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Perceived Benefits of Prenatal Exercise Among Pregnant Women Attending Antenatal Clinic at Federal Teaching Hospital, Abakaliki, Nigeria

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Abstract
This paper investigated the perceived benefits of prenatal exercise among pregnant women attending antenatal clinic at Federal Teaching Hospital Abakaliki, Ebonyi State. One research question and two hypotheses guided the study. Descriptive survey design was used, the population of the study was 7200 pregnant women while the sample for the study was 720 pregnant women attending antenatal clinic at Federal Hospital Abakaliki, Ebonyi State. A self-developed structured questionnaire was used as instrument for data collection. Mean and standard deviation was used to answer research question while ANOVA statistics were used to test the hypotheses at 0.05 level of significant. The study found that pregnant women attending antenatal clinic at Federal Teaching Hospital Abakaliki, Ebonyi State had positive perception on the benefit of prenatal exercise and that there are significant differences on the perception of benefit of prenatal exercise among pregnant women attending antenatal clinic at Federal Teaching Hospital Abakaliki, Ebonyi State based on age and level of education. It was recommended that Government, health educators and hospital management should organize continuing education programmes, seminars and workshop to promote prenatal exercise among pregnant women to actualize the perceived benefits of prenatal exercise in pregnancy.
Keywords: Exercise, prenatal exercise, pregnant woman, perceived benefits

1.0 Introduction

Pregnant women generally experiences physical, psychological and physiological changes during pregnancy which often results in decreased in physical activity and thereby place them at a risk of several chronic diseases and a times, it can lead to mortality. Prenatal exercise is of great benefit to both the mother and the foetus in order to reduce risks of disorders associated with pregnancy on them (Clap and Rizzle, 2016). Exercise refers to structured form of physical activity usually for reasons of gaining or maintaining fitness and it produces a versatile range of physical, physiological, biochemical and psychological changes, and the nature and magnitude of these changes depend on the type, frequency of the exercise, exercise intensity, duration of exercise performed especially during the prenatal period (Udoh, 2001). Exercise has been scientifically known for promoting the circulation of blood to both the pregnant women and the vital organs of the foetus. Exercise improves muscle tone, thus enhancing safe and normal delivery (Fraser and Cooper, 2014).

Pre-natal exercise is described as physical activity performed by pregnant women in order to improve their health before delivery (Schuurmans, Senikas, and Lalonde, 2014). It has many benefits such as improvement of cardiovascular fitness, easier and less complicated birth (Clapp, 2000). Simkin, Whalley, and Keppler (2015) emphasized that the best amount and type of exercise for pregnant women is dependent on overall health, the risk level of the pregnancy, the level of her fitness and her activity level before becoming pregnant. Physical changes accompanied with pregnancy directly affect the pregnant women's tolerance for exercise. Hormonal changes cause the ligament to relax and the joints to become more mobile. The center of gravity shifts because of the enlargement of the abdomen. When pregnant women engages in frequent physical exercise, it will helps to maintain and tones the muscle of the body, makes the pregnant woman to be strong, agile and give the woman the endurance needed during labour. Samselle (2012) listed some conditioning exercises that are introduced to take care of the muscles that pregnancy affects most by pregnancy. These exercises are meant to help the pregnant women make good use of all their muscles during birth, and to increase the speed of post-partum recovery. The conditioning exercise includes pelvic floor exercise (kegel or super kegel exercise) which aim at maintaining the tone of the muscles especially the pelvic muscles, improve circulation, and provide a good support for the uterus and other organs. Another exercise is pelvic tilting which strengthen the abdominal muscles, improve posture and relieves backache.

Simkin, Whalley and Keppler (2015) stated that pre-natal exercise programme for pregnant women should include at least five minutes of warm up (slow, smooth movements and stretching); a period of sustained, vigorous aerobic exercise lasting approximately fifteen minutes; and at least five minutes of cool-down consisting of mild activity until the heart rate returns to normal. The kind of aerobic exercise that is best for pregnant mothers is a low impact exercise which includes brisk walking, swimming, and cycling. In this study prenatal exercise is described as physical effort performed by the pregnant mothers in order to improve their

health before delivery.

