

# Perception of Prenatal Exercise and Its Perceived Outcome among Pregnant Women Attending Antenatal Clinic at the University of Calabar Teaching Hospital

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## Abstract

This study was a cross-sectional descriptive design aimed at assessing the perceptions of prenatal exercises and its perceived outcome among pregnant woman attending antenatal clinic at the University of Calabar Teaching Hospital Calabar. The specific objectives were to assess the awareness of prenatal exercises, identify the types of prenatal exercises, ascertain the view of pregnant women about prenatal exercises and the perceived outcome of prenatal exercises among pregnant women attending antenatal clinic at the University of Calabar Teaching Hospital. Four research questions were formulated to guide the study. Two hundred and twenty (220) respondents randomly selected from four clinic days Tuesdays, Wednesdays, Thursdays and Fridays in each visit for a period of two weeks were used for the study. A structured questionnaire was used to collect data. The data were analyzed using frequencies and percentages. The finding of the study revealed that: a large proportion of the respondents 180 (81.8%) respondents affirm that they heard of prenatal exercise; almost all 200 (90.9%) respondents affirm that prenatal exercise is a physical activity performed by pregnant women to improve health before delivery, majority 200 (90.9%) respondents carried out dancing and breathing form of exercise; many 170 (77.3%) respondents carried out Yoga and relaxation exercise. Also, many 100 (45.5%) respondents agreed that prenatal exercise causes preterm labour; a large proportion 200 (90.9%) respondent agreed that prenatal exercise help reduce postpartum weight retention and childhood obesity and large number 130 (59.1%) respondents affirm that prenatal exercise help in the prevention of chronic diseases and unhealthy weight gain during pregnancy. The study concludes that majority of the participants are involved in one form of exercise or the other. However, they perceived that exercise promotes the health of the mother during pregnancy with regards to prevention of chronic diseases and unhealthy weight gain during pregnancy. The recommendation from the study is that midwives should increase awareness of prenatal exercises among pregnant women during antenatal services, and pregnant mothers should be encouraged to participate in prenatal exercises.

**Keywords:** exercise, pregnant women, midwives, pregnancy, antenatal, physical activities

## 1. Introduction

The body experiences dramatic physiological and psychological changes during pregnancy. This is natural as exercise helps the body to remain healthy (Perales et al., 2016; Gregg & Ferguson, 2017; Schafer et al., 2019). Pregnant women must indulge in regular physical activities called “*prenatal exercise*” (Fraser and Cooper, 2014). The benefits of exercise cannot be over emphasized (da Silva et al., 2017). For example, Exercise has been scientifically known for promoting the circulation of blood to both the pregnant woman and the vital organs of the developing foetus (Fraser & Cooper, 2014). Also, prenatal exercises is of great benefit to both mother and foetus in order to reduce risk of disorders associated with pregnancy; improves muscle tone, enhance safe and normal delivery (May et al., 2017; Perales, Artal, & Lucia, 2017). According to Markinde, Adeyemo and Ogundele (2014), prenatal exercises prevent gestational diabetes and reduce the risk of preterm labour among nulliparous women who exercise regularly. In addition, pregnant women who practiced more than one type of sports had 24% of reduced risk of preterm delivery; compared with women with no sports activity. Furthermore, prenatal exercise has many benefits including reducing the risk for coronary heart disease, metabolic syndrome and systemic inflammation. Besides; babies born from women who underwent regular exercise seem calmer, more intelligent with improved neurological and mental function and adapt faster to a new environment (Labonte-Lemoyne,

Curnier, & ElleMBERG, 2017). However, for most women who are less active during pregnancy, the rate of activity differs by race and ethnicity in a number of ways.

Although, Personal and cultural values are believed to have an influence on the woman's physical behaviours and little is known about how to support exercise during pregnancy (Nkhata, Nkandu, & Shula, 2015). Markinde, Adeyemo and Ogundele (2014) asserted that prenatal exercise should be carefully designed to enable the pregnant woman to remain healthy throughout pregnancy. This is because there are different exercise programs available for pregnant women; which include aerobics exercises such as dancing, walking, and swimming, also kegel exercise which involves tightening of pelvis muscles to control urine flow (Santos-Rocha, Gutiérrez, Szumilewicz, & Pajaujiene, 2019). These workouts are meant to help the pregnant woman make good use of all their muscles during birth and to increase the speed of post-partum recovery and also aim at maintaining the tone of the muscles especially the pelvis muscles, improve circulation and provide a good support for the uterus and other organs (da Silva et al., 2017; May et al., 2017; Schafer et al., 2019).

