ASSOCIATIONS BETWEEN CONTRACEPTIVE USE, PHYSICAL ACTIVITY, DEPRESSION, AND QUALITY OF LIFE AMONG WOMEN OF CHILDBEARING AGE IN AKURE SOUTH LOCAL GOVERNMENT AREA OF ONDO STATE, NIGERIA

BY

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Abstract

Background: Population experts and policymakers are concerned about Nigeria's rapid annual population growth due to the country's high birth rate which was 5.3 births per woman in 2018. Fear of the side effects of modern contraceptives among Nigerian women contributes to the low rate of contraceptive use, which was reported to be 17% and 37% among married and sexually active unmarried women, respectively. Which is a significant cause of the high birth rate. Although the side effects of modern contraceptives on women's clinical and physiological variables are well known, studies examining the associations between contraceptive use and physical and psychosocial variables such as physical activity (PA), depression, and quality of life (QoL) in non-athletic Nigerian women of reproductive age are scarce. This study aimed to examine the associations between contraceptive use, PA, depression, and QoL among non-athletic women of childbearing age in Akure South Local Government, Ondo State, Nigeria.

Methods: In a descriptive cross-sectional study, 646 women of childbearing age were recruited using the multistage sampling technique. The data of 496 current contraceptive users and 146 non-users were analysed, as 4 respondents did not respond regarding current contraceptive use status. The Global PA Questionnaire (GPAQ), Beck's Depression Inventory (BDI) and World Health QoL Organization Quality of Life Brief (WHOQoL BREF) were used to assess respondents' scores/levels of PA, depression and health-related quality of life (HRQoL). The GPAQ, BDI, and WHOQOL scores were compared between contraceptive users and non-users using non-parametric Quade Analysis of Covariance while age, married status, tribe, religion, and occupation were included covariates. PA, sedentary behaviour (SB), and BDI scores were categorized using guidelines. Contraceptive use/practice was the outcome variable. Pearson's chi-square test bivariate analysis and a multivariate logistic model were used to identify factors associated with contraceptive use (users and non-users). Crude and adjusted odds ratios and their confidence intervals were calculated to determine the significance of the association. The regression model was adjusted for age, marital status, religion, tribe, highest education level, occupation, awareness of contraceptives, current use, lifetime use, type, class, and duration of current contraception. Statistical significance was set at $p < 0.05$.

Results: The mean age of the respondents was 29.73±6.10 years. The contraceptive users and non-users were not significantly different regarding their ages ($p = 0.135$), marital status ($p = 0.245$), highest education ($p = 0.444$), occupation ($p = 0.238$), and tribe ($p = 0.192$). The respondents' lifetime and point prevalence of contraceptive uptake was 93.6% and 77.3%, respectively, while 72 (12.8%) reported experiencing contraception-related side effects. Of the 496 respondents who currently practice contraception, 146 (29.4%) were hormonal contraceptive users. The majority of the respondents had

moderate and mild levels of PA (48.5%) and depression (51.4%), respectively, and a significantly higher proportion of contraceptive users had minimal and moderate depression levels than the non-users ($p = 0.018$). The contraceptive users demonstrated significantly higher median scores of BDI ($p = 0.02$), Physical health QoL ($p < 0.001$), environment QoL ($p = 0.033$) and overall QoL (0.004) than the non-users. Hormonal contraceptive users had significantly higher median PA walking/bicycling scores than non-hormonal users ($p = 0.014$). Respondents with mild and moderate depression levels had higher odds of being contraceptive users than those with minimal depression (AOR = 3.12, 95% CI = 1.43 – 6.80, $p = 0.04$ and 4.67, 95% CI = 1.92 – 11.36, $p = 0.001$ respectively).

Conclusion: Contraceptive use is negatively associated with depression but positively related to Physical health, environment and overall domains of HRQoL. Healthcare professionals should consider women's mental and emotional condition while advising on family planning for optimal HRQoL.

Key words: physical activity, depression, wellbeing, women of reproductive age

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Lists of acronyms

1.	Physical activity	PA
2.	Contraceptive use	CU
3.	Sedentary behaviour	SB
4.	Quality of life	QoL

5.	Nigeria demographic and health survey	NDHS
6.	Premenstrual syndrome	PMS
7.	Health related quality of life	HRQOL
8.	Long –acting and permanent method	LAPM
9.	Sexual and reproductive health	SRH

CHAPTER ONE

1 INTRODUCTION

This chapter presents the background of the study by discussing an overview of the association between contraceptive use, physical activity, depression, and quality of life among non-athletic women of childbearing age. Section 1.2 introduces the statement of the problem by focusing on the issues to be addressed in the study with respect to existing gaps in the literature. Section 1.3 describes the aim and objectives of the study, while Sections 1.4 and 1.5 presents the questions and hypothesis identified in the study, respectively. Section 1.6 discusses the research methodology, and Section 1.7 highlights the significance of the study. Section 1.8 concludes the chapter with a summary.

