PREGNANCY-RELATED EXERCISES, KNOWLEDGE AND PRACTICE AMONG WOMEN ATTENDING HEALTH FACILITIES IN NSUKKA LGA: IMPLICATIONS FOR SUSTAINABLE DEVELOPMENT

Agatha Nneka Obayi[1], Lawretta Eyuche Ozoemena[1], Benedeth Anulika Obayi[1], Amaka Harry Ononuju[1], Oliver Igwebuike Abbah[1], John Ezebuilo Ogugua[1] & Uchenna Ngozi Igboke[2]
[1]Department of Human Kinetics and Health Education, University of Nigeria, Nsukka.
[2]Department of Human Kinetics and Health Education, ESUT, Enugu State
agatha.obayi@unn.edu.ng

Abstract
Exercise has been demonstrated to contribute to the health and safety of individuals including pregnant women.The study examinedpregnancy - related exercises knowledge and practice among women attending health facilities in Nsukka LGA. Four specific objectives with corresponding research questions and two null hypotheses guided the study. Research design was descriptive survey. The population for the study comprised 3,291. A multi - stage sampling procedure was used to draw a sample of 380 pregnant women. The researchers' designed questionnaire - KPPE- Q was the instrument for data collection. The instrument was face validated by research experts and split half method of reliability was used to get co-efficient of .70. 380 copies of the instrument were correctly filled and used for data analysis using SPSS version 22. Frequencies, percentages and mean were used to answer the research questions while chi - square statistic and ANOVA were used to test thehypotheses at .05 level of significance.Results showed that pregnant women possess moderate knowledge and high practice of pregnancy - related exercise (59.8%) and (73.0%) respectively. No significant difference existed in the knowledge and practice of pregnancy -related exercises among women based on parity respectively (x^2=2.675; p – value = .110 >.05) and (x^2=.797; p - value = .671>.05). It was recommended that health educators and other health care related workers should educate women and pregnant women in particular on the need forpregnancy - relatedexercises in order to clear their misconceptions about exercises leading to miscarriages and other health problems.

Keywords: Pregnancy-related, exercise, knowledge, practice, women**.**

Introduction

Pregnancy is an important phase in a woman's life. Regular exercise is promoted for its overall health benefits. The American Congress of Obstetricians and Gynecologists-ACOG (2015) recommended that pregnant women can exercise moderately for 30 minutes on most days of the week. This is promoted for its overall health benefits maintained ACOG.Pregnancy - related exercise may not be the same in Africa due to culture and non adherence to the recommendations for exercise during pregnancy (Uchenna &

Daniel2020).Hoodbhoy, Qureshi, Iqba andMuhabat (2018) noted that 56.5% of pregnant women in Africa indicated that pregnancy was a time to rest and refrain from exercise which contradicts international guidelines on exercise. Studies shows that pregnant women had inadequate knowledge concerning antenatal exercises, the types and benefits of exercise participation during pregnancy (Sabiri, Olutunde, Issah&Vungwa 2018).Thus, pregnancy - related exercise leads to healthy pregnancy delivery.

Pregnancy depicts maturation by females. According to Chang and Streitman (2012) pregnancy is a physiological phenomenon that impose numerous changes on various organs and body systems of pregnant women, including their respiratory system. Thus, pregnant conditions need exercises for healthy growth and development.

Exercise during pregnancy is safe and healthy. Pescoe, Bailey, Craike, Carter, Patten, Stepto et al (2020) defined exercise as a physical activity (PA) that is planned, structured and repetitive for conditioning the body. Liu (2011) suggestedthat exercises usually prescribed for pregnant women include water aerobics, running, brisk walking, yoga, kegel and breathing exercises. Exercises such as brisk walking, stationary cycling and swimming improve both cardiovascular and muscular systems, helps to lower risk of gestational diabetes, loss of weight, lowered risk of constipation etc and have been recommended for pregnant women. In this study, pregnancy - related exercises are those activities that are performed by pregnant women to maintain or improve physical fitness and enhance strength as well as the health of the feotus. The achievement of the types and benefits of pregnancy - related exercises are dependent on the level of knowledge and practiceofpregnant women,

Knowledge has been defined variously. According toSalman (2017) is the theoretical or practical understanding of a subject. It can be implicit (as with practical skill or expertise) or explicit (as with the theoretical understanding of a subject). It can be more or less formal or systematic. Simpson (2015) knowledge represents facts, information, and skills acquired through experience or education; the theoretical or practical understanding which people possess about a given concept.Knowledge according to Uduma (2000) is the ability to understand or comprehend phenomena, the acquisition of positive information by the exercise of some capability which humans presumably have in common.Knowledge is a fact or condition of being aware of something.Knowledge of pregnancy - related exercises is very important for pregnant women because of benefits attached to exercise, ranging from improved circulation etc, The quality of knowledge gained by pregnant women on pregnancy -related exercise could affect their practice of pregnancy - related exercises.

