

**KNOWLEDGE AND PERCEPTION OF PHYSICAL EXERCISE AMONG
ANTENATAL ATTENDEES OF ONDO STATE SPECIALIST HOSPITAL
AKURE, ONDO STATE**

BY

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ABSTRACT

The non-performance of antenatal exercise is the fourth-leading risk factor for early mortality worldwide with Nigeria having the worst statistics of maternal death. The types of problems that pregnant women experience could be traced to non-performance of physical exercise which has become a Public Health concern in Nigeria and across the globe. Earlier studies in some hospitals in Ondo had focused on causes of maternal and child health, hence the need to investigate the knowledge and perception of physical exercise among the antenatal attendees of Ondo State Specialist Hospital, Akure.

This descriptive cross-sectional study employed a semi-structured questionnaire to elicit information on respondents' socio-demographic characteristics, knowledge, perception, perceived benefits as well as promoting and inhibiting factors of antenatal exercise. Knowledge level was measured on a 40-point scale; scores ≤ 25 , $\geq 26-28$, and ≥ 29 were categorized as poor, fair and good respectively. chi square test and logistic regression at $p=0.05$. Respondents' age was 30.4 ± 5.6 years, 61.8% fell between 21 and 31 years age group and slightly below half of the total number of pregnant women have more than one child (48.1). About 188(78.0%) had good knowledge of antenatal exercise while 38 (15.8%) and 15 (6.2%) had fair and poor knowledge respectively.

Majority 214(88.8%) of the respondents perceived that physical exercise can help and maintain healthy bones of the mother and the growing foetus while 189(78.4%) perceived that it can help reduce excess weight gain in pregnancy. More than three quarter 198(82.2%) of the respondents perceived that some health complications which may appear in pregnancy can be reduced through physical exercise while quite a number of the respondents 211(87.6%) and 193 (80.1%) perceived that physical exercise makes them agile and active respectively in pregnancy. More than one third 79(32.8%) perceived negatively that physical exercise is not important for pregnant women, while more than half, 124(51.5%) and 136(56.4%) perceived that they are at the risk of miscarriage and fainting if engaged in physical exercise while pregnant. The mean

perception score was 10.59 points with the minimum and maximum knowledge being 1 and 15 points respectively. Majority 220(91.3%) of the respondents had good perception while 21(8.7%) had poor perception.

There was no significant association between respondents' age and physical exercise knowledge as well as between respondents' number of children and physical exercise knowledge. However, educational level and occupation of the respondents had a role to play in their physical exercise knowledge while their perception had no association with their educational qualifications.

Though knowledge and perception of physical activity among respondents were good, but there is still need for awareness or practice of some types of antenatal exercises such as, handball, table tennis, basketball and table tennis among pregnant women.

Keywords: physical exercise, antenatal attendees, pregnant women, knowledge, perception..

Word count: 454

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DEDICATION

This work is dedicated to Jesus Christ, the Author and the finisher of my faith and to my darling husband. Your love and support have been my strength.

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AKINBOBOSE, Foluke Omotola

CERTIFICATION

I hereby certify that the project was carried out by AKINBOBOSE, FOLUKE OMOTOLA under my supervision in the Department of Health Promotion and Education, Faculty of Public Health, College of Medicine, University of Ibadan, Nigeria.

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ABBREVIATIONS

| | |
|--------|--|
| ACOG: | American College of Obstetricians and Gynaecologists |
| ANEX | Antenatal exercise |
| APE: | Antenatal Physical Exercise |
| FMOH | Federal Ministry of Health |
| GDM: | Gestational Diabetes Mellitus |
| GWG: | Gestational Weight Gain |
| HBM | Health Belief Model |
| NHANES | National Health and Nutrition Exam Survey |
| NIH | National Institute of Health |
| OSMOH: | Ondo State Ministry of Health |
| OSSH: | Ondo State Specialist Hospital |
| PA: | Physical Activity |
| PE: | Physical Exercise |
| PI: | Physical Inactivity |
| PIH: | Pregnancy Induced Hypertension |
| RA: | Research Assistant |
| SPSS: | Statistical Package for Social Sciences |
| UK: | United Kingdom |
| USA: | United States of America |
| WHO: | World Health Organization |

OPERATIONAL DEFINITIONS OF TERMS

Pregnancy: The period from conception to birth when a woman carries a developing fetus in her uterus.

Physical exercise: A planned, structured, and repetitive activity for the purpose of conditioning, strength and resistance training always done by exerting muscles to keep fit

Antenatal: This is the period of pregnancy before birth

Hypertension: A disorder in which blood pressure remains abnormally high (a reading of 140/90 mm hg or greater)

First Trimester: A period extending from the first day of the last menstrual period through 12 weeks of gestation

Second Trimester: A period between 13th and 27th week of pregnancy

Third Trimester: Time/ period extending from the 28th week of gestation till delivery

Gestation: The state of being pregnant; the period from conception to birth when a woman carries a developing fetus in her uterus

INTRODUCTION

1.1 Background to the study

Pregnancy is a time in many women's lives when there is a decrease in physical activity. Pregnancy puts women at risk to becoming sedentary. For many women, exercising during their pregnancy is compromised by the physical and psychological demands such as excessive weight gain, back pain, hypertension, gestational diabetes, and depression (Jamie, 2005, Downs and Hausenblas, 2004). These factors make pregnancy a critical event that promotes decreased physical activity. Yet many of these adverse effects can be alleviated or at least lessened if physical activity is maintained through a key component of antenatal services which focuses on physical fitness and cardiovascular endurance through aerobics such as breath exercise, pelvic floor exercises (Sinead et al, 2016), thus reducing maternal and neonatal deaths all over the world (Mrisho, 2009). This also helps to prevent excessive weight gain, preterm labor, among others.

Thus, good antenatal intervention should focus on promotion of adequate physical exercise for pregnant women to contribute to the well being of both the mother and the fetus, while knowledge from different scientific studies over the years have shed light on pregnant women exercising their bodies (Mason et al, 2010).

According to (WHO, 2016); physical activity has been clearly referred to as any body movement that works the muscles and requires more energy than resting. Such body movement includes walking, running, dancing, swimming, and gardening, although muscle contraction is the common element of all forms of exercise, many other organs and systems are affected, for example, the heart and lungs. Physical exercise also ensures the physical and physiological development of the mother during pregnancy and at delivery (Victor, 2017). In fact, there appears to be a consensus that when light to moderate physical activity is maintained during an uncomplicated pregnancy, it provides various benefits (Lima & Oliveira, 2005).

This is explained by the fact that physical activity causes a thermal response and circulatory redistribution, shifting the blood concentration from the uterus and placenta to the extremities. This process helps reduce and prevent lower back pain, fosters lower liquid retention, reduces cardiovascular stress, increases the oxygenation capacity, decreases blood

pressure, reduces the risk of gestational diabetes, prevents thromboses and varicose veins, and helps control gestational weight gain(Hills & Byrne, 2004),The advantages also include emotional aspects, since physical activity helps make the pregnant woman more self-confident and satisfied with her appearance, in addition to raising her self-esteem, thus reducing the risks of postpartum depression(Lima & Oliveira, 2005).

Recent studies have also shown the necessity for pregnant women to carry out physical exercises if there are no health contradictions such as bleeding or preterm labor. Women who were active before pregnancy may continue these activities, but change intensity and frequency over the course of pregnancy for health reasons and for safety of their growing fetus(Kelly et al, 2014).

Some authors had observedat some antenatal care settings that pregnant women who do not practice physical exercises could endanger their lives. The non-performance acts could be attributed to a number of factors, among which are, level of knowledge (Evenson et al 2009), level of education(Ribeiro & Milanez, (2011), number of children,safety concern of the pregnant and her physician(Wang and Apgar, 1998). Thornton et al(2006) concluded that, when those factorsare identified, the gaps could be bridged through health education given at antenatal clinics. Therefore,there is the need for an assessment of knowledge and perception of physical exercise in pregnancyamong the antenatal attendees of Ondo State Hospital, Akure.

1.2Statement of the Problem

Physical activity in pregnancy is an important determinant of health which is also associated with reduced risk of diseases such as preeclampsia, pregnancy induced hypertension, diabetes, weight gain, back pain among others and general complications during, at, and after delivery. Some studies on the effects of non-performance of antenatal physical exercise in some parts of the world showed these evidences.

Physical activity tended to decrease as pregnancy progressed in the African studies reviewed (Hjorth et al., 2012, Adeniyi et al., 2014). The risk of being sedentary increase with advancing pregnancy probably because most women are careful to avoid injuries to themselves and the unborn baby and that there is a general distortion of body frame with a backward sway that makes it difficult to perform physical exercise (Adeniyi et al., 2014).

Even studies conducted in developed countries have reported a declining physical activity level with advancing pregnancy (Guelinckx et al., 2010; Hayes et al., 2012). These findings might mean that low levels of physical exercise are prevalent in both developing countries and there is need to promote physical activity even in developing countries.

The types of problems that pregnant women experience could be traced to non-performance of physical exercise which has become a public health concern across the globe. Some of these problems have been reported in several literatures. These include unnecessary weight gain, cardiac, and respiratory problems, back pain, difficult labor outcomes, urinary incontinence, high risk pregnancy resulting into; preeclampsia, gestational diabetes mellitus, glucose intolerance, pregnancy induced hypertension among others (Jamie, 2005).

Hypertensive disorders in pregnancy represent one of the most common problems of pregnancy leading to premature delivery, low birth weight, intrauterine growth retardation, abruption placenta and increased maternal and prenatal morbidity and mortality (Shweta et al, 2011). Its incidence is between 1 and 35% around the world. It affects about 5-8% of all pregnant women worldwide (Arshad et al, 2011) and an estimated percentage of 9.1 of maternal deaths in Africa are due to hypertensive disorders of pregnancy. The World Health Organization estimates that at least one woman dies every 7 minutes from complications of hypertensive disorders of pregnancy (Prokash et al, 2006), the prevalence of PIH among women seeking maternity services in Harare, Zimbabwe was 7.9% (Muti et al 2015), revealing same with the study conducted in Ethiopia (Gudeta et al, 2017) and India (Sajith et al, 2004). In Nigeria, the prevalence of hypertensive disorders in pregnancy which was 21.6 %, in the last decade (Federal Ministry of Health, Abuja) has reduced to 17% in 2014 (Singh et al, 2004).

Azubuikwe and Danjuma (2017) in their study, revealed a prevalence of 25.8% for PIH in Funtua, Katsina State and 15% in Usmanu Danfodiyo University teaching hospital Sokoto (Singh et al, 2014). Onah and Ilobachie, also reported that there is a higher incidence of 23.4 prevalence of PIH in eastern Nigeria.

Gestational diabetes mellitus (GDM), which is defined as diabetes diagnosed in the second and third trimesters of pregnancy (American Diabetes Association, 2015), has emerged as a global public health concern (Guariyuata et al, 2015). It has been associated with short-term labour and long term adverse health outcomes for both mothers and their newborns (Farrar et

al, 2016). Women with GDM are known to have increased quality of life and increased risks of caesarian sections, gestational hypertension, preeclampsia and type 2 diabetes (Kim et al, (2002, Yogeve et al 2004, and Metzger et al,1998).It affects up to 5% of all pregnancies in the United Kingdom (Zhu and Zhang, 2016), between 1% and 25% of [pregnancies globally(Balaji et al, 2007), and its incidence is increasing(Amylidi et al,2016).According to a study carried out among pregnant women attending Yuisuf Dansoho Memorial Hospital in Kaduna, Nigeria, it was revealed that the prevalence of GDM rises from 2.65 in 2011 to 15.6% in 2012.

Back pain (BP) has been erroneously recognized as an inevitable problem in pregnancy (Fung et al, 1993); (MacEvelly and Buggy, 1994). Some women are found to experience low back pain; posterior back pain and high back pain depending on the state of their pregnancy. It is essentially musculoskeletal and may be due to a combination of mechanical, circulatory, hormonal, and psychosocial factors (Sabino & Graver, 2008). It is however estimated that about 50% of pregnant women complain of some sort of back pain at some point in pregnancy or during postpartum period (Vadivelu et al, 2005).

Lack of adequate knowledge and cultural myths and taboos seem to contribute to the low-level engagement in physical exercise by pregnant women. Unfortunately, there is low study on the prevalence of physical inactivity among pregnant women and the factors hindering its performance thus bringing about the need for this study

1.3 Justification of the Study

In order to improve the general health conditions of antenatal exercise among antenatal attendees of Ondo State Specialist Hospital, Akure, there is a need to improve their knowledge and perception of antenatal exercise. Some of the challenges and limitations which pregnant women pass through such as PIH, Gestational diabetes, Obesity, back pain can be reduced through the practice of physical exercise.

This study is important because, Physical inactivity is the fourth-leading risk factor for early mortality worldwide (WHO, 2010) with Nigeria having the worst statistics of maternal death (Azubuike & Danjuma, 2017). It has also been reported from a study carried out from Mbada et al, (2014) in a study conducted at six antenatal clinics in Ile-Ife, Osun State that a majority of Nigerian pregnant women demonstrate inadequate knowledge about antenatal exercises. In

pregnancy, it is also important because physical exercise in pregnancy has been considered safe for mother and the fetus(Clapp et al, 2011 and Rieman et al, 2000).

