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## Knowledge, Attitude and Practices on Menstrual Hygiene Management among Female Students in Pahang Public Universities

**Abstract**— Menstrual hygiene management (MHM) is fundamental in women's reproductive life and must be well-maintained to prevent unwanted diseases or infections. Proper hygienic practices such as using sanitary pads and frequently changing pads during heavy flow are essential during menstruation. Objective: To assess the level of knowledge, attitude, practices, and period poverty of MHM among female students in Pahang public universities and the association with selected socio-demographic characteristics. Method: A cross-sectional study was conducted among 286 female students across three Pahang public universities: the International Islamic University Malaysia (Kuantan), Universiti Malaysia Pahang (Kuantan) and Universiti Teknologi MARA (Jengka). The questionnaires distributed consisted mainly of five parts: i) socio-demographic data, ii) level of knowledge, iii) attitude, iv) practice, and v) period poverty. Results: Most of the students have good knowledge (97.3%, 278), attitude (69.5%, 198) and practice (82.5%, 236) of MHM. Only 14.6% of students scored high on period poverty, indicating a low level of period poverty among these female students. In addition, it was indicated that the majority (85.4%, 244) of the female students did not struggle to afford menstrual products. Finally, there was a significant association between field of study (<0.001), race (0.020), and type of university (0.405), with knowledge and practice of MHM respectively. Conclusion: The knowledge, attitude, and practice of MHM among female students are adequate, although their attitude and practice on menstrual hygiene management need improvement in all aspects of menstrual hygiene for their future reproductive health. A minority of female students in the Pahang public universities struggled with period poverty and may need attention from the respective universities to overcome it.

**Keywords**— Period, menstrual hygiene management, female students, Pahang public universities

### 1 INTRODUCTION

Menstrual hygiene management (MHM) is a fundamental necessity for women globally. Knowledge of menstruation is crucial to women, especially women in their reproductive age as they need to maintain their health to prevent any unwanted reproductive diseases or infections such as urinary tract diseases (UTIs) or reproductive tract infections (RTIs) (1). However, factors such as financial issues, lack of education on menstruation and inadequate facilities known as period poverty, particularly in developing countries, may hinder a proper MHM. Women in that part of the world still have little knowledge about menstruation, and they do not have any access to sanitary products nor are they aware of the types and methods of absorbent materials as they are unable to afford such products in rural areas (2).

Period poverty is still common globally as there are approximately 713,000 girls who still have

difficulties in accessing a bathroom and shower, in contrast, over 4 million girls do not have access to fundamental supplies of menstrual care (3). Period poverty can lead to poor menstrual hygiene due to wearing pads for long hours or using improper absorbent material such as towels (4). Although menstruation is increasingly recognized worldwide as a relevant public health problem, there are still many gaps in the evidence for beneficial programs and policies to overcome period poverty (5). Moreover, it has traditionally been viewed from one perspective; the fact that it is due to the inability to purchase menstrual products because of financial constraints (6). Period poverty comprises the absence of sanitary products due to financial limitations and lack of knowledge and practice in period health education, including the basics of menstrual hygiene management (7). A lack of knowledge on managing menstrual waste can lead to the non-practice of environmental hygiene and tidiness.

Hence, it is essential to objectively assess the level of knowledge, attitude, practice, and period poverty of women in their reproductive ages, and female university students matched the criteria of suitable subjects to achieve the aim. The aims were to assess the level of knowledge, attitude, practices, and period poverty of MHM among female students in Pahang public universities and the association with selected socio-demographic characteristics. Moreover, no specific findings have been documented involving any universities in Malaysia about students' knowledge, attitude, and practices on MHM, as well as knowledge on period poverty, except for a study by Zamri and Raheema (1).

## 2 METHODOLOGY

### 2.1 Study Design

This cross-sectional study uses a questionnaire to assess the knowledge, attitude, and practice of menstrual hygiene management among female students in Pahang public universities. The inclusion criteria were undergraduate female students aged 18-26 years who studied in Pahang Public Universities and could read and understand English. Students who had never had menstruation and were taking matriculation, foundation studies, diploma or postgraduate studies were excluded. As Universiti Teknologi MARA in Pahang comprised of Jengka and Raub, only Jengka campus was included as the students in Raub only comprised of Diploma graduates which was excluded as it did not fit the inclusion criteria of this study.