1.1 Background of the Study

Nigeria's high annual population growth rate is a significant concern for population experts and policymakers (Oluyemi and Oluwaseyi, 2020). The country's fastest-growing population could be linked to a high birth rate, with a total fertility rate of more than five children per woman (Worldbank.org, 2020; Solanke, 2017). However, National Population Commission-NPC/Nigeria, ICF, 2019, Alo et al., 2020) reported a low contraceptive usage prevalence rate of 17% among married women aged 15-49 in Nigeria, with only 12% using modern contraceptive methods. This low contraceptive uptake among women has been attributed to real or perceived side effects of different contraceptive methods (Sabina et al., 2020). Real or anticipated side effects of modern family planning methods have been found to be a major reason why women decide not to start or stop using contraceptives (Schrumpf, 2020). While the side effects of modern contraceptives, such as menstrual changes (heavier bleeding, amenorrhea or oligo-menorrhoea), changes in weight, headaches, dizziness, nausea, and cardiovascular impacts are well known (Schrumpf, 2020), the effects of CU on physical and psychosocial variables influencing women, including PA, depression and perception of general wellbeing appear less well known.

Reports from cross-sectional data suggest that hormone-based contraception leads to depressive symptoms, which may negatively impact HRQOL (Sabina et al., 2020). This is supported further by the findings of Skovlund et al. (2016), who found that the use of contraceptives was positively associated with higher frequencies of subsequent use of antidepressants and the first-degree diagnosis of depression among adolescents and young women. Research reports also indicated that hormonal contraception is positively associated with poor HRQOL, suicide attempts, and suicide among adolescent women (Skovlund et al., 2018; Alyahya et al., 2019). While studies on the direct association of PA with the usage of contraceptives appear scarce, literature has been inconsistent regarding the effects of contraceptive uptake on exercise.

For instance, Reif et al. (2021) found that knee-extensor, flexor isokinetic and isometric strength performance does not differ between phases of oral contraceptive consumption and withdrawal in well-trained team sport athletes. In contrast, the systematic review conducted by Elliot-Sale et al. (2020) revealed that oral CU may result in slightly inferior exercise performance compared to naturally menstruating women, although the evidence is weak (Elliot-Sale et al. (2020).

The term "contraceptive" refers to any medical device or pharmaceutical medication used to prevent pregnancy by inhibiting ovulation or blocking sperm entry into the cervix (Cleveland clinic, 2023). Women and their offspring fare better when births are spaced out, and it has been shown that this is beneficial to both of them (Asadisarvestani et al., 2017). In addition, fewer unplanned pregnancies and fewer abortions result from the use of contraception.

Contraceptive usage and the reduction of unmet family planning needs are crucial to meeting the Sustainable Development Goals for maternal health by 2030. (UN, 2019 Family planning have been given a lot of attention recently, and people all over the world recognize its importance. An estimated 146 million women (15–49) in stable relationships in 2010 had an unmet need contraception (Aliyu, 2018). From 900,000,000 (876,000,000) in 2010 to 962,000,000 (929,000,000,000) in 2015 and beyond, it is predicted that the percentage of married women using contraceptives or having an unmet need for family planning would grow (Alkema et al., 2015). Feasibility and cost-effectiveness have been cited as reasons why family planning is an effective intervention that may have a significant and immediate influence on women and their families (Ogbogbodo et al., 2017).

Access to reproductive health care and family planning services is widely seen as crucial to ensuring a healthy population and safe environment for women and children (Asuming et al., 2020). Family planning considers a variety of issues, including those related to one's health, one's mental state, one's financial situation, and one's religious beliefs, among others (Ehsanpour et al., 2010). Many variables, including false ideas and apprehension about potential negative consequences, have been linked to a lack of contraceptive use, according to studies (Laxmi et al., 2017). When asked why they stopped using birth control, most women cited negative side effects (Ehsanpour, 2012).

