

Knowledge, Attitude and Practice of Pelvic Floor Muscle Exercise among Pregnant Women Attending Antenatal Clinics in Nnewi, Nigeria

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ABSTRACT

Background: Pelvic floor muscle exercise (PFME) has been proven to be effective in preventive and curative care of pelvic floor muscles, yet not many women seem to know about PFME, while so many others have several misconceptions or inadequate knowledge. **Objectives:** This cross-sectional study evaluated the level of knowledge (K), attitude (A) and practice (P) of pelvic floor muscle exercise (PFME) among pregnant women attending antenatal clinics in Nnewi, Nigeria. **Materials and Methods:** A hundred and fifty-one pregnant women were sampled from four randomly selected antenatal clinics. All consenting pregnant women who received antenatal care in these clinics were consecutively recruited. Knowledge, attitude and practice of PFME was assessed using the KAP questionnaire. Participants' characteristics were summarized using frequency, percentages mean and standard deviation. The relationship between knowledge, attitude and practice was evaluated using the Spearman rank order correlation coefficient. **Results:** Pregnant women in Nnewi demonstrated poor knowledge (mean knowledge score = 32.08 ± 34.21), poor attitude (49.27 ± 35.45) and low practice (17.05 ± 23.90) of PFME. A significant positive correlation was observed between each pair of knowledge and attitude ($r = 0.61$, $p < 0.01$), knowledge and practice ($r = 0.63$, $p < 0.01$) and attitude and practice ($r = 0.50$, $p < 0.01$). Age, parity & gravidity showed no significant correlation with either of knowledge, attitude and practice of PFMEs. **Conclusion:** Considering the poor knowledge, poor attitude and low practice of PFME more effort should be given to sensitization and education of women within childbearing age on the importance of PFMEs and on the correct way to perform these exercises.

Keywords: Attitude; Exercise; Knowledge; Pelvic floor; Practice

INTRODUCTION

Pelvic floor dysfunction is a common occurrence, affecting one-fourth to one-third of women.[1] It could lead to urinary incontinence, faecal incontinence, uterovaginal prolapse, cystocele, urethrocele, enterocele, rectocele, and diastasis recti abdominis.[2,3] Each of these conditions has

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become a major public health concern for women. Various life stages, such as pregnancy, the postpartum period, and menopause, can induce changes in women's pelvic floor muscles, resulting in decreased strength, support, and sphincteric function and, as a result, pelvic floor disorders.[2,4] Other established risk factors for pelvic floor dysfunction include vaginal childbirth, advanced age, and obesity.[5] The challenges of pelvic floor muscle dysfunction can adversely affect one's quality of life, with social, physical, and psychological implications.[6] As dysfunction increases, the quality of life declines.[6]

Pelvic floor muscle exercise, also known as Kegel exercise targets the pelvic floor muscles and is recommended as a first-line treatment for women with pelvic floor muscular dysfunction.[7] To help manage urine and bowel motions, as well, as promote sexual satisfaction, it strengthens the pelvic floor muscles.[8, 9] Properly performed PFME is recommended as both preventive and curative of urinary incontinence during pregnancy as well as post-partum.[9, 10] Pelvic floor muscle exercises have been proven to increase the chances of curing or improving pelvic floor muscle dysfunction by seven times.[10] Pelvic floor muscle training has also been shown to improve the quality of life for people who practice it.[11] However, Kegel exercise is unknown to many women,[12] and those that are familiar with it have not been properly instructed on how to perform it, thus they do not engage in it.[13] Several assumptions regarding PFME exist, especially amongst elderly women who believe that urinary incontinence and pelvic organ prolapse are natural parts of getting older.[14]

Having the right knowledge affects attitudes and behaviours such as seeking care and adhering to suggestions for pelvic floor training.[15] To improve awareness of pelvic floor dysfunction and promote pelvic floor exercises amongst women, particularly the pregnant population, it is necessary to identify the elements that influence behaviour and belief in respect of PFME. Hence, this study sought to assess the knowledge of, attitude towards

and practice of pelvic floor muscle exercise among pregnant women attending antenatal clinics in selected hospitals in Nnewi, Anambra State.

