



KNOWLEDGE ATTITUDE AND PRACTICE OF PREGNANT WOMEN TOWARDS PHYSICAL EXERCISE IN AGEGE LOCAL GOVERNMENT AREA OF LAGOS STATE, NIGERIA

Obi- Nicholas Favour Chinwe¹, Dr. Ajayi Oluwaseun Chidera²,

Dr. Aina Oluwaseun James³, Kwarbai Aaron Maitala⁴ and Ubiaza Ehidiabhen Lawrence⁵

¹Babcock University, Ilishan, Nigeria. Email: favournicholas4@gmail.com

²Babcock University, Ilishan, Nigeria. Email: ajayichidera1997@gmail.com

³Babcock University, Ilishan, Nigeria. Email: omolabiereke1@gmail.com

⁴World Health Organization. Email: Kwarbaiaaron@gmail.com

⁵Babcock University, Ilishan, Nigeria. Email: ehidiabhen@gmail.com

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ABSTRACT: Introduction: Pregnancy is a good time to develop a healthy lifestyle in pregnant women which includes physical exercise. The objective of this study was to assess the knowledge, attitude and practice of physical exercise among pregnant women in Agege local government area in Lagos state, Nigeria. **Methodology:** A cross-sectional survey method was used; 400 pregnant women were recruited into the study using convenience sampling technique. A structured and validated questionnaire was designed to assess knowledge, attitude and practice of pregnant women towards physical exercise was used to collect data. All the results were tested at 0.05 level of confidence. **Results:** The result showed that 36% of the pregnant women were between the age of 21-25 years and more than 35% were between 15-20 years, more than (71%) of the women have heard about physical exercise. Nevertheless, only 52% of the pregnant women engaged in physical exercise. Most (54.0%) of them actually prefer domestic activities over real physical exercise. The result suggests that women's knowledge concerning physical exercise during pregnancy is reasonable and their attitude is positive; however, a large number do not practice physical exercise. Antenatal program may be tailored into introducing guided physical exercise and introduce pregnant women into guided models of fitting exercises for each trimester. **Conclusion:** Physical exercise in pregnancy is important to aid bodily movement produced by skeletal muscles that results in energy expenditure. Exercise is a subset of physical activity that is planned, structured, and repetitive and has as objective to improve or maintain physical fitness. Physical activity and exercise promote health and longevity, and minimal adherence to current physical activity guidelines is associated with a significant 20-30% reduction in risk of all-cause mortality. Pregnancy leads to a reduced level of physical activity for most women, the activity level is often further reduced throughout pregnancy, and the pre-pregnancy exercise level is usually not regained six months after childbirth

KEYWORDS: Exercise, Pregnancy, Physical activity.



INTRODUCTION

The wellbeing of every pregnant woman and her child is as important as the breath in our nostril and also as important as an integral part of a society, the health of a mother is as important as the child in her womb. Pregnancy is defined as the time during which one or more offspring develops in the womb of a female, it can also be referred to as gestation (World Health Organization 2016).

APA (2016) stated that physical exercise is any bodily activity that enhances or maintains physical fitness and overall health and wellness. Exercise during pregnancy is very important and can help reduce some common discomforts of pregnancy and even help prepare the body for labor and delivery. PE was performed for various reasons which includes strengthening the muscles and the cardiovascular system, weight loss or maintenance. Frequent and regular physical exercise boosts the immune system and helps prevent chronic diseases. PE can also help prevent stress and depression and increase an individual sex appeal and body image.

Physical inactivity is the fourth-leading risk factor for early mortality worldwide (World Health Organisation 2015). In pregnancy, physical inactivity and excessive weight gain have been recognized as independent risk factors for maternal obesity and related pregnancy complications, including gestational diabetes mellitus (Dye et al., 1997; Arial, 2015; Obstet, 2013). Physical exercise is an essential prerequisite for a healthy pregnancy but some women don't know its essentials and importance of participation, thereby causing complications for both the mother and the child which can lead to an increase in the level of infant and maternal mortality rate. Attitude towards exercise in pregnancy was influenced mostly by tiredness, lack of feeling to exercise, and insufficient information on exercise, similar findings have been reported by some authors (Milanez et al., 2011).