Perception refers to how a person sees a situation or the feeling an individual has about a thing. However, according to Wehmeier (2011) perception is defined as an idea, or an image one has as a result of how one sees or understands a thing or situation. In this study, perception could be used to mean the view of pregnant women on the benefits of pre-natal exercise. Benefit in this study is the ability of prenatal exercise to produce good health results for the pregnant women and the foetus. A Pregnant woman is a woman that is carrying a developing embryo or foetus in her womb. The age range of child bearing women according to WHO/UNFPA/UNICEF/World Bank Statement (2002) is 15-49 years. When a woman is pregnant she is exposed to so many health risks, not only the pregnant women, the child in her womb is also exposed to so many health risks. Because of this, it is necessary for all the pregnant women to be monitored by gynecologists at the antenatal clinic. Antenatal clinic is any branch of health services that takes care of pregnant women. Any clinic that takes proper care to the pregnant women prior to delivery is known as antenatal clinic (Pearsall, 2015). In this study antenatal clinic monitors the health of a woman during pregnancy, as well as the health and development of the baby.

Gaston and Cramp (2011) suggested that some factors such as age and level of education may influence perception of pregnant women on prenatal exercise. Age of pregnant women largely influences her perception on the benefits of prenatal exercise. Kurz,Bondura and Khale (2016) concluded that the wide variety of lower maternal age portends negative perception of benefits of pre-natal exercise. Gaston and Vamos (2012) showed that younger women participate in high levels of prenatal exercise; than the older women. They also stated that women under 24 years are likely to meet the American College of Obstetricians and Gynecologist (ACOG) guideline more than pregnant women over 25 years of age. Rose et al, (2015) affirmed that pregnant women between ages of 26-35 year engage in prenatal exercise than younger pregnant women. Clarke and Gross (2014) records no relationship between the age of the woman and her exercise level during pregnancy. Peterson and Brownsen (2016) revealed that younger pregnant women participate in exercise than the older ones.

Level of education is also a factor that may influence the perceived benefits of prenatal exercise. Good level of education empowers the pregnant women to make crucial decisions and perceive the benefits of prenatal exercise. Senanoyake (2016) submitted that educated women are more likely to derive more health benefits associated with physical exercise as they are more aware of these benefits. Gaston and Vamous (2012) found out that women with higher education will engage in prenatal exercise. But Clarke and Gross (2014) found no association between the perceived benefits of prenatal exercise and level of education of pregnant women. Mottola and Campbell (2003) asserted that there is higher participation in physical activity or exercise with higher education. Also Peterson and Brownsen (2016) concluded that educated pregnant women are more likely to meet the moderate or vigorous physical activity recommendations. Gaston and Cramps (2011) stated that higher education of pregnant women is predictors of higher exercise participation during pregnancy. Mbada, et al (2015) also concluded that there is significant influence between the perceived benefits of prenatal exercise and level of education.

2.0 Statement of the Problem

Reports have shown that Nigerian woman has a 1-in-23 risk of death from causes that are related to pregnancy and delivery. This is higher than the general 1-in-31 maternal death risk for pregnant women throughout the sub-Saharan Africa (WHO/UNICEF/UNFPA/World Bank, 2008). Ebonyi State Ministry of Health (2010) indicated that Ebonyi State records one death out of every 100 live birth in pregnancy related cases; this makes Ebonyi State one of the regions with the highest maternal mortality rate in the world. Merson, Black and Mills (2006) listed the direct causes of maternal mortality which includes hypertensive disorders of pregnancy (preeclampsia), gestational diabetes, obstructed and prolonged labour. ACOG (2002) recommends that prenatal exercise can reduce the rates of these direct causes of high maternal morbidity and mortality. Despite the numerous benefits that are linked with prenatal exercise, the researchers observed that many pregnant women especially in Ebonyi State still do not participate in the exercise. Adding to the fact that prenatal exercise is not publicized, and also that it is termed a taboo in some places. This led to increased rate of maternal and foetal mortality especially in Ebonyi State. Therefore, the general purpose of this study was to determine the perceived benefits of prenatal exercise among pregnant women attending antenatal clinic at the Federal Teaching Hospital Abakaliki (FETHA) and levels of perception of benefits of prenatal exercise among these participants based on age and level of education.

3.0 Methods

This study adopted descriptive survey design. The area of the study was Federal Teaching Hospital Abakaliki (FETHA), Ebonyi State and the study participants were pregnant women attend antenatal clinic. The population of this study consisted of 7200 registered pregnant women attending antenatal clinic in Federal Teaching Hospital Abakaliki (FETHA) from October 2013 to February 2014 (Federal Teaching Hospital Abakaliki, 2014).

A sample of 720 pregnant women representing 10% of the population of study was utilized for the study. This sample was adjudged representative of the population based on Nwana's (2007) rule of the thumb, which stipulates that if the population is made up of few thousands, a 10% sample should be used. Purposive sampling technique was employed in the selection of the sample on each clinic day.

