Original Article

Attitude and Concerns on Antenatal Pelvic Floor Exercises Among Pregnant Women in Ibadan, Nigeria

Abstract

Aim: Several studies had investigated the importance and benefit of pelvic floor exercises (PFEs) to the pregnant women and their unborn babies, however, the concerns of antenatal women on the exercise have been sparsely investigated. This study examined the attitude and concerns of pregnant women towards engaging in PFEs in Ibadan, Nigeria. **Materials and Methods:** This was cross-sectional study of pregnant women aged ≥15 years. Participants were recruited at primary, secondary and tertiary health facilities. A face-to-face interview was conducted using a structured questionnaire with open and close-ended questions for data collection. Bivariate analysis was performed using chi-square and Fisher's exact test to investigate the association between categorical variables. Multivariate analysis was performed with log-binomial and multinomial regressions to select significant variables that affect the attitude of pregnant women. **Results:** Of the 373 pregnant women recruited, 118 had ever practiced PFEs. A little below average (43%) performed PFE for less than 3 days a week. Ability to have easy childbirth was the most common motivator for practicing PFE. Participants were most concerned about abdominal pain. No association between any of the factors and participants' attitudes. **Conclusion:** Though there was a positive attitude of pregnant women towards the PFE but the practice was low. This might be due to inadequate availability of information. We recommend health promotional messages to encourage pregnant women to engage in PFE as part of antenatal messages for healthy living.

Keywords: *Antenatal, childbirth, exercise, foetus, pelvic floor, pregnancy*

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Introduction

Generally, physical exercise is highly recommended for pregnant women because of their potential benefits for the mother and their foetuses.[1] Examples of physical exercises that are commonly performed during pregnancy include brisk walking, jogging, aerobics, and pelvic floor exercises (PFEs).[2] PFE in pregnancy strengthens the pelvic floor muscles, primarily to prevent urinary and faecal incontinence that may occur as a complication of childbirth. The general advice is for pregnant women to do the PFE for 10-15 times for at least four days per week.[3,4] Due to the adverse effects of pregnancy and delivery on the muscles of the pelvic floor, pregnant women are at risk of developing pelvic floor dysfunction.[5] Pelvic floor dysfunction includes a wide range of clinical conditions such as urinary incontinence, faecal incontinence, pelvic organ prolapse, sexual dysfunction, lower urinary tract infections, and pelvic pain.[6]

The attitude of pregnant women towards PFEs has been inconsistent, but recent studies have reported a positive attitudinal shift towards antenatal.[7,8] Evidence suggests an increase in knowledge about the benefit and safety of exercise amongst pregnant women might be responsible,[7] though a study in Ethiopia reported that a large number of participants had a negative attitude towards exercising during pregnancy.[9] Reasons for this negative attitude included concerns about the safety of the foetus, cultural barriers, inadequate family support, and inadequate information about antenatal exercises.[9] Tiredness and lack of motivation to exercise contributed to the attitude of pregnant women toward antenatal exercises.[7] In a systematic review of 46 trials involving 10,832 women, it was reported that pregnant women who practiced PFEs in the antenatal period were less likely to report urinary incontinence in late pregnancy and mid-postnatal period respectively.[4]

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Despite the established benefits of PFEs in pregnancy, only a small proportion of antenatal women reportedly engaged in this form of exercise.[10] These findings were corroborated by studies conducted in low and middle-income countries. A major contributor to the low performance of PFEs among antenatal women was the lack of adequate information on the advantages of PFEs in preventing pregnancy complications.[11] Educating pregnant women on the advantages of PFEs plays a significant role in encouraging a positive attitudinal change as seen in some studies conducted in Asia. Instructions on pregnancy exercises should be monitored by healthcare providers and contraindications should be ruled out before recommending PFEs for antenatal women.[1]

Though several studies have explored the attitude of antenatal women toward the use of PFEs, there is a paucity of data as regards the concerns of antenatal women on practicing these exercises while pregnant. Currently, few studies have been done on the attitudes and concerns of pregnant women on the use of PFEs in Nigeria. This study aimed to assess the attitude and concerns of antenatal women in Nigeria towards the use of PFEs in pregnancy.

Subject and Methods

Study design

This study, titled Pelvic Floor Exercises in Pregnancy study – PEFLEIP study, was a cross-sectional descriptive study conducted among women that were receiving antenatal care (ANC) at three selected health facilities in the Ibadan metropolis.

Study setting

PEFLEIP study was conducted at the antenatal clinics of the University College Hospital (UCH), Adeoyo Maternity Hospital (AMTH), and Idi Ogungun Primary Healthcare Centre (IPHC), all located in Ibadan, Nigeria. UCH is a 1000 bedded institution and is the premier tertiary health facility in Nigeria, AMTH (a large general hospital) offer both secondary and tertiary healthcare services while IPHC (a primary health centre, converted from a dispensary) offer basic healthcare services, including maternity services. These facilities were purposively selected because they represented different levels of public health institutions offering obstetric care services in the country.