High population growth, high birth rates, and poor contraceptive prevalence rates are typically to blame for the fast population expansion seen in many developing nations (Adewale et al., 2016). The population growth rate in Sub-Saharan Africa is significantly greater than the global average (Jamal and Jena, 2018). As a result, there is an unprecedented surge in the population's need for government-funded services including those used to provide health care, education, and basic infrastructure

(Richard &Kaite, 2015). Because of the massive amounts of time and effort required, it's possible that the SDGs won't be met by 2030. (UN, 2019).

1.1.1 Physical Activity

Physical activity (PA) is any behavior that results in energy expenditure (WHO, 2020). The World Health Organizations (WHO) global guidelines on physical activity (PA) for health provide guidance to policymakers on the appropriate amount of PA with regards to its frequency, time, intensity, kind, and total amount (WHO, 2020). Age categories 5-17, 18-64, and 65+ are all catered to in the offered suggestions (WHO, 2022). Young people between the ages of 5 and 17 should have at least 60 minutes a day of aerobic physical activity (PA), preferably at a moderate to high level, on most days of the week. It is recommended that adults between the ages of 18 and 64 do 150 to 300 minutes of aerobic physical exercise each week, split between moderate and vigorous intensities. Adults aged 65 and up should maintain the same level of physical activity as those aged 18 to 64, with at minimum three days per week dedicated to moderate to vigorous multi-component physical exercise focusing on properly functioning and strength training to increase functional capacity and decrease the risk of falls (WHO, 2022).

Lack of physical activity (exercise) is the fourth leading cause of death worldwide (6 percent of all fatalities) (Wang et al., 2016). Furthermore, it is estimated that physical inactivity accounts for between 21-25% of colon and breast cancers, 27% of diabetes, and around 30% of the burden of ischemic cardiovascular disease (WHO, 2010).

Recent research reveals that it is no longer satisfactory to adhere to these guidelines to satisfy health requirements and minimize health risks, despite the existence of clear, practical advice and an expansion of research demonstrating the advantages of regular PA (Gonzalez, 2017).

1.1.2 Contraceptive use and Physical Activity

There are over than 100 million young, fertile women who rely on oral contraceptives for period management and pregnancy prevention every year (Christin-Maitre, 2013). It has been hypothesized that OCs affect sports performance and PA participation by binding to and activating steroid hormone receptors in peripheral tissues including skeletal muscles and tendons (Ekenros et al., 2017). Reduced endogenous amounts of estrogen, progesterone, testosterone, and insulin-like growth factor I are associated with CU (IGF-I). Anabolic response to exercise may be affected by CU because of elevated cortisol levels (Eisenhofer et al., 2017).

The effect of CU on levels of PA among some of the non-athletic women population are little recognized, despite the fact that CU is common among athletic communities. Despite the fact that this topic has been the subject of several experimental investigations, narrative and systematic reviews, and

books (Burrows & Peters, 2007; Forsyth & Roberts, 2018), few in the PA profession completely comprehend the consequences of CU on PA participation due to inconsistent results (Sarwar et al., 1996; Casazza et al., 2002). Women's muscular function was unaffected by contraceptive usage (Sarwar et al., 1996), whereas CU led to considerably superior scores on tests of reactive strength, aerobic capacity, and performance-based measures (Claire et al., 2009). Rechichi et al. (2012), Elliot-Sale et al. (2020), and Lebrun et al. (2000) all support this.

Despite the theory that estrogen-progesterone has a role in mood difficulties and depression, the relationships of hormonal CU, PA, and mood abnormalities remain understudied (Ehsanpour et al., 2012).

1.1.3 Depression

Many people are affected by depression, the most prevalent neuro-disorder that is frequently ignored (Butler & Zeman, 2005). The data showed that it was the fourth deadliest illness in the world (Petra et al., 2010).

Many people's HRQOL (health-related quality of life) are negatively impacted by depression (Mikkelsen et al., 2010). Public attention is being focused on depression now because of its devastating effects and strong correlation with premature death (Adilson et al., 2020).

An individual's HRQOL and ability to go about one's daily life can be severely impacted by the pervasive and sometimes fatal medical illness known as depression. Depressive symptoms include a lack of interest in anything, a decrease in food and weight, extreme exhaustion, a lack of motivation, indecision, and an overwhelming desire to end one's life (Muhammad, 2020).