The study will shed light on what pregnant women know about the advantages of Physical exercise, the factors promoting or hindering its performance, and effect of physical exercise on pregnant who exercise or do not exercise their bodies. The outcome of this research would be used by policy makers and managers of maternal and child health programmers in addressing physical inactivity among pregnant women which would help in improving on their health and the unborn child.

1.4 Research Questions

The following research questions were set for the study;

- 1 What is the knowledge of antenatal attendees on physical exercise in Ondo State Specialist Hospital, Akure?
- 2 What is the perception of antenatal attendees towards physical exercise in Ondo Specialist Hospital, Akure?
- 3 What are the perceived benefits of physical exercises on antenatal attendees of Ondo State Specialist Hospital, Akure?
- 4 What are the factors promoting or inhibiting antenatal attendees in physical exercise in Ondo State Specialist Hospital, Akure?

1.5.1 Broad Objectives

The goal of this study was to measure the knowledge and perception of pregnant women attending antenatal clinic sessions at Ondo State Specialist Hospital, Akure, Ondo State and to find out the perceived benefits of physical exercise on pregnant women and the growing fetus as well as at delivery.

1.5.2 Specific Objectives

The specific objectives of this study were to:

Assess the knowledge of antenatal attendees on physical exercise.

Ascertain the perception of antenatal attendees towards physical exercise.

Highlight the perceived benefits of physical exercise on antenatal attendees

Identify promoting and inhibiting factors influencing antenatal performance and the non-performance of physical exercise.

1.6 Research Hypotheses

There is no significant association between:

1. age and knowledge of physical exercise.
2. number of children and knowledge of Physical exercise.
3. educational status and knowledge of Physical exercise.
4. stage of pregnancy and knowledge of Physical exercise
5. occupation and knowledge of Physical exercise.
6. educational level and Perception of physical exercise.

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CHAPTER TWO

LITERATURE REVIEW

This chapter deals with the review of related literatures and or materials on the subject of this study. The review was done after a thorough exposition and exploration of avenues to identify literature related to the topic of investigation.

2.1 Pregnancy

Pregnancy, also known as gestation is an important aspect of many women's lives when one or more offspring develops inside a woman. According to Medical dictionary, it is a state in which a woman carries a fertilized egg inside her body. Pregnancy is a time when some physiological changes take place in their bodies which could make this period challenging. A typical pregnancy lasts 40 weeks from the first day of the last menstrual period (LMP) to the birth of the baby. It is however divided into 3 stages, called trimesters- first, second, and third trimesters.

2.2 Historical Overview of Physical Exercise in Pregnancy

Antenatal Physical exercise is an important issue in public health in the sense that it guides against maternal and infant mortality or morbidity. Exercise has been scientifically known for promoting the circulation of blood to both the pregnant women and the vital organs of the fetus. Exercise improves muscle tone, thus enhancing safe and normal delivery (Fraser and Cooper, 2014). 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 earliest recommendations for physical exercise in pregnancy showed the cultural and norms of those times rather than scientific evaluation (Mittelmark & Gardin, 1991). However, in the 19th and early 20th centuries, the first scientific study on this was published (Briend, 1980). The major focus was on determinants of birth weight and attributed lower birth weights to increased levels of occupational and household physical activity. In order to ease labor /delivery and prescribed breathing patterns and facilitating postpartum weight loss (in the 1920's and 1930's), the prenatal exercise program was introduced (Mittelmark & Gardin, 1991). The US Children Bureau for prenatal physical exercise recommended that if

there are no complications, women can continue housework, gardening, daily walks and should even swim occasionally (Federal Security Agency and Social Security Administration, 1949; Sternfeld,1997). This formed the basis of prenatal exercise programs of the 1970's and 1980's.

Early observers correlated an uneventful pregnancy and easy labor with physical activity. In Exodus, Biblical writers observed that Hebrew slave women had an easier time giving birth than their sedentary counterparts (Exodus chapter 1 of the Holy Bible).

Egyptian mistresses Burnett (1956), and in 9 B.C., Plutarch urged Spartan women to harden their bodies with exercise to decrease the pain of childbearing (Artal and Gardin, 1991). In Victorian times, pregnant women were encouraged to remain indoors and keep themselves "confined." (Williams,1970) and with more women in the workplace in the 1930s and their apparent ease of birthing, physicians once again advocated "strong body movements" for sedentary pregnant women (Montgomery et al, 1969).

Based on her work in India in the 1930s, Vaughan instituted antenatal exercise classes in England. She wrote that "flexible hips and spine are conducive to ease of labor," and women were encouraged to squat(Williams,1970). Exercise classes taught by physiotherapists became popular in Great Britain and Sweden, where they were valued for their effects on back and abdominal muscles(Montgomery et al,1969)

During the mid-1950s, despite the lack of scientific proof of benefits, "keep fit" exercises introduced by obstetric physiotherapist Helen Heardman in Britain were included with relaxation and breathing skills in Grantly Dick-Read's book on pain management for labor. In fact, Heardman's own book delineated an excellent program of prenatal exercises which form the basis of the best of many prenatal exercise programs today,(Heardman 1957). The Lamaze method, popularized in the United States in 1959 by Marjory Karmel, and Elisabeth Bing(1994), focused on both physical and psychological preparation for childbirth. From the mid-1970s through the 1990s, the emphasis on health and the public's renewed involvement in exercise caught the interest of the "pregnant population." Numerous books on prenatal exercise, as well as videotapes and audio cassettes, flooded the market, Balaskas et al (1979) and community centers, hospitals, health maintenance organizations (HMOs), and industries began to offer exercise classes for expectant women.

2.3 Overview of antenatal physical exercise

Physical exercise is any bodily activity that enhances or maintains physical fitness and overall health and wellness. It could also be defined as any bodily movement produced by skeletal muscles leading to energy expenditure (Casperson, 1985). It includes exercise as well as other activities which involve bodily movement and are done as part of playing. It is planned, structured, and repetitive for the purpose of conditioning, strength and resistance training and flexibility (Center for Disease Control, 1990). It is the regular movement of the limbs and of our body according to rules and is performed for various reasons.

Types of physical exercise

i. Aerobic exercise

This is any physical exercise which involves the heart by getting the heart beating faster and breathing harder. It depends on intensity (that is how hard the body works during activity). Aerobic exercise can be further classified into light, moderate intensity and vigorous intensity aerobic activity where large muscle groups are used. The body makes use of more oxygen than it would while resting (National Institute of Health, 2006). The goal is to increase cardiovascular endurance (Wilmore & Knuttgen, 2003). It can be classified into light intensity aerobic activity, moderate-intensity aerobic activity, vigorous-intensity aerobic activity and muscle-strengthening activities. Examples of aerobic exercise are running, brisk walking, swimming, cycling, etc

ii. Light intensity aerobic exercise

Examples are washing, shopping, cooking. This does not get the heart breathing rate up

iii. Moderate-intensity aerobic activity

This means working hard enough to raise the heart rate and cause one to sweat. Activities in this category are dancing, gardening, housework and domestic chores,

iv. Vigorous-intensity aerobic activity

This requires breathing hard and fast that requires working at a level that will not permit more than a few words without pausing to breathe. Examples are jogging, running, bicycle riding, walking or climbing briskly up a hill, football, volleyball, basketball, lifting or carrying heavy loads greater than 20kg.

Both moderate and vigorous intensity physical exercises are said to be of a tremendous benefit to our health (WHO, 2015)

v. Muscle-strengthening exercises

Examples are push-ups, sit ups, heavy gardening such as digging and shoveling).

Women who participate in antenatal exercise have been shown to improve or maintain physical fitness (Oliverio et al, 2013). Although this fact is said to be limited, some benefits to pregnancy outcomes has been shown, and no evidence of harm when not contraindicated. Observational studies of pregnant women who exercise have shown benefits such as decreased GDM (Hills et al, 2013), caesarean and operative vaginal delivery (Down et al, 2004), and postpartum recovery time, although evidence from randomized controlled trials is limited. Swimming could serve as an alternative to pregnant women experiencing back pain (Bungum & Peaslee, 2000).

Aerobic exercise is recommended to maintain cardiovascular fitness and to help prevent chronic disease apart from avoiding excessive weight (Valim et al, 2011). Activities such as walking or jogging, using stationary bicycle, swimming, water aerobics exercises, aerobic dance, or low impact aerobics should be involved. It is however important for pregnant women to find a modality which could be adhered to overtime. All exercises which could cause falls, abdominal traumas should be avoided (Valim et al, 2011).

Anaerobic exercise

This includes strength and resistance training. It can help in making muscles firm and strengthened and to improve bone strength, balance and coordination (National Institute of Health 2006). Examples are weight training, functional training, eccentric training etc. It is used by athletes in non-endurance sports to promote strength, speed and power and by body builders to build body mass.

Overall, most exercises are safe to perform during pregnancy if caution is applied. Recent epidemiological data based on the National Health and Nutrition Examination Survey (NHANES) indicates that only 15% of pregnant women meet the minimum national recommendations of 150 minutes of moderate intensity physical activity per week (Evenson & Wen, 2010).

Staying fit and healthy is very essential but cautions must be applied especially in the first trimester, Elea Carey (2017). Postures such as back bending, poses that twist the abdomen, headstands, lying on the back, should be avoided. Walking, swimming, and running, stationary bike and spin class should be done with care Elea Carey (2017). Activities that could lead to falls should be avoided. Low impacts exercises such as walking running swimming can be continued throughout pregnancy while jogging, hopping, skipping, bouncing should be done in the third trimester of pregnancy.

However, according to Gallup(1999), the published studies and guidelines on physical activity during pregnancy are insufficient. According to Morris & Johnson (2005), although limited, the literature suggests that practicing moderate exercise during a pregnancy with no additional risks does not lead to undesirable outcomes for either the mother or the fetus. These authors further recommend that more studies are necessary.

2.4 Benefits of antenatal physical exercise

Benefits of physical activity during pregnancy include a reduction in some complications such as blood pressure and oxidative stress (ACOG, 2003). This leads to improvement in overall body strength, good posture and prevent musculoskeletal discomforts in labour and at delivery. When routine exercise is done, there is reduction of the prevalence of urinary incontinence. Regular physical exercise during pregnancy can help reduce medical interventions during labour. It helps to reduce the risk of caesarian delivery (Domenjoz et al, 2014). Women who exercise have lesser complications during labour and delivery than those who do not (May, 2012). Exercised mothers and their newborns have shorter hospital stays relative to those who do not. However, it is worthy of note that when it is done without medical advice especially during ill health could lead to premature labour (Silveira, 2012).

Over the last few years, there has been observed growth in the number of caesarean section (Villar et al, 2007) which has been associated with a longer hospital stay (with little regular antenatal exercise) and an increased risk of infection (Shearer et al, 1993) for the mother. This could lead to greater chance of morbidity and mortality for both mother and child (Gerten, 2005), which also brings high cost for the public healthcare system, with a greater number of medical visits and longer hospital stays (Grobman et al 2000.). The regular participation of pregnant women in physical exercises during gestation is one of the ways of

changing this scenario in nulliparous women (Artal, 2003). Some studies have also shown that exercise during pregnancy can lower glucose levels of women with GDM (Rabkin and Anderson, 1983), or help in the prevention of preeclampsia (Rose et al, 1990). Exercise has shown only a modest decrease in overall weight gain (1 to 2kg) in normal weight, overweight and obese women (Florack, 1985).

When pregnant women exercise their body, there is the tendency of being protected against premature labour (Juhl, 2008), and increased index of amniotic fluid and edema reduction. It can also help in reducing risk of developing gestational diabetes (Liu et al, 2008). Moderate physical exercise during pregnancy can contribute toward smaller weight gain (Kardel, 1998), improved functional capacity (Santos, 2005) and lessened low back pain intensity. Additional pelvic floor muscles exercise also help to decrease the incidence of urinary incontinence, both during and after delivery (Garshasbi, 2005), high intensity of exercise should be avoided because of abortion and premature labour (Juhl, 2008). Epidemiological studies have evaluated the association between physical exercise in pregnancy and maternal/fetal outcomes. Clapp and Capeless (1990) found that there is a 300-500 gram reduction in birth weight in pregnant women who continued a program of moderate-to-high intensity exercise compared to sedentary controls or women who reduce their physical exercise. Beliefs and recommendations regarding prenatal PA have varied widely over the course of history. While initially, the health benefits of prenatal PA were accepted as “common sense”, subsequent time periods saw the introduction of the concept of moderation of PA in pregnancy as formal guidelines for prenatal PA were not introduced in the US until the mid 20th century. In the past 25 years, the body of evidence evaluating the impact of prenatal PA on maternal and fetal outcomes has conducted different studies and the value and possible hazards of physical exercise and sports activities during pregnancy have been debated for years. As long as there are no contradictions (Cavalcantes et al, 2009), moderate physical exercise can continue till delivery. However, high intensity of exercise should be avoided because of abortion and premature labour (Juhl, 2008). Physical exercise is therefore advised to be done in the absence of obstetric medical complications (such as anemia, extreme morbid obesity, etc).

2.5 Consequences of / problems arising from poor or non-performance of antenatal exercise

The types of problems that pregnant women experience could be traced to non-performance of physical exercise which has become a public health concern across the globe. Some of these problems have been reported in several literatures.