A self-developed structured questionnaire titled: Benefits of Prenatal Exercise Questionnaire (BPEQ) which consisted of 27 items arranged in two sections; A and B was used as instrument for data collection. Section A , contained 2 items about the personal data of the participants while section B consisted of 25 items on the perceived benefits of pre-natal exercise designed on a 4-point scale of Strongly Agree (SA), Agree (A), Disagree (D), and Strongly Disagree (SD). Three experts in the Department of Human Kinetics and Health Education, Ebonyi State University validated the instrument. Thirty (30) pregnant women attending antenatal clinic in Parklane Hospital, Enugu were used to test the reliability of the instrument for the study. The data yielded a reliability coefficient of 0.890 using Cronbach alpha coefficient (R). The reliability coefficient was considered high enough for the study based on Ogbazi and Okpala's (1994), suggestion of 0.60 for good instruments.

Permission to conduct the study was obtained from the hospital administration of the FETHA prior to data collection. A consent note with the explanation for the research purpose, method of responses and assurance of the anonymity was attached with the questionnaire. The researchers administered the questionnaire with the help of nurses and midwives in the antenatal clinic. Copies of the questionnaire administered on each day were collected from the pregnant women immediately on completion. This method ensured a 100 percent return rate of the questionnaire. The completed copies of questionnaire were coded and analyzed using both descriptive and inferential statistics. Mean and standard deviation were used to answer the research questions and the hypotheses were tested using Analysis of Variance (ANOVA) at a 0.05 level of significance. A criterion mean ($\bar{x}$) of 2.50 was set for the study and any mean above the criterion mean was adjudged as positive perception of benefits of pre-natal exercise. The criterion mean was derived by adding up the scale values and dividing the sum by the number of scale option thus: 4+3+2+1 =10÷4 = 2.50.All the data analysis was done using Statistical Package for Social Sciences SPSS version 20.0 window.

4.0 Results

Table 1: **Means and Standard Deviations of Perceived Benefits of Pre-natal Exercise among Pregnant Women**

S/N	Variables	$\bar{x}$	SD	Decision
1	Prenatal exercise makes my body feel light	3.79	0.44	Positive
2	Prenatal exercise prevents excess weight gain in the baby	3.57	0.59	Positive
3	Prenatal exercise increases rate of uterine contraction during the time of delivery	3.63	0.52	Positive
4	Prenatal exercise shortens the period of labour by making the head of the baby fit into the pelvis.	3.42	0.55	Positive
5	Exercise in pregnancy prevents tiredness	3.47	0.59	Positive
6	Prenatal exercise prevents swelling of legs in pregnancy	3.47	0.61	Positive
7	Exercise performance in pregnancy prevents back pain	3.44	0.70	Positive
8	Prenatal exercise lower the rate of caesarean section	3.38	0.67	Positive
9	Prenatal exercise makes the muscle and joint free for flexible movement	3.44	0.65	positive
10	Prenatal exercise maintains the fitness of abdominal muscle after delivery	3.48	0.63	Positive
11	Prenatal exercise prevents intrauterine death caused by inappropriate blood circulation of foetus	3.48	0.68	Positive
12	Exercise in pregnancy makes the body warm, which is due to good blood circulation	3.49	0.77	Positive
13	Prenatal exercise promotes the function of the heart muscles	3.47	0.63	Positive
14	Prenatal exercise prevents gestational diabetes by mobilizing and utilizing glucose for energy	3.65	0.55	Positive
15	Prenatal exercise promotes digestion of carbohydrates	3.59	0.56	Positive
16	Prenatal exercise increases flexibility during labour	3.61	0.57	Positive
17	Prenatal exercise enhances muscular strength for delivery	3.53	0.61	Positive
18	Prenatal exercise promotes normal delivery of the baby	3.54	0.60	Positive
19	Prenatal exercise decreases the use of oxytocin drips to hasten labour	3.46	0.61	Positive
20	Regular and moderate exercise in early pregnancy promotes health of the mother and baby	3.51	0.59	Positive
21	Moderate exercises in pregnancy prevents premature labour	3.55	0.61	Positive
22	Prenatal exercise makes an individual less susceptible to body disorders like preeclampsia (hypertensive disorder)	3.47	0.69	Positive
23	Prenatal exercise keeps the body fit	3.56	0.66	Positive
24	Prenatal exercise promotes sleep and relaxation	3.42	0.68	Positive
25	Prenatal exercise enhances appetite	3.14	0.79	Positive
	Grand Mean	3.50	0.26	Positive

Table 1 shows that all the items scored above the criterion mean of 2.50 with grand mean of 3.50 ± 0.26. This is evident that all the respondents had positive perception on all the 25 items on the benefits of pre-natal exercise.