Furthermore, Jackson and colleagues (1995) report that exercise is an activity requiring physical effort done to improve health. Exercise is a physical or mental activity that is done to stay healthy or become stronger (Richards, Jiang, Kelly, Chau, Bauman, & Ding, 2015). Therefore, exercise sessions in antenatal clinic should be designed to stimulate interest in the physical changes occurring to promote body awareness and to facilitate physical and mental relaxation (Tunkara-Bah, 2016). Proper introduction of exercise during pregnancy influences the perception of exercise during pregnancy (Ferrari, Siega-Riz, Evenson, Moos, & Carrier, 2013). Perception is how a person sees a situation or the feeling an individual has about a thing (Locke, 2016). Perception is an idea, or an image one has as a result of how one sees or understand a thing or situation (Barroso et al., 2011). Many factors may influence the perception of pregnant women such as age, level of education and culture (Thompson, Vamos, & Daley, 2017; Harrison, Taylor, Shields, & Frawley, 2018). Historically, there have been concerns about the adverse effects of prenatal exercise on pregnancy outcome but recent studies have found no adverse effects of regular, moderate-intensity prenatal exercise (Markinde, Adeyemo, & Ogundele, 2014).

Ogodo, Elom, Ilo, Orgi, Nwimo, and Afoke (2016) documented that despite the clear benefits of adequate physical activity and significant risks to sedentary behaviour, only about 15% of pregnant women achieve recommended levels of physical activity weekly during pregnancy. Common misconceptions include beliefs that physical activity may cause miscarriage, restrict fetal growth, cause preterm birth, and lead to musculoskeletal injury (Garland, 2017). Others common reason for pregnant women not exercising while pregnant is cultural belief; physical changes during pregnancy; not knowing how to exercise and being unsure why they should exercise (David, 2016; Schafer et al., 2019). Some of the barriers to physical activity during pregnancy are depression, anxiety and fatigue; which have been shown to be attenuated by regular exercise performed by non-pregnant samples (American College of Obstetricians and Gynecologists (2015; Coll, Domingues, Gonçalves, & Bertoldi, 2017). Consequently, the adverse consequences of inactivity may be life-threatening problems among pregnant women about 60% are inactive during pregnancy.

Exercise during pregnancy is of utmost concern for most health care providers, educators, the general public as well as pregnant women and their families (Rajabi, Maharlouei, Rezaianzadeh, Lankarani, Esmacilzadeh, Gholami, & Mansori, 2018; van Poppel, Owe, Santos-Rocha, & Dias, 2019). Regular and moderate exercise in early pregnancy is healthy for mothers and their babies. Studies have reported that many expectant mothers still remain inactive and do not meet sufficient exercise recommendations (Nkhata, Munalula-Nkandu, & Shula, 2015; Choi, hyeon Lee, Vittinghoff, & Fukuoka, 2016; Cid & González, 2016). There is inadequate information on prenatal exercises and their outcome among pregnant in the study area. Hence, this study is done to assess the perception of prenatal exercise and its outcome among pregnant women attending ante-natal clinics at the University of Calabar Teaching Hospital. To achieve this, the purpose of the study is to assess the perception of prenatal exercise and its outcome among pregnant women attending ante-natal clinic at University of Calabar Teaching Hospital.

## 2. Methods

The study was conducted at the University of Calabar Teaching Hospital, which is situated in Calabar Municipality. It was founded in the year 1897. It was formerly at St. Margaret Hospital Moore road in Calabar South Local Government Area, but moved to the permanent site in February 2012. It has the responsibilities of manpower development (teaching), treatment of the patient at the specialist level (clinical services) and promotion of scientific knowledge (research). The hospital is headed by a Chief Medical Director, it is made up of several departments, which include: Medical, Nursing, Pharmacy, Medical Laboratory and Medical Record Department. The hospital runs a 24 hours service and offers preventives and creative health services. It is also made up of

twenty-four wards/units including the intensive care units (ICU), central sterilizing units, main theatre, Diarrhea treatment, and training unit (DTTU) accident and emergency, radiography, ophthalmic otorhinolaryngology among others. The hospital serves as a referral centre for all other levels of health care in Cross River State.