Practice is the actofrehearsing a behaviour over and over, and engaging in activities again and again, for the mastery of the activity. Practice is a custom order, habit, an activity or training. Funk and Wagnalls (2003) defined practice as any customary action or proceeding regarded as individual's habit. Sally (2004) defined practice as an established way of doing things especially one that develops through experiences and knowledge.Hambrick and Meinz (2011) noted that how one improves with practice depends on several factors, such as frequency. ACOG (2015) recommended exercises during pregnancy not less than 3 times a week. Pregnancy-related exercise is recognized as a safe practice, indicated for healthy pregnant women as longas the intensity, duration, frequency of the exercise are tailored to the requirement of each woman (Mbada et al

2015). Knowledge and practice of pregnancy- related exercise may be high, moderate or low and may be influenced by certain socio - demographic variables such as age, location, level of education, parity etc.Socio- demographic variable of interest in this study was parity,

Parity indicates the number of deliveries.Parity refers to thenumber of babies that a woman has given birth towith a gestational age of 24 weeks or more, regardless of whether the child was born alive or was still born (Colin & Jacqueline 2019). Studies measured the association between parity and exercise during pregnancy(Landsbaugh, Whitcomb, Pekow, Markenson&Chasan - Taber 2017). Studies indicated that having at least one other child was significantly associated with lower levels or no exercise participation.(Fell, Joseph &Armson 2012).Some model suchas health belief model may be related with this study.

The study was anchored on health belief model – HBM, propounded by Rosenstock and Becker in 1974.The stages of HBM are perceived susceptibility, perceived severity, perceived benefits, perceived barriers, cues to action and self efficacy. The HBM focuses on the prevention of diseases rather than its treatment. Perceived susceptibility means that pregnant women may or may not feel that exercise may affect them positively and perceived its severity, that is, its seriousness, as if the problem actually occurred, pregnant women may perceive (feel) the benefits of avoiding such problem and therefore the barriers (problems) are avoided through exercises participation, which is the preventive measures as well as the cues to action.The model states that a person's belief in the effectiveness of the recommended health behaviour or action will predict the likelihood that the person will adopt the behaviour. It was therefore, relevant to this study in the knowledge and practice of pregnancy - related exercises by pregnant women, mostly dependent on the adoption of healthy/safety behaviour and avoidance of negative health actions. The study was conducted among pregnant women attending health facilities in Nsukka LGA.

Nsukka LGA shares boundaries with Igbo Eze North on the north, Igbo Etiti on the south, UzoUwani LGA on the west and Udenu LGA on theeast. Majority of the people are farmers and traders, who are illiterates and acquire knowledge through non formalwaysand lack knowledge about pregnancy related exercises. Inspite of numerous benefits of exercise during pregnancy, women are still afraid to participate in exercises while pregnant for fear of complications that may arise. Those that exercise before becoming pregnant tend to stop exercising while pregnant due to lack or inadequate information about safety of the exercises. In the practice, most women do not meet up with the recommended duration. These, may affect pregnant women negatively.

Statement of the problem

Initiation and continue exercise in most pregnancies is ideal for mothers as it is safe for both mother and the feotus. Exercise in pregnancy is correlated with a decrease in many common problems of pregnancy. Pregnancy - related exercise help in maintenance and improvement of physical fitness and cardiovascular endurance, preventionof gestational weight gain and glucose intolerance, conditioning of the muscles needed to facilitate labour and improvement in psychologicaladjustment to changes in pregnancy.

Despite thebenefits related to pregnancy - related exercises, including improvement of circulation, weight balance, and other health benefits to pregnant women

and feotus while preparing for the arrival of the baby, it is submitted that women are not meeting the exercise recommendations because they predominantly based on self - prescription. Common misconception of friendsand community members and abnormal feotal development as perceived and believed by pregnant women also affect their participation in exercises, resulting to low knowledge and practice about pregnant preparation. The benefits of exercises are so numerous to non pregnant and pregnant women for healthy fit development.

Following researchers' findings, low and non engagement in exercisesand effects are alarming, it therefore, became necessary to ascertain the knowledge and practice of pregnancy - related exercises among women attending health facilities in Nsukka, thus, the need for the present study.