Study instrument and data collection

We used a structured case report form (questionnaire) with seven sections with both open and closed-ended questions. The instrument was evaluated and validated by two independent expert observers. A pilot study was conducted among ten first-year medical students (who had not had Obstetrics and Gynaecology lectures) and 2 female janitors at the Alexander Brown Hall, UCH.

The data collection tool was translated to Yoruba (the predominant local language) for participants that could not speak or understand English. The data were collected in September 2021.

Sampling technique and study procedure

After securing ethical approval and other local permission, the research assistant spoke with potential eligible participants in groups after their routine ANC health talk. The discussion covered the specific objective of the study and they were assured that their participation is completely voluntary. The research assistants also distributed the information leaflet to each of the potential participants detailing the study objectives, description of the study procedure, and ethical considerations. Eligible participants were enrolled using a non-probabilistic (consecutive patients) sampling technique. The number of samples that were recruited from each of the three selected health facilities was proportionate to the number of average ANC attendees per week. Available records suggest that the mean antenatal clinic attendee for UCH, AMTH and IPHC were 126, 144 and 60 pregnant women respectively. Eligible participants were invited and written or witnessed consent (for those that could not read or write) was obtained individually before participation.

The research assistants had virtual and physical trainings on research methodology before the study commenced. The face-to-face interview was conducted in a private and quite room for each participant in the language preferred. The information collected included: sociodemographic characteristics; information on obstetric history; awareness and knowledge of pelvic floor dysfunction; awareness and knowledge of PFEs; attitude and practice of PFEs and concerns about PFEs. After the interview, the research assistant thanked each participant and provided a white handkerchief as an incentive for participation.

Eligibility criteria

Inclusion criteria

They were pregnant women of reproductive age (≥15), who had attended at least one ANC clinic visit before enrolment.

Exclusion criteria

This study excluded non-pregnant women and pregnant women that refused to give consent for participation.

Sample size determination

The sample size was calculated using the formula for cross-sectional studies and was adjusted for 10% attrition. The sample size (373) was allocated to the three study sites proportionate to the number of their weekly antenatal clinic attendees.

Data management and analysis

Outcome variable:

The primary outcome variable for this study was attitude and concern toward performing PFE during pregnancy.

Explanatory variables:

The explanatory variables were grouped into socio-demographics, obstetrics, and items to access information as distal and proximate factors.

Data entry and analysis:

Data collected were entered into the SPSS software program, version 25.0 (SPSS, Chicago, Illinois), then imported into STATA 16.0 for analysis. Chi-square and Fisher's exact test were used, at a 95% confidence level to test the association between categorical outcomes and explanatory variables from the data. All explanatory variables were dichotomised and tested for multicollinearity among explanatory variables using linear regression. The level of significance was set at 0.05, and multivariate analyses were performed using the log-binomial and multinomial regression, before which a likelihood ratio test (LRT) was used to select variables that were significant at 10%.

Results

In total, 373 participants were recruited. The mean age of women was 30 ± 5.5 years as presented in Table 1. The ages ranged between 18 and 52 years, and about two in three women (63%) were between the ages of 25–34 years. The sociodemographic characteristics, obstetric status, and individual perception on the health of the study participants are presented in Table 1. From the results, 46% of the participants were semi-skilled workers, with Yoruba as the predominant (92%) ethnic group, and 61% practiced Christianity as a religion. About 7 out of 10 (71%) participants had tertiary education while only 2(0.6%) had no formal education.

Almost all participants (98%) were living with their partners and over half (59%) earned between 20,000 Naira ($40) and 50,000 Naira ($100) monthly. About half (52%) of the participants booked at the clinic in their second trimester, and were primiparous (48%). Most of the women (88%) felt satisfied with their general physical health.

Almost a third of participants (32%) had ever practiced any of the PFEs. Out of 118 that ever engaged in PFE, the majority (43%) practiced PFEs for less than 3 days a week, and 73% usually engaged in PFE for less than 15 min per session. Most (90%) participants were willing to recommend PFE to other women [Table 2].

The most common motivation reported by participants for engaging in PFE was to make childbirth easy (63%) followed by prevention of childbirth complications (58%).