A study reported that this lack of exercise could result in discomforts and common illnesses and complications in labour and delivery (Barakat et al, 2012). These include unnecessary weight gain, cardiac, and respiratory problems, back pain, difficult labor outcomes, urinary incontinence, high risk pregnancy resulting into; preeclampsia, gestational diabetes mellitus, glucose intolerance, pregnancy induced hypertension among others. According to WHO (2010), physical inactivity is the first leading risk factor for early mortality worldwide in pregnancy, physical inactivity and excess weight gain have been recognized as independent risk factors for maternal obesity and related pregnancy complications including GDM (Dye et al, 1997).

One of the studies conducted in three selected clinics in Ibadan city, capital of Oyo State revealed that most of the pregnant women were not physically active at recommended levels and most of their energy was expended on household activities (Adeniyi et al, 2014).

According to a study conducted by Andree & Amanda (2013), the risk of developing some of the more common complications in pregnancy such as, hypertension, gestational diabetes, low birth weight, and complicated labour, may be lowered or reduced by regular physical activity.

According to the same study, a total of 2% of American women are affected by gestational diabetes each year and have a 30% chance of developing the condition in future pregnancies (Dabeles et al 2005). Also, children born to mothers with GDM could be at greater risk of obesity and diabetes themselves (Pettit et al (1993).

From the findings of Andree and Amanda, (2013) the risk of developing certain conditions in pregnancy among sedentary women can be reduced by exercise. The study showed that pregnant women who exercised during their two trimesters have a greater likelihood of giving birth naturally and in relation to preeclampsia; time appears to be of benefit. In addition, they could avoid gestational diabetes. However women starting to exercise during pregnancy were at significantly lower risk (57%) of developing gestational diabetes.

2.6 Prevalence of physical inactivity among pregnant women

According to Gallup (1999), the published studies and guidelines on physical activity during pregnancy are insufficient. According to Morris & Johnson (2005), although limited, the literature suggests that practicing moderate exercise during a pregnancy with no additional risks does not lead to undesirable outcomes for either the mother or the fetus. These authors go on to contend that more studies are necessary. One of the articles or publications on physical activities practice among pregnant women in the United States reported that only 15% of women engaged in physical activity at the recommended level (Evenson et al, 2004). Even studies conducted in developed countries have reported a declining physical activity level with advancing pregnancy (Guelinckx et al., 2010; Hayes et al., 2012). These findings might imply that low levels of physical activity are prevalent in both developing countries and there is need to promote physical activity even in developing countries. Mbada et al. (2014) looked at knowledge and attitude towards physical activity in pregnancy. Findings revealed that participants had some knowledge about types of exercise and some benefits and contraindications to antenatal exercise. This in itself might be a barrier to performance of physical activity during pregnancy.

However, the findings of studies on the levels of physical activity in pregnant women in Western countries are inconsistent. In 2012, a survey of 3482 pregnant women in Norway showed that only 14.6% followed the recommended guideline (≥ 3 times a week, 20 min per session, moderate intensity) at 17–21 weeks gestation, Rhodes (1971), but in 1991 and 1992, a British study of 9889 pregnant women reported that approximately 50% participated in vigorous activity for at least 3 hours per week at 18 and 32 weeks of gestation (Heardman, 1957). In 2004, a report from the UK showed that 39% of pregnant women who exercised regularly before pregnancy stopped exercising after becoming pregnant (Dick-Read, 1959). Another study showed that 21.5% healthy pregnant women in Ireland met the recommended guideline (Karmel, 1959). A cohort study of 1280 pregnant American women 1999–2006 revealed that only 22.9% met the ACOG recommended guidelines (Bing, 1994); however, another study, conducted in the United States in 2013, found that 94.5% of women (52/55) at 18 weeks of pregnancy accumulated ≥ 150 minutes of moderate-to-vigorous activity weekly (Burns, 1970).

2.7 Factors influencing the amount of physical activity or exercise taken by pregnant women

Various factors have been shown to influence the amount of physical activity or exercise taken by pregnant women, including educational level (Bing, 1975), pre gravid body mass index (BMI) discomfort symptoms (Rhodes, 1971), age, unemployment, and their husband's exercise habits (Balaskas, 1979). Studies conducted in Brazil and Australia found that the main reasons given by pregnant women for not being more physically active were incontinence, discomfort, lack of time, and feeling tired (Delyser, 1982, Nakahata, 1987).

Most previous studies included mainly Caucasian women Dick-Read and Karmel, 1959 and only a few were carried out in Asian populations including Chinese populations (Noble, 1995). China is the most populous country in the world. At the present time, excessive gestational weight gain (GWG) is a public health problem in China (Jiang et al, 2012). A cohort study of 862 pregnant Chinese women found that more than 50% of participants experienced excessive weight gain during pregnancy Jiang et al, (2012). Most pregnant women decreased their physical activity, reduced house-work or even quit their jobs as soon as they became pregnant. At the same time they increased their sedentary activities (Noble 1995). The prevalence of adherence to appropriate levels of physical activity, as defined by the international recommended guideline, by pregnant women in China remains unknown. Moreover, the factors that influence physical activity in this population have not yet been explored. Tianjin, the third largest city in China, is located in the eastern coastal area in China. In recent years, Tianjin has experienced rapid economic development and urbanization in line with overall national development. These transitions maybe influence physical activity behavior and related perceptions (Shrock, 1984). This population-based cross-sectional study conducted in Tianjin, evaluated physical activity level during pregnancy and factors that influence physical activity during pregnancy. The objective was to identify barriers that prevent pregnant Chinese women from exercising.

2.8 Knowledge of physical activity among pregnant women

Knowledge has to do with facts or information, and skills acquired through experience or education; the theoretical or practical understanding of a subject. The knowledge of pregnant women about physical activity in pregnancy had been low before now but due to new

increase in knowledge across the globe, it is now on the increase. Despite the increase in knowledge in some developed and developing nations of the world, the practice still needs to be encouraged (Lima et al, 2005).

Mbada et al (2014) examined the knowledge towards physical activity in pregnancy. Findings revealed that participants had some knowledge about types of exercise and some benefits and contraindications to antenatal exercise. This in itself might be a barrier to performance of physical activity during pregnancy.

According to Sujindra et al (2015), in a study conducted in India the knowledge of pregnant women on exercise is less than average which could be due to inadequate education. Healso found out that very few practice exercise in pregnancy due to lack of awareness on the demerits and merits of antenatal exercise. There have been a number of recommendations to addressing the low level knowledge of physical activity among pregnant women. The American College of Obstetricians and Gynecologists (ACOG), in 2002 updated their guidelines on exercise for pregnant women and recommended moderate intensity exercise for at least 30 min per day on most days of the week (Blankfield 1967. Secondly, Watson et al (2015), posited that it has become imperative that innovative strategies are put in place to ensure the gap between research and clinical practice is bridged. In this regard, there is a great need for provision of clear, evidenced-based information through continuous education activities that can be shared with patients.

Thirdly, since research has shown that the knowledge received by health care providers can influence the practice of physical activity in pregnancy according to Clapp (2000). Gaining knowledge of the benefits of exercise may motivate pregnant women to become more active (Prather et al, 2012), because over half of the numbers of pregnant women ask their healthcare givers for the kind of exercise they should do (Jersey et al 2013). Improving maternal health is a key directive of the World Health Organization in promoting exercise, and changing health behaviors, in pregnant women, here is also the need for continued education in our antenatal clinics so as to provide great potential for improving the occurrence and impact of physician advice, which can have an integral role to play in improving activity levels at a primary healthcare level. In promoting antenatal physical exercise according to a study carried out by Perce et al (2012), it was discovered that the

most impactful health promotion strategies were counseling, provision of information on physical activity, and exercise instruction.

Fourthly, a study in 1993 by Lewis and Lynch revealed that physician training can double the amount of advice given. Therefore, training in the form of workshops may be warranted. This education and evidence-based medicine should be therefore incorporated into the undergraduate medical degree curriculum.

2.9 Perception of physical exercise among pregnant women.

Perception refers to how a person sees a situation or the feeling an individual has about a thing. However, according to Wehmier (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 physical exercise in pregnancy. Gaston and Cramp (2011) suggested that some factors such as age and level of education may influence perception of pregnant women on physical exercise. Age of pregnant women largely influences her perception on the benefits of physical exercise. Kurz, Bondura and Khale (2016) concluded that the wide variety of lower maternal age portends negative perception of benefits of physical exercise in pregnancy. Gaston and Vamos (2012) showed that younger women participate in high levels of antenatal 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.

Level of education is also a factor that may influence the perceived benefits of antenatal exercise. Senanoyayake (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 (2011) found out that women with higher education will engage in prenatal exercise. Clarke and Gross(2014), however 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 pregnantwomen

is a predictor 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. Also, some myths developed by women such as; you cannot do physical exercise while pregnant, physical exercise leads to dangerous overheating and dehydration, exercise will only make you get exhausted, running during exercise is unsafe could be responsible for non-performance of antenatal exercise (ACOG).

2.10 The Conceptual Framework

A conceptual framework presents a systematic way of understanding events and situations. It is a set of concepts, definitions, and proportions that explain or predict these events or situations by illustrating the relationships between variables (National Cancer Institute, 2005).

The purpose of the theory in research is to help the researcher to be able to explain the dynamics of the health behavior, including processes of changing them, and the influences of many forces that affect health behaviors, such as social and physical environments. Theory and frameworks also provide planners the most suitable information such as target audiences, methods for fostering change, and outcome evaluation before planning and implementing healthy promotion intervention.

The Health Belief Model

The conceptual framework for this study is the Health Belief Model. The Health Belief Model can be used to design or adapt health promotion or disease prevention programs. The Health belief model is appropriate to be used alone or in combination with other theories or models. To identify success with this theory, it is important to identify “cues to action” that are meaningful and appropriate for the target population.

According to the HBM, a person’s decision on and motivation for adopting a behavior depend on her perception of a risk posed (perceived susceptibility) and its seriousness (perceived severity), her belief in the efficacy of action taken to reduce the risk of a disease (perceived benefits), barriers to it, and modifying variables such as demographic data,. Furthermore, cues to action also help in adopting particular health behavior.

Professionals working with pregnant women are in a unique position to encourage more women to exercise during and after pregnancy, help women adopt a positive attitude toward their pregnant bodies, and motivate women to continue practicing healthy behaviors throughout the lifecycle. It is important that health care providers take advantage of this opportunity to address and promote an active lifestyle. The Health Belief Model is based on the following six constructs

- Perceived susceptibility: This involves beliefs about having complications during pregnancy and at delivery that motivates them to participate in antenatal physical exercise
- Perceived severity: Beliefs about the health consequences of living a sedentary life. For example, their views on a question like “non-performance of physical exercise in pregnancy makes me gain too much weight”.
- Perceived benefits: Beliefs about the effectiveness of taking actions to reduce the risk or seriousness of complications which may result due to non-performance of physical exercise.
- Perceived Barriers: Beliefs about the physical demands of not living a sedentary life in pregnancy.
- Cues to action: confidence and decision of a pregnant woman to engage in physical exercise which will help prevent some health problems such as back pain, excessive weight gain, GDM, etc which could result as a result of not engaging in physical exercise.

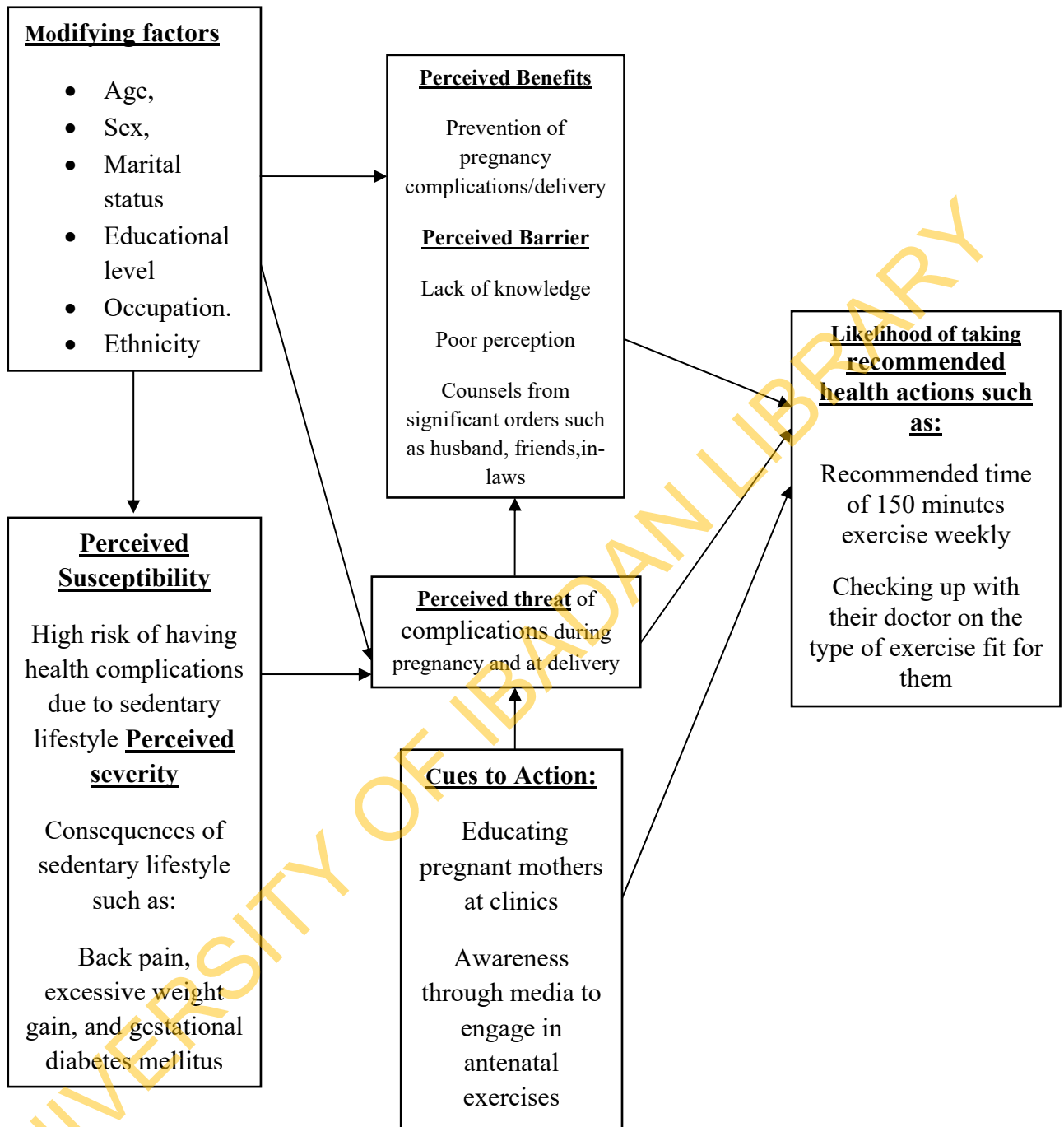


Figure 2.1: The Diagrammatic Application of the Health Belief Model to physical exercise in pregnancy

CHAPTER THREE

METHODOLOGY

Introduction

This chapter presents the research design, population, sample and sampling technique, instrumentation, procedure for data collection and methods of data analysis. The structure of the chapter therefore reflects these concerns.