MATERIALS AND METHODS

Research design and setting

We designed this cross-sectional study consistent with the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) checklists. The study was conducted in Nnewi Nigeria. Nnewi is a commercial and industrial city in Anambra State, southeastern Nigeria. It is the second-largest and second most populated city in Anambra State located in the southern part of the state. It has four large villages namely Otolu, Uruagu, Umudim, and Nnewichi. In our study, we employed a random cluster sampling technique to select four hospitals that participated in the study. Within a cluster, we employed consecutive sampling to recruit participants into the study. Each of the villages constitutes a cluster. Within a cluster, we employed a random sampling technique to select a hospital. The participants were individuals attending antenatal clinics of the selected hospitals. The study took place from 3rd to 26th April 2021.

Research Population

The participants consisted of pregnant women attending antenatal clinics in four Tertiary hospitals.

Inclusion and Exclusion criteria

Participants were included irrespective of parity, trimester, maternal age and history of urinary, faecal or flatus incontinence. However, we excluded non-pregnant women and postpartum women. We sought and obtained informed consent from prospective participants. Prior to consent, the aim and nature of the study were adequately explained to participants. We obtained ethical approval from the ethical review committee of the Faculty before the commencement of the study.

Variables

In this study, the major outcome variables were knowledge, attitude and practice of pelvic floor

muscles. Other important data items considered in this study were sociodemographic and clinical data. Clinical variables of interest were parity, level of sexual satisfaction and urinary incontinence status. We assessed knowledge, attitude and practice using an adapted researcher-administered Knowledge Attitude and Practice (KAP) questionnaire.

Research Instrument

The KAP questionnaire asked about the participants' demographics, urinary incontinence condition, knowledge of PFME which covers procedures (5 items) and benefits of performing it (12 items), attitude (8 items), and practice (4 items). The KAP questionnaire is a reliable measure of knowledge, attitude and practice of PFME among pregnant women and enjoys a wide utility.[16] Cronbach's alpha for the knowledge, attitude and practice domains were 0.949, 0.837, and 0.742, respectively. The items on knowledge require categorical responses of true, false, and don't know. For the attitude section, a 5-Likert scale (strongly agree to strongly disagree) was used. The practice domain requires categorical responses of (never/seldom/frequent/always). We obtained the mean/median of the total score and categorized the level of knowledge, attitude and practice as good or poor, in line with a cut-off point of good knowledge, attitude, and adequate practice set at 60%,

Ethical Considerations

Ethical approval for the study was sought and obtained from the jurisdictional ethics committee. The Medical Directors of the four mentioned hospitals were informed on the nature of the study and permission was obtained to collect data from their clients.

Procedure for data collection

The aim and procedure of the study were adequately explained to each participant and consent was obtained before the commencement of the study. Each participant was screened for the inclusion criteria through history taking. The questionnaire was administered by the researcher to all

participants at the antenatal clinics of the four selected hospitals.

Data analysis

We employed descriptive statistics of mean, frequency, standard deviation, and percentile to summarize participant characteristics. Spearman rank-order correlation was used to test the interaction among knowledge, attitude and practice of PFME. We examined the relationship of knowledge, attitude and practice of PFME with each of sociodemographic characteristics, parity, gravidity sexual satisfaction and urinary incontinence on the interaction among knowledge, attitude and practice using partial correlation. Variables that significantly correlated with knowledge, attitude and practice were entered into multiple linear regression to examine their predictive potential. We set the level of significance set at $p < 0.05$. SPSS version 23.0 was used for data entry and analysis.

RESULTS

One hundred and fifty-one pregnant women-attending antenatal in selected hospitals in Nnewi, Anambra State participated in this study. The majority of the participants were traders and had at least post-basic (secondary school) education. The prevalence of urinary incontinence was 14.5%. Among those with urinary incontinence, 6 (27.3%) were bothered, 7 (31.8%) used sanitary protection and 36 (23.8%) were either not satisfied or neutral regarding their sexual relationship. Twenty-two (14.6%) of the participants had partners who complained of sexual dissatisfaction. The mean age of participants was 27.60 ± 4.46 years, while modal gravidity and modal parity were 1 and 0 respectively (Table 1). Less than half of the participants had information about PFME. Of the participants who had information about PFME, 38.5% obtained the information from nurses, 21.5% got information from books and 16.9% from a doctor (Table 2) Based on the median cut-off scores, Participants had poor knowledge, poor attitude and poor practice of pelvic floor muscle exercise (Table 3).