Table 1: Association between explanatory variables and awareness of pelvic floor exercises

Variables	Never done PFE *N* = 237 (% row)	Ever done PFE *N* = 118 (% row)	*P* Value
Age			0.224
18–24 years	38 (76.0)	12 (24.0)	
25–34 years	143 (63.8)	81 (36.2)	
> 35 years	56 (69.1)	25 (30.9)	
Facility			0.276
UCH	78 (62.1)	46 (37.1)	
AMH	112(66.7)	56(33.3)	
IPHC	47 (74.6)	16 (25.4)	
Occupation			0.047
Skilled	56 (58.3)	40 (41.7)	
Others	178 (69.5)	78 (30.5)	
Ethnicity			0.578
Yoruba	219 (66.6)	110 (33.4)	
Others	18 (72.0)	7 (28.0)	
Religion			0.250
Christianity	141 (64.7)	77 (35.3)	
Islam	96 (70.6)	40 (29.4)	
Level of education			0.004
Below tertiary education	84 (77.8)	24 (22.2)	
Tertiary	153 (61.9)	94 (38.1)	
Income			0.785
Less than 20,000 Naira	51 (68.0)	24 (32.0)	
20,000–50,000 Naira	125 (65.1)	67 (34.9)	
Above 50,000 Naira	31 (62.0)	19 (38.0)	
Media exposure			0.049
No	76 (74.5)	26 (25.5)	
Yes	161 (63.6)	92 (36.4)	
Gestational age at booking			0.458
First trimester	55 (66.3)	28 (33.7	
Second trimester	102 (61.5)	64 (38.6)	
Third trimester	48 (69.6)	21 (30.4)	
Parity			0.130
Nulliparous	15 (62.5)	9 (37.5)	
Primiparous	62 (57.9)	45 (42.1)	
Multiparous	70 (71.4)	28 (28.6)	

Other reasons for practicing PFEs among 102 of the participants were freedom from childbirth complications (55%) and improving sexual satisfaction (40%) [Table 2].

Participants were more concerned about vaginal bleeding (25%), drainage of liquor (24%), abdominal pain (36%), and miscarriage (28%) as complications of PFEs than sickness (13%), urine leakage (15%) and faecal leakage (9%) [Table 2].

Table 3 shows the log binomial on factors associated with participants' attitudes to PFEs. Though women with tertiary

Table 2: Attitude and concerns of pelvic floor exercises

Variables	Frequency	%
Ever done pelvic floor exercises[a]		
No	237	66.8
Yes	118	33.2
Frequency of pelvic floor exercises in a week[b]		
Everyday	23	20.4
Every 3 days	43	38.1
Less than 3 days	47	41.6
Average time spent doing pelvic floor exercises[c]		
Less than 15 min	84	73.7
Between 15–60 min	27	23.7
Between 1–3 h	3	2.6
Motivation for doing pelvic floor exercises		
Prevent complications of childbirth[d]	63	55.3
Recover from complications of childbirth[d]	46	40.4
Improve sexual satisfaction[d]	65	58.0
Make childbirth easier[e]	56	62.9
Willingness to recommend pelvic floor exercises[f]		
No	10	9.8
Yes	92	90.2
Concerns		
Bleeding per vaginum[g]	87	24.5
Drainage of liquor[g]	85	23.9
Abdominal pain[h]	127	35.5
Miscarriage[i]	99	27.7
Sickness[i]	48	13.5
Urine leakage[i]	55	15.4
Feces leakage[i]	33	9.2

[a]18 missing; [b]$N = 113$; [c]$N = 114$; [d]$N = 114$; [e]$N = 112$; [f]$N = 102$; [g]$N = 355$; [h]$N = 358$; [i]$N = 357$.

education were 1.82 times more likely to have a positive attitude towards practicing PFEs than those with lesser levels on the crude RR, it became statistically insignificant on adjusted RR (aRR, 1.55; 95% confidence interval [CI], 0.96–2.49). There was no statistically significant association between any of the explanatory factors and the attitude of the respondents to PFEs.

Discussion

In this study, there was a high positive disposition of participants towards PFE as nine out of ten were willing to perform and recommend it to other pregnant women. However, only a third had engaged on PFE in their index pregnancy. Majority of those that had performed PFE did not engage in it enough to provide its potential benefits. Majority performed it less than 15 min for almost three days per week. The most common motivating reason for engaging in PFE includes promotion of safer childbirth and sexual practices.

Similar studies also showed a positive attitude toward PFEs and other antenatal exercises.[7-9,11] The high positive disposition has been associated with the increased knowledge about the benefits of exercises in both pregnant and non-pregnant women over time. However, the practice among study participants was irregular as they only engaged in PFEs for a few minutes and not more than three days a week. This suggests that there was poor adherence to the recommended regimen for the practice of PFEs among pregnant women.

