



Survey on Awareness and Knowledge Towards Pelvic Floor Muscles Exercises Among Female University Students

Nur Afifah Asri

Department of Physical Rehabilitation Sciences,
Kulliyah of Allied Health Sciences,
International Islamic University Malaysia,
Bandar Indera Mahkota,
25200 Kuantan, Pahang
epah100898@gmail.com

*Siti Salwana Kamsan, PhD

Department of Physical Rehabilitation Sciences,
Kulliyah of Allied Health Sciences,
International Islamic University Malaysia,
Bandar Indera Mahkota,
25200 Kuantan, Pahang
sitalwana@iium.edu.my

*Corresponding author: Siti Salwana Kamsan,
sitalwana@iium.edu.my

Article History:

Received on July 14, 2022

Accepted on November 4, 2022

Published on Jan 9, 2023

Abstract:

Pelvic floor muscle exercises (PFME) has been highlighted as one of the core components in managing pelvic floor dysfunction (PFD). As the incidence of PFD is reported to be high in the female population, it is still crucial to ensure that this population has adequate awareness and knowledge about PFME. To date, published studies on awareness and knowledge about PFME have focused on women who have a history of giving birth. Hence, this study aimed to determine the awareness and knowledge about PFME among nulliparous women, specifically students in IIUM Kuantan and to examine the association between awareness and knowledge of PFME among this population. A cross-sectional online survey was conducted. The questionnaires on awareness and knowledge of PFME used in this study were adopted from previous studies. 133 respondents with a mean age of 22.19 (± 1.21) years participated in this study. Descriptive statistics was used to analyze the awareness and knowledge of PFME, while the Chi-square test was used to examine the association between variables. The findings indicated that less than 50% of the respondents were aware and had knowledge of PFME, 48.1% and 42.9%, respectively. The awareness and knowledge of PFME were found to be statistically associated ($p < 0.001$), in which respondents who were aware of PFME also had knowledge of PFME. These results suggest a need to strategize a health education programme for PFME that is accessible to a diverse female population.

Keywords: Knowledge, awareness, pelvic floor muscles exercises, nulliparous women

Introduction:

Pelvic floor dysfunction (PFD) is considered one of the most common burdensome gynaecological disorders that impair body functions and disturb daily living. It occurs when the pelvic floor muscles are neglected or injured, resulting in obstructive micturition, incontinence, pelvic pain, pelvic organ prolapse, and sexual dysfunction (Berzuk & Shay, 2015; Fante et al., 2019). These conditions have significant impacts on individuals' health and well-being.

The incidence of PFD is common in women (Dieter et al., 2015). A recent study revealed that around 10% to 30% of women suffered from PFD (Islam et al., 2019). It may affect this population at any age, as early as 13 to 19 (Rebullido et al., 2021; Arbuckle et al., 2018; Parden et al., 2016). Among young women below 30 years old, urinary incontinence was the most prevalent type of PFD, followed by pelvic organ prolapse, 31.5% and 1%, respectively (Arbuckle et al., 2018). This figure was found to be high among young women who play



professional sports (Rebullido et al., 2021; Teixeira et al., 2018).

Materials and Methods:

Study design

A cross-sectional study was conducted among female students enrolled in IIUM Kuantan Pahang. This study was conducted from March 2021 to May 2022.

Sampling

A convenience sampling method was employed to recruit the participants. The female students of the IIUM Kuantan campus were invited to participate in the survey. The inclusion criteria of this study were ages between 18 to 30 years old, have never been diagnosed with PFD, and have never given birth.

The sample size was calculated using a single proportion formula, with a confidence level of 95% and an expected proportion of 27.9% (Temtanakitpaisan et al., 2020). 10% of the non-response rate was included, which indicated that 133 participants were required for the survey.

Data collection

Data was collected through an online survey using a Google Form. All information about the study and instructions to complete the questionnaire were provided with the questionnaire. Participants were required to fill up an informed consent form attached to the questionnaire before completing the questionnaire. All participants were asked to answer all the questions without referring to any source of information related to PFME to obtain honest responses. Those who submitted a complete response were provided with an infographic pamphlet regarding PFME. It was to appreciate them for participating in the study and as a strategy to obtain the required ample size.