3.1 Study design

A descriptive cross sectional design was used for this study which involved the use of quantitative methods to obtain information on the knowledge and perception of physical exercise among antenatal attendees of Ondo State Specialist Hospital, Akure in Akure South Local Government Area of Ondo State.

3.2 Description of the study site

Ondo State Specialist Hospital is situated in Akure South Local Government Area of Ondo State. It is situated along Hospital road. The antenatal clinic is open to pregnant women on Mondays, Wednesdays and Thursdays for bookings, treatments and attendance to pregnant women living with HIV/Aids. There is an average attendance of 220 to 300 patients being attended to, on a weekly basis by doctors, nurses, health educators, laboratory technicians among others. Pregnant women come from different places over the state to be attended for antenatal care.

At every antenatal session; there are: booking and registration of pregnancy, education of the pregnant women, history taking and examination, and investigations and laboratory tests. Some special tests which pregnant women undergo are; ultrasound scanning, screening for infections, such as hepatitis B. Also routine drugs such as folic acid, ferrous gluconate, Malaria prophylaxis are given to pregnant women during antenatal clinics

3.3 Population of the study

The sample population for this study was a group of the antenatal attendees of Ondo State Specialist Hospital, Akure who gave their consent for participation in the study.

3.4 Research variables

The variables were categorized into two; namely the independent and dependent variables.

3.41 Independent variables: The independent variables consist of the socio-demographic characteristics of the respondents such as age, number of children, stage of pregnancy, occupation, ethnic group, family structure, educational qualifications of antenatal attendees.

3.42 Dependent variables

The dependent variables are the general concepts of physical activity such as knowledge of physical exercise among antenatal attendees, perception towards physical exercise, the perceived benefits of physical exercise to pregnant women and the factors promoting and inhibiting the performance of antenatal physical exercise.

3.5 Inclusion criteria

1. Only pregnant women are considered as respondents.
2. She should be of age 18 to 45 years.
3. She should give her consent before being enrolled for the research.

3.6 Exclusion criteria

1. Non-pregnant women are not considered
2. This study excluded pregnant women less than 18 years or more than 45
3. Also those who did not give their consent were exempted

3.7 Sample size determination

The sample size was calculated using the Leslie Kish formula

$$n = \frac{z^2 PQ}{d^2}$$

Where n is the minimum sample size required

Z= confidence limit of survey at 95% confidence level (1.96)

d is absolute deviation from true value (degree of accuracy) = 0.05 (5%)

p is Prevalence rate of Pregnancy induced hypertension as a result of physical inactivity among women in Nigeria in a Nigerian teaching hospital as reported by Swati Singh et al (2014) is 17% that is $p=17\%$ = {prevalence of PIH resulting from lack of physical exercise
 $q=1-p=(1-0.17) = 0.83$, $d= 0.05$ at 95% confidence interval

$$n = \frac{1.96^2 \times 0.17 \times 0.83}{0.05^2} = 216.8$$

Sample size is 216.8

Non-response rate of 10% using $q=1/1-f$ where f= non-response rate
is $1.11 \times 216.8 = 240.66$

Therefore, the minimum sample size estimate for the study was 241

3.8 Sampling technique

All the two hundred and forty one pregnant women attending antenatal clinic at Ondo State Specialist Hospital, Akure in Ondo State were consecutively recruited into this cross-sectional survey. The sampling method used was purposive, using the criteria since all respondents fall within the group

3.9 Instrument for data collection

Questionnaire

The collection of the questionnaire data was done by means of a semi-structured questionnaire. The questionnaire was developed after a review of the literatures. The questionnaire consists of five sections labeled A-E. Section A sought information on Age, number of children, marital status, occupation, educational level, family structure, stage

of pregnancy, and ethnic group. Section B contained questions that were used to determine the level of knowledge of physical exercise among antenatal attendees. Section C sought information on their level of perception. Section D focused on their perceived benefits while Section E focused on the promoting and inhibiting factors of antenatal exercise among the antenatal attendees of Ondo State Specialist Hospital, Akure, Ondo State.

3.10 Validation of instrument

In order to validate the instrument (questionnaire) for this study,

1. The draft copy prepared by the researcher was submitted to professional experts from the field of health education to vet the questionnaire in order to establish face validity.
 2. The instrument was also pretested in Ondo State Specialist Hospital, Ondo, in Ondo West Local Government area.
 3. Supervisor review was used in fine-tuning the instrument
 4. Special care was taken to monitor the quality of data collected through supervision during collection of data.
- i. The instrument (questionnaire) was translated into Yoruba which is the local language of the target population by a Yoruba Language expert. Another Yoruba Language expert translated it back to English Language.
 - ii. Owing to the bulky nature of the 6-page questionnaire, average administration time per questionnaire was recorded as 30 minutes.
 - iii. The outcome of the pre-test was used to modify questions which were not clear to the respondents and those that were found to be irrelevant were removed and adequate spaces were provided for responses.

3.11 Reliability of the instrument

The questionnaire was pre-tested to ascertain whether the questions were cleared and simple enough for respondents comprehension and determine the trend in the response of participants and the amount of time it took to administer the questionnaire. The questionnaire was pre-tested among 24 antenatal attendees (10% of the total sample size) at the antenatal clinic session of Ondo State Specialist Hospital located in Ondo West Local Government Area of Ondo State. The data collected were cleaned, coded, and entered into the computer.

The reliability of the questionnaire was determined using the Cronbach's alpha model technique of SPSS(Version 22). The reliability correlation coefficient of 0.778, which is greater than 0.5 showing a high degree of reliability was obtained

3.11.1 Recruitment of research assistants for the study

Considering this study population and the emotional states of the respondents, it was necessary to recruit and train research assistants (RAs) who would help in data collection. Four persons including the principal investigator attended the training exercise which took place for two consecutive days. The following selection criteria were used to select the four RAs for training with the aim to select three thereafter.

1. Educational qualifications of the assistants were at least Ordinary National Diploma (OND), and B.Sc in a Health and /or science related field
2. Fluency in English and Yoruba Languages
3. Interpersonal and good communication skills.
4. Report writing skills
5. Availability throughout the research period till after data collation.

3.11.2 Training of Research Assistants

The research assistants were trained for two days 13th-14th September, 2018. A training manual, plan, and time table were developed for the training. A time table was drawn for this period of 2hours 10am- 12noon daily. The training commenced with the introduction of the trainer or the principal investigator and followed by the trainees. Training materials containing the scope of the research, objectives and methodology were given to RAs. Role-plays on the data collection procedure (entry processes, seeking consent of potential cases for the study, signing of confidentiality assurance form and administration of questionnaire) were also ensured. Recapitulating questions for monitoring and assessing trainings were asked from time to time. The questionnaire variables was revised with them after which the RAs were equipped with copy of the instrument each to be taken home and read over for better understanding with the aim of answering any burning questions which may occur later.

In addition, content and construct validity were reviewed during the training of research assistants to ensure uniform understanding and interpretation by all research assistants. Negotiations and logistic plans for data collection were discussed and stipends paid to RAs. Each RA was assigned potential dates and time for data collection. Each RA received a copy of the ethical approval from the Ondo State Ministry of Health and writing materials, all contained in a clear proof bag. All RAs who received training participated in data collection process.

3.12 Ethical consideration

The proposal was submitted for approval and reviewed by the Ethical Review Committee of Ondo State Ministry of Health. Ethical approval for the study was obtained from the Ethical Review Committee of the Ondo State Ministry of Health, Akure.

Informed consents of all respondents were sought for participation in the study.

Also, only those who read, understood and signed the consent form were enrolled into the study. The informed consent form spelt out the title of the study, purpose of the study, justification for doing the research as well as the benefits that will be derived from the study.

The respondents who could not read or write were attended to separately.

Participation was voluntary and no criticism of those who refused to give their consent. Participants' identities like name or address was not written on the questionnaire for confidentiality. Participants were also given equal opportunities to withdraw their consent freely during the study. Information gathered from the respondents were stored in a computer system for analysis by the researcher while the questionnaire filled by the respondents were kept for maximum of ten years after which it is believed that the purpose of the study would have been accomplished.

3.13 Data collection procedure

The study was carried out between August and October with the assistance of the three trained Research assistants. The researchers with the three trained research assistants administered the questionnaires to the respondents in Ondo State Specialist Hospital, Akure. The research assistants were trained in the following areas; the objectives of the study, securing informed consents, importance of collecting valid data, procedures for questionnaire

administration and techniques for reviewing items on the questionnaires to have adequate understanding of the instrument and completeness. The manual of field operation was prepared to explain how entries would be made, and variables coded. Data collection took place between August and October during antenatal clinic sessions. Short briefing sessions always followed to review work done.

This was done with the use of semi-structured interviewer administered questionnaire by the principal investigator with the help of three research assistants. A total of 241 questionnaire were administered and were all retrieved. Respondents who could not read English were administered Yoruba questionnaires. The sections in the questionnaire include the socio-demographic characteristics of the respondents while others contain information on variables of the study

3.14 Data management and analysis

In respect to data analysis from the questionnaire, the following were done:

1. All the administered questionnaires were checked one by one and edited for purpose of completeness and accuracy.
2. Each of the questionnaires was numbered serially for easy identification, data entry and analysis.
3. A coding scheme guide was developed after carefully reviewing the responses and appropriate scoring.
4. The data was manually coded and entered into the computer for analysis.

Respondents' knowledge on antenatal exercise was measured using knowledge scale. Twenty knowledge questions were asked and points allotted to each of the knowledge questions as the case may be, with the highest 3 points. Any response that was incorrect carried no point(i.e zero point). The total knowledge score ≤ 25 , $\geq 26-28$, and ≥ 29 were categorized as poor, fair and good respectively. 20 and 38 are the minimum and maximum scores respectively

Respondents' perception of antenatal exercise was also measured using fifteen questions and two (2) points awarded to each. The respondents' level of perception varied. Perception score and the maximum obtainable score for each respondents was calculated which was then used

to grade each respondents as negative or positive perception. It was measured on 15- point scale in which scores > 7 and < 7 were categorized as positive and negative perception respectively.

The data were analyzed using statistical package for social science (SPSS) version 22. The descriptive tools used were mean, standard deviation, and the inferential statistics of Chi-square(χ^2). Frequency and percentage tables were generated and tabulations of some variables done using Chi-square test. The research hypotheses were tested to establish associations between the independent and dependent variables using the Chi-square test at 5% probability level for rejecting the null hypotheses. Cross-tabulation of dependent and independent variable was also done to establish associations between the variables. The results were summarized and presented in chapter four of this dissertation. In addition, narratives statements were further used to present the data. The sequence of presentations was presented with the bio-data of the respondents and the research objectives.

3.15 Limitations of the study

The major limitation to this study is that, all the antenatal attendees during this research work who met up with the criteria and gave informed consent were recruited into the study. The sampling method used was purposive which could bring bias into the general result.