According to the World Health Organization, physical activity plays an essential role in the prevention of cardiovascular disease, stroke, type II diabetes, colon and breast cancer, and depression (World Health Organization, 2009). Formerly, women were expected to limit physical activity when becoming pregnant, due to an assumed increased risk of spontaneous abortion and preterm birth. Even though pregnancy is a unique condition characterized by a different physiology in the mother and concern for the growing fetus, this precaution is now generally disregarded and today physical activity is also part of antenatal care.

In addition to general health benefits, physical activity has been associated with favorable effects on maternal outcomes in pregnancy such as gestational diabetes (Dempsey, 2004) and pre-eclampsia (Marcoux, Brisson, & Fabia, 1989; Sorensen et al., 2003), although the assumed preventive effect on pre-eclampsia is being questioned in a Cochrane review and a recent study from the Danish National Birth Cohort (Osterdal, 2009). Pregnancy leads to a reduced level of physical activity for most women, the activity level is often further reduced throughout pregnancy, and the pre-pregnancy exercise level is usually not regained six months after childbirth (Fell, 2008). Among women who are physically active before pregnancy, the factors associated with discontinuing sports activities during pregnancy are similar to those for inactivity both prior to and after pregnancy (Donahue, 2009). Hence, if physical activity during pregnancy is healthy - or at least harmless - for both the mother and the child, knowledge of exercise behavior in relation to



pregnancy and predictors is useful in terms of public health interventions. With the increasing focus on physical activity in general, it is essential to establish evidence-based guidelines addressing physical activity during the pregnancy period.

Pregnant women are advised to participate in the condition-enhancing exercise as a part of a healthy lifestyle as it is safe for the mother and fetus, mitigates the risk of abnormal pregnancy or delivery outcomes, improves and maintains good general fitness during pregnancy, and prepares the body for the actual delivery (Josefsson & Bø, 2011). The need for physical exercise and the highlighted benefits can be linked to the documented physical changes that occur among pregnant women. Changes like the increased need for oxygen which entails increased respiratory depth and an increased respiratory rate, and the increased blood volume which leads to a higher heart rate and greater stroke volume all necessitate physical exercise of certain forms.

In spite of recommendations for healthy pregnant women to take 30 minutes or more of moderate exercise a day, most women reduce the level of physical activity during pregnancy (Hegaard, Kjaergaard, Damm, Petersson, & Dykes, 2010). The causes of reduced physical exercise during pregnancy are linked to social, physiological, and psychological factors. For example, Hegaard (2010) reported that pregnant women find the discomfort and complications associated with pregnancy, the growing body, and a sense of insecurity with physical activity are barriers to maintaining former levels of physical activity. Torset (2013) also cites that being pregnant is followed by several physiological changes and pregnancy symptoms, which have the potential to reduce the quality of life and well-being of pregnant women.

In spite of the fact that exercise programs during pregnancy and after childbirth are designed to minimize impairment and help the woman maintain or regain function while she is preparing for the arrival of the baby and then caring for the infant, it is submitted that women are not meeting the exercise recommendations of the previous studies (Evenson, 2009). A myriad of factors not limited to beliefs and attitudes of women with respect to exercise in pregnancy, level of knowledge, level of education, safety concern of the pregnant woman and her physician, race/ethnicity, and previous involvement in regular exercise have been implicated as important factors predisposing to exercise engagement or phobia among pregnant women. Thornton (2006) submitted that identifying factors that affect beliefs and behaviors would objectively encourage a change in attitude. Despite the numerous physical and mental health benefits associated with regular exercise (Health Canada, 2004; Warburton, Nicol & Bredin, 2006), many people fail to engage in a sufficient amount of exercise (Miller, Sales, Kopjar, Fihn & Bryson, 2005).

METHODOLOGY

Study Design

In this study, a cross-sectional survey was used to measure the knowledge, attitude and practice of physical exercise during pregnancy in Agege Local Government Area of Lagos. The study population is pregnant women attending both public and private hospitals in Agege Local Government Area. The local government has ten primary health centers. The days of antenatal in



these primary health centers are two times a week. A representative sample was drawn from the total study population. In order to eliminate the error in sample collection, the standard error of mean formula was used.