The data was collected using a self-reported questionnaire. The questionnaire consisted of three sections. The first section was demographic data, followed by an awareness of PFME with four

questions and knowledge of PFME comprising eight questions. Questions related to awareness of PFME were extracted from a study done by Hill et al. (2017), while questions related to knowledge of PFME were drawn from a previous study by Temtanakitpaisan et al. (2020). The properties of the questionnaires were evaluated sufficiently in previous studies (Temtanakitpaisan et al., 2020; Hill et al., 2017).

In the awareness questionnaire, those who answered "Yes" to the first question proceeded to complete all questions regarding the awareness of PFME. The remaining questions were YES / NO questions and one best-answer question. The researcher then calculated the frequency of each response. While in the knowledge questionnaire, participants who answered "Yes" to the first question proceeded to answer the remaining questions related to knowledge of PFME. The remaining questions were multiple choices questions where the participants had to identify the correct answer for each question. The researcher calculated the frequency of questions with a correct answer in each section.

Data Analysis

Descriptive statistics were used to analyse the demographic data, awareness, and knowledge of PFME. The Chi-square test was used to examine the association between awareness and knowledge. A *p*-value of less than 0.05 was considered statistically significant.

Ethical Consideration

Ethical approval of this study was granted by Kulliyah Postgraduate and Research Committee (KPGRC; No. 4/2021). Participants' information and responses were kept confidential and only used for research purposes.

Results:

A total of 133 respondents participated in the survey. The mean age of participants was 22.19 (± 1.21) years, with 90% of them aged 20 to 26 years old (Figure 1). Of these, 99.2% were Malay, while 1% were Chinese. Respondents' level of study was varied. 99% of respondents were undergraduate students, and the remaining 1% were postgraduate students (Figure 3).