CHAPTER FOUR

RESULTS

The findings from this study are presented in this section. They are organized into the following subsections:

- Socio- demographic characteristics.
- Knowledge of physical exercise among antenatal attendees
- Perception towards physical exercise
- Perceived benefits of physical exercise to pregnant women
- Factors promoting and inhibiting the performance of antenatal physical exercise
- Hypothesis testing

4.1 Socio-demographical characteristics of the respondents

It is important to observe that the questionnaire obtained a completion response rate of 100% (241 out of 241) among pregnant women selected for this study. It is perceived that the ages of respondents ranged from 21 to 45 years with a mean of 30.4 ± 5.6 years. The majority 149(61.8%) fell between 21 and 31 years age group. Slightly below half of the total number of pregnant women have more than one child (48.1). Pregnant women with one child make up 27.8% and those with none are 24.1%, while pregnant women in their second trimester have a percentage of (48.1%). Most of the respondents are Yorubas(71%),while Igbos and Hausas constitute 22.8% and 6.2% respectively. About 42.3% of the respondents are self employed while 37.8% constitute the civil servants and 14.5 are unemployed. Most of the respondents have monogamous family structure (85.5%) and 14.5 % have polygamous family setting. Those who have secondary school level qualification have a larger percentage of (45.6%) while those with tertiary and primary have 42.3% and 12.0% respectively. These are as shown in table 4.1a and 4.1b below;

Table 4.1a: Socio-demographic characteristics of the respondents (N=241)

| Variable | Frequency | Percentage |
|---------------------------|------------------|-------------------|
| Age (in years) | | |
| 21-25 | 50 | 20.74 |
| 26-30 | 91 | 37.8 |
| 31-35 | 52 | 21.58 |
| 36-40 | 31 | 12.86 |
| 41-45 | 17 | 7.05 |
| Mean age=30.4±5.6 years | | |
| No. of children | | |
| More than one | 116 | 48.1 |
| One | 67 | 27.8 |
| None | 58 | 24.1 |
| Stage of pregnancy | | |
| Third trimester | 67 | 27.9 |
| Second trimester | 116 | 48 |
| First trimester | 58 | 24.1 |
| Occupation | | |
| Civil servants | 91 | 37.8 |
| Self employed | 102 | 42.5 |
| Non-employed | 35 | 14.5 |
| Student | 10 | 4.1 |
| Not specified | 3 | 1.2 |
| Ethnic group | | |
| Yoruba | 171 | 71.0 |
| Igbo | 55 | 22.8 |
| Hausa | 15 | 6.2 |

Table 4.1b: Socio-demographic characteristics of the respondents (N=241) contd

| Variable | Frequency | Percentage |
|-----------------------------------|------------------|-------------------|
| Family structure | | |
| Monogamous | 206 | 85.5 |
| Polygamous | 35 | 14.5 |
| Educational qualifications | | |
| Primary | 29 | 12.0 |
| Secondary | 110 | 45.7 |
| Tertiary | 102 | 42.3 |

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4.2 KNOWLEDGE OF RESPONDENTS

Majority of the respondents 167(69.2%) were aware of what physical exercise is while 74(30.7%) only gave examples as definition. One hundred and thirty three(55.2%) know that physical exercise should be discontinued while ill. Most of the respondents, 224 (92.0%) know that the kind of exercise to be done by pregnant women should be mild and not vigorous. More than two- third of the respondents, 165 (68.5%) knew that physical exercise should be done as convenient for individuals. One hundred and fifty five respondents 155(64.3%) gave a negative response that physical exercise can lead to vaginal bleeding in pregnant women. Majority of the respondents 225 (93.4%) know that physical exercise is important for the well being of the mother in pregnancy while 198 (82.2%) of the respondents also know it is done for the well being of the baby while in the womb.

About more than three quarter, 181(75.1%) of the respondents were able to mention three relevant examples of physical exercise which can be done in pregnancy, while 49(20.3%) and 11(4.6%) percentage of the respondent mentioned two and one examples respectively. Majority of the respondents 238(98.8%) were able to list the health benefits and problems associated with non -performance of physical exercise in pregnancy. Most of the respondents 225(93.4%) know that physical exercise should be discontinued while dizzy or fainting. More than three- quarter of the respondents 190(78.8%) know that physical exercise should be done in the morning while 48(19.9%) know it can be done in the evening and 3(1.2%) know it is afternoon.

On the types of exercises to be done during pregnancy, 214(88.8%) know that running can be done, others 218(90.5%) know that walking is part. Majority, 196(81.3%) and 199(82.6%) of the respondents know that boxing and wrestling(respectively) are not good for pregnant women, while 198 (82.2%) also know that sack race is not. Majority know that dance, 225(93.4%), handballs, 168(69.7%), and basketball, 171 (71%) are good physical exercises for pregnant women while others know that football, 162(67.2%) and weight lifting, 192(79.7%) could be dangerous. The results are as displayed in table 4.2a-d.

Table 4.2a Knowledge of respondents on the concept of physical exercise in pregnancy

| Knowledge Variable | Frequency | Percentage |
|--|------------------|-------------------|
| Definition of physical exercise | | |
| Activities done to keep one fit | 98 | 40.7 |
| for proper functioning of body | 69 | 28.6 |
| Examples of physical exercise | 74 | 30.7 |
| Average minimum time for it | | |
| Thirty minutes to one hour | 23 | 9.5 |
| Ten minutes to fifteen minutes | 53 | 22.0 |
| As convenient for individuals | 165 | 68.5 |
| Three examples of physical exercise | | |
| One correct example | 11 | 4.6 |
| Two correct examples | 49 | 20.3 |
| Three correct examples | 181 | 75.1 |
| Health benefits in pregnancy | | |
| General sound health | 147 | 61.0 |
| Reduced complications at delivery | 94 | 39.0 |
| Non-participation problem | | |
| General poor health | 136 | 56.4 |
| Increased complications at delivery | 105 | 43.6 |
| When physical exercise be best done | | |
| Morning | 190 | 79.9 |
| Afternoon | 3 | 1.2 |

Evening

48

19.9

Table 4.2b Knowledge of respondents on the concept of physical exercise in pregnancy

| | | | |
|--|------------|------------|-----------|
| Can it lead to vaginal bleeding? | 155(64.3%) | 58(24.1%) | 28(11.6%) |
| Physical exercise is important for mother's well being in pregnancy | 225(93.4%) | 58(24.1%) | |
| Physical activity is important for baby in womb | 198(82.2%) | 13(5.4%) | 30(12.4%) |
| Physical exercise can be done while ill in pregnancy | 84(34.9%) | 133(62.1%) | 24(10.1%) |
| Physical exercise can be discontinued while dizzy or fainting in pregnancy | 225(93.4%) | 16(6.6%) | |

Table 4.2c Knowledge of respondents on the concept of physical exercise in pregnancy

| Knowledge Variable | Yes (%) | No(%) |
|---|----------------|--------------|
| As a pregnant woman I can do any of the following activities | | |
| Running/jogging | 94(39)* | 147(61.0) |
| Table tennis/badminton | 156(64.7)* | 85(35.3) |
| Handball | 168(69.7)* | 73(30.3) |
| Gymnastics | 74(30.7) | 167(69.3)* |
| Basketball | 171(71.0)* | 70(29.0) |
| Dance | 225(93.4)* | 16(6.6) |
| Football/soccer | 79(32.8) | 162(67.2)* |
| Weight lifting | 49(20.3) | 192(79.7)* |
| Sack race | 43(17.8) | 198(82.2)* |
| Bicycle riding | 57(23.7) | 184(76.34)* |
| Swimming | 94(39.0)* | 147(61.0) |
| Gymnastics | 74(30.7) | 167(69.3)* |
| Basketball | 171(71.0)* | 70(29.0) |
| Walking for exercise | 218(90.5)* | 23(9.5) |
| Boxing | 45(18.7) | 196(81.3) |
| Correct response* | | |

4.2d Level of knowledge categories with socio-demographic characteristics

The category of knowledge among the respondents is presented in table 4.2a-c. The knowledge score is 40 points with the minimum and maximum knowledge being 20 and 38 points respectively. Majority (188) of the respondents had good knowledge while 38 had fair knowledge. Very few (15) respondents had poor knowledge as in the table below (Table 2d).

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Table 4.2d Knowledge categories

| Grade | Frequency | Percentage |
|--------------|------------------|-------------------|
| Poor | 15 | 6.2 |
| Fair | 38 | 15.8 |
| Good | 188 | 78.0 |
| Total | 241 | 100 |

Mean knowledge score =31.209 Median knowledge score= 37.0 Minimum knowledge score= 20 points, Maximum knowledge score= 38 points.

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4.3 Respondents' perception of physical exercise in pregnancy

Majority 214(88.8%) of the respondents perceived that physical exercise can help and maintain healthy bones of the mother and the growing foetus while 189(78.4%) perceived that it can help reduce excess weight gain in pregnancy. More than three quarter 198(82.2%) of the respondents perceived that some health complications which may appear in pregnancy can be reduced through physical exercise while 194(80.5%) perceived that it can be done while alone and not only at the antenatal clinic.

Quite a number of the respondents 211(87.6%) and 193, (80.1%) perceived that physical exercise makes them agile and active respectively in pregnancy. More than three-quarter 189(78.4%) of the respondents perceived that their daily activities are not affected by physical exercise and more than two-third 163(67.2%) perceived that it improves their health. More than one third 79(32.8%) perceived negatively that physical exercise is not important for pregnant women, while majority, 162(67.2%) perceived that that not engaging in physical exercise makes them heavy and weak.

More than half, 124(51.5%) and 136(56.4%) perceived that they are at the risk of miscarriage and fainting if engaged in physical exercise while pregnant. Also, more than half 140 (58.1%), perceived that physical exercise is not only for sedentary workers while 135(56.0%) perceived that performing household chores is not the only way of exercising the body while pregnant. Check table 4.3a and b below:

Table 4.3a Respondents' perception of physical exercise

| Perception variable | Yes(%) | No (%) |
|--|---------------|---------------|
| I tend to be more active when I do physical exercise in pregnancy | 193(80.1) | 48(19.9) |
| Physical exercise can help build and maintain healthy bones of the mother and the growing foetus | 214(88) | 27(11.2) |
| Physical exercise in pregnancy can help reduce or avoid some health complications and at delivery | 198(82.2) | 43(17.8) |
| Physical exercise can be done while alone and not only at the antenatal clinic | 194(80.5) | 47(19.5) |
| I think my daily activities at pregnancy are not affected by pregnancy | 189(78.9) | 47(19.5) |
| I do not think physical exercise is important for pregnant women | 79(32.8) | 162(67.2) |
| Not engaging in physical exercise makes me feel heavy and weak | 162(67.2) | 79(32.8) |
| Physical exercise improves my health | 163(67.6) | 78(32.4) |

Table 4.3b Perception of respondents

| Perception variable | Yes(%) | No(%) |
|--|------------------|------------------|
| Doing physical exercise while pregnant can lead to miscarriage | 117(48.5) | 124(51.5) |
| I stand at the risk of fainting if I do physical exercise while pregnant | 105(43.6) | 136(56.4) |
| Performing my household chores is the only way of exercising myself while pregnant | 106(44.0) | 135(56.0) |
| Engaging in physical exercise makes me feel agile | 211(87.6) | 30(12.4) |
| It helps reduce excess weight in pregnancy | 189(78.4) | 52(21.6) |
| I do not consider myself at any risk of complications by not engaging in physical exercise while pregnant | 105(43.6) | 136(56.4) |
| Physical exercise is only for pregnant women who are sedentary workers | 101(41.9) | 140(58.1) |

4.3c Level of Perception categories with Socio-demographics characteristics

The category of perception among the respondents was presented in table 4.3a- 4.3d. The mean perception score was 10.59 points with the minimum and maximum knowledge being 1 and 15 points respectively. Majority (220) of the respondents had good perception while 21 had poor perception as in the table below:

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Table 4.3c Categorization of Perception among Respondents

| Perception categories | Frequency | Percentage |
|------------------------------|------------------|-------------------|
| Poor | 21 | 8.7 |
| Good | 220 | 91.3 |
| Total | 241 | 100 |

Mean perception score=10.59, Minimum perception score=1 point, Maximum perception score =15 points

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4.4 Respondents' perceived benefits of physical exercise in pregnancy

Only few 37(15.4%) of the respondents perceived that physical exercise can reduce back pain while majority believe that it can help in the prevention of excessive weight gain in pregnancy. More than half 129(53.5%) of the respondents believe that it can help reduce urinary incontinence in pregnancy while more than three quarter perceived it can help in pelvic muscle strengthening. About three- quarter 180 (74.7%) and 172(79.7%) of the respondents perceived that physical exercise can help in increasing muscle tone, and improving stamina, respectively during pregnancy. More than half 131(54.4%) of the respondents perceived that it can help in the reduction of diabetes while 198(82.2%) perceived it could help to cope during labour and delivery. Few 39(14.9%) of the respondents perceived it could help in postnatal recovery while majority 206(85.5%) perceived it could help on body awareness, posture coordination and balance during pregnancy.