### 2.1 Population

The populations for this study consisted of all pregnant women who registered/booked and were attending antenatal services in antenatal clinic of the UCTH. An estimated four hundred and ninety (490) women attended antenatal clinic monthly. A sample size of 220 pregnant women was recruited for the study using a proportionate sampling technique. The researchers selected the participants through simple random techniques that enable the participant to have equal chances of being selected for the study. At each visit 30, 20 and 15 participants were selected from four clinic days Tuesdays, Wednesdays, Thursdays and Fridays for a period of two weeks to give a total of 220 participants. Participants were only included once. Participants who had earlier partook are told not to be involved. To ensure this, pregnant women were all given codes. On each day selection was based on balloting without replacement. Hence all 220 participants were chosen without repetition. Also, this was made possible because all the pregnant women receiving antenatal care in the hospital were group and signed with different antenatal for their visit and by this duplication of respondents eliminated.

### 2.2 Ethical Considerations

This was given to the Deputy Director of Nursing Services (DDNS) to carry out the study. Permission obtained from the hospital to carry out the study; while a verbal consent was obtained from each of the respondents before administration of the questionnaires and participation was voluntary.

### 2.3 Data Collection Method

A validated and structured questionnaire was used for data collection. The researcher used one trained research assistant with RN and RM certificates to assist in data collection. Face to face method of data collection was adopted where the questionnaires were distributed directly to the sampled population and the same collected immediately after completion.

### 2.4 Data Analysis

The data collected from the respondents were coded and scrutinized. The data were analyzed using descriptive statistics using frequencies and simple percentages. The major independent variables are level of awareness; identify the different types of prenatal exercises, educational level; views and the perceived outcome of prenatal exercises; the dependent variables were prenatal exercise, pregnant women, antenatal clinic and University of Calabar Teaching Hospital.

## 3. Results

Table 1. Socio-demographic data (n=220)

Variables	Frequency	Percentage (%)
<b>Age in years:</b>		
15-24	60	25%
25-34	90	41.7%
35-44	60	25%
45 and above	10	8.3%
<b>Educational qualification:</b>		
Primary	40	18.2%
Secondary	80	36.4%
Tertiary	90	40.9%
No formal education	10	4.5%
<b>Occupation</b>		
House wife	37	16.8%
Civil servant	80	36.4%

Farmers	43	19.5%
Business	60	27.3%

The age distribution of the respondents revealed that 60 (25%) of the respondents were 15-24 years; 90(41.7%) respondents were 25-34 years, 60 (25%) respondents were 35-44 years, 10(8.3%) were 45 and above. Also 40(18.2%) respondent had primary school certificate; 80 (36.4%) respondents had secondary education, 90 (40.9%) had tertiary education 10 (4.5%) respondents had no formal education. Furthermore 37(16.8%) respondent were house wife; 80 (36.4%) respondents were civil servants, 43 (19.5%) respondents were farmers, finally, 60 (27.3%) respondents were business women.

### 3.1 Results for Research Questions

Research question one: What is the level of awareness of prenatal exercise among pregnant women attending antenatal care at university of Calabar Teaching Hospital, Calabar?

Table 2. Percentage distribution of the level of awareness prenatal exercise among pregnant women attending antenatal care in UCTH, Calabar, N=220

SUBQUESTIONS	RESPONSES			
	YES	%	NO	%
Have you heard of prenatal exercise before	180	(81.8%)	40	(18.2%)
prenatal exercise are physical activity performed by pregnant women to improve health before delivery	200	(90.9%)	20	(9.1%)
Regular prenatal exercise prevent gestational diabetes	180	(81.8%)	40	(18.2%)
Prenatal exercise help to decreased growth of adipose tissues and improve stress tolerance	220	(100%)	-	(0%)
Regular physical activity contributes positively to physical and psychological health during pregnancy	190	86.4%	30	(13.6%)

The result from Table 2 revealed that out of 220 respondents 180 (81.8%) respondents affirm that they have you heard of prenatal exercise before while 40 (18.2%) respondents lack awareness of prenatal exercises. Two hundred 200 (90.9%) respondents affirm that prenatal exercise are physical activity performed by pregnant women to improve health before delivery while 20 (9.1%) respondents did not; result also showed hundred 180 (81.8%) respondents affirm that regular prenatal exercise prevents gestational diabetes while 40 (18.2%) respondents disagreed; 160 (72.7%) respondents agreed that prenatal exercise help to decreased growth of adipose tissues and improve stress tolerance in pregnant women while 60 (27.3%) respondents disagreed and 190 (86.4%) respondents affirm regular physical activity contributes positively to physical and psychological health during pregnancy while 30 (13.6%) respondents did not.

**Research question two:** What are the different prenatal exercises done by Pregnant Women attending antenatal care at UCTH?