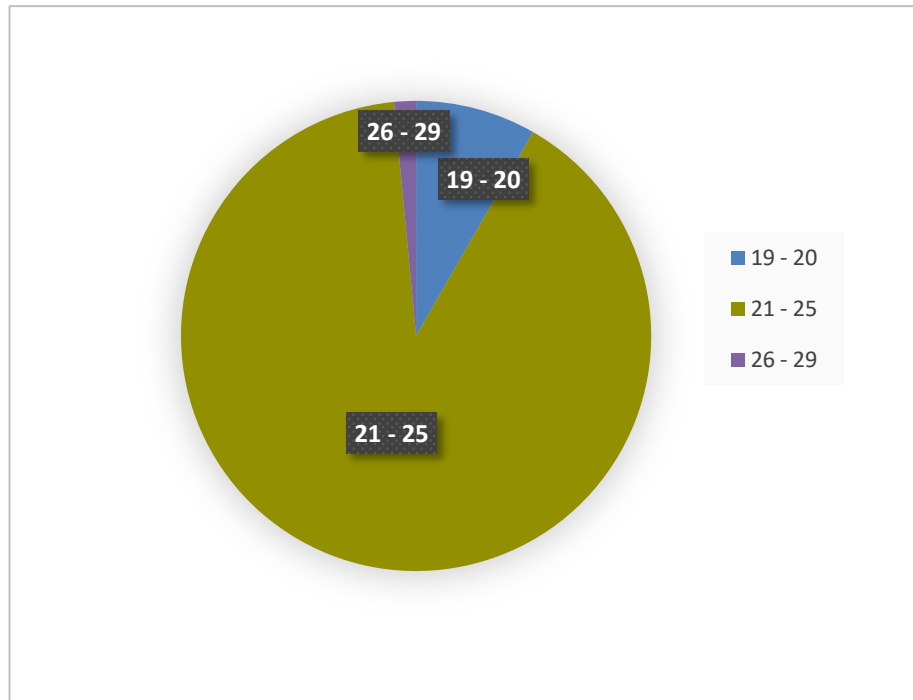


Figure 1: Age of respondents

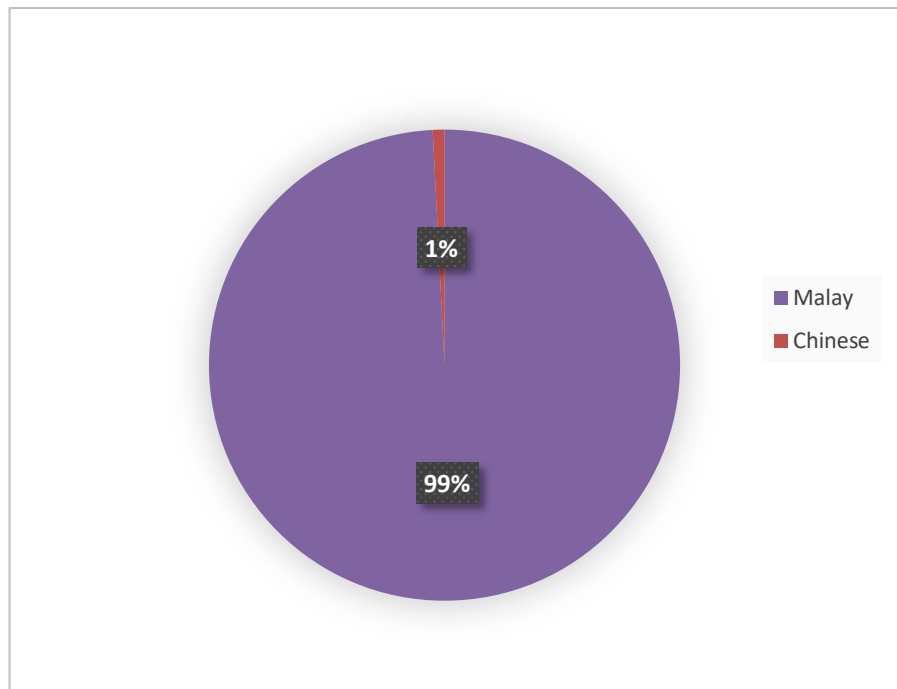


Figure 2: Race

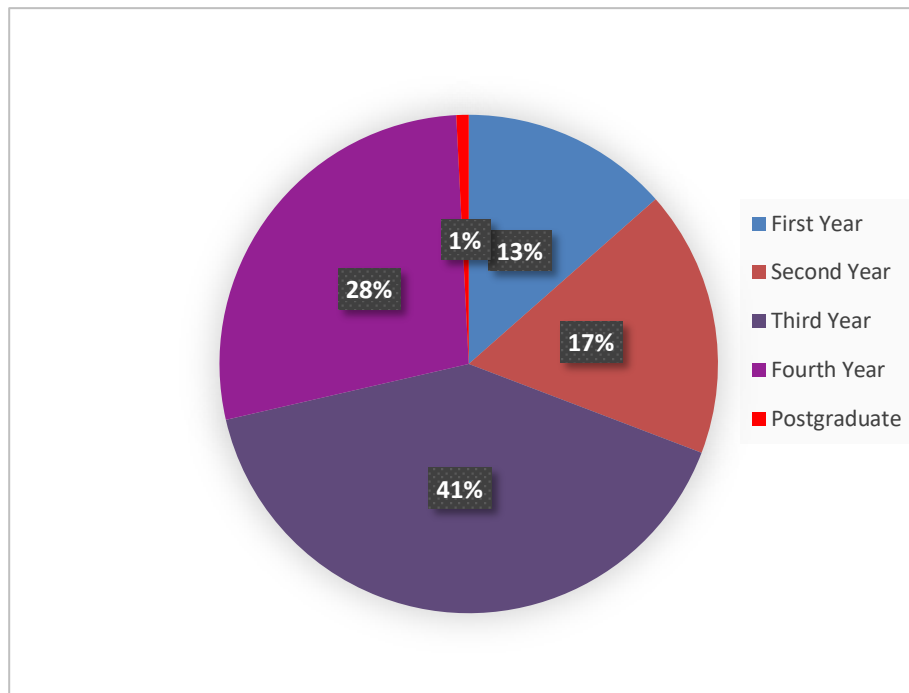


Figure 3: Year of study

Awareness and knowledge of pelvic floor muscles exercises

The results revealed that less than half of the respondents had answered "Yes" to the first question in the awareness section. Among those who were aware of PFME, 76.6% acknowledged that PFME is related to pelvic health, 14.1% were familiar with PFME, and 7.8% were aware of treatments provided in pelvic floor rehabilitation. 39.1% of the respondents had answered 'Yes' for all questions in this section, indicating that most respondents were not completely aware of PFME. Regarding the factors of low level of awareness, lack of exposure to PFME was found to be the leading cause (71.9%), followed by the negligence of the participants to know about PFME (15.6%). Surprisingly, PFME was also considered taboo to some respondents (12.5%). The responses are displayed in Table 1.