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Respondents' perceived benefits of physical exercise

Table 4.4

| Perceived benefits Variable | Yes (%) | No (%) |
|---|-----------|-----------|
| Reduction of back pain | 37(15.4) | 204(84.6) |
| Prevention of excessive weight gain | 174(72.2) | 67(27.8) |
| Reduced risk of urinary incontinence | 129(53.5) | 112(46.5) |
| Reduction of diabetes in pregnancy | 131(54.4) | 110(46.5) |
| Pelvic muscle gets stronger | 181(75.1) | 60(24.9) |
| Increases muscle tone, strength, and endurance in pregnancy | 180(74.4) | 61(25.6) |
| Improved energy and stamina during pregnancy | 172(79.7) | 49(20.3) |
| Better ability to cope with labour and delivery | 198(82.2) | 43(17.8) |
| Rapid postnatal recovery | 39(14.9) | 205(85.1) |
| Improvement of body awareness, posture, coordination and balance during pregnancy | 206(85.5) | 35(14.5) |

4.5a Factors promoting antenatal performance of physical exercise

The largest percentage of respondents, 191 (79%) would engage in physical exercise to make them more healthy while 190 (78.8%) would to strengthen their body. More than two third 149 (61.8%) would be more physically active if their friends do too. More than half of the respondents would engage in physical exercise as a result of the information and physical activities being done at the antenatal clinic. One hundred and seventy one (74.3%) would do physical exercise for alertness while others, 162 (67.2%) do to lose or reduce excess weight gain in pregnancy as in table 4.5a

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Respondents' factors promoting antenatal performance of physical exercise

Table 4.5a

| Promoting variables | Yes(%) | No(%) |
|---|------------------|-----------------|
| I do physical exercise to strengthen my body systems | 190(78.8) | 51(21.2) |
| I engage in physical exercise to make me healthy | 191(79.3) | 50(20.7) |
| I do physical exercise because my pregnant friends do so | 149(61.8) | 92(38.2) |
| The information and exercise activities at antenatal clinics encourage me to do so | 143(59.3) | 98(40.7) |
| I do physical exercise to keep me alert | 179(74.3) | 62(25.7) |

4.5b Factors inhibiting the performance of physical exercise in pregnancy

Several factors listed as barriers to being physically active in pregnancy include: busy schedules 80(33.2%), dislike for the type of exercise introduced at antenatal clinic 67(27.4%), lack of husband's support,68(27.2%). Other factors include friends who make jest 72(29.9%) and lack of knowledge of benefits of physical exercise in pregnancy, 67(27.8%). Waking up late88(36.5%) and time wastage88(36.5%) are also some hindering factors while others, 160(66.4%) do not engage in it so as to avoid abortion.

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Table 4.5b Respondents' inhibiting factors of physical exercise performance

| Inhibiting Variables | Yes(%) | No(%) |
|--|---------------|--------------|
| I do not engage in physical exercise because of my busy schedules | 80(33.2) | 161(66.8) |
| I do not like the types of exercises introduced to us at the clinic | 67(27.8) | 174(72.2) |
| I do not engage in physical exercise because my husband does not support it | 68(28.2) | 173(71.8) |
| I do not exercise my body because my friends do make jest of me | 72(29.1) | 169(70.1) |
| I do not exercise because I do not know the benefits | 67(27.8) | 174(72.7) |
| I do not do physical exercise in pregnancy because I often wake up late | 88(36.5) | 153(63.5) |
| I do not exercise my body because it can lead to abortion | 160(66.4) | 81(33.6) |

4.6 Hypothesis testing

The study tested six hypotheses. All the hypotheses were proposed at 95% confidence level and 5% level of statistical significance otherwise referred to as limit of error with p value of 0.05. The appropriate test statistics used to determine the existence or absence of relationship between the respondents' age, parity, stage of pregnancy, educational level, occupation, knowledge and perception.

Research Hypotheses

There is no significant association between:

1. age and knowledge of physical exercise.
2. number of children and knowledge of Physical exercise.
3. educational status and knowledge of Physical exercise.
4. stage of pregnancy and knowledge of Physical exercise
5. occupation and knowledge of Physical exercise.
6. educational level and Perception of physical exercise.

Hypothesis one

Established here is the verity of the first null hypothesis which states that there is no association between respondents' physical exercise knowledge and age. The cross tabulation of the variables (dependent and independent) was done to establish if this is true. Table 4.6a shows that there is no association between respondents' age and physical exercise knowledge with p-value, 0.4745. Additionally, the age of the respondents has no role to play on the physical exercise knowledge of the respondents(p-value= 0.4745). The null hypothesis, which stated that there is no association between respondents' age and physical exercise knowledge, is accepted, and the alternate that the respondents' age has a role to play is therefore rejected.

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Table 4.61: Association between respondents' age of respondents and physical exercise knowledge

Examples of antenatal physical exercise

| Age of respondents | One correct example No(%) | Two correct examples No(%) | Three correct examples No(%) | Total No(%) | x² | P value |
|---------------------------|--------------------------------------|---------------------------------------|---|------------------------|----------------------|----------------|
| 21-25 | 3(1.2) | 12(5.0) | 35(14.5) | 30(20.7) | 45.95 | 0.4745 |
| 26-30 | 3(1.2) | 17(17.1) | 71(29.5) | 91(37.8) | | |
| 31-35 | 2(0.8) | 13(5.4) | 37(15.4) | 52(21.6) | | |
| 36-40 | 2(0.8) | 7(2.9) | 22(9.1) | 31(12.8) | | |
| 41-45 | 1(0.4) | 0(0) | 16(6.6) | 17(7.0) | | |
| Total | 11(4.6) | 49(20.3) | 181(75.1) | 241(100) | | |

Hypothesis two

In the same vein, the second null hypothesis which states that there is no association between respondents' parity and physical exercise knowledge was tested.

Table 4.62 indicates the crosstabulation of respondents' parity and physical exercise knowledge using chi-square(χ^2) statistics. Thus it reveals that there was no association between respondents' parity and physical exercise at 95% confidence interval ($p=0.266$). Respondents' number of children has no role to play on their physical exercise knowledge. The null hypothesis was therefore not rejected.

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Table 4.62 Association between number of children and physical exercise knowledge

Problems associated with non-performance of physical exercise

| Number of children | Two correct responses No (%) | One correct responses No (%) | Total No(%) | x² | p- value |
|---------------------------|---|---|--------------------|----------------------|-----------------|
| None | 21(8.7) | 37(15.4) | 58(24.1) | | |
| One | 23(9.5) | 44(18.3) | 67(27.8) | | |
| More than one | 50(20.8) | 66(27.4) | 116(48.1) | 2.65 | 0.266 |
| Total | 94(39) | 147(61) | 241(100) | | |

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Hypothesis three

Likewise the third null hypothesis stated that there is no association between Physical exercise knowledge and educational status was tested.

Table 4.63 shows the crosstabulation of respondents' educational status and physical exercise knowledge using chi-square statistics. The result shows that there is an association between respondents' educational status and the physical exercise knowledge (p-value= 0.023). Additionally, the educational status has a role to play on the respondents' physical exercise knowledge. The null hypothesis will therefore be rejected.

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Table 4.63 Association between educational status and physical exercise knowledge

Physical exercise knowledge (running)

| Educational status | Yes (%) | No(%) | Total | X² | p-value |
|---------------------------|----------------|--------------|--------------|----------------------|----------------|
| Primary | 1(0.004) | 28(11.6) | 29(12.03) | 7.517 | 0.023 |
| Secondary | 19(0.08) | 91(37.76) | 110(45.64) | | |
| Tertiary | 7(29.05) | 95(39.42) | 102(42.33) | | |

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Hypothesis four

The fourth null hypothesis which states that there is no association between respondents' Physical exercise knowledge and stage of pregnancy was also tested.

Table 4.64 shows the cross tabulation of respondents stage of pregnancy and their physical exercise knowledge (p-value =0.310). The result corroborates the fact that there was no association between respondents' physical exercise knowledge and stage of pregnancy. The null hypothesis was therefore not rejected.

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Table 4.64 Association between respondents' stage of pregnancy and physical exercise knowledge

Nature of physical exercise

| Stage of pregnancy | Vigorous No(%) | Mild No(%) | Total No(%) | x² | p-value |
|---------------------------|-----------------------|-------------------|--------------------|----------------------|----------------|
| First trimester | 5(2.1) | 53(22) | 58(24) | | |
| Second trimester | 10(4.2) | 106(44) | 116(48) | 2,343 | 0.310 |
| Third trimester | 2(0,8) | 65(27) | 67(28) | 2.343 | 0.310 |
| Total | 17(7.1) | 224(92.9) | 241(100) | | |

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Hypothesis five

The fifth null hypothesis, which states that there is no association between respondents' Physical exercise knowledge and occupation was tested.

Table 4.65 denotes the cross tabulation of respondents' nature of occupation with their physical exercise knowledge using chi- square (X^2) statistics. Researcher discovered that there was an association between respondents' physical exercise knowledge and nature of job (p-value=0.011). Respondents' occupation has a role to play on their physical exercise knowledge. The null hypothesis was therefore rejected.

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Table 4.65 Association between occupation and physical exercise knowledge

Average minimum time for antenatal exercise

| Occupation | 30 minutes to one hour No(%) | 15 minutes to 30 minutes No(%) | As convenient for individuals No(%) | x² | p-value |
|----------------------|---|---|--|----------------------|-----------------|
| Not specified | 1(0.4) | 0(0) | 2(0.82) | 3(1.25) | |
| Student | 0(0) | 0(0) | 10(4.15) | 10(4.15) | |
| Non-employed | 9(3.73) | 7(2.90) | 19(7.88) | 35(14.52) | |
| Self employed | 7(2.90) | 25(10.37) | 70(29.05) | 102(42.320) | 19.7 0.011 |
| Civil servant | 6(2.49) | 21(8.71) | 64(26.56) | 91(37.76) | |
| Total | 23(9.54) | 53(22) | 165(68.47) | 241(100) | |

Hypothesis six

The sixth hypothesis which states that there is no association between respondents' perception of physical exercise and level of education was also tested.

Table 4.66 shows the cross tabulation of respondents' level of education and physical exercise with p-value=0.216. The result shows the fact that there was no association between respondents' perception and their educational status. The null hypothesis was therefore not rejected.

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Table 4.66 Association between respondents' perception and educational status
Performance of household chores as physical exercise

| Educational status | Yes | No | Total | x² | p-value |
|---------------------------|------------|-------------|--------------|----------------------|----------------|
| Primary | 12(5.0) | 17(7.08) | 29(12.06) | | |
| Secondary | 55(22.82) | 10(4.150) | | | |
| Tertiary | 39(16.18) | 63(26.14) | 102(42.32) | 3.064 | 0.216 |
| Total | 106(44) | 135(56.020) | 241(100) | | |

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CHAPTER 5

DISCUSSION, CONCLUSION AND RECOMMENDATION

The study was conducted to investigate the knowledge and perception of physical exercise among the antenatal attendees of Ondo State Specialist Hospital, Akure, Ondo State. The study was conducted to help pregnant women correct some misleading information about the performance of physical exercise in pregnancy which has often led to complications in pregnancy and at delivery. This study will also help health caregivers such as, doctors, nurses, midwives, among other correct and guide pregnant in the performance of physical exercise which will help prevent or reduce miscarriages, back pain, excessive weight gain among others. Other sub-sections highlighted in this chapter are implications of findings for health promotion and education.

5.1 The socio-demographic characteristics of the respondents

The study shows that more than half of the respondents were between 21 and 32 years which is similar to the finding from a study conducted by Sujindra, Arounassalame and Suganya (2015) where most of the respondents were between the age range. Majority of the respondents had more than one child 116(48.1%) which is in contrast to a study conducted by Shrock et al (2008) and are employed 102(42.3%), which is similar to some findings in the study carried out by Mbada et al(2014). The results of the study also showed that a majority of the respondents were from the Yoruba ethnic group 171(71.0%), which is in relation with the fact that the study area is located in the South-Western region of the country where the predominant ethnic group are Yorubas (Olaniyi, 2009), while a little above one –fifth of the total number of respondents are Igbos 55(22.8%) and Hausas are 15(6.2%)

5.2 Knowledge of physical exercise

In this study, majority (188%) had good knowledge of physical exercise which could be due to the fact that the respondents had more than one child and so had been familiar with the concept and the practice. More than half of the respondents 71(29.5%) of the respondents gave examples of physical exercises as definition which could be due to the fact that quite a

larger percentage of the respondents 139(57.6%) had at least secondary education while only 102(42%) had tertiary education.

This study also reveals that majority of the respondents know that exercise should not be done while ill 133(55.2%)/ dizzy 225(93.4%) and should be mild 223(92.5%) which is in similar to a study carried out by Sujindra (2015). Majority had a poor knowledge (165%) of the average time that can be spent on physical exercise daily, which is also in contrast to the recommendations given by the American Congress of Obstetricians and Gynecologists on physical exercise performance in pregnancy (2010).

Also, respondents had a good knowledge of the health benefits of physical exercise and negative implications of non-performance which is similar to the result of a study conducted by Schluskel et al, (2008). Knowledge about swimming during pregnancy is poor 94(39.0%), which is similar to a study carried out among pregnant mother in an India hospital by Sujindra et al (2015) which could be due to geographical location of the study site and educational status of the respondents.

5.3 Perception about physical exercise

Majority 214 (88.8%) of the respondents in this study opined that physical exercise in pregnancy help build and maintain healthy bones of the mother and the growing foetus. The finding is congruence with the study conducted by Evenson et al (2009) and Schluskel et al (2006). In these studies, antenatal physical exercise is perceived as beneficial to both mother and growing foetus. Majority 189(78.4%) were also of the opinion that physical exercise helps in checking their weight during pregnancy which is in line with the study carried out by Weir et al (2010). More than half of the population 140(58.1%) of the respondents opined that not only sedentary workers should participate in antenatal exercises while others 135(56.0%) were of the opinion that doing household chores should not be the only way of exercising during pregnancy which is also similar to a study conducted by Evenson et al (2010), Connelly et al (2015) and Sujindrat et al (2015).