Table 3. Percentage distribution of the different prenatal exercise done by Pregnant Women attending antenatal care in UCTH, Calabar (N=220)

Exercise perform by pregnant women	RESPONSES			
	Done	%	Not done	%
Dancing and breathing exercise	200	(90.9%)	20	(9.1%)
Yoga and relaxation	170	(77.3%)	50	(22.7%)
Lifting the legs and pelvis while lying down	200	(90.9%)	20	(9.1%)
Swimming	160	(72.7%)	60	(27.3%)
Walking and climbing of stairs	200	(90.9%)	20	(9.1%)

The result from Table 3 revealed that out of 220 respondents 180 (81.8%) respondents affirm that they have you heard of prenatal exercise before while 40 (18.2%) respondents lack awareness of prenatal exercises. Two hundred 200 (90.9%) respondents affirm that prenatal exercise is physical activity performed by pregnant women to improve health before delivery while 20 (9.1%) respondents did not; the result also showed hundred 180 (81.8%) respondents affirm that regular prenatal exercise prevents gestational diabetes while 40 (18.2%) respondents disagreed; 160 (72.7%) respondents agreed that prenatal exercise help to the decreased growth of adipose tissues and improve stress tolerance in pregnant women while 60 (27.3%) respondents disagreed and 190 (86.4%) respondents affirm regular physical activity contributes positively to physical and psychological health during pregnancy while 30 (13.6%) respondents did not.

**Research Question Three:** What are views of Prenatal Exercises among Pregnant Women attending antenatal care at UCTH?

Table 4. Percentage distribution of the Views of prenatal exercises among pregnant women attending antenatal care in UCTH, Calabar (N=220)

SUBQUESTIONS	RESPONSES			
	Agree	%	Disagreed	%
Prenatal exercise causes preterm labour	100	(45.5%)	120	(54.5%)
I do not perform prenatal exercise because it causes miscarriage	80	(36.4%)	140	(63.6%)
Prenatal exercise help reduce postpartum weight retention and childhood obesity	200	(90.9%)	20	(9.1%)
Prenatal exercise can result in increased energy demand during pregnancy	75	(34.1%)	145	(65.9%)
Prenatal exercise can restrict growth of babies in the uterus	83	(37.7%)	137	(62.3%)

The result from Table 4 showed that 100 (45.5%) respondents agreed that prenatal exercise causes preterm labour while 120 (54.5%) respondents disagreed; 80 (36.4%) respondents affirm that they do not perform prenatal exercise because it causes miscarriage while 140 (63.6%) respondents disagreed; 200 (90.9%) respondent agreed that prenatal exercise help reduce postpartum weight retention and childhood obesity while 20 (9.1%) respondents disagreed; 75 (34.1%) respondents agreed that prenatal exercise can result in increased energy demand during pregnancy while 145(65.9%) respondents disagreed. Finally, 83(37.7%) respondents agreed that prenatal exercise can restrict the growth of babies in the uterus during pregnancy while the majority 137 (62.3%) disagree.

**Research Question Four:** What are the perceived outcomes of Prenatal Exercises among pregnant women among Pregnant Women attending antenatal care in UCTH?

Table 5. Perceived outcomes of Prenatal Exercises among pregnant women attending antenatal care at UCTH Calabar (N=220)

Statements	RESPONSES			
	Agreed	%	Disagreed	%
Regular prenatal exercise promotes overall health during pregnancy	180	(81.8%)	40	(18.2%)
Prenatal exercise help in the prevention of chronic diseases and unhealthy weight gain during pregnancy	130	(59.1%)	90	(40.9%)
Women who engaged in prenatal exercises during pregnancy will have reduced risk of complications during labour	100	(45.5%)	120	(54.5%)
Prenatal exercises can promote muscle tone and facilitate quick delivery	140	(63.6%)	80	(36.4%)
Prenatal exercise reduces the risk of low back pain during pregnancy	135	61.4	85	(38.6%)

The result from table 6 showed that 180 (81.8%) respondents agreed that regular prenatal exercise promotes overall health during pregnancy while 40(18.2%) respondents disagreed; 130 (59.1%) respondents affirm that prenatal exercise help in the prevention of chronic diseases and unhealthy weight gain during pregnancy while 90 (40.9%) respondents disagreed; 100 (45.5%) respondent agreed that women who engaged in prenatal exercises

during pregnancy will have reduced risk of complications during labour while 120 (54.5%) respondents disagreed; 140 (63.6%) respondents agreed that Prenatal exercises can promote muscle tone and facilitate quick delivery while 80(36.4%) respondents disagreed. Finally, 135 (61.4%) respondents agreed that prenatal exercise reduces the risk of low back pain during pregnancy while a few 85 (38.6%) disagree.