A depressed person's mental and physical difficulties might make it difficult for them to do their daily tasks and relax at home (Kayani et al., 2018). The majority of depressive episodes, according to the available literature, begin in the teen years (Deecher et al., 2008)

Worldwide, depression is a serious public health issue, as stated by the World Health Organization (WHO, 2017). (WHO, 2017). Problems sleeping, eating, concentrating, feeling guilty, having poor self-esteem, or even having suicidal thoughts are all symptoms of depression (deZwart, 2019). Physical activity (PA) has been repeatedly linked to better health, happiness, and cognitive and emotional performance in research (Carek et al., 2011). Consequently, multiple studies have found that PA is linked to improved mental health, namely reduced despair and anxiety (Dunn et al., 2005; Martino et al., 2019). Lowered depression was linked to frequent exercise in a study of 19 288 people (De Moor et al., 2006).

1.1.4 Contraceptive use and depression

Depression is a significant issue in both industrialized and developing nations (Gin& John, 2018). In recent years, adverse effects have been identified as the leading cause of contraceptive cessation (Sabina et al., 2020). None of the contraception techniques are completely devoid of side effects, and mood swings and depression are among the most prevalent adverse effects that lead to cessation of the contraceptive implant (Sarah et al. 2018). Hormonal variables are one of the primary causes of depression, and the changes they undergo are the most significant causes of depression (Sabina et al., 2020).

1.1.5 Physical activity and depression

Estrogen and progesterone, the two female sex hormones, have been speculated to contribute to the development of depressive symptoms in some women (Claudia et al., 2015). Despite the fact that combination oral contraceptives have other positive effects on women's health, it was shown that their usage by women who had already had negative emotional affects resulted in deteriorating mood and changes in emotional brain reactivity (Gingnell et al., 2013).

Depressed women, in general, have lower amounts of the hormone estradiol, which plays a role in regulating mood (Young et al., 2007, Whitney et al., 2012). Inadequate attention has been paid to the link between contraceptives and depression, despite clinical evidence of the effect of hormonal contraception on the mood of certain women (Skovlund et al. 2016).

1.1.6 Contraceptive use and Quality of life

Some research suggests that women's HRQOL improves when they utilize contraception, despite the fact that all contraceptive methods come with some degree of risk (Alyahya et al.,2019). Among women who used a birth control method, those who opted for a hormonal method saw improvements in their QOL in the areas of health and wellbeing (Fatima et al. 2019). Besides preventing pregnancy, there are additional advantages of using contraception (Luiz et al., 2012). But many women and medical experts don't know about them (Dehlendorf, 2010). While the original intent behind the creation of contraceptives was to aid in family planning, several studies have shown that contraceptives offer other, more significant advantages (Bahamondes et al., 2015). Hormonal contraceptives were proven to lessen the severity of menstrual symptoms such as heavy bleeding, painful periods, and premenstrual syndrome (PMS). Additionally, they safeguard future fertility by decreasing the likelihood of developing acute pelvic floor inflammatory illness, endometriosis, or uterine fibroids (Fatimaetal.2019).

In women of childbearing age, PMS is very common (Kwan et al., 2015; Lee et al., 2022). Periodic Mood Disorder (PMD) is characterized by a reoccurring pattern of distressing physical, emotional, or

behavioral changes that are severe enough to disrupt social interactions, daily activities, and quality of life (Hatcher et al., 2007; Bakshani et al., 2014). There is evidence from studies on both oral and implantable hormonal contraceptives (Sandler et al., 2003; Iaki & Oihane, 2016) that utilizing these methods might possibly lessen PMS symptoms. Given these results, it's clear that contraceptives are worth considering for their positive impact on QOL (Fatimaetal, 2019).

Standard questionnaire was developed such as EuroQol-5D (EQ-5D) (Myrthe et al., 2015), SF-36 (Ojelabi et al., 2020), World Health Organization's Quality of Life (WHOQOL) (Farrokh et al., 2015), and Psychological General Well-Being Index (PGWBI) have been used in studies to measure women's health in relation to their QoL. (Winkler, 2004).

1.1.7 Sedentary behaviour

Sedentary behavior (SB) is extremely widespread in communities around the globe (Zhang & Chaaban, 2013). Nevertheless, from the standpoint of human biological evolution, the human physiology is more suited to exercise (Owen et al., 2010). Therefore, initiatives to limit SB (e.g., extended sitting or screen time) have become a widespread societal issue. SB is any waking activity defined by an energy consumption of less than 1.5 metabolic equivalents (METs) when in a sitting, reclined, or lying position (Tremblay et al., 2017). SB has been identified as a serious public health problem (Katzmarzyk et al., 2009; Dunstan et al., 2010). Long-term SB can increase the risk of death (Young et al., 2016; Matthews et al., 2012), resulting in cardiovascular disease (Young et al., 2016; Saunders et al., 2014; Hu et al. 2001), hyperglycemia (Saunders et al., 2014; Edwardson et al., 2012), metabolic disorders (Kerr et al., 2017; Lynch, 2010), cognitive (Rezende et al., 2014).

