown in the previous study (Mohmad et al., 2022). At least there were many signs around the campus to remind the students about the smoking prohibition.

Theoretically, the knowledge aspect should be high in both genders due to the digitalised era. Everybody can access information very easily. However, due to the variety of entertainment platforms, the government finds it difficult to place and promote the campaign or policy. Generally, they had good knowledge about smoking risks, but gaps persisted in understanding long-term health consequences like cardiovascular diseases (Nurul 'Izzati AH, Nor Azlina AR, Nor Iza AR, 2016).

Regarding attitude, males revealed a higher mean score than females, but it was insignificant. This is also similar to a previous study that found no difference in attitude between males and females (Alnasser et al., 2022), but the study found more prevalence of smoking in males compared to females. Social norms and peer influence significantly shaped attitudes, particularly among adolescents (Lin et al., 2023). The 2015 NHMS survey highlighted a 2.3% increase in smoking initiation among youth (15–24 years), linked to peer pressure and targeted tobacco marketing (Fadhli et al., 2022). The previous study found that attitudes indicated by 65% of respondents supported smoking bans in public spaces, but 30% perceived smoking as socially acceptable among peers (Nurul 'Izzati AH, Nor Azlina AR, Nor Iza AR, 2016).

For the practice aspect, socioeconomic factors strongly influence smoking behaviour. Middle-income groups had higher smoking rates, while low-income groups reduced tobacco use due to price hikes (e.g., excise tax increases) (Institute for Public Health [IPH], 2015). Additionally, educational attainment correlated negatively with smoking: individuals with tertiary education were 40% less likely to smoke, attributed to better health literacy and stress management skills (Lim et al., 2020). Smoking among women in Malaysia is still lower than men, probably due to the social norms of Malaysian society. However, recently, these societal norms are disappearing and women are starting to be exposed to smoking activities (Lim et al., 2025). This trend has been revealed by the National Health and Morbidity Survey 2019 compared to previous the report (IPH, Institute for Public Health Malaysia, 2019). Previous study also revealed that KAP might increase with policy enforcement (Quintana et al., 2019). Thus, rather than doing the anti-smoking campaign that is costly and has an unguaranteed impact, the enforcement and policy should be applied.

For awareness about GEG, this study found that most of the university students were not familiar with GEG policy. Thus, it indicates that this potential anti-smoking policy has less popularity among the young generation. Even if this is a draughted proposed policy, this indicates that our young generation is less sensitive to the current issue related to anti-smoking in this country. Indeed, the digitalised generation should be exposed to current issues very fast, but it did not happen with this issue. Most of the respondents perceived unfamiliarity might be due to most of the participants being non-smokers. The unfamiliarity with the policy might be due to multiple factors, as discussed in Durkin et al. (2022). However, it is limited to discussing this finding because of a lack of study on GEG in Malaysia.

The study has several limitations, such as the lack of sample size, thus affecting the variance and normality of the variables. Future studies should be conducted on a larger sample size. Second, the misunderstanding about the scientific terms used related to the effects of smoking might affect the study's findings. An unequal number of male and female participants is a limitation. Additionally, the spread of information about the Generation End Game (GEG) initiative within the community was limited, potentially affecting participants' awareness and responses

## **CONCLUSION**

There is no significant difference between male and female on Knowledge and Attitude toward implementation of anti-smoking policy. However, there is a significant difference on Practice toward anti-smoking policy.

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## CONFLICT OF INTREST

Please declare all authors of conflict of intrest

## AUTHORS CONTRIBUTIONS

NHR designed and wrote the manuscript, while NNSMS designed study, data collection and data analysis.

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