Table 2: **Means and Summary of ANOVA of Perceived Benefits of Pre-natal Exercise among Pregnant Women Based on Age**

Variables	N	$\bar{x}$	df	F-value	p-value	Decision
15-24 Years	97	3.22				
25-34 Years	347	3.54				
35-44 Years	121	3.54	3	52.897	0.000	Significant
45 Years and above	159	3.57				

Table 2 indicates that mothers in the age group 45 and above perceived the benefits of prenatal exercise ($\bar{x}$ = 3.57) higher than other groups with the mothers aged 15-24 ($\bar{x}$ = 3.22), 25-34 ($\bar{x}$ = 3.54), and 35-44 ($\bar{x}$ = 3.54). Summary of ANOVA on the perception of the respondents on benefits of pre-natal exercise based on age showed that there was significant difference in the perceived benefits of pre-natal exercise by the age of pregnant women attending antenatal clinic at Federal Teaching Hospital Abakaliki. This was evident from the calculated value which was 52.897 and the p -value of 0.000, which therefore indicated a significant difference in perception of benefits of prenatal exercise by age among the study participants.

Table 3: **Means and Summary of ANOVA on in the Perceived Benefits of Pre natal Exercise among Pregnant Women Based on Level of Education**

Variables	N	$\bar{x}$	df	F-value	p-value	Decision
No Formal Education	26	3.26				
Primary Education	60	3.34	3	44.937	0.000	Significant
Secondary Education	185	3.45				
Tertiary Education	453	3.56				

Table 3 indicates that mothers with tertiary education perceived the benefits of prenatal exercise ($\bar{x}$ = 3.56) higher than those with no primary education ($\bar{x}$ =3.26), primary education ($\bar{x}$ = 3.34), and secondary education ($\bar{x}$ = 3.45). Summary of ANOVA on the perception of the respondents on benefits of pre-natal exercise based on the level of education showed that there was significant difference in the perceived benefits of pre-natal exercise on the educational level of pregnant women attending antenatal clinic at Federal Teaching Hospital Abakaliki .This is evident from the calculated value which is 44.937 and p-value of 0.000, which therefore indicated a significant difference in perception of benefits of prenatal exercise by level of education among the study participants.

4.0 Discussion

Data in Table 1 revealed that the pregnant women attending antenatal clinic at Federal Teaching Hospital Abakaliki had positive perception on benefits of pre-natal exercise from their responses to research question one on Table 1.This showed that the pregnant women have positive perception on benefits of prenatal exercise. This finding agrees with ACOG (2002) which opined that positive perception and actual practice of prenatal exercise may be associated with reduced rates of preeclampsia, gestational diabetes, weight gain, labor and birth and all other issues that can lead to significant maternal and foetal death.

The test of hypothesis one in Table 2 showed that there was significant difference in the perceived benefits of pre-natal exercise based on the different age groups of pregnant women attending antenatal clinic at Federal Teaching Hospital Abakaliki. This study is in line with Rose, etal (2015) who maintained that older women were more likely to engage in prenatal exercise. Kurtz, Bandura, and Khale, (2005) concluded that the wide variety of lower maternal age portends negative perception of benefits of prenatal exercise. This finding might have been occasioned by the vast experience older women have had as it relates to pregnancy and childbearing.

The finding in Table 3 showed that more educated women perceive the benefits of prenatal exercise better than those who are less educated. There was significant difference on the perceived benefits of pre-natal exercise based on the level of education of the pregnant women attending antenatal clinic at Federal Teaching Hospital Abakaliki. This study agrees with Gaston and Vamos (2012) who opined that greater education predicts greater exercise participation. The finding was also supported by Senanoyake (2010) who asserted that educated women will derive more health benefits associated with physical exercise as they are more aware of these benefits. Mottola and Campbell (2003) also asserted that there is high participation in physical activity or exercise with higher education. This finding is also in line with research carried out by Mbada, Adebayo, Awotidebe, Faremi, Oginni, Ogundele and Anne (2015) on practice and pattern of antenatal and postnatal exercise among Nigerian women. The study explained that educational level significantly influence physical exercise practice among pregnant women in Nigeria.

5.0 Conclusions

The following conclusions were made: Perceived benefits of prenatal exercise among pregnant women attending antenatal at Federal Teaching Hospital Abakaliki was found to be positive. More so, the hypotheses tested, it was indicated that age and level of education significantly influenced the perception of pregnant women on the benefits of prenatal exercise. Therefore, there is need to promote prenatal exercise because of the positive benefits attached to it. The paper recommended that Government, Health educators and hospital management should mount prenatal exercise education intervention programme in other to transform this positive perception into concrete actions to maximize the benefits of prenatal exercise for pregnant mothers in Ebonyi State.

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