Research Instrument and Data Collection

A multistage sampling technique was used for the study. A simple random sampling was used to select four hundred (400) pregnant women from the five selected PHC among the 10 PHC in the LGA health care centers in Agege LGA. A convenience sampling technique was used to select the sample of all volunteers who signify that they can read and write were drafted into the study, who were pregnant women between 12-32 weeks of gestation, attending outpatient department. They were able to speak and read English moderately. Permission of the concerned pregnant women and the health centers was sought.

In this study, a letter of introduction was obtained from my supervisor introducing the researcher as a student of the department as well as for the purpose of identification and to enable the researcher to have easy ethical approval from the PHC coordinator in Agege Local Government Area. The researcher conducted the study personally with the help of research assistants who were recruited and trained on the administration of the research instrument. The researchers educated the patients about the content of the questions and methods filling the questionnaire, the researchers will also assist respondents with low educational background, about 30 minutes will be spent with the respondents.

Inclusive criteria: All registered female patients attending the antenatal clinic to see the Obstetrics and Gynecology Doctors of both public and private health centers will be recruited for the study.

Exclusive criteria: Patients who are not attending the antenatal clinic or not registered at either public or private health centers will not be recruited for the study.

Study Variables

The independent variable in the study is knowledge, attitude and practices. The dependent variable is the physical exercise among pregnant women.

Data Analysis

Data retrieved from this study was analyzed using the version of 21.0 IBM Statistical Product and Service Solution (SPSS). Descriptive statistics and inferential statistics were used to answer the research questions and results were presented in tables, pie and bar charts.

Ethical Clearance

An application for ethical approval for this study was submitted to the Babcock University Research Ethics Committee. The purpose of the study was explained to all participants, after which verbal consent was given by each participant, while they also signed the consent forms. All participants were assured of anonymity and the confidentiality of the information received from



them. Permission was also requested from the director in charge of the Agege local government primary health care department.

RESULTS

Socio-Demographic Characteristics of Respondents

Based on the results presented below, many 135 (35.5%) of the pregnant women are between 15-20 years, many 142 (36%) are 21-25 years, while few 50 (12.9%) are between 26-30 years, few 56 (14.4%) are between 31-35 years and about 0.8% are 36 years and above. Close to 72% of the respondents are Christians, 20% practise the Islamic religion, while 6.9% practise other religions. More than 78% of the respondents are Yoruba, while 12.3% are from the Igbo tribe and more 7% are from another tribe. About 31% of the respondents are civil servants, 25.7% are unemployed while 24.2% are artisan. 44% of the pregnant women had tertiary education, 24% had primary school education, 22.6% had no formal education and about 9% had secondary school education.

Table 1 showing demographic characteristics respondents

Variables	Categories	Frequency	Percentage
Age	15-20 years	138	35.5
	21-25 years	142	36.5
	26-30 years	50	12.9
	31-35 years	56	14.4
	36 years and above	3	.8
Religion	Christianity	280	72.0
	Islam	79	20.3
	Traditional	3	.8
	Others	27	6.9
Ethnicity	Yoruba	307	78.9
	Igbo	48	12.3
	Hausa	5	1.3
	Others	29	7.5
Occupation	Artisan	94	24.2
	Unemployed	100	25.7
	Civil Servant	123	31.6
	Others	72	18.5
Level of Education	No formal education	88	22.6
	Primary School	94	24.2
	Secondary School education	36	9.3
	Tertiary Education	171	44.0



Knowledge of Physical Exercise in Pregnancy

71.7% are informed about physical exercise; over 63% of the pregnant women revealed that, physical exercise is good for pregnant women, more than 68% of the respondents reported Doctors/Nurses as the major sources of information about physical exercise in pregnancy, about 12.6% revealed school and friends were their sources of information about physical exercise in pregnancy. 44% of the respondent reported physical exercise as engaging in gym session, while 33.4% reported engaging in domestic activities, about 54% of the pregnant women reported they spend 2-4hour in physical exercise, 28.3% reported they spend about 2 hours, about 16.7% spend 5 hour or more on physical exercise. 54% of the respondent reported that, engaging in domestic activities is better-off than real physical exercise more than 50% reported that, physical exercise in pregnancy is important for wellbeing while more than 51% reported that physical exercise in pregnancy must be monitored by professionals.