A significant incidence of SB has been reported in the literature throughout the previous decades despite the well-established evidence of the negative consequences of SB on population health (Ran et al., 2020; Rezende et al., 2014; Owen et al., 2010). The widespread nature of SB has prompted international efforts to curb the growing epidemic. According to the World Health Organization (WHO), the proportion of deaths throughout the world attributable to NCDs rose from 64 percent in the year 2000 to 71 percent in 2016. (WHO, 2016). Latest data show that cardiovascular disease mortality has grown by 20.9% over the last few years (Zhou et al., 2019). Nations in Oceania, Europe, and North America with greater per capita incomes have a higher obesity rate than poorer countries worldwide. According to 2016 age-standardized estimates from the WHO Global Health Observatory, the prevalence of adult obesity in the WHO European Area is greater than in any other WHO region save the Region of the Americas (29,30). The World Health Organization reports an epidemic of adult overweight and obesity. Europe, the Continent More than half of persons in 50 out of 53 Member Countries in the European Region are overweight or obese, according to WHO estimates (WHO 2022).

By comparison to PA, studies on SB are more recent. In fact, during the past decade, a substantial body of information demonstrating SB's deleterious health impacts has collected (Lancet 2021; Dempsey et al., 2020). There have been significant advances, and the evidence base is now sufficient enough to permit systematic examination of dose-response associations between SB and numerous health outcomes, as well as the interaction among SB and moderate to vigorous exercise (MVPA) (Dempsey et al., 2020; Ekelund et al., 2019; Ekelund et al., 2016; Pozo-Cruz et al., 2018).

Numerous nations are taking note of the growing interest in SB and developing recommendations on it, either by including them in their PA guidelines or by issuing separate SB regulations (Dempsey et al., 2020; Brown et al., 2012; Rütten et al., 2016; Weggemans et al., 2018, WHO, 2018).

In 2018, the WHO was asked to revise the 2010 Global Guidelines on Physical Activity for Health in light of the most recent scientific evidence, which includes SB.

The revision was made as part of international initiatives to help nations follow the guidelines outlined in the Global Strategy on Physical Activity for 2018–2030 to cut PA by 15% by that year (WHO, 2018; ; Dempsey et al., 2020).

The World Health Organization (WHO) initiated this project and assembled the Guideline Development Group (GDG) comprising public health experts from throughout the world (GDG).

Adults should get at least 150–300 minutes per week of moderate–intensity aerobic physical activity; or at least 75–150 minutes per week of vigorous–intensity aerobic physical activity; or a combination of moderate– and vigorous–intensity activity; for substantial health benefits; children and adolescents aged 5–17 should engage in at least an average of 60 minutes per day of moderate–intensity, primarily aerobic, physical activity across the week. Sitting for extended periods of time is bad for adults. Substituting light (or any) physical activity for sedentary time has health benefits (WHO 2022).

1.2 Statement of the Problem

The side effects of modern contraceptives, such as menstrual changes, weight gain, headaches, dizziness, nausea, and cardiovascular impacts, are well established (Schrumpf, 2020), but the effects of CU on women's physical and psychosocial variables influencing women, including PA, depression and perception of general wellbeing appear less well known. African studies examining the associations of CU with physical and psychosocial variables such as PA, depression, and HRQOL among women of childbearing age are scarce. Furthermore, the effects of CU on the aforementioned variables have seldom been explored among sedentary community-dwelling women, with the majority of previous research focusing on oral contraceptives. As part of the third sustainable development goal set by the United Nations, granting universal access to sexual and reproductive care, family planning,

and education, it is crucial to have a thorough understanding of the effects of contraceptive usage on crucial variables like PA depression and wellness quality of life in women of childbearing age in countries like Nigeria and elsewhere in Africa. In light of this, a descriptive cross-sectional research was conducted in Akure South Local Government, Ondo State, Nigeria, among non-athletic women of reproductive age to investigate the links between contraceptive usage, physical activity, depression, and health-related quality of life.

1.3 Aim and Objectives of the Study

The purpose of this study is to investigate the relationship between CU, PA, depression, and quality of life among women of reproductive age in Akure South Local Government, Ondo State, Nigeria.