There were moderate significant positive correlations between each pair of knowledge and attitude ($\rho=0.61$, $p<0.01$), knowledge and practice ($\rho=0.63$, $p<0.01$) and attitude and practice ($\rho=0.50$; $p<0.01$). Level of education significantly correlated with knowledge ($r=0.31$, $p<0.01$), attitude ($r=0.18$, $p=0.03$) and practice ($r=0.25$, $p<0.01$) of PFME. Maternal age, parity & gravidity had no significant correlation with any knowledge, attitude or practice (Table 4).

Table 1: Socio-demographic and gynaecological profiles of the participants

Variable	Class	Frequency (Percent%)	Mean±SD
Age (years)	-	-	27.60±4.46
No of pregnancy	-	-	2.39±1.41
No of children born alive (parity)	-	-	1.36±1.38
Religion	Christianity	151(100.0)	-
	Islam	0(0.0)	-
	Traditional	0(0.0)	-
Occupation	Unemployed	29(19.2)	-
	Trading	60(39.7)	-
	Civil service	31(20.5)	-
	Studying	31(20.5)	-
Education	Primary	1(0.7)	-
	Secondary	78(51.7)	-
	Diploma/University	72(47.7)	-
Urinary Incontinence	Yes	22(14.5)	-
	No	129(85.4)	-
Whether it bothers	Yes	6(27.3)	-
	No	16(72.7)	-
Whether using sanitary protection	Yes	7(31.8)	-
	No	15(68.2)	-
Sexual Satisfaction	Very not satisfied	2(1.3)	-
	Not satisfied	6(4.0)	-
	Neutral	28(18.5)	-
	Satisfied	52(34.4)	-
	Very satisfied	63(41.7)	-
Partner complaining of sexual dissatisfaction	Yes	22(14.6)	-
	No	129(85.4)	-

KEY: SD: Standard deviation

Table 2: Participants' baseline information on pelvic floor muscle exercise

Variable	Class	Frequency (Percentage%)
Knowledge/information	Yes	65(43.0%)
	No	88(57.0%)
Sources of knowledge/Information		
	Doctor	
	Yes	11(16.9%)
	No	54(83.1%)
Nurse	Yes	25(38.5%)
	No	40(61.5%)
Physiotherapist	Yes	3(4.6%)
	No	62(95.4%)
Relative or Friend	Yes	9(13.8%)
	No	56(86.2%)
Antenatal mother	Yes	5(7.7%)
	No	60(92.3%)
Books	Yes	14(21.5%)
	No	51(78.5%)
Television or Radio	No	65(100%)
	Others	
	Yes	4(6.2%)
	No	61(93.8%)

Table 3: Levels of knowledge, attitude and practice of pelvic floor exercises among the participants

Variables	Mean±SD (%)	Level
Knowledge	32.08±34.21	Poor
Attitude	49.27±35.45	Poor
Practice	17.05±23.90	Poor

KEY: SD: Standard deviation. %: Percentage

DISCUSSION

In our study, the prevalence of urinary incontinence was 14.5%. This is similar to the 12-12.6% obtained in previous studies.[17, 18] In addition, our result falls within the global prevalence range.[19] The variability in global prevalence rates could be due to variability in age, the definitions and metrics employed, population and size, multi-parity, obesity, chronic cough, and pelvic procedures.[19] This study's participants had limited awareness about pelvic floor muscle exercise. Forty-three per cent of those who had heard of PFME just had a basic comprehension of the concept, not necessarily a thorough understanding. This is comparable to a previous study where half of the pregnant women recognized pelvic floor muscle exercise, but only 27.9% of the aware group understood it correctly.[20] However, a recent study reported a high understanding of PFME (74.8%) among pregnant women attending a particular antenatal clinic in Enugu, Nigeria.[21] The higher knowledge among the later group could be attributable to the fact that physiotherapists at the prenatal clinics in the centres visited conducted weekly classes on antenatal exercises for expectant mothers; incidentally this high knowledge did not translate to practice as only 38% of these women actually practiced PFME.[20] The nurses (38.5%) and books (21.5%) were the primary sources of knowledge in this present survey. Physiotherapists accounted for only about 4.6% of the total. This revealed that physiotherapists are underutilized in the ante-classes, where exercises can be discussed. Furthermore, there may be no or limited physiotherapists in some of the facilities. Participants showed a negative or poor attitude