Table 2 showing Knowledge of Physical Exercise in Pregnancy

Variables	Categories	Frequency	Percentage
Do you know what physical exercise in pregnancy	Yes	279	71.7
	No	110	28.3
Is physical exercise good for pregnant women	Yes	247	63.5
	No	142	36.5
if yes, what is the source of your information	School	49	12.6
	Teacher	24	6.2
	Doctor/Nurses	268	68.9
	Friends	48	12.3
What is physical exercise	Jogging/Running around the field only	87	22.4
	Engaging in domestic activities	130	33.4
	engaging in gym sessions	172	44.2
How long should physical exercise last for in pregnant women	2 hours	110	28.3
	2-4 hours	212	54.5
	5 hours or more	65	16.7
Engaging in domestic activities is better-off than real physical exercise	Yes	210	54.0
	No	179	46.0
Physical exercise in pregnancy is important for improved wellbeing	Yes	190	48.8
	No	195	50.1
Physical exercise in pregnancy must be monitored by professional experts in physical exercise	Yes	199	51.2
	No	190	48.8



Attitude towards Physical Exercise in Pregnancy

Based on the information obtained in table 2 which revealed that over 36% of the respondents agreed that physical exercise is good for body posture in pregnancy while more than 44% of the respondents agree there is no reason for physical exercise in pregnancy while 19% disagreed that there are specific reasons for physical exercise in pregnancy. Over 40% reported that physical exercise in pregnancy enable easy delivery, and 50% of the respondents agreed that physical exercise is important medically for improved wellbeing, while 18% disagreed to this statement. Over 48% of the pregnant women reported that, physical exercise in pregnancy reduces calories level in the body; about 45% of the respondents reported that physical exercise can be dangerous when a lady has threatened abortion, while more than 23% disagreed that over half of the respondents agreed they may lose their pregnancy if they participate in physical exercise, close to 63% of the respondents reported that, pregnant women don't need to run, while 23.1% agreed, about 37% of the respondents agreed that, domestic activities will make them tired, so they don't do it. More than 58% of the respondents reported that physical exercise may lead to induced abortion, and about 42% of the respondents agreed that physical exercise in pregnancy is meant for the educated while 35% reported is not only meant for the educated.

Table 3 showing Attitude towards Physical Exercise in Pregnancy

Attitude towards Physical Exercise in Pregnancy	SA	A	SD	D
Physical exercise is good for the body posture in pregnancy	100(2.7%)	142(36.5%)	114(29.3%)	33(8.5%)
There is no reason for physical exercise in pregnancy	171(44%)	116(29.8%)	28(7.2%)	74(19%)
Physical exercise in pregnancy enables easy delivery	159(40.9%)	130(33.4%)	95(24.4%)	5(1.3%)
Physical exercise is important medically for improved wellbeing	82(21.1%)	191(49.1%)	45(11.6%)	71(18.3%)
Physical exercise in pregnancy reduces calories level in the body	98(25.2%)	85(21.9%)	16(4.1%)	190(48.8%)
Physical exercise can be dangerous when a lady has threatened abortion	178(45.8%)	104(26.7%)	17(4.4%)	90(23.1%)
I may lose my pregnancy if I participate in physical exercise	86(22.1%)	221(56.8%)	78(20.1%)	4(1%)
Pregnant women don't need to run	19(4.9%)	90(23.1%)	34(8.7%)	246(63.2%)
Domestic activities will make me tired, so I don't do it	128(32.9%)	144(37%)	33(8.5%)	84(21.5%)
I may have induced abortion if I engaged in physical exercise	88(22.6%)	227(58.4%)	67(17.2%)	7(1.8%)
Physical exercise in pregnancy is meant for the educated people	165(42.4%)	88(22.6%)	0(0%)	136(35.%)



I am afraid something may happen to my child if I engage in physical exercise	220(56.6%)	68(17.5%)	89(22.9%)	12(3.1%)
Physical exercise in pregnancy should be include in my regimens	178(45.8%)	132(33.9%)	76(19.5%)	3(0.8%)
Pregnant women require adequate rest	150(38.6%)	183(47%)	44(11.3%)	12(3.1%)
Physical exercise in pregnancy is not appropriate	298(76.6%)	24(6.2%)	32(8.2%)	34(8.7%)
Physical exercise in pregnancy is a problem in my culture	150(38.6%)	239(61.4%)	0(0%)	0(0%)
My health affects the child in my womb	170(43.7%)	116(29.8%)	94(24.2%)	9(2.3%)
There is no adequate educational forum to encourage me to do physical exercise	175(45%)	210(54%)	3(0.8%)	1(0.3%)

