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ORIGINAL PAPER

Knowledge, attitude and practice towards pelvic floor muscle training among childbearing women

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Summary ***Objectives: This study aims to identify knowledge, attitude, and practice of pelvic floor muscle training (PFMT) and to identify the prevalence of urinary incontinence.***

Materials and methods: The method used was a cross-sectional study. Self-administered knowledge, attitude, and practice questionnaires were distributed among childbearing women attending Maternal & Child Health Clinics in the East Coast region of Malaysia.

Results: The findings revealed that most respondents (N = 896) had good or moderate knowledge (80.1%) and attitudes (77.3%) regarding PFMT but most of them (87.2%) still lacked practice. However, there was no association between urinary incontinence and PFMT practice. On the contrary, married women showed a higher risk of urinary incontinence.

Conclusions: The practice of pelvic floor muscle training should be recommended and emphasized to childbearing women by healthcare professionals.

KEY WORDS: *Attitude; Knowledge; Pelvic floor muscle training; Practice; Urinary incontinence; M-ISI.*

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INTRODUCTION

Urinary incontinence (UI) is one of the worldwide health problems but is not considered life-threatening (1). Most of the victims did not share their problems and kept silent until they were interviewed by healthcare professionals. A study identified factors that affect help-seeking behavior: not accepting incontinence as a disease, shame, non-optimal health care system, negative support of essential others and reduced quality of life (2). The risk factors for UI include menopause, increased body mass index, straining hard during defecation, coffee consumption and depression (3).

The management of UI was divided into two, which are conservative and non-conservative treatment. The non-conservative treatment is the medical or surgical treatment, whereas the conservative treatment is non-costly. One of the conservative treatments is, pelvic floor muscle training, or known as Kegel's exercise. In 1948, *Dr. Kegel*, who invented the Kegel exercise, stated that the cure rate after training pelvic floor muscles for women with different types of incontinence was 84%. Besides, pelvic floor muscle training is the most recommended treatment method, especially for stage 1 stress urinary incontinence (4). Thus, *pelvic floor muscle training* (PFMT) has been recognized as the first-line therapy for urinary incontinence (5). Women with the symptom of stress and mixed urinary incontinence who had the treatment of PFMT showed improvement in their symptoms of UI (4). The rationale for doing PFMT is to maximize the urethral pressure and improve the voluntary contraction of the muscle by improving pelvic floor muscle strength (6).

In Malaysia, the prevalence of UI among women was 17.3% while for antenatal cases it was 34.3% during their third trimester (3). However, compared with Turkey, the prevalence of UI among pregnant women was high, with almost 80% with stress urinary incontinence (7). A study among antenatal women in Kelantan showed women had a low level of knowledge regarding PFMT with only 5.8% doing PFMT (8).

The result showed that the women knew the information regarding PFMT (9). Whereas another finding in Selangor stated that 46.6% of pregnant women had a good attitude towards PFMT (10).

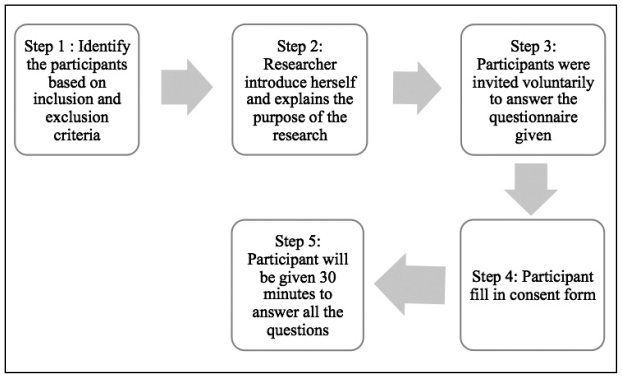
There is no standardized measurement tool that can be used to discern the type, severity, or bother attributed to UI at one time. In government hospitals and clinics throughout Malaysia, a variety of forms of UI screening were identified. Presently, to identify all the symptoms, women had to complete multiple questionnaires in one setting, and the healthcare professionals then had to determine how to interpret and assimilate the results of these different measures. One of the instruments with high accuracy levels to discern the types of urinary incontinence is *Michigan Incontinence Symptom Index* (M-ISI) (11). Unlike other UI questionnaires, the M-ISI covers different aspects of UI that were essential for women's care and research. It also has been proved that the threshold scores for the M-ISI could be used to screen for clinically relevant urinary incontinence (11).