5.4 Perceived benefits of antenatal physical exercise

Majority of the respondents gave their responses on improvement of body awareness, good posture, coordination and balance during pregnancy 206(85.5%), rapid postnatal recovery

205(89.1%) and back reduction 204(84.6%). This is similar to the result of a study carried out by Mbada et al (2014). This is similar to the result of a study carried out by Mbada et al (2014) on the knowledge and attitude of antenatal physical exercise among pregnant women in some hospitals in Ile-Ife, Osun State.

5.5 Promoting factors in antenatal performance of physical exercise

Majority of the respondents had a good level of promoting factors of antenatal physical exercise performance. Generally, a larger percentage 191(79.3%) of the respondents saw their health improvement as the major thing which makes them perform physical exercise while some others 149(61.8%) said they perform physical exercise due to the motivation received by their friends to do so. This is also similar to the result of the study carried out by Connelly et al (2015). Connelly in his research carried out among Australian pregnant women, found out that intra-personal relationship could be a promoting factor in the performance of antenatal exercise.

5.6 Inhibiting factors in antenatal performance of physical exercise

Majority of the respondents gave their responses on time limitations such as waking up late 88(36.5%), waste of time 88(36.5%), and busy schedules 80(33.2%). This is similar to the findings obtained in a related study by Connelly et al (2015) and Sujindra et al (2015). Also, about 81(33.6%) of the respondents saw the probability of having abortion/ miscarriage as an inhibiting factor the factor of the significant order such as friends 72(29.9%) do hinder their performance of antenatal physical exercise. This is in congruence with a study carried out by Mbada et al (2014). Irehovbude (2017) summarizes other authors' opinions by deducing from his research carried out on pregnant women in some hospitals in Benin City, that lack of time, fatigue and intrapersonal factors (such as discouragement from friends and relatives) could inhibit the performance of physical exercise in pregnancy.

5.7 Implications for health promotion and education

Health education focuses on the modification of people's behavior and behavioral antecedents (Green and Kreuter, 1991). Health education is thus concerned with helping

people to change their negative attitudes to positive ones (WHO, 1998). Health education principles and strategies can be used to address the challenges in this study.

The findings of this study have implications for health promotion and education among pregnant women. Majority of the respondents had good knowledge of physical exercise, however more than two-third of the respondents 147(61.0%) did not know that swimming exercise can also be performed in pregnancy. This could be due to the socio- economic status and exposure level of the respondents due to their educational qualification. Some other types of physical exercises such as bicycle riding table tennis 85 (35.3%), handball 73(30.3%), basketball 70(29.0%) were poorly considered as antenatal exercise by the respondents.

It was also gathered from this study that more than one-third of the respondents had a low perception of physical exercise as being performed by sedentary workers alone 101(41.9%) while some opined that household chores alone 106 (44.0%) should be enough for them as antenatal exercise. Others were of the opinion that antenatal physical exercise could lead to miscarriage 117(48.5%), fainting 100(41.5%) and complications 100(41.5%) during pregnancy. Possible health promotion strategies can be used to tackle some of the challenges identified in this study. Some of the health promotion strategies are creating of awareness through educating pregnant women, advocacy and training of health workers. They are as discussed as below.

5.71 Creation of awareness and Health Education

There is the need for more awareness creation about the performance of physical exercise at antenatal clinics. Pregnant women need to be more enlightened on the types of antenatal exercises they should do. Questions can be asked first and responses given by pregnant mothers so as to correct some misconceptions and ignorance about the concept. Health care givers should create more awareness on the benefits of the performance of physical exercise with valid examples. Questions asked by pregnant mother should be answered to clear all false knowledge and poor conception of the concept. Also, different types of antenatal physical exercises can be performed at the clinic.

5.72 Advocacy

Advocacy could be done through media and lobbying, by non-governmental organizations (NGOs). This could be done by formulating policies targeted at increasing the awareness of the public on the matter by instructing healthcare workers to ensure compliance on the enforcement of health education on the matter at every antenatal session.

More awareness should also be made among pregnant women towards the performance of antenatal exercise through the use of media, such as television, radio, newspapers, exercise charts, social media (Twitter, Whatsapp)

5.73 Training

Training of all antenatal health workers, (at all levels) on the enforcement of the educating antenatal attendees of physical exercise should be emphasized. Trainings in form of seminars, workshops and refreshers courses should be conducted to improve knowledge of health workers.

5.8 Conclusion

This study investigated the knowledge and perception of physical exercise among the antenatal attendees of Ondo State Specialist Hospital, Akure, Ondo State. The findings of this study indicated that the overall knowledge of the respondents was good. However some gaps exist in the respondents' knowledge on some types of antenatal physical exercises unknown to pregnant women such as swimming, bicycle riding, handball and others mentioned earlier in this study.

The findings of this study also revealed that majority of the respondents had a good perception towards antenatal physical exercise. However, it was disturbing to find out that some respondents(more than one –third) still see sedentary workers only as those who need antenatal exercises because the household chores is being seen as enough for them. Some (about one-third) also saw themselves at risk if involved in antenatal exercise.

Majority also saw antenatal physical exercise as being beneficial to their health, during pregnancy, at delivery and after delivery.

5.9 Recommendations

In view of the constraints identified as limiting the knowledge and perception of antenatal attendees of physical exercise, the following recommendations have been proffered to enhance better knowledge and perception of physical exercise among antenatal attendees of Ondo State Specialist Hospital, Akure, Ondo State.

1. There is need to enlighten and sensitize antenatal attendees on the different types of physical exercises good for them and the benefits they could derive from such.
2. Health agencies should ensure pregnant women attending antenatal care are well educated on antenatal physical exercises and their performances.
3. Pregnant women attending antenatal care should be encouraged and enlightened on the performance of antenatal exercises and benefits.
4. Periodic trainings on antenatal physical exercises should be arranged for healthcare givers such as doctors, nurses, midwives, among others in.
5. There should be promotion of the physical activity performance by the social media.
6. Obstetrician –gynecologists and other obstetric care providers should carefully evaluate women with medical or obstetric complications before making recommendations on physical activity participation during pregnancy.
7. Charts, bills and other visual materials should be made available at all antenatal clinics to promote antenatal physical exercise.

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APPENDIX I

INFORMED CONSENT FORM

I am Akinbobose Foluke Omotola from the Department of Health Promotion and Education, Faculty of Public Health, College of Medicine University of Ibadan. I am conducting a research focusing on *Knowledge and Perception of physical exercise among antenatal attendees of Ondo State Specialist Hospital, Akure*. The information gathered from you will be useful for planning educational programmes relating to maternal care, before, during and after pregnancy. I wish to kindly request your voluntary participation by providing answers to the following questions honestly as this will increase the quality of the findings. Please be assured that all information provided by you would be kept strictly confidential and will be used for pure academic purpose.

Kindly indicate your willingness to participate or otherwise (If the answer is NO stop the interview) by indicating below

Thanks for your co-operation

Signature/Thumbprint of the Respondents

Signature of Researcher and Date

For official use only-----

Serial Number-----

Interviewer's Name-----

Date -----

Akinbobose Foluke O.

foluakinbobose@yahoo.com

82813

ASAMO KEJI

FOOMU IFOWOSI LATI KOPA NINU AYEWỌ

Oruko mi ni, AKINBOBOSE FOLUKE OMOTOLA. Mo wa lati ile eko giga ti unifasiti Ibadan, ti eto ilera. Mo n se akojopo imo ati akiyesi lori ere idaraya sise laarin awon aboyun saaju ibimo ni ile iwosan ti ilu Akure ni ipinle Ondo. Awon ohun ti a ba gbo lati odo reyio wulo fun ise ayewo lori itoju iya ki o to loyun, nipo iloyun ati lehin oyun. Mo ro o ki o fi oddun dahun awon ibeere yii. Si je ki o da o loju wipe eniketa ko ni mo si esi re nitori yio wulo fun eto eko ojo iwaju. Jowo fi owo si iwe yii ti o ba fe kopa. Kii se daandan o O seun fun ifowosowopo re.

Ibowo lu iwe olukopa

.....

Ibowo lu iwe eni ti o n se ayewo

.....

Fun ofisi nikan

.....

Nonba re

.....

Oruko eni ti a fi oro wa lenuwo

.....

Deeti ojo naa

.....

APPENDIX II

QUESTIONNAIRE

KNOWLEDGE AND PERCEPTION OF PHYSICAL EXERCISE AMONG ANTENATAL ATTENDEES OF ONDO STATE SPECIALIST HOSPITAL, AKURE

INTRODUCTION:

Greetings. I am a student of the Department of Health Promotion and Education, Faculty of Public Health, College of Medicine, University of Ibadan. I am conducting a study on **knowledge and perception of physical exercise among antenatal attendees of Ondo State Specialist Hospital, Akure.** I will be grateful if you spend some time answering these questions. I promise not to take much of your time. All the information provided will be kept confidential. You are not obliged to answer any question you do not wish to answer. Thanks.

Questionnaire Identification Number: _____

Date of Interview: _____

Would you like to participate? Yes [] No []

SECTION A: SOCIO-DEMOGRAPHIC CHARACTERISTICS

Instruction: Please tick [] in the boxes provided (as appropriate)

1. Age as at last birthday _____ (in years)
2. Number of children 1. one 2. More than One 3. none
3. Stage of pregnancy 1. First trimester 2. Second trimester 3. Third trimester
4. Occupation 1. Civil servants 2. Self employed 3. Non-employed 4. Student 5. Not specified
5. Ethnic group: 1. Yoruba [] 2. Hausa [] 3. Igbo [] 4. Others (specify) _____
6. Family structure: 1. Monogamous [] 2. Polygamous []
7. Educational qualifications 1. Primary 2. Secondary 3. Tertiary

SECTION B: KNOWLEDGE OF PHYSICAL EXERCISE AMONG ANTENATAL ATTENDEES

8 What do you understand by physical exercise? _____

9 Physical exercise should also be done while ill during pregnancy. 1. Yes () 2. No () 3. I do not know ()

10. What type(s) of exercise should be done during pregnancy? 1. Vigorous () 2. Mild ()

11. What is the average minimum time you feel exercise can be done? 1. As convenient for individuals () 2. Ten to fifteen minutes () 3. thirty minutes to one hour ()

12. Can physical exercise lead to vaginal bleeding in pregnancy? 1. Yes () 2. No () 3. I do not know ()

13. Physical exercise is important for the well being of the mother during pregnancy. 1. Yes () 2. ()

14. It is important that a pregnant woman does physical exercise during pregnancy for the well being of the baby in her womb/ at birth. 1. Yes () 2.No () 3. I do not know ()

15. Mention any three types of physical exercises that can be performed by pregnant women

16. Mention any two health benefits of physical exercises among antenatal attendees?

17. Mention any two problems which can be associated with antenatal attendees not participating in physical exercise

18. Can physical exercise be discontinued when you notice dizziness or fainting? 1. Yes ()
2. No ()

19. When do you think physical exercise during pregnancy is best done? 1. Morning 2. Afternoon 3. Evening

20. Can I do these types of physical exercises while pregnant?

Running/Jogging 1. Yes () 2. No ()

Walking for exercise 1. Yes () 2. No ()

Boxing 1. Yes () 2. No ()

Wrestling 1. Yes () 2. No ()

Sack race 1. Yes () 2. No ()

Bicycle Riding 1. Yes () 2. No ()

Swimming 1. Yes () 2. No ()

Table tennis/Badminton 1. Yes () 2. No ()

Handball 1. Yes () 2. No ()

Gymnastics 1. Yes () 2. No ()

Basket ball 1. Yes () 2. No ()

Dance 1. Yes () 2. No ()

Football/soccer 1. Yes () 2. No ()

Weight lifting 1. Yes () 2. No ()

SECTION C: PERCEPTION TOWARDS PHYSICAL EXERCISE

Please tick the right option to the items listed in the section below.

| | <i>Perception statement</i> | <i>Yes</i> | <i>No</i> |
|-----|---|------------|-----------|
| 21. | Physical exercise can help build and maintain healthy bones of the mother and the growing foetus | | |
| 22. | Physical exercise can help reduce excess weight gain in pregnancy. | | |
| 23. | Physical exercise can help reduce or avoid some health complications during pregnancy complications during pregnancy and at delivery. | | |
| 24. | Physical exercise can be done while alone, not only at the antenatal clinic. | | |

Instruction: Please read the statements below and tick [/] appropriately

| | <i>Perception Statement</i> | <i>Answers</i> |
|----|---|-------------------|
| | | Yes [] No [] |
| 25 | Engaging in physical exercise helps me feel agile while pregnant | Yes [] No [] |
| 26 | I think my daily activities at pregnancy are not affected by physical exercise. | Yes [] No [] |
| 27 | I tend to be more active when I do physical exercise | Yes [] No [] |
| 28 | I do not think physical exercise is important for pregnant women | Yes [] No [] |
| | | Yes [] No [] |
| 29 | Not engaging in physical exercise makes me feel heavy and weak | Yes [] No [] |
| | | Yes [] |

| | | |
|----|---|-------------------|
| 30 | Physical exercise improves my health in pregnancy | No [] |
| 31 | I do not consider myself at any risk of complications by not engaging in physical exercise while pregnant | Yes [] No [] |
| 32 | I think doing physical exercise while pregnant can lead to miscarriage | Yes [] No [] |
| 33 | I stand at the risk of fainting if I do physical exercise while pregnant | Yes [] No [] |
| 34 | Physical exercise is only important for pregnant women who are sedentary workers. | Yes [] No [] |
| 35 | Performing my household chores is the best way of exercising my body while pregnant. | Yes [] No [] |