The reported motivation for practicing PFE by pregnant women in this study is similar to previous studies.[11,12] The general belief is that regular PFE helps in the prevention and general recovery from childbirth and it also makes the birthing process easier. Other reasons for practicing PFEs among women included improving sexual satisfaction, reducing pelvic pain, prevention of urinary incontinence and uterine prolapse.[11,12]

Although PFEs have been established to reduce the risk of urinary incontinence in late pregnancy and mid-postnatal period,[4] some antenatal women have reservations about the safety of its practice during pregnancy despite the advantages. The reported concerns on PFEs practice from our study were abdominal pain, vaginal bleeding, miscarriages, and drainage of liquor. Reported factors from other studies preventing pregnant women from practicing antenatal exercises and PFEs include; Potential harm to the foetus, and being too tired and busy to perform PFEs.[7,9,10]

Participants' sociodemographic characteristics may influence their attitude toward the use of antenatal PFE's. Age, occupation, level of education, and income of participants in this study were found to be associated with positive attitudes. Women aged 25–34 years and with a tertiary education were more likely to have a positive attitude than women in other age groups and lower levels of education respectively. The lack of significant association in the adjusted model between selected explanatory variables and attitude towards PFE practice might be due to small number of observations. Similar findings were reported in other studies conducted in Ethiopia and Enugu, Nigeria. In these studies, there was a significant association between participant's attitude and their age, occupation, and level of income.[7,9] In other studies,[7,9] there was no significant association between participants' parity and attitude toward antenatal exercises from this study. This suggests that parous experience does not influence the attitude of pregnant women towards the use of antenatal exercises and PFEs.

This study provides the first scientific evidence that investigate the attitude and concern of pregnant women on PFE in Nigeria; it is not without potential sources of limitations. The study did not assess the practice of antenatal PFEs in current pregnancy or its effectiveness among participants that responded positively to practicing PFEs. However, the participants were recruited from all the

Table 3: Log-binomial regression on participant's attitude to pelvic floor exercises

Variables	Crude RR (95% CI)	*P* Value	Adjusted RR (95% CI)	*P* Value
Age				
18–24 years	Reference		Reference	
25–34 years	1.51 (0.89–2.54)	0.125	1.21 (0.70–2.08)	0.498
> 35 years	1.29 (0.71–2.32)	0.404	1.04 (0.57–1.90)	0.908
Occupation				
Skilled	1.37 (1.01–1.85)	0.041	1.17 (0.86–1.61)	0.306
Others	Reference		Reference	
Ethnicity				
Yoruba	Reference		Reference	
Others	0.84 (0.44–1.60)	0.591	0.83 (0.44–1.55)	0.550
Religion				
Christianity	Reference		Reference	
Islam	0.83 (0.61–1.14)	0.257	0.96 (0.69–1.32)	0.780
Level of education				
Below tertiary education	Reference		Reference	
Tertiary	1.71 (1.16–2.52)	0.006	1.53 (1.02–2.30)	0.039
Income				
Less than 20,000 Naira	Reference		Reference	
20,000–50,000 Naira	1.09 (0.74–1.60)	0.657	0.99 (0.67–1.44)	0.939
Above 50,000 Naira	1.19 (0.73–1.93)	0.486	0.99 (0.61–1.61)	0.956
Media exposure				
No	Reference		Reference	
Yes	1.43 (0.99–2.06)	0.060	1.21 (0.83–1.77)	0.330
Gestational age at booking				
First trimester	Reference		Reference	
Second trimester	1.14 (0.80–1.63)	0.464	1.18 (0.83–1.68)	0.346
Third trimester	0.90 (0.57–1.44)	0.666	0.99 (0.62–1.58)	0.969
Parity				
Nulliparous	Reference		Reference	
Primiparous	1.12 (0.64–1.97)	0.689	1.07 (0.62–1.86)	0.811
Multiparous	0.76 (0.42–1.39)	0.378	0.85 (0.47–1.54)	0.590
Facility				
UCH	Reference		Reference	
AMH	0.90 (0.66–1.23)	0.504	1.01 (0.73–1.38)	0.954
IPHC	0.68 (0.42–1.11)	0.123	0.97 (0.58–1.62)	0.904

three level of healthcare services in Nigeria and data were collected by face-to-face interview.

In conclusion, it is evident that despite the benefits and positive attitude of pregnant women towards the use of PFEs, the practice is quite low and sub-optimal. The low level of engaging in PFE by pregnant women might be due to lack of knowledge or misinformation or concern about PFE. We suggest that health professionals incorporate health education on PFE among pregnant women, especially to highlight its importance in the prevention and management of pelvic organ prolapse, urinary incontinence, genital injuries and other childbirth complications.

Ethical consideration

Ethical approval was obtained from the Oyo State Ministry of Health Ethical Review Committee with reference number AD 13/479/4393[B]. Informed consent was taken from participants before each interview, to allow voluntary participation. Confidentiality was ensured throughout the course of the study by making sure that participants-identifying materials and information were kept anonymous. The collected data was stored in a safe cabinet. We avoided anything that could hurt the feelings of the participants, including time-wasting at the clinic.

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Conflicts of interest

There are no conflicts of interest.

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