Purpose of the study

This study examined the knowledge and practice of pregnancy - related exercises among pregnant women attending health facility in Nsukka LGA. Specifically, the study determined the:

1. knowledge of pregnancy - related exercises among pregnant women attending health facility in Nsukka LGA;
2. practice of , pregnancy - related exercises among pregnant women attending health facility in Nsukka LGA;
3. knowledge of pregnancy - related exercises among pregnant women attending health facility in Nsukka LGAbased on parity;
4. practice of pregnancy - related exercises among pregnant women attending health facility in Nsukka LGA based on parity

Research questions

1. What is the knowledgeof pregnancy - related exercises among pregnant women attending health facility in Nsukka LGA?
2. What is the practice of pregnancy - related exercises among pregnant women attending health facility in Nsukka LGA?
3. What is the knowledge of pregnancy - related exercises among pregnant women attending health facility in Nsukka LGA based on parity?
4. What is the practice of pregnancy - related exercises among pregnant women attending health facility in Nsukka LGA based on parity?

Hypotheses

The following null hypotheses have been formulated to guide the study and tested at .05 level of significance:

1. There is no significant difference in the knowledge of pregnancy - related exercises among pregnant women attending health facilities in Nsukka LGA, based on parity.
2. There is no significant difference in the practice of pregnancy - related exercises among pregnant women attending health facilities in Nsukka LGA, based on parity.

Methods

A descriptive survey research design was used for the study. The population consisted of 3,291 pregnant women who attended health facilities in Nsukka LGA. Multi-stagesampling procedure was used, this is in line with Cohen, Manion and Morrison (2011) formula for determination of sample size that when a population is about 2,500 and above at 95% confidence level (5% interval), the sample size should be 357 and above. This was used to arrive at 380 students using simple random sampling technique of balloting without replacement to select 10 health facilities out of the 34 facilities in the public health facilitiesin the LGA, simple random sampling technique of balloting without replacement was also used to select 38 pregnant women from the selected 10 health facilities. The instrument for data collection was researchers' designed instrument on knowledge and practice of pregnancy related exercises questionnaire (KPPE - Q), comprising 21 items both on socio demographic variables and on pregnancy - related exercises among the populations. The response options for knowledge were very low, low, moderate and highwhile practice response was 'yes and no'. The instrument was validated by 5 experts from Public Health Education unit of Human Kinetics and Health Education Department, University of Nigeria, Nsukka. The reliability of the instrument was also established using split half method and reliability coefficient of the instrument was .70. Cohen, Mannion and Morrison (2011) maintained that if the correlation co - efficient index that will be obtained is up to 0.67 and above, the instrument will be adjudged reliable. The instrument was therefore deemed reliable for the study. The completed copy of the questionnaire were collated, sorted and checked for completeness, 380 copies of the instrument were used for the analysis. Frequencies, percentages and mean wereused to answer the research questions while ANOVA and chi - square statistic was used to test the hypotheses.

Results

Table 1: *Percentage Responses on the Knowledge of pregnancy – related Exercises (n = 380*

S/N	Statements	False	%	False F	%
1	Exercises are tailored to promote health benefits of pregnant mother and feotus	295	77..4	486	22.6
2.	Common pregnancy related exercise are swimming, brisk walking, breathing , pilated and pelvic floor exercise	248	65.1	133	34.9
3.	Exercises improves sleep quality of pregnant women	227	59.6	154	40.4
4.	Pregnancy - related exercises prevent excessive gestational weight gain	212	55.6	169	44.4
5.	Swimming exercise is effective in coping with emotional stress and labour pain	202	53.0	179	47.0
6.	Brisk walking exercise strengthens muscle, provides postural alignment and flexibility	247	64.8	134	35.2
7.	Exercise during pregnancy strengthens pelvic muscle	204	53.5	177	46.5
8.	Exercise reduces risk of back pain during pregnancy	216	56.7	165	43.3
9.	Pelvic floor exercise involves tightening of pelvic muscle to control urine	217	57.0	164	43.0
10.	Breathing exercise ensures steady intake of oxygen	214	56.2	167	43.8
	Mean knowledge Score		**59.8**		**40.1**

Result in table 1 shows the moderate mean knowledge score(59.8%) of pregnant women knowledge of pregnancy - related exercises - PREs.

Table: 2 Percentage Responses on thePracticeof pregnancy - related Exercises (n = 380).