#### **4. Discussion of Findings**

The results of socio-demographic data showed that majority of the respondents were age between 25-34 years; large population of respondents had tertiary education; large number was civil servants.

##### *4.1 Awareness of Prenatal Exercises Among Pregnant Women*

The findings from Results in table 3 revealed majority of the respondents affirm that they have you heard of prenatal exercise while almost all respondents affirm that prenatal exercise are physical activity performed by pregnant women to improve health before delivery; many respondents affirm that regular prenatal exercise prevent gestational; large proportion of the respondents affirm regular physical activity contributes positively to physical and psychological health during pregnancy. This is consistent with the studies by (Nkhata, Munalula-Nkandu, & Shula, 2015; Sabiri, Olutende, Wabuyabo, and Vurigwa, 2018). This picture of high level of awareness of prenatal exercise by pregnant women could be as result of health education by nurses and midwives during their antenatal visit to UCTH, level of education as most have SSCE and interaction with other pregnant women whose hobby is exercise and constant access to internet facility using android phones.

##### *4.2 Prenatal Exercises Perform by Pregnant Women*

The findings from table 4 revealed that majority of the respondents carried out dancing and breathing exercise; many carried out yoga and relaxation exercise during pregnancy; almost all carried out lifting of legs and pelvis while lying down as form of prenatal exercise; many pregnant women underwent swimming as suiting exercise during pregnancy while large population do walking and climbing of stairs during pregnancy. This is in agreement with the study by Baggiani (2016) who suggest and reflect the culture of people and their religious affiliation as most time women do dance during celebration, church services, and cultural days; also breathing and relaxation exercise are more easy and stress free, it may be believe by pregnant women to have no negative effects on pregnancy outcome

##### *4.3 Views of Prenatal Exercises Among Pregnant Women*

The findings from results in table 5 revealed that many pregnant still hold negative view about prenatal exercise as they affirm that prenatal exercise causes preterm labour; few do not perform prenatal exercise because it causes miscarriage; also majority agreed that prenatal exercise help reduce postpartum weight retention and childhood obesity. Few affirm that prenatal exercise can result in increased energy demand and affirm that prenatal exercise can restrict growth of babies in the uterus during pregnancy. This is in line with Ogado, Elom, Ilo, Orgi, Nwimo, and Afoke (2016) which found that negative views about prenatal exercises by pregnant women may suggest the influence of cultural belief on the people even though they have some level of education and frequent contact with nurses and midwives during their routine visits to hospital; culture seems to have high influence on the people especially the pregnant women due to their vulnerability because most time they obey the decisions of their husbands.

##### *4.4 Perceived Outcomes of Prenatal Exercises on Pregnant Women*

The findings from results in table 6 revealed that majority affirm that regular prenatal exercise promotes overall health during pregnancy; help in the prevention of chronic diseases and unhealthy weight gain during pregnancy. Many pregnant women affirm that prenatal exercises can promote muscle tone and facilitate quick delivery while majority agreed that prenatal exercise reduces the risk of low back pain during pregnancy. This finding is inconsistent with the studies by Ghodsi and Asltoghiri, (2012) and Shana Shana, Pedro, Marlos, Andréa, Mariângela, Diego, Inácio, and Kelly (2017). This finding may reflect the general view held by people concerning exercise; this general view may have influence the view of pregnant women on the perceived outcome of prenatal exercise during pregnancy. Most general view held by is that exercise promote good health and general fitness of the whole human body.

#### **5. Conclusion**

Based on the finding from the analysis, the study concludes that majority of the participants are involved in one form of exercise or the other. However, they perceived that exercise promotes the health of the mother during pregnancy with regards to prevention of chronic diseases and unhealthy weight gain during pregnancy.

## 6. Recommendation

The following recommendations were made:

- 1) Evidenced-based intervention studies is needed to evaluate the frequency, intensity duration and type of prenatal exercise carry out and direct relationship with maternal outcome of pregnancy relations to mother and foetal wellbeing,
- 2) Midwives should intensified and increased health education on prenatal exercises among pregnant women during antenatal services.
- 3) Pregnant mothers should be encouraged to participate in prenatal exercises.
- 4) There is the need for physiotherapist to actively involved antenatal care to educate and guide pregnant women more on the recommended prenatal exercises during pregnancy.

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None.

## Competing Interests Statement

The authors declare that there are no competing or potential conflicts of interest.

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