The precise aims of this study are to:

a. Identify the prevalence of CU among women of childbearing age in Akure South Local Government, Ondo State, Nigeria.
b. To investigate the relationship of CU with PA, depression, and health-related quality of life (QOL) among women of reproductive age in Akure South Local Government, Ondo State, Nigeria.
c. Determine the prevalence of physical activity and depression symptoms among women of reproductive age in Akure South Local Government, Ondo State, Nigeria.
d. Compare the PA, depression, and QOL scores of women of reproductive age who used contraceptives and their age-matched counterparts who did not use contraceptives in the Akure South Local Government of Ondo State, Nigeria.

1.4 Research Questions

Given the stated objectives of the study, the following questions are identified to guide the study:

a. Is there an association between CU and the level of PA of women of childbearing age in Akure South Local Government Area of Ondo State, Nigeria?
b. Is there an association between CU and the SB level of women of childbearing age in Akure South Local Government Area of Ondo State, Nigeria?
c. Is there an association between CU and the depressive status of women of child bearing age in Akure South Local Government Area of Ondo State, Nigeria?
d. Is there an association between CU and HRQOL of the women in Akure South Local Government Area of Ondo State, Nigeria?
e. Do women of reproductive age in Akure South Local Government who use contraceptives have similar levels of physical activity, depression, and health-related quality of life as women of the same age who do not?

1.5 Study Hypothesis

The following null and alternative hypotheses have been formulated based on the suggested study topic, research question, and research objectives:

H01: There is no connection between CU and PA among women of reproductive age in Akure South Local Government Area, Ondo State, Nigeria.

H02: There is no connection between CU and SB among women of reproductive age in Akure South Local Government Area, Ondo State, Nigeria.

H03: There is no significant relationship between CU and depression among women of reproductive age in Ondo State's Akure South Local Government Area.

H04: There is no significant connection between CU and HRQOL among women of reproductive age in Ondo State's Akure South Local Government Area.

H05: Sociodemographic factors of respondents would not predict PA, depression, or HRQOL among women of reproductive age who take contraceptives in Akure South Local Government Area, Ondo State, Nigeria.

H06: In Akure South Local Government Area of Ondo State, Nigeria, there is no significant difference in the PA, depression, and HRQOL scores of women of reproductive age who take contraceptives and their age-matched peers who do not use contraceptives.

1.6 Research Methodology

It is essential to present a detailed plan for carrying out the research if the intended outcome is to be realized. Therefore, the following is a presentation of the sequence of actions conducted to arrive at the final destination and fulfill the study's predetermined aims:

The research method was a cross-sectional quantitative description. According to Appendix 1's map, the research was place in the Akure South Local Government Area of Ondo State, Nigeria. Women in the childbearing years (18-59) in the Akure south local government area of Ondo state, Nigeria, were the study's subjects. Using a variety of inclusion and exclusion criteria, women from the local government region were selected for inclusion in the sample.

The method for descriptive cross-sectional research (Charan and Biswas, 2013; Olugbenga-Bello et al., 2016) was chosen to estimate the sample size for the investigation. A population of above 10,000 is required per the formula. A multi-stage sampling process was used to choose the participants (Adeyemi et al., 2016).

This research made use of a wide range of data gathering and preprocessing instruments. To learn more about the demographic and contraception status of respondents, a biological questionnaire was developed (age, marital status, religion, tribe, highest education level, occupation, awareness of contraceptives, current use of contraceptives, lifetime use of contraceptives, type of contraception currently used, class of contraception currently used, duration of usage of present contraception).

The World Health Organization created the Global Physical Activity Questionnaire (GPAQ) in 2002 to assess PA and SB. Physical activity levels were measured using the Metabolic Equivalent of the Task (MET) system (IPAQ Research Committee, 2005). Assessment of PA levels was accomplished by scoring and classifying the combined physical activities of participants who were asked about the total number of days and duration of vigorous, moderate, and walking activities into low, moderate, and high levels according to the recommendations of the IPAQ Research Committee (2005). According to the cut-off point (maximum 7 hours per day) stated by Ku et al. (2018: 6) for subjective assessment studies, SB levels were evaluated as time spent in sedentary activities, and individuals were classified as meeting or not meeting the recommendation for SB. Low to moderate validity has been found for the GPAQ (Herrmann et al (2013).