This study provided a simple and comprehensive instrument to measure types, severity, and bother related to UI among childbearing women. The aims were to identify the knowledge, attitude, and practice towards pelvic floor muscle training, to measure the UI using a validated M-ISI questionnaire, and to identify the association between the UI and PFMT among childbearing women.

Materials and methods

The study used a quantitative research method with cross-sectional design. It was conducted at five government *Maternal & Child Health Clinics in the East Coast Region in Malaysia* (*Kelantan, Terengganu, Pahang*). The populations were childbearing women who attended the *Maternal* and *Child Health Clinic*. The inclusion criteria were Malaysian women, aged 18 to 45 years old, and able to read in Malay. The exclusion criteria included menopausal women, a history of mental health problems, and diagnosed chronic illness. The study included 2 parts: the first part was the recruitment process, and the second was the administration of two sets of questionnaires, M-ISI screening test and a survey on knowledge, attitude, and practice of pelvic floor muscle training. Figure 1 shows the process of recruitment of participants in this study.

Figure 1.
The process of recruitment of participants.



The sample size was calculated using the open-source calculation OpenEpi Version 3 using the *Odds Ratio* (OR) from a previous study (10). Using a 20% non-response factor, it was decided to have a total of 1219 childbearing women involved in the study.

All the data obtained from the study were recorded and statistically analysed using *Statistical Package for Social Science Software*, version 26.0. Basic details of the participants and urinary incontinence were analysed using descriptive statistics, including mean and standard deviation or median with interquartile range for non-normally distributed data. A Chi-square test was used to identify the association between urinary incontinence and pelvic floor muscle training and logistic regression was done to identify the predictors of urinary incontinence among childbearing women.

This study obtained approval from the *Research Committee at International Islamic University Malaysia* (IIUM) (IREC 2021-008) and *National Medical Research Register* (NMRR) (NMRR-19-4172-51098). All participants consented and were involved in this study on a voluntary basis.

Results

A total of 896 participants answered all questions yielding a 74% completion rate, with the power of the study being 100%. Age distribution is shown in Table 1. There were 506 participants (58.0%) who were multigravida (usually 3-5 pregnancies), while 30% were primigravida who had first-time experience in pregnancy. The majority of the participant were Malay (99.5%), and the highest educational level was diploma/degree holder (48.8%). More than half of the participants (52.6%) were housewives, and in terms of monthly income, the majority of the participants (78.2%) were categorized in the lower household income group (B40), earning less than RM4,850 per month.

Table 1.
Socio-demographic characteristics.

Characteristics	Frequency	Percentage (%)
Age (years) (n = 887)		
< 20	28	3.2
21-30	432	48.7*
31-40	361	40.7
> 41	66	7.4
Marital status (n=883)		
Single	23	2.6
Married	850	96.3*
Widow	10	1.1
Gravida (n = 873)		
Nulligravida	14	1.6
Primigravida	262	30.0
Multigravida	506	58.0*
Grand multigravida	91	10.4
Ethnicity (n = 885)		
Malay	881	99.5*
Chinese	2	0.2
India	2	0.2
Educational level (n = 864)		
Primary school	17	2.0
Secondary school	401	46.4
Diploma/Degree	422	48.8*
Master/PhD	24	2.8
Occupation (n = 854)		
Housewife	449	52.6*
Self-employed	92	10.8
Government sector	175	20.5
Private sector	135	15.8
Student	3	0.4
Monthly income** (n = 832)		
B40 (bottom 40%)	651	78.2*
M40 (middle 40%)	168	20.2
T20 (top 20%)	13	1.6

**The highest score in each item; **Malaysian household income classification.*

Table 2.
The prevalence of urinary incontinence.

Urinary incontinence	Frequency	Percentage (%)
Yes	173	19.3
No	723	80.7

The number of women with UI using the M-ISI questionnaire was 173, with an estimated prevalence of 19.3% (Table 2). As reported in table 3, 43.0% of the respondents had good knowledge of PFMT. Most of the childbearing women had a moderate attitude toward PFMT (55.9%) and poor practice toward PFMT (87.2%).