### 2.2 Sampling Population

Simple random sampling (by referring to the Krejcie and Morgan table) was applied to determine the study population among female undergraduate students across three public universities in Pahang, Malaysia, namely the International Islamic University Malaysia (IIUM, Kuantan), Universiti Malaysia Pahang (UMP, Kuantan) and Universiti Teknologi MARA (Jengka). Data on the total population of undergraduate female students were requested from each respective university. The sample size was calculated by referring to the Krejcie and Morgan table (8). With a total number of populations of 7172, the sample size obtained was 364 students, with an expected 10% dropout of participants. Ethical approval was obtained from

the IIUM Research Ethical Committee (IREC) before the start of the study. In addition, written informed consent was obtained from all participants, and their details were kept and treated as strictly confidential.

### 2.3 Study instrument: Development of the Questionnaire

The questionnaires consisted of 20 items; 5, 5, 10 and 5 items on knowledge, attitude, practice, and period poverty domains respectively. The questionnaires were created using Google Forms, were adapted, and adopted from previous published studies (9), (10) and (11) with slight modifications.

### 2.4 Content Validation

Content validation was conducted as the questionnaire was adapted from previous studies to ensure that it fit with the objectives of this study. The completed questionnaires were reviewed by five panels of experts in the topic of MHM among Kulliyyah of Medicine and Kulliyyah of Allied Health Sciences lecturers who specialized in pathology and women's health. Essentially, three to ten experts are proposed to review the scale and items' readability, clarity and comprehensives and subsequently reach some level of agreement to generate a validated questionnaire (12). Feedback and suggestions were received, and amendments were made accordingly.

The ratings were based on the relevance of the item's degree to the respective domain, which is 1 = the item is not relevant, 2 = the item is somewhat relevant, 3 = the item is quite relevant, 4 = the item is highly relevant. The rating was then recoded to a score of 1 = for rating 3 and 4, and 0 = for rating 1 and 2. The total score expressed by the experts was divided with the number of experts to get the item-related content validity index, I-CVI value. The average of the I-CVI value was denoted as the S-CVI (scale-related item content validity index). Referring to the analysis in Table 1, the S-CVI value was > 0.9 for the scale of knowledge, attitude, and practice on MHM which signifies the compatibility of the items and scales to be used for the questionnaire (13).

With a sample size of 25, a pilot study was conducted for two weeks in the first week of March 2023, and the questionnaire was distributed to participants on social media sites such as WhatsApp, Instagram, and Telegram. Data collected from the pilot test was analyzed using

SPSS. Referring to Table 2, the Cronbach alpha test was used to measure the internal consistency of a test or scale, and values between 0.70 and 0.95 were accepted as ideal values of the relation in the questionnaire items (9). With a sample size of 25 respondents, the overall Cronbach alpha was 0.972, which is reliable and reasonable (15).

The values for the three domains (knowledge of MHM, attitude on MHM and practice on MHM) were 0.994, 0.934 and 0.990, respectively. Based on the validation, the questionnaires' reliability was acceptable; thus, they were utilized for data collection.

**Table 1:** The I-CVI and S-CVI values for the knowledge, attitude and practice of the questionnaire

Domain	Item No	Experts					I-CVI	S-CVI
		1	2	3	4	5		
Knowledge on MHM	1	1.00	1.00	1.00	1.00	1.00	1.00	1
	2	1.00	1.00	1.00	1.00	1.00	1.00	
	3	1.00	1.00	1.00	1.00	1.00	1.00	
	4	1.00	1.00	1.00	1.00	1.00	1.00	
	5	1.00	1.00	1.00	1.00	1.00	1.00	
Attitude on MHM	1	1.00	0.00	1.00	1.00	1.00	0.8	0.92
	2	1.00	1.00	1.00	1.00	1.00	1.00	
	3	1.00	0.00	1.00	1.00	1.00	0.8	
	4	1.00	1.00	1.00	1.00	1.00	1.00	
	5	1.00	1.00	1.00	1.00	1.00	1.00	
Practice on MHM	1	1.00	1.00	1.00	1.00	1.00	0.8	0.96
	2	1.00	1.00	0.00	1.00	1.00	0.8	
	3	0.00	1.00	0.00	1.00	1.00	0.8	
	4	1.00	1.00	1.00	1.00	1.00	1.00	
	5	1.00	1.00	1.00	1.00	1.00	1.00	
	6	1.00	1.00	1.00	1.00	1.00	1.00	
	7	1.00	1.00	1.00	1.00	1.00	1.00	
	8	1.00	1.00	1.00	1.00	1.00	1.00	
	9	1.00	1.00	1.00	1.00	1.00	1.00	
	10	1.00	1.00	1.00	1.00	1.00	1.00	
	11	1.00	1.00	1.00	1.00	1.00	1.00	
	12	1.00	1.00	1.00	1.00	1.00	1.00	
	13	1.00	1.00	1.00	1.00	1.00	1.00	
	14	1.00	1.00	1.00	1.00	1.00	1.00	
	15	1.00	1.00	1.00	1.00	1.00	1.00	