The degree of depression was evaluated using the Becks Depression Inventory (BDI; Beck et al., 1996a, 1996b) and the Yoruba translation of the BDI (Atowoju, 2014). There are 21 questions on the BDI. It was created to assess depressive symptoms in people above the age of 13, and its validity has been shown. For 35 years, researchers and clinicians have relied on the BDI to identify and evaluate depression symptoms, and it has consistently demonstrated good reliability across a wide range of populations and scoring settings. The quality of life in terms of health was evaluated using the WHOQOL BREF questionnaire. A higher quality of life index indicates a better quality of life. Good discriminant validity, internal consistency, and test-retest reliability have been demonstrated for the WHOQOL BREF domain scores.

The existing validated Yoruba translations of the BDI and WHOQOL BREF were given to respondents who are not literate in English as part of the data preparation, which involved translating surveys into the Yoruba indigenous language spoken in the research region. The Yoruba version of the BDI was verified by Atowuju (2014), while the criterion-related validity of a Yoruba translation of the WHOQOL was demonstrated by Akinpelu et al (2006).

The researcher and two trained assistants also collected data in-person using the biographical questionnaire. In-person interviews were used to hand out the surveys. The four parts of the questionnaire include demographic data, physical activity, depression, and health-related quality of life.

In order to analyze the data, version 28 of the Statistical Package for the Social Sciences (SPSS) was utilized. The Shapiro-Wilk test was utilized to check for data normality. The data was summarized using descriptive statistics including mean, standard deviation, percentage, and charts. To compare the GPAQ, BDI, and WHOQOL scores of contraceptive users and non-users, we employed the non-parametric Quade Analysis of Covariance and included socio-demographic factors (age, marital status, tribe, religion, and employment) as covariates.

Levels of PA, SB, and BDI were classified using established criteria. In this study, participants' reported levels of current contraceptive usage served as the outcome variable. Factors strongly related with contraceptive usage were identified using Pearson's chi-square test bivariate analysis and a multivariate logistic model (users and non-users).

1.7 Significant of the study

The study's results will shed light on how CU affects physical activity (PA), depression, and health-related quality of life (HRQOL) in Nigeria and other African contexts.

The study's results might potentially influence policy, influencing officials in Nigeria's public health sector to take steps to reduce the negative effects of CU. among Nigerian women of child bearing age.

1.8 Chapter Summary

This chapter explored the context of the study, focusing on the relationship between CU, PA, depression, and HRQOL among women of reproductive age in the Akure South Local Government Area of Ondo State, Nigeria. Sections 1.2 and 1.3 detailed the problem statement and the study's purpose and goals. In Sections 1.4 and 1.5, respectively, the study questions and hypothesis were outlined. The techniques of research were explained in Section 1.6, while the relevance of the study was emphasized in Section 1.7.

CHAPTER TWO

2 LITERATURE REVIEW

2.1 THE CONCEPT OF CONTRACEPTION

Contraception is the method of pregnancy prevention. This might be an equipment, a drug, a treatment, or a behavior (Bansode et al., 2022). Contraceptives are also used to prevent pregnancy by inhibiting ovulation or preventing sperm from accessing the cervix (Aliyu et al., 2018). Researchers have found a correlation between a mother's ability to limit and space her pregnancies and the well-being of her children (Asadisarvestani et al., 2017). Abstinence, natural family planning, and all authorized methods of contraception are included in this category, as are hormonal contraception and contraceptive supplies such condoms, diaphragms, and intrauterine devices (Aliyu et al., 2018). In addition, the fall of issues like unwanted pregnancies and abortions can be attributed in large part to the increased use of contraceptives. Therefore, increasing access to contraceptives and addressing unmet family planning needs are crucial to achieving the Sustainable Development Goal of improving maternal health by 2030 (UN, 2019).

Several obstacles remain in the way of the worldwide implementation of family planning and contraceptive usage initiatives, despite the widespread recognition of their importance. As of 2010, 146 million married or committed females aged 15–49 had unmet family planning requirements. From an estimated 900 million (876-922 million) in 2010, the number of women of childbearing age who take contraceptives or have an unmet need for family planning is expected to rise to 962 million (927-992 million) or more by 2015 and beyond (Alkema et al., 2015). It has been argued that contraception is a practical, inexpensive strategy that may directly affect women at all socioeconomic levels (Ogbogbodo et al., 2017).