S/N	Statements	Response			
		True	%	False	%
1	Do you practice deep breathing exercises at least 30 minutes every day?	257	67.5	123	32.5
2.	Do you engage in, brisk walking 3 times in a week?	202	53.0	178	47.0
3.	Do you perform a low impact form of exercise that combine deep breathing with gentle exercising of legs and arms (pilate exercise)?	180	47.2	200	52.8
4.	Do you engage in swimming exercise to reduce joint pressure and swelling during pregnancy?	176	47.0	204	53.0
5.	Do you practice exercise on a flat level surface to prevent injury?	220	57.7	160	42.3
6.	Do you engage in breathing exercise to ensure steady intake of oxygen during pregnancy?	210	55.1	171	44.9
7.	Do you practice exercise to strengthen back and pelvic muscle during pregnancy?	231	60.6	148	39.4

8.	Do you perform exercise during pregnancy to lower the risk of gestational diabetes?	200	52.5	180	47.5
9.	Do you engage in brisk walking exercise to reduce the risk of getting too much weight during exercise?	217	57.0	163	48.0
10.	Do you engage in walking during pregnancy at least 45 minutes to reduce subcutaneous fat?	198	52.0	182	48.0
.	**Mean practice Score**		**59.8**		**40.2**
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Results in Table 2 showsthemoderatemean practice score (59.8%) of pregnant women practice of pregnancy - related exercises - PREs.

Table: 3 Percentage Responses on the Knowledge of pregnancy - related Exercises based on Parity (n = 380).

S/N	Statements	Response True Non (n=94) True F%	1-3 (n=176) F %	True 4 and above (n=111) F %	
1	Exercises re tailored to promote health benefits of pregnant mother and feotus	68 72.3	143 84.1	79	71.2
2.	Common pregnancy related exercise are swimming, brisk walking, breathing , pilated and pelvic floor exercise	50 53.2	134 76.1	64	57.7
3.	Exercises improves sleep quality of pregnant women	52 55.3	108 61.4	67	60.4
4.	Pregnancy - related exercises prevent excessive gestational weight gain	52 55.3	104 59.1	56 169	50.5
5.	Swimming exercise is effective in coping with emotional stress and labour pain	44 46.8	110 62.5	48	43.2
6.	Brisk walking exercise strengthens muscle, provides postural alignment and flexibility	76 80.9	100 56.8	71	64.0
7.	Exercise during pregnancy strengthens pelvic muscle	44 46.8	98 55.7	62	55.9
8.	Exercise reduces risk of back pain during pregnancy	54 57.4	92 52.3	70	63.1
9.	Pelvic floor exercise involves tightening of pelvic muscle to control urine	54 57.4	94 53.4	69	62.2
100	Breathing exercise ensures steady intake of oxygen	52 57.4	104 59.1	58	52.3
	Mean knowledge %	**58.08**	**61.93**		**58.05**

Table 3 shows that pregnant women with 1 - 3 delivery had high mean score in the knowledge of PREs (61.93%).While pregnant women with no delivery, and 4 and above delivery had moderate mean score of (58.1%), and(58.0%) respectively.

Table: 4 *Percentage Responses on thePracticeof pregnancy - related Exercises - PREs based on Parity (n = 380).*

S/N	Statements	Yes Non (n=94) F %	1 - 3 (n=176)		4 and above (n =11)
1	Do you practice deep breathing exercises at least 30 minutes every day?	66 70.2	120 68.2	71	64.0
2.	Do you engage in, brisk walking 3 times in a week?	62 66.0	88 50.0	52	46.8
3.	Do you perform a low impact form of exercise that combine deep breathing with gentle exercising of legs and arms (Pilate exercise)?	46 48.9	76 43.2	58	52.3
4.	Do you engage in swimming exercise to reduce joint pressure and swelling during pregnancy?	56 59.6	80 45.5	43	38.7
5.	Do you practice exercise on a flat level surface to prevent injury?	46 48.9	110 62.5	64	57.7
6.	Do you engage in breathing exercise to ensure steady intake of oxygen during pregnancy?	62 66.0	102 58.0	46	41.4
7.	Do you practice exercise to strengthen back and pelvic muscle during pregnancy?	54 57.4	108 61.4	69	62.2
8.	Do you perform exercise during pregnancy to lower the risk of gestational diabetes?	42 44.7	98 55.7	60	54.1
9.	Do you engage in brisk walking exercise to reduce the risk of getting too much weight during exercise?	62 66.0	94 53.0	61	55.0
10.	Do you engage in walking during pregnancy at least 45 minutes to reduce subcutaneous fat?	44 46.8	92 52.3	62	55.9
.	**Mean knowledge Score**	**72.3**	**75.0**		**70.3.**
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Table 4 shows that high proportion of pregnant women practice pregnancy - related exercise based on parity, women with 1 - 3 delivery (75.0%), no delivery (72.3%), and 4 and above delivery (70.3%) specifically.