As for knowledge of PFME, less than 50% of the respondents answered 'Yes' for the first question in the knowledge section (Table 2). Out of 57 respondents who answered 'Yes', 15.8% of them managed to recognize the pelvic floor muscles, 21.1% acknowledged the breathing technique when performing PFME, 17.5% had knowledge of the PFME techniques, 38.6% were able to determine the

appropriate posture for PFME, 45.6% and 31.6% understood the advantages and disadvantages of PFME. In addition, 64.9% understood that PFME is safe during pregnancy. The frequency of respondents who could answer all the questions correctly was low, only 33.6%. In this study, the respondents claimed that the health providers was the primary source of knowledge for PFME, followed by media, 50.9% and 35.1%, respectively.

Association between knowledge and awareness of pelvic floor muscles exercises

A Chi-square test of independence was used to determine the association between awareness of PFME and knowledge of PFME. All relevant assumptions for the Chi-square test were met. As portrayed in Table 3, this study found a statistically significant association between awareness and knowledge of PFME ($p \leq 0.001$). This finding implied that most of the respondents who were aware of PFME had knowledge of PFME.

Table 1 Awareness of PFME among respondents who possessed an awareness of PFME (N= 64)

Awareness on PFME	n (%)	
	Yes	No
Are you aware that PFME is included in the scope of practice in pelvic health?	49 (76.6)	15 (23.4)
Are you familiar with PFME?	9 (14.1)	55 (85.9)
Are you aware of these treatments in pelvic floor rehabilitation?	5 (7.8)	59 (92.2)
Factors of low awareness of PFME		
Lack of exposure to PFME	46 (71.9)	-
Negligence by the participants	10 (15.6)	-
Perception of taboo	8 (12.5)	-

Note: PFME = Pelvic floor muscles exercise.

Table 2 Knowledge of PFME among respondents who possessed had knowledge of PFME (n= 57)

Questions on Knowledge of PFME	n (%)	
	Correct answer	Incorrect answer
Which area of muscles do you think involves in exercising the pelvic floor muscles?	9 (15.8)	48 (84.2)
When exercising the pelvic floor muscles, how should you breathe?	12 (21.1)	45 (78.9)
While exercising the pelvic floor muscles, do you think you should contract your abdominal muscles together?	10 (17.5)	47 (82.5)
What is the proper posture while exercising the pelvic floor muscles?	22 (38.6)	35 (61.4)
The benefit of exercising the pelvic floor muscles is	26 (45.6)	31 (54.4)
The disadvantage of exercising the pelvic floor muscles is	18 (31.6)	39 (68.4)
Can pregnant women exercise the pelvic floor muscles?	37 (64.9)	20 (35.1)
Source of information on PFE		
Family members	3 (5.2)	-
Friends	5 (8.8)	-
Healthcare providers	29 (50.9)	-
Media outside hospital	20 (35.1)	-

PFME = Pelvic floor muscles exercise

Table 3 Association between knowledge and awareness of PFME

Awareness on PFME	Knowledge of PFME		X ²	df	p-value
	Yes (%)	No (%)			
Yes	50 (78.1)	14 (21.9)	0.0778	1	0.001
No	7 (10.1)	62 (89.9)			

df; degree of freedom

Discussion:

This study found that less than half of the respondents had perceived awareness of PFME. Previous studies done by Berzuk and Shay (2015), Hill et al. (2017) and Temtanakitpaisan et al. (2020) also reported similar findings, in which the awareness of PFME was low among women especially including young and nulliparous women. Most of our respondents who claimed to be aware of PFME were unfamiliar with the exercises and overlooked the role of PFME in pelvic floor management. The probable reason for this finding is due to lack of exposure to PFD as the incidence of PFD is not common in this population compared to those who are multiparous and the ageing population, which causes the PFME not to be widely acknowledged by this population. In an earlier study, the researchers reported that young women were disinterested in PFME as they were unaware of the reason or importance of performing PFME and believed such exercises were unnecessary for the young population (Dickinson & Briscoe, 2017).