Analysis of Practice of Physical Exercise in Pregnancy

The results showed that, over 52% of the pregnant women engage in vigorous physical activities for at least 10 minute per day, over 51.9% carry heavy loads daily while 45% do not, more than 55% mostly take about one-two hours walk every day, close to 82% of the respondent mostly travel through the road most often while 11.3% do not mostly travel through the road most often. Over 50% of the respondents reported not having a bicycle at home for physical exercise while 36% have it at home. More than 51% of the respondents prefer to sit down in one position during pregnancy, 72% of the respondent reported that they find it difficult to straighten

Table 4 Showing Attitude towards Physical Exercise in Pregnancy

Measure of Practice of Physical Exercise in Pregnancy	Yes	No	I don't know
I engage in vigorous physical activities for a least 10 minutes per day	204(52.4%)	112(28.8%)	73(18.8%)
I carry heavy loads daily	202(51.9%)	177(45.5%)	10(2.6%)
I mostly take about one-two hours walk everyday	215(55.3%)	146(37.5%)	28(7.2%)
I mostly travel through the road most often	322(82.8%)	44(11.3%)	23(5.9%)
I have bicycle at home for physical exercise	143(36.8%)	196(50.4%)	50(12.9%)
I prefer to sit-down in one position during pregnancy	202(51.9%)	84(21.6%)	103(26.5%)
I find it difficult to straighten.	280(72%)	75(19.3%)	34(8.7%)



There is no joint effect of the independent variables (knowledge, attitude and practice) on physical exercise in pregnancy among pregnant women in Agege Local Government

The table presented below in the table showed the combination of the independent variables (knowledge, attitude and practice) account for 65% of the variance in physical exercise variables (R^2 adjusted = 0.41). The analysis of variance of the multiple regression data yielded an F-ratio value which was found to be significant at 0.05 alpha level ($F_{2,19} = 94.138$; $p < 0.05$).

Table 5: Multiple regression analysis showing the joint contribution of (knowledge, attitude and practice) on physical exercise in pregnancy among pregnant women in Agege Local Government

R= 0.651

$R^2=0.424$

Adjusted $R^2=0.479$

Standard Error = 0.8244

Analysis of Variance				
	Sum of square	Df	Mean square	F
Regression	191.919	3	63.973	94.138
Residual	260.955	384	.680	
Total	452.874	387		

However, results obtained in the table above indicate the effect of each of the independent variables (knowledge, attitude and practice) on the dependent variable (physical exercise in pregnancy). In terms of most significant effect, attitude contributed most to the physical exercise among pregnant women ($\beta = 0.711$; $t = 2.454$; $p < 0.05$). Next in terms of magnitude of effect is Knowledge ($\beta = 0.413$; $t = 1.561$; $p < 0.05$) followed by Practice ($\beta = 0.325$, $t = 1.683$; $p < 0.05$). Hence, the three variables had significant effect on physical exercise among pregnant women in Agege Local Government Area of Lagos State.

Table 6: Effect of independent variables (Knowledge, Attitude and Practice) on the dependent variable

Model		Unstandardized		Standardized	t	Sig.
		Coefficients		Coefficients		
		B	Std. Error	Beta		
1	(Constant)	1.919	.564		3.402	.001
	Knowledge	.413	.023	.622	1.561	.005
	Attitude	.711	.024	.918	2.454	.001
	Practice	.325	.019	.651	1.683	.000



Summary of Descriptive Statistics

The mean score for Knowledge is 12.56 while the Standard deviation score is ± 1.79 . This was done on a minimum to maximum scale of 31 point rating scale. This indicates that knowledge is a significant factor for physical exercise in pregnancy. The mean score for attitude is 16.65 with the S.D = ± 1.76 , the rating for attitude was done on a minimum to maximum scale of 0-40 points and the mean score for practice is 4.10 while the S.D ± 13.08 , this was measured on the minimum to maximum scale of 21 points.