Note: I-CVI: Item-related content validity index, S-CVI: Scale-related content validity index

**Table 2:** Values of Cronbach's Alpha across three domains, N=25

Domain	Total no. of items	Cronbach's Alpha
Knowledge	5	0.994
Attitude	5	0.934
Practice	15	0.990
Average		0.972

2.5 Data Collection

Data were analyzed using IBM SPSS Statistics (Version 26) (14). The level of knowledge, attitude, and practices of female students regarding menstrual hygiene management and period poverty among female students in Pahang public universities were evaluated using descriptive statistics by determining the score of knowledge, attitude, practice, and period poverty on MHM. The

scores were analysed and tabulated in frequency and percentages (%) format. A statistical analysis was carried out to find the association between knowledge, attitude, and practices regarding menstrual hygiene with the selected socio-demographic characteristics of female students in Pahang public universities. Pearson correlation was used to find the association between age and year of study, whereas the Chi-Square test was used to find the association between race and field of study. On the other hand, Kruskal-Wallis was used to determine the association between household income and type of university.

Before performing the test, requirements such as normality testing and assumptions were checked. The value was considered significant when  $p < 0.05$ .

### 3 RESULTS

The questionnaires were distributed personally to the female students at three public universities in Pahang. Most female students (57, 19.9%) were 22 years of age, as shown in Table 3. Meanwhile, the others were third-year students (36, 26.6%), followed by respondents from other years of study. Most respondents were female students from the International Islamic University Malaysia (203, 71.0%), and most were Malays (255, 89.2%). On the other hand, most of the respondents were majoring in science (246, 86%). In terms of the household income, most female students were from the Bottom 40 income group (127, 44.4%) (Table 3).

**Table 3:** Sociodemographic characteristics of the female students (N=286)

Characteristics	n (%)
<b>Age</b>	
18 - 21	105 (36.6)
22 - 26	181 (63.3)
<b>Year of Study</b>	
First	53 (18.5)
Second	54 (18.9)
Third	76 (26.6)
Fourth	75 (26.2)
Fifth	28 (9.8)
<b>University</b>	
IIUM	203 (71.0)
UMP	66 (23.1)
UiTM	17 (5.9)
<b>Race</b>	
Malay	255 (89.2)
Non-Malay	31 (10.8)
<b>Field of study</b>	
Science	246 (86.0)
Non-Science	40 (14.0)
<b>Household income</b>	
B40	127 (44.4)
M40	119 (41.6)
T20	40 (14.0)

Table 4 illustrates the source of information on menstruation in which the highest source was from sisters/relatives (144, 50.3%), followed by others (57, 19.9%) and mothers (39, 13.6%). The female students' responses to the knowledge on MHM were summarised in Table 5. Most students responded correctly, in which the majority (269, 94.1%) of them know that "Menstruation is a natural shedding of blood monthly". Majority (209, 73.1%) of them answered correctly as "No" to the question asked whether "Menstruation is a monthly disease".

**Table 4:** The source of information on menstruation among female students (N=286)

Source of information	n (%)
Mothers	39 (13.6)
Relatives/Sisters	144 (50.3)
Teachers	11 (3.8)
Friends	35 (12.2)
Others	57 (19.9)

The female students' responses to the attitude on MHM were summarised in Table 6. Most students answered the questions correctly, and the majority (95.1%) know they "should replace sanitary pads every 4-6 hours during heavy flow". On the other hand, most of the female students (242, 84.6%) used sanitary pads spent below RM20 on absorbent materials (272, 50.3%) and changed their pads more than twice a day (43.7%).

As for their methods of sanitary pad disposal, only 44.1% of them practised "wash, wrap and dispose of sanitary pads in the sanitary bin" (Table 7). Table 8 summarises the students' responses to the practice on MHM. The majority (244, 85.3%) of the female students answered yes to the question, "Do you always wrap sanitary pads with paper or plastic before disposal?".