As reported in Table 3, 43.0% of the respondents had good knowledge of PFMT. Most of the childbearing women had

Table 3.
The level of knowledge, attitude and practice towards pelvic floor muscle training.

	Level	Frequency	Percentage (%)
Knowledge towards pelvic floor muscle training	Good	385	43.0
	Moderate	332	37.1
	Poor	179	20.0
Attitude towards pelvic floor muscle training	Good	192	21.4
	Moderate	501	55.9
	Poor	203	22.7
Practice towards pelvic floor muscle training	Good	32	3.6
	Moderate	81	9.2
	Poor	772	87.2

a moderate attitude toward PFMT (55.9%) and the majority reported a poor practice of PFMT (87.2%).
Table 4 depicted that there was a significant association between the level of knowledge of PFMT and UI (p = 0.001); it also showed a significant association between the level of attitude toward PFMT and UI (p = 0.009) but no significant association between level of practice of PFMT and UI (p > 0.05).
Good knowledge of PFMT (adjusted OR = 0.69; 95% CI 0.41-1.19) and moderate knowledge of PFMT (adjusted OR = 0.70, 95% CI 0.43-1.14) were negative predictors of UI, meaning that women with good/moderate knowledge are less likely prone to UI compared to those with poor knowledge. However, other socio-demographic factors, such as being married women, showed to be statistically significant towards the risk to be UI (p = 0.040).

Table 4.
Association between level of knowledge, attitude, and practice towards pelvic floor muscle training with urinary incontinence.

Variable	Urinary incontinence		$\chi 2$	P-value
	Yes (n = 173) n (%)	No (n = 723) n (%)		
Knowledge				
Good	61 (35.3)	324 (44.8)	14.195	0.001
Moderate	60 (34.7)	272 (37.6)		
Poor	52 (30.1)	127 (17.6)		
Attitude				
Good	30 (17.3)	162 (22.4)	9.368	0.009
Moderate	89 (51.4)	412 (57.0)		
Poor	54 (31.2)	149 (20.6)		
	Yes (n = 169) n (%)	No (n = 716) n (%)		
Practice				
Good	1 (0.6)	31 (4.3)	5.851	0.054
Moderate	18 (10.7)	63 (8.8)		
Poor	150 (88.8)	622 (86.9)		

Significant value, P-value < 0.05.

Discussion

The prevalence of UI among childbearing women in this study, which included the East Coast region of *Malaysia*, was lower than the one reported in a previous study, which evaluated the rate of UI among women aged > 18 years (12). However, the prevalence may vary with the place, population, and questionnaire that have been used. The various definitions of incontinence, the use of different questionnaires, settings, procedures, and the validity of self-report data all contributed to the variation in epidemiological data about the prevalence rate of UI (5).
This study found that most of the childbearing women had a good knowledge of PFMT, similar to the previous study conducted at one of the teaching hospitals in *Malaysia* (13). However, the respondents demonstrated a moderate attitude towards PFMT, contrary to the findings previously observed among antenatal women in *Kelantan* (14). The pregnant women felt that PFMT had positive effects on their health, such as improved incontinence, pelvic organ prolapse, quality of life and increased sexual satisfaction (15). There was a positive change in attitude score after attending antenatal class (16), and as a result, education was a critical factor in improving women's attitudes and motivation towards PFMT.
The finding from this study showed that married women had a significant association with UI. Married women were more likely to have UI than single women because they tend to have an older age, which becomes a risk factor for UI (17). Being married women, earlier age at marriage, high parity, and old age were associated with the increase in UI among women in *Lahore* (18). Women do not practice PFMT, possibly due to a lack of information or awareness about doing this exercise during antenatal or postnatal periods. This can be seen in another study in which 44% of them reported lack of knowledge about the exercise and 96% stated that there was no guidance from healthcare professionals during the postpartum period in promoting PFMT (19).

Conclusions

This study revealed that, although overall knowledge and attitude towards PFMT were good, women did not practice the exercise regularly. Thus, it is recommended to healthcare professionals to play an essential role by providing more information as well as raising awareness about PFMT. The best method to give the information effectively is during consultation sessions and the antenatal class.

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