Variables	Mean	Standard Deviation	Standard Error
Knowledge	12.5578	1.79629	.09108
Attitude	16.6530	1.75874	.08917
Perception	13.0799	2.16892	.11011

DISCUSSION

The result revealed that there was a significant increase in the knowledge level about physical exercise in pregnancy in Agege Local Government. The result corroborates the findings of Wang and Apgar (2012) that there is a significant influence of physical exercise and the development of mother, the fetus, and during the course of pregnancy. However, the American Congress of Obstetricians and Gynecologists (2002) found that knowledge of physical exercise in pregnancy influences attitude towards the growth and development of the fetus. There was no joint association between age and occupation of mothers to experience physical exercise in pregnancy especially during the second trimester.

There was a positive attitude physical exercise in pregnancy that the result is in tandem with the findings of Adeniyi (2014) on attitude towards physical activity and energy expenditure in Ibadan pregnant women. About half [222(49.0%)] of the participants were classified as sedentary based on their performance on the Pregnancy Physical Activity Questionnaire (PPAQ).

Only one study by Mbada (2014) looked at the impact of attitude towards physical activity in pregnancy. Although the study presented that the health benefits of regular physical exercise in pregnancy include maintenance and improvement of physical fitness and cardiovascular endurance, prevention of excessive gestational weight gain and glucose intolerance, conditioning of the muscles needed to facilitate labor and improvement in psychological adjustment to changes in pregnancy, exercise in pregnancy is correlated with a decrease in many common problems of pregnancy and the stress of exercises produces certain adaptation such as healthier placenta and increased ability to deal with short decrease in oxygen (Donald, 2004)

The practice of physical exercise in pregnancy was reported to improve psychosocial wellbeing of the mother and the child; the result is supported with the findings of Muzigaba (2014) that physical pain, large body size due to pregnancy and lack of energy were barriers to engaging in physical activity during pregnancy. The unavailability of physical activity-based facilities at community level and lack of time to exercise due to family work responsibilities were major environmental barriers to physical activity during pregnancy. Similar findings from low-income countries in the



developed world have been reported in literature. Similarly, Groth and Morrison-Beedy (2013) found that there was a significant influence of increased physical exercise in pregnancy and growth of children.

Owe et al. (2009) found that while 46% of participants had been regular exercisers at pre-pregnancy, this rate had dropped to 28% by 17 weeks and to 20% by 30 weeks. Juhl (2010) reported that by 30 weeks, 48% of the women who had been exercising at 16 weeks had ceased activity. Additionally, Foxcroft (2011) found that the percentage of women classified as 'non-exercisers' increased from 40% at 20 weeks and 41% at 28 weeks to 57% at 36 weeks. Three population-based studies compared exercise participation rates between pregnant and non-pregnant women. Petersen (2005) and Evenson (2004) both examined US cross-sectional data collected as part of the Behavioral Risk Factor Surveillance System. Results showed that virtually no difference between pregnant and non-pregnant women when it came to moderate exercise, with 11% and 15% of pregnant women and 12% and 26% (Evenson, 2009; 2011) of non-pregnant women meeting US guidelines (>150 minutes of moderate activity per week). However, in Petersen et al.'s study, almost twice as many non-pregnant women met the guidelines for vigorous activity (17%) as compared to pregnant women (9%).

CONCLUSION

Physical exercise in pregnancy is important to aid bodily movement produced by skeletal muscles that results in energy expenditure. Exercise is a subset of physical activity that is planned, structured, and repetitive and has as objective to improve or maintain physical fitness. Physical activity and exercise promote health and longevity, and minimal adherence to current physical activity guidelines is associated with a significant 20-30% reduction in risk of all-cause mortality. Pregnancy leads to a reduced level of physical activity for most women, the activity level is often further reduced throughout pregnancy, and the pre-pregnancy exercise level is usually not regained six months after childbirth

RECOMMENDATIONS

1. Policies and strategies guiding the participation of pregnant women in physical exercise should be formed.
2. Government should ensure the provision and funding of facilities needed for physical exercise during pregnancy.
3. There is a need for pregnant women to adopt the traditional methods of physical exercises.



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