**Table 5:** Responses to the questions related to knowledge of MHM (N=286)

Questions	True, n (%)	False, n (%)	Do not know, n (%)
Menstruation is a monthly disease.	48 (16.8)	*209 (73.1)	29 (10.1)
Menstruation is a natural shedding of blood monthly.	*269 (94.1)	6 (2.1)	11 (3.8)
Menstruation is caused by hormones.	*268 (93.7)	7 (2.4)	11 (3.8)
Menstrual blood comes from the uterus.	*257 (89.9)	2 (0.7)	27 (9.4)
The normal menstrual cycle is every 28 days.	*262 (91.6)	2 (0.7)	22 (7.7)

\*Correct response

**Table 6:** Responses to the questions related to attitude of MHM (N=286)

Questions	Agree, n (%)	Disagree, n (%)
I think hands should be washed before cleaning the genitals.	*269 (94.1)	17 (6.9)
I think changing underwear during menses once a day is enough.	78 (27.3)	*208 (72.7)
I think there is no need to replace sanitary pads after urinating and defecating.	134 (46.9)	*152 (53.1)
I think I should replace sanitary pads every 4-6 hours during heavy flow.	*272 (95.1)	14 (4.9)
I believe the use of sanitary pads must not be wrapped in paper or plastic before disposal.	62 (21.7)	*224 (78.3)

\*Positive response

**Table 7:** Responses to the questions related to the information of practice on MHM (N=286)

Questions	n (%)
<b>Absorbent materials</b>	
Sanitary pads	242 (84.6)
Tampon	19 (6.6)
Menstrual cups	19 (6.6)
Reusable sanitary pads	6 (2.1)
<b>Money spent on menstrual absorbent</b>	
Below RM20	144 (50.3)
Between RM20 – RM50	134 (46.9)
Above RM50	125 (43.5)
<b>Frequency of changing pads</b>	
Once	24 (8.4)
Twice	137 (57.9)
More than twice	125 (43.7)
<b>Methods of sanitary pads disposal</b>	
Dispose in the sanitary bin*	151 (52.8)
Wash it *	4 (1.4)
Flash it in the toilet*	1 (0.3)
Wash it, dispose it in the sanitary bin*	4 (1.4)
Wash it, wrap it, dispose in the sanitary bin**	126 (44.1)

\*\*1 mark is awarded

\*0 mark is awarded

**Table 8:** Responses to the questions related to practice on MHM (N=286)

Questions	Yes, n (%)	No, n (%)
Do you wash your hands with soap before using sanitary pads?	185 (64.7)	*101 (35.3)
Do you replace the pads every 4-6 hours even though the menstrual blood has decreased?	126 (44.1)	160 (55.9)
Do you replace the pads after urinating and defecating?	160 (55.9)	126 (44.1)
Do you take baths frequently during menstruation?	200 (69.9)	86 (30.1)
Do you wash the used sanitary pads before disposal?	197 (68.9)	89 (31.1)
Do you always wrap sanitary pads with paper or plastic before disposal?	244 (85.3)	42 (14.7)

Table 9 illustrates the categories of knowledge, attitude, practice, and period poverty scores on MHM by respondents. The minimum and maximum scores related to knowledge of MHM consists of 1 to 5, respectively, which indicates whether it is poor (1-2) or good (3- 5). Based on the table, most (278, 97.3%) students have a good knowledge of MHM. As for the attitude, respondents' categories of attitude scores on MHM consisted of 1 to 5, predicting whether their attitude is negative (1-3) or positive (4-5). Based on the table, most of them (198, 69.5%) have a positive attitude towards MHM.

**Table 9:** The total scores on knowledge, attitude, practice and period poverty on MHM (N=286)

	Mean	Std. Deviation	N
Knowledge	4.4266	0.81641	286
Attitude	3.9336	1.03913	286
Practice	6.7413	1.68882	286
Period Poverty	1.9161	1.34293	286

On the other hand, the categories of practice scores on MHM by respondents consisted of 0 to 7, which predict whether their practice is good (4-7) or bad (0-3), and based on the table, most of them (236, 82.5%) have good practice on MHM. The minimum and maximum scores related to period poverty were 0 and 5, respectively, indicating whether it is a low (0-3) or high (4-5) period poverty. Only minority female students scored high (42, 14.6%), indicating low level of



period poverty. In addition, the majority (218, 76.2 %) of the female students answered 'No', suggesting they do not struggle to afford menstrual products (Table 10).

Finally, it was noted that there was a significant association between age and university, as well as race and type of university, with knowledge and practice of MHM, respectively as shown in Table 11 and 12.