Table 5:

ANOVA analysis of level of knowledge of PREs in Nsukka LGA Health Facilities (n=380)

Source	SS	MS	F	df	P -value	Decision
Between groups	1428.086					
Within groups	121362.465	714.043	2.675			
Total			321.065	2	.110	Not

						Rejected

Results in Table 5 show the ANOVA analysis with the corresponding p-value for hypotheses of no significantdifference in the knowledge of PREs of pregnant women based on parity (F= 2.675, p = .110> 0.05), Since the p-value was greater than 0.05 level of significance, the null hypotheses were therefore accepted. Thisimpliesthat therewasno significant difference in the level of knowledge of PREs based on parity.

Table 6: *Chi - Square analysis of level of practice of PREs in Nsukka LGA Health Facilities based on parity (n=380)*

Parity	N	True O(E)	False O(E)	x^2	Df	P – value
Non	94	68 (68.6)	26 (25.4)			.671
1 - 3	176	132 (128)	44 (47.6)			
4 and above	111	78 (81.0)	33 (30.0)	.797	2	

Results in Table 6 shows the Pearson Chi - square value with corresponding p - value for hypotheses of no significant difference in the practice of PREs based on parity (x = .797; p -value= .671>.05). The p-value was greaterthan .05 level of significance at 2 degrees freedom. This implies that there was no significant difference in the practice of PREs based on parity.

Discussions

The findings in Table 1 showed that pregnant womenhad moderateknowledge of PREs (58.3%). The finding was expected bearing in mind that pregnant women do exercises during antenatal visits and they are also found in higher institutions, as students where they walk and run around for their lectures. The finding was in line with the finding of Bedzadeh, Teebi, Sadat and Sabari (2011) who noted moderatelevel of PREs among their study populations. Findings also agrees with that ofJanakiraman, Gebreyesus, Yinuhie and Genet (2021) who reported that (55.3%) pregnant women had adequate knowledge of PREs. The implication of the finding is that both infant and maternal mortality may be reduced if pregnancy - related exercises is stressed on.

Also on knowledge regarding parity, women that had 1 - 3 deliveries, no delivery and 4 and above all had moderate knowledge. This agrees with the findings of Igbokwe and Abugu (2017) which reported that pregnant women irrespective of parity had average knowledge of antenatal exercise. The implication of the finding is that more healthy babies and strong women will be produced for sustainable development. There was no significant difference in the knowledge of PREs based on parity.

Findings in table 2 showed high practice of PREs among pregnant women attending health facilities in Nsukka LGA. The finding was not surprising owing to the numerous exposures and engagements of mothers to exercises and benefits of exercises to mothers and feotuses. This is in line with the suggestion of Dada, Akinwade, Awotidebe and Alonge (2014) which showed that majority of Nigerian pregnant women demonstrated

high practice of exercises during pregnancy. The implication of the finding is that more healthy babies will be produced by healthy mothers forsustainability.

On parity, result showed high practiceof PREs among women with 1 -3 delivery, no delivery and 4 and above deliveries. The result was surprising as one would expect that higher parity will influence more practices of PREs among pregnant women, yet, all parity group had high practice. No significant difference existed in the practice of PREs among pregnant women in Nsukka LGA health facilities based on parity.

Conclusion

Based on the finding, it was concluded that pregnant women had moderate knowledge level of pregnancy - related exercise - PREs. There was high practice of PREs among pregnant women with 1 - 3 deliveries, no delivery and 4 and above deliveries respectively. There wasno significant differencein the knowledge and practice of pregnancy - related exercises - PREs based on parity.

Recommendations

Based on the conclusions, the researchers recommended that nurses, health educators and community health extension workers - CHEW, should intensify efforts in teaching the importance of promoting exercises during pregnancy. Also, exercise physiologistsin collaboration with other experts such as nutritionists, dietitians, should help in teachings about pregnancy - related exercisesimportance and its practice. Other relevant stake holders such physical educators etcshould collaborate in teachings about exercises and its benefits if well adhered to and also make policies especially on mothers to compulsorily engage in exercises based on health status of the mothers and intensity.

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