Table 4: Spearman rank test showing the relationship between participants' knowledge, attitude and practice of pelvic floor muscle exercises and some of their selected socio-demographic data

Variable	Knowledge	Attitude	Practice	
Knowledge	rho=	0.61*	0.63*	
	P=	<0.01	<0.01	
Attitude	rho=	0.61*	0.50*	
	P=	<0.01	<0.01	
Practice	rho=	0.63	0.50	
	P=	<0.01	<0.01	
Age	rho=	-0.07	-0.14	-0.03
	P=	0.41	0.86	0.76
No of Pregnancy	rho=	0.01	-0.11	0.16
	P=	0.91	0.18	0.06
No of Children	rho=	0.02	-0.11	0.13
	P=	0.81	0.17	0.13
Education	rho=	0.31*	0.18*	0.25*
	P=	<0.01	0.03	<0.01

toward PFME as well. This is in contrast to Temtanakitpaisan et al (2020), which showed a favourable attitude toward pelvic floor muscle training. The negative attitude in this study may be due to a lack of involvement and engagement of physiotherapists who should champion an exercise course. The current study equally revealed low PFME practice, with only 4% of the women spending time practising this exercise regularly. This is not surprising given that the majority of the participants had limited awareness about PFME and a negative attitude toward it, resulting in decreased practice. This is consistent with earlier research that found inadequate PFME usage among pregnant women.[9,20,21] However, because some of these studies found a high level of knowledge, it is important to note that, while proper knowledge of PFME is important for its practice, other patient-related factors such as forgetting to perform the exercise, the importance attached to it, daily activities, and being too tired could obstruct practice.[21]

Our study revealed a moderate positive interaction among knowledge, attitude, and practice of PFME. This is in line with a study which reported a favourable relationship between knowledge and

practice; with a better understanding of the benefits and performance of PFME having favourable impact on attitudes and practice.[9] The positive correlation of the level of education with knowledge, attitude, and practice suggests that a higher level of education is an important factor in the promotion of maternal health. This is in line with a previous study which found a strong link between educational level and participant understanding of PFME but not practices.[22] Age, gravidity, parity and knowledge, attitude, and practice had no significant link. However, this finding is contrary to that of Jawaher et al., (2019), where age negatively correlated with PFME practice. Although the level of practice of PFME is poor in our study participants, women who possess a low level of sexual satisfaction would resort to PFME if given sufficient educational information. The study is limited by the subjective nature of the measuring instrument. Participants were required to respond to the questions based on their perceptions and experience.

Nurses are the most important source of information on PFME among the participants of this study. We recommend a radical approach to PFME education involving a collaboration between the Physiotherapists who are exercise experts and the nurses who have the most contact with participants regarding developing and administering a proper PFME education. The physiotherapists should train the nurses on the rudiments, while both the nurses and physiotherapists will join force to educate patients on PFME during antenatal classes. Levels of education and sexual satisfaction are the key points of control when pursuing the improved practice of PFME among our study participants. By implication, individuals with a lower level of education and a good level of sexual satisfaction may require greater effort to be persuaded into practising PFME. Attention should be paid to mothers with a higher level of education and lower level of sexual satisfaction as they are more likely to heed the educators' lessons.

CONCLUSION

There is still a wide gap in the knowledge of PFME and its importance among pregnant women in Nnewi, Anambra state. This poor knowledge in turn negatively affects attitude and practice of PFMEs among this group. Perhaps, a better approach to bridging this gap would be to take the sensitization and education to the larger public; going beyond women in child bearing age. This would educate not just these women but even their loved ones and persons they receive advice and counsel from during pregnancy and following childbirth.

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Author Contributions

EYI, IBN and JOU conceptualized and designed the study. IAA, UNA and SMM contributed to implementation of the project and revision of the manuscript. All authors were involved in the writing and revision of the manuscript. The authors read, approved the final manuscript and agree to be accountable for all aspects of the work.

Data availability

The data used to support the findings of this study are available from the corresponding author upon reasonable request

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Conflicts of Interests

The authors declare that there was no conflict of interest.

Ethical approval

The study received approval from the Ethics Committee of Faculty of Health Sciences and Technology.

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