SECTION D

PERCEIVED BENEFITS OF PHYSICAL EXERCISE TO PREGNANT WOMEN

Please indicate applicable one(s)

36. Reduction of back pain Yes [] No []

37. Prevention of excessive weight gain Yes [] No []

38. Reduced risk of urinary incontinence in pregnancy Yes [] No []

39. Reduction of diabetes in pregnancy Yes [] No []

40. Pelvic muscle gets stronger Yes [] No []

41. Increased muscle tone, strength and endurance during pregnancy Yes [] No []

42. Improved energy and stamina during pregnancy Yes [] No []

43. Better ability to cope with labor and delivery Yes [] No []

44. Rapid postnatal recovery Yes [] No []

45. Improvement of body awareness, posture, coordination, and balance during pregnancy
Yes [] No []

SECTION E: FACTORS PROMOTING ANTENATAL PERFORMANCE OF PHYSICAL EXERCISE

Instruction: Please read the statements below and tick [✓] the most appropriate option from the two factors if you do or do not engage in physical exercise.

| | <i>What makes me to do physical exercise (you can tick more than one that applies to you)</i> | Yes | No | Don't Know |
|-----|---|-----|----|------------|
| 46 | I do physical exercise to strengthen my body systems. | | | |
| 47 | I engage in physical exercise to make me healthy. | | | |
| 48. | I do physical exercise because my pregnant friends do too. | | | |
| 49. | The information and exercise activities at antenatal clinic encourage me to do physical exercise. | | | |
| 50. | I do physical exercise to keep me at alert | | | |
| 51 | I do physical exercise to lose weight/not to gain too much weight in pregnancy. | | | |

FACTORS INHIBITING THE PERFORMANCE ANTENATAL PHYSICAL EXERCISE

| | <i>What makes me not to / discourages me from doing physical exercise (You can tick more than one that applies to you)</i> | Yes | No | Don't Know |
|-----|--|-----|----|------------|
| 52. | I do not engage in physical exercise because of my busy schedules. (No time to engage in it) | | | |
| 53. | The reason why I do not exercise my body is because I do not like the types of exercises we do at the antenatal clinic. | | | |
| 54. | I do not engage in physical exercise because my husband does not support it. | | | |
| 55. | I do not exercise my body during pregnancy because my friends do make jest of me whenever I do so. | | | |
| 56. | I do not engage in physical exercise | | | |

| | | | | |
|-----|---|--|--|--|
| | because I do not know the benefits. | | | |
| 57. | I do not exercise my body in pregnancy because I often wake up late. | | | |
| 58. | I do not do physical exercise because it wastes my time. | | | |
| 59. | I do not exercise my body in pregnancy because it can cause me abortion | | | |

Thanks and God bless.

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ASAMO KETA

IMO ATI AKIYESI NIPA ERE IDARAYA LAARIN AWON ALABOYUN TI WON N WA FUN ITOJU OYUN SAAJU IBI NILE IWOSAN GBOGBOGBOO NI ILU AKURE, NI IPINLE ONDO.

ORO ISAAJU: ikini. Mo je okan lara akeekoo nile iwe giga yunifasiti ibadanni abe eka ekoo igbeleke ilera ati eto eko, ni eka eko ilera gbogbogboo. Mo n se akojopo imo ati akiyesi lori ere idaraya sise laarin awon aboyun saaju ibimo ni ile iwosan ti ilu Akure ni ipinle Ondo.

Inu mi yoo dun ti e ba le yanda akoko yin fun mi lati dahun awon ibeere mi wonyii. Mo seleri pe n ko ni gba akoko yin. Gbogbo atotonu yin ni yoo wa ni idakonko. A ko fi ipa mu yin lati dahun ibeere eyi ti e ko ba fe lati dahun. E se.

Nomba idanwo Olubeere: _____

Deeti ojo iforowanileniwo: _____

Se o fe lati kopa? Beeni () Beeko ()

IPELE A: IBEERE ABUDA ENI AJEMO AWUJO

Imoran: jowo mu idahun re ninu akamo ti won lakale yi ()

1. Ojo ori re (ni odun)
2. Iye omo ti o ni 1. Eyokan 2. O ju eyokan 3.ko si
3. Ipo ti oyun re wa 1. Ipele akoko 2.ipele keji 3. Ipele keta
4. Ise oojo re 1. Osise ijoba 2.ise ara eni 3.ko si ise 4.akeekoo 5.ko si nibe
5. Eya ilu 1.yoruba 2.Hausa 3.Igbo 4.eyi to ku (daruko re}
6. Idile 1.oniyawo kan 2.oniyawo pupo
7. Ipele eko ti o ni 1.ile iwe alakobere 2.girama 3.ile iwe giga

IPELE B: IMO NIPA ERE IDARAYA LAARIN AWON ALABOYUN SAAJU IBI

8. Kini o mo nipa ere idaraya? _____
9. A gbodo se ere idaraya ninu oyun lasiko ti ara eni naa ko da 1. Beeni 2. Beeko 3. N ko mo
10. Iru ere idaraya wo lo ye ki alaboyun se lasiko iloyun? 1. ere idaraya to lagbara 2. ere idaraya to rorun
11. Akoko wo ni o ro pe o ye ki won se ere ere idaraya? 1. Bi o se wu olukuluku 2. iseju mewa si iseju marundinlogun 3. ogbon iseju si wakati kan
12. Nje ere idaraya le yori si ki oju ara obinrin maa seje lasiko iloyun bi? 1. Beeni 2. Beeko 3. N ko mo
13. Ere idaraya sise dara fun obirin lasiko iloyun fun ilera to peye 1. beeni 2. beeko
14. O se Pataki fun alaboyun lati se ere idaraya lasiko iloyun re fun ilera pipeye omo inu re ati igba ibimo 1. beeni 2. beeko 3 n ko mo
15. Daruko irufe ere idaraya meta to ye ki aboyun maa se _____
16. Kini awon anfani to je ti ilera ti alaboyun ti o n se ere idaraya le je?
17. Kini awon isoro ti alaboyun ti ko ba se ere idaraya le ba pade?
18. Nje aboyun le dekun lati se ere idaraya ti oyi oju ba ko tabi o dabi eni pe o fe daku? 1. Beeni 2. Beeko
19. Nigba wo lo lero pe o dara ju fun alaboyun lati maa se ere idaraya? 1. Aaro 2. Osan 3. Irole
20. Se mo le se irufe ere idaraya wonyii lasiko iloyun
- Ere sisa/ tito 1. Beeni 2. Beeko
- Irin ririn 1. Beeni 2. Beeko
- Ese jija 1. Beeni 2. Beeko
- Ijakadi . 1. Beeni 2. Beeko
- Ere alapo 1. Beeni 2. Beeko

Keke gigun 1. Beeni 2.Beeko
 Iwe wiwe lodo 1. Beeni 2.Beeko
 Ere eleyin ori tabili 1. Beeni 2.Beeko
 Boolu afowogba 1. Beeni 2.Beeko
 Ere ori papa sise 1. Beeni 2.Beeko
 Boolu afowogba 1. Beeni 2.Beeko
 Ijo jijo 1. Beeni 2.Beeko
 Boolu afesegba 1. Beeni 2.beeko
 irin gbigbe 1. Beeni 2.beeko

IPELE D: AKIYESI LORI ERE IDARAYA

Jowo mu eyi ti o ye ninu awon alakaale wonyi ni ipele isale yi.

| | | | |
|-----|--|-----------|-----------|
| 21. | Ere sise le mu ilera pipe ba eegun iya ati ki o mu omo inu re dagba si. | Beeni () | Beeko () |
| 22. | Ere idaraya sise le mu adinku ba iye iwon alaboyun. | Beeni () | Beeko () |
| 23. | Ere idaraya sise le mu adinku tabi ki o mu ewu ti o room ibimo kuro lasiko iloyun ati nigba ibimo. | Beeni () | Beeko () |
| 24. | Ere idaraya sise le je igba ti eniyan da wa, kii se ni ile iwosan ti aboyun nikan. | Beeni () | Beeko () |
| 25. | Kikopa ninu ere idaraya ninu oyun ranmilowo lati le gbera-kan | Beeni () | Beeko () |
| 26. | Ojuse mi lorekore ninu | Beeni | Beeko |

| | | | |
|-----|---|--------------|--------------|
| | oyun ko dimi lowo lati se ere idaraya. | () | () |
| 27. | Mo ni okun si nigba ti mo ba se ere idaraya. | Beeni () | Beeko () |
| 28 | Iwonnba awon obinrin ni o maa nni iriri isoro ninu oyun ati lasiko ibimo ti won ba n se ere idaraya | Beeni () | Beeko () |
| 29 | N ko lero pe ere idaraya se pataki fun obinrin ninu oyun | Beeni () | Beeko () |
| 30. | Ere idaraya sise mu ilera pipe ba mi ninu oyun. | Beeni () | Beeko () |
| 31. | N ko ri ara mi bi eni ti yoo ni isoro Kankan ninu oyun nigba ti n ko ba kopa lati se ere idaraya | Beeni () | Beeko () |
| 32 | Mo lero pe ere idaraya sise ninu oyun le yorisi isenu. | Beeni () | Beeko () |
| 33 | O je ewu kan fun mi ti o le yori si ati daku ti mo ba se ere idaraya ninu oyun. | Beeni () | Beeko () |
| 34. | Awon ti o n sise oju kan nikan ni o ye lati maa se ere idaraya. | Beeni () | Beeko () |
| 35. | Sise ise ile mi je ona kan gboogi lati se ere idaraya ninu oyun. | Beeni () | Beeko () |

IPELE F: AWON OHUN TI O N MU ITESIWAJU BA SISE ERE IDARAYA FUN AWON ABOYUN.

IPELE E: ERONGBA ANFAANI ERE IDARAYA FUN AWON OBIRIN ABOYUN

Jowo tokasi awon ti o mo.

36. Mimu adinku ba eyin riro. Beeni () beeko ()
- 37 Didabo bo ati gbe iwon to po ju. Beeni () beeko ()
- 38 Mimu adinku ba ito atoju ninu oyun. Beeni () beeko ()
39. Mimu adinku ba ito suga ninu oyun. Beeni () beeko ()
40. Eegun ile omo yoo lagbara si. Beeni () beeko ()
41. Mimu idagba si ba ige, okun ati ifarada ba aboyun ninu oyun. Beeni () beeko ()
42. Lati fun ni agbara, okun ninu oyun. Beeni () beeko ()
- 43.Lati ni agbara nigba irobi ati ibimo. Beeni () beeko ()
44. Lati le tete mu ibosipo ba a lehin ibimo. Beeni () beeko ()
45. Mimu idagbasoke ba ago ara nipa diduro, gbigbera ati sise daradara ninu oyun. Beeni () beeko ()

Imoran : Jowo farabale ka oro isale wonyi ki o si mu() eyi ti o tona julo ninu alakale idahun ti o ba n kopa ninu ere idaraya sise tabi o ko kopa rara.

| | Idi ti mo fi n se ere idaraya (o le mu ju ibeere eyokan lo) | beeni | Beeko | N ko mo |
|-----|---|-------|-------|---------|
| 46. | Mo n kopa ninu ere idaraya sise lati je ki gbogbo ara mi na daradara. | | | |
| 47. | Mo n se lati je ki n ni ilera pipe | | | |
| 48. | Mo n se e nitori pe akegbe mi ti a jo wa ni ipo iloyun naa n | | | |

| | | | | |
|-----|---|--|--|--|
| | se e. | | | |
| 49. | Awon oro ati gbogbo bi won se n se ojuse kookan nile iwosan lo mu iwuri ba mi lati lati maa se e. | | | |
| 50. | Mo n se lati mura sile fun ibimo. | | | |
| 51. | Mo n se lati mu adinku ba sisan raju ninu oyun | | | |

AWON OHUN TI O FA AIKOPA NINU ERE IDARAYA.

| | Idi ti n ko fi se/ ohun ti o fa ti n ko fi se e.(o le mu ju eyokan lo) | Beeni. | Beeko. | N ko mo |
|-----|---|--------|--------|---------|
| 52. | N ko se ere idaraya nitori airi aye(ko si aye fun mi to lati se) | | | |
| 53. | Idi ti n ko fi se nip e n ko feran iru eyi ti won maa n se ni ile iwosan fun awon oloyun. | | | |
| 54. | N ko se nitori oko mi ko fowo si. | | | |
| 55. | N ki i se nigba ti mo ba wa ninu | | | |

| | | | | |
|-----|--|--|--|--|
| | oyun nitori awon ore mi maa n fi mi se ekeya. | | | |
| 56. | N ko se e nitori n ko mo anfanni sise re. | | | |
| 57. | N ki i se nitori mo maa n pe ji. | | | |
| 58. | N ki i se nitori o maa n fi akoko mi sofo. | | | |
| 59. | N ki i se ninu oyun nitori o le e fa isenu mi. | | | |

O seun pupo, Ki Olorun ki o bukun re.