**Table 10:** Responses to the questions related to practice on MHM (N=286)

Questions	Yes, n (%)	No, n (%)
In the past 12 months have you struggled to afford menstrual products (such as sanitary pads or tampons)?	68(23.8)	218 (76.2)
If yes, do you struggle to afford menstrual products every month?	21 (7.3)	265(92.7)
Have you ever borrowed a menstrual product from someone? (e.g., friends, stranger)	189 (66.1)	97 (33.1)
Have you ever had to go without menstrual products?	67 (23.4)	219 (76.6)
Do you find menstrual products expensive?	203 (71.0)	83 (29.0)

**Table 11:** Correlation between knowledge, attitude and practice on MHM using Chi-Square test, (N=286)

Variables	Demographics	p-value	df
Knowledge	Field of study	<0.001	8
	Race	0.020	4
Attitude	Field of study	<0.001	8
	Race	0.004	7
Practice	Field of study	<0.001	14

**Table 12:** Correlations between university with attitude of female students on MHM using the One-Way ANOVA test, (N=286)

Variables	Demographics	N	Mean rank	SD	F-stats (df)	p
Attitude	IIUM	203	143.86	1.68	2.863 (2)	0.024
	UMP	66	137.00	8		
	UiTM	17	137.00			

## 4 DISCUSSION

### 4.1 Knowledge of MHM among Female Pahang Public University Students

In this study, it is noted that the female students have a good level of knowledge of MHM (278, 97.3%), which is slightly higher than reported in the previous study (1). This study found that 90.6% (163) of nursing students in IIUM Kuantan have good knowledge regarding MHM. This could be due to the differences in the year of study and the field of study, as this study consists of more science courses rather than non-science course students. Hence, they may be more knowledgeable and well-informed regarding the aspects of menstruation. However, a considerable number of students are still lacking in knowledge on certain parts of menstruation aspects in which 2.4% and 3.8% answered "No" and "Do not know", respectively for the questions regarding the causes of menstruation. As for the source of menstruation, 50.3% and 13.6% comes from relatives/sisters and mother, respectively. This differs from a previous study (11), who reported that the highest source of information on menstruation among female universities in Bhutan were teachers rather than mothers.

### 4.2 Knowledge of MHM among Female Pahang Public University Students

Regarding the attitude toward MHM, most female students (198, 69.5%) show a positive level of mentality on MHM. The reason may be due to the students' differences in race or age whereby some cultures or religion may influence their attitude on MHM. Meanwhile, students from years 1 and 2 may not be as experienced as those years 3 and above, in which they may be more particular about menstruation hygiene.

However, the students (134, 46.9%) agree that there is no need to replace sanitary pads after urinating and defecating. This is quite similar to the findings of a study done in Surabaya (9), which stated that 44.9% of students agreed with the statement. This is quite a concern as this may affect the health and hygiene of the students when not frequently changing sanitary pads after urinating or defecating as it can lead to infection, such as yeast infection. Most respondents (269, 94.1%) agree that hands should be washed before the replacement of sanitary pads. This finding is surprisingly high in comparison to previous studies done among female university students in Korea,

whereby a study reported that 26.6% performed hand washing before replacing the pads (16).

#### 4.3 Practice on MHM among Female Pahang Public University Students

Based on the study results, 82.5% (236) of female students have a good level of practice which is higher compared to the study conducted by Zamri and Raheema (1) that stated 74.6% of their nursing students have good practice on MHM. In terms of absorbent materials, most students (242, 84.6%) used sanitary pads, followed by menstrual cups (19.6, 6.6%) and tampons (19, 6.6%). These findings align with the study, which reported that the proportion of the usage of sanitary napkins by the women population is 88% in Malaysia. However, this finding does not represent the population of Pahang, hence further study is required. Another 6 or 2.1% of students used reusable sanitary pads. These variations of absorbent materials used could be due to the personal preferences of the individual, brand availability or financial status of the student.