Regarding the knowledge of PFME, this study found that most respondents had no knowledge of PFME. Those who perceived to have knowledge of PFME had little understanding of PFME, as the percentages of the respondents who provided a correct answer for all the questions were only 33.6%. The finding of this study is supported by previous studies by Liu et al. (2019) and Berzuk and Shay (2015). The probable explanation for this finding is that young women, particularly the nulliparous population, may feel uncomfortable seeking information and advice related to gynaecological matters due to the sense of shame of others' perception (Fante et al., 2019). In addition, some individuals claim that the pelvic region is an embarrassing or a sensitive topic (Pintoz-Diaz et al., 2019). Besides, as mentioned previously, this population may be less susceptible to PFD, resulting in indifference to acknowledge the importance of PFME.

In this study, most respondents believed that healthcare professionals should be the primary source of information for PFME. At the same time, family members and friends were considered less likely to be a source of information. A recent study also reported

that women in Malaysia chose medical practitioners as their primary source of PFME information (Muhammad et al., 2019). The findings demonstrated that this population preferred to seek information from the reputable sources and trained personnel. Qualified health professionals for PFME include gynaecologists, physicians, nurses, and physiotherapists (Abhyankar et al., 2020). Their experience managing PFD could be the best for reliable health care information. Practically, individuals with PFD are often referred to physiotherapists for PFD rehabilitation. These individuals will be educated, guided, and trained with the appropriate techniques of PFME (Rodas & Garcia-Perdomo, 2018). Moreover, many PFME programmes are conducted by physiotherapists (Fernandez et al., 2021; Hagen et al., 2020; Wilson, 2015).

This study found that awareness of PFME and knowledge of PFME were significantly associated. The finding implied that respondents who declared awareness of PFME had knowledge of PFME, while those unaware of PFME had no knowledge of PFME. A population-based study also found that those women who lacked awareness of PFME had insufficient knowledge of PFME (Hill et al., 2017). According to Berzuk and Shay (2015), awareness and knowledge of PFME could be improved through a 'Pelvic Floor Health and PFME Education' programme. Those who were aware and had knowledge of PFME positively affected individuals' care-seeking behaviour.

This study has a few limitations. Firstly, the scope of this study was limited to female students of IIUM Kuantan who were unmarried and had never given birth. Hence, the findings may not reflect the entire young women population. Secondly, this study used closed-ended questionnaires, which limited the ability to explore the depth of PFME knowledge and awareness among this study population. Third, the study duration is relatively short due to the logistical issue, which limits researchers' ability to employ a multi-centre study design.

Implication to Practice

Knowledge of PFME is crucial in PFD prevention and management (Hill et al., 2017; Liu et

al., 2019; Temtanakitpaisan et al., 2020). The findings of this study highlight the necessity to plan and implement an appropriate approach to disseminate information related to PFME, as most of the nulliparous respondents in this study were unaware of PFME and had no knowledge of PFME. Thus, it relevant that a population like this be well informed of PFME to promote the incidence of PFD in young women and as a medical issue that warrants public health attention. The health policy maker needs to determine the appropriate approach to do this.

Conclusion:

The number of respondents who had knowledge and awareness of PFME was relatively low, less than 50%. Most of those who possessed an awareness of PFME had less ability to embrace the importance of PFME, and those who possessed knowledge of PFME had a low understanding level of PFME. The association between knowledge and awareness of PFME was statistically significant, indicating that those who were aware of PFME most likely had PFME knowledge. These results suggest a need to initiate a health education programme related to PFME that is reachable and accessible to a diverse women population.

Acknowledgement:

The authors thank all female students at International Islamic University Kuantan Pahang, Malaysia, who participated in this study.

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