The frequency of changing pads more than twice is 43.7% (125), whereas 57.9% (137) changed twice. Respondents were also asked if the pad is replaced every 4-6 hours even though the menstrual blood has decreased, some (55.9%, 126) answered "No". This is quite concerning as pads are supposed to be replaced every 4-6 hours to avoid any unpleasant odour or yeast infections. However, the reason may also be the difference in the menstrual flow perceived by the individuals; some may define heavy flow as light flow and vice versa. Not only that, the size and length of the sanitary pads may also be a factor as the longer length has higher absorption; hence more blood is being absorbed compared to the shorter ones. Most of them (68.9%, 197) washed their used sanitary pads before disposal. This is similar to a study which illustrated that 71.8% of students in Surabaya College washed the used sanitary pads before disposal (8). This could be because most of the study's students were Malays and Muslims, which may portray a similar practice of washing the pads prior to disposal. Moreover, 69.9% (200) of the respondents frequently take baths during menstruation. This finding is surprisingly low compared to a previous study by Kim & Choi (16) in which 96.3% of the female students reported taking showers. This needs to be improved as bathing is significant during menstruation as it represents the maintenance of body cleanliness,

menstrual pain relief and ballottement (16).

#### 4.4 Knowledge Regarding Menstrual Hygiene Management

Based on the study, there is no association between knowledge with year of study, race, household income and field of study. In the context of the year of study, the current result contradicts the results with the previous study, which showed that university students from higher levels of study year such years 3 and 4, are shown to be more knowledgeable in MHM (15).

However, knowledge is associated with age and type of university. Regarding age, a similar finding was found in the study among college students in Bhutan (11). This outcome may be influenced by increased exposure and experience in menstruation as they age. Hence, students in Year 3 and above are more informed than Year 1 and 2 students. As for household income, the ones that are in higher socioeconomic status may have more exposure or education about MHM at an early age which the guardians may provide.

#### 4.5 Attitude Regarding Menstrual Hygiene Management

The study shows no association between attitude with age, year of study, race, and household income. However, there is an association between attitude with the field of study and university. This finding is similar to a study conducted in India among non- medical and medical undergraduate students (18). These two demographic factors are quite related as the students consist of different courses of study and university, which may influence their attitude. For example, those who are taking science are more conscious of their MHM as these students are aware of the consequences of the MHM if it is not well taken care of, which can lead to various health issues such as infections.

#### 4.6 Practice Regarding Menstrual Hygiene Management

Based on the study, practice is not associated with age, year of study, household income and university. However, there is an association between practice and race and field of study. Regarding race, as the study focuses on Malay and non-Malay, it may vary in terms of the students' culture, religion, and lifestyle, which may influence their practice of MHM. As mentioned by previous study (19), MHM can vary from within countries and individuals, which may be due to

their cultural beliefs, local traditions, and individual preferences. For the field of study, it may be impactful as non-science students may not be as aware or well-informed on the consequences of the practice of MHM due to their knowledge of certain courses or subjects that they have taken.

#### 4.7 Period Poverty

Based on the analysis of the study, 14.6% (42) students face high period poverty. This information is quite relevant as it shows the presence of students in the universities who are quietly suffering from period poverty. This is consistent with what has been found in previous study (10), which reported that 14.2% of college students in the United States had experienced period poverty. Among the questions asked, 23.4% (67) stated yes if they ever had to go without menstrual products, and 23% (68) responded yes as they have struggled to afford them in the past 12 months.

## 5 CONCLUSION

In a nutshell, this study achieved its objectives, which were aimed to assess the level of knowledge, attitude, practices, and period poverty of female students in Pahang public universities about MHM and to observe the association between them with the selected socio-demographic characteristics. On average, the knowledge, attitude, and practice at MHM is adequate. The current findings reflect the good practices of students, such as frequency of changing sanitary pads, wrapping them, and washing hands before changing pads and others. However, their attitude and practice require improving all aspects of menstrual hygiene. There is also an association between some selected socio-demographic data such as age with knowledge, field of study and race with attitude and menstrual hygiene practices. However, no association was observed in years of study with all three knowledge, philosophy, and practice on MHM.

Despite the small number of levels of period poverty obtained in the study, it can be quite a concern as certain female students in the Pahang public universities are struggling with period poverty issues such as affording sanitary pads in the past 12 months. Each respective university, such as the management and academic staff, should take note of this matter to come up with effective means to identify those students in need

and offer them a hand, such as free distribution of sanitary pads by the university. Universities may also collaborate with external parties such as government agencies, non-government organisations and private corporate companies to initiate corporate social responsibility (CSR) projects to aid needy female students. Improvements or initiatives can be made, such as raising awareness or campaigns on the aspect of MHM. Not only that, but a respective university may also invite an expert, such as a physician or an activist on menstrual hygiene, to share a talk on MHM with the university students.

Overall, the findings of this study supply significant information on the knowledge, attitude, practice, and period poverty on MHM among female students in Pahang public universities. Nevertheless, further study is recommended, especially on the aspect of period poverty at a larger scale, in order to identify other instances.

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