Oral contraceptives, Depo Provera injections, and Norplant are just a few examples of the various hormonal contraceptives available for teens. These treatments employ drugs (hormones) to suppress ovulation and so prevent pregnancy. Barrier techniques, including as male and female condoms, diaphragms, and cervical caps, and spermicides, which destroy sperm on contact, are effective in preventing sperm from reaching and fertilizing the egg. Also, IUDs are implanted intramuscularly to stop the fertilized egg from penetrating the uterine wall and resulting in a pregnancy (Gichengi, 2019; Licata, 2020). Teenage usage of contraception appears to be low (UNFPA, 2010; Casey et al., 2020). Low contraceptive prevalence among sexually active women of childbearing age has been linked to a number of variables.

2.1.1 Prevalence of Contraceptive Use

Sixty-three percent of women worldwide use some form of contraception. In industrialized nations, the figure is 70%, whereas in underdeveloped nations, it is 62%. (UN, 2017). In terms of contraceptive prevalence, Sub-Saharan Africa has the world's lowest rate, at just 21%. (Adedini et al., 2021). Across the world, the CPR ranges from 67% in Asia to 72% in Latin America and the Caribbean, 73% in North America, 71% in Europe, and 72% in Oceania (United Nations, Division of Population, 2019). (Adedini et al., 2021) In addition, Adedini and coworkers found that in poor nations, 90% of contraception users favored using current short-acting and reversible methods. With a global prevalence of 20%, female sterilization is the most popular long-term procedure, followed by IUCD at 14% and the pill at 9%. Female sterilization is used by 24 percent of women who use contraception (or 219 million women) nowadays, according to the United Nations in 2015. (UN, 2015). More than 100 million people use male condoms (21%; 189 million), intrauterine devices (17%; 159 million), and the pill (16%; 151 million) globally (UN, 2019). Out of all the people who use birth control, 45.2% rely on permanent or long-acting methods (female and male sterilisation, IUD, implant), 46.1% use short-acting methods (such as a male condom, the pill, injectable and other modern methods), and 8.7% use traditional methods (withdrawal, rhythm methods, and other traditional methods) (Miraji 2021 et al., Kiros et al., 2020).

However, despite improvements in contraceptive methods and a yearly increase in the prevalence of their usage across the world, millions of women who do not want children or who choose to postpone childbearing are still not using contraception (UNDESA, 2009; Kiros et al., 2020). In 2007, USAID found that there was a large gap in access to family planning and reproductive health services in Sub-Saharan Africa. This demand is magnified in rural regions, where access to medical treatment is frequently limited. Because of this, it is difficult to get contraceptives and, consequently, to satisfy the demands of customers (Gahungu et al., 2021).

Short-term techniques like condoms and contraceptive tablets have been the primary emphasis of contraceptive supply in Sub-Saharan Africa, as stated by USAID (2021). The prevalence of contraceptive usage was found to be 39.5% among 800 women of childbearing age in a 2008 research conducted in Jinka, Ethiopia, with 7.3% of the figure coming from Long-acting and permanent methods (LAPM) (Mekonnen et al., 2014) Widening the range of options available to women in terms of contraception necessitates better access to LAMP treatments like IUCDs, implants, and tubal ligations (Gahungu et al., 2021).

The number of women who use a long-acting reversible contraceptive method is lower than the number of women who want to stop having children (Orwa et al., 2022). More than 20% of women in nine of

the eleven countries surveyed in the 2003–2005 Sub-Saharan African Demographic and Health Surveys (DHS) did not want any more children. These countries include Cameroon, Chad, Congo-Brazzaville, Ethiopia, Guinea, Lesotho, Madagascar, Malawi, Rwanda, Senegal, and Tanzania (Clark et al.,2015). Only around 7% of women in each of the 9 nations were utilizing an LAPM. Because of their plans for having children, some of them would benefit from using a long-acting reversible contraceptive (LAPM), yet they might not be using one (Clark et al., 2015; Amo-Adjei et al., 2019).

In a research to establish the prevalence of contraceptive usage among women of reproductive age in Calabar Metropolis, southern Nigeria, a variety of contraceptive methods were examined. The majority of responders, 107 (35.1%), were between 20 and 24 years old, and 204 (66.9%) were unmarried. A higher number of respondents, 239 (78.4%), were not actively utilizing contraception. Nonetheless, a minority of responders who utilize contraceptive methods generally use male condoms 27 (29.3%), followed by LAPM 20 (21.7%). (Eko et al., 2013; Atinge et al., 2020).

Modern contraceptive prevalence rates (CPR) rise with age in Kenya. There is a CPR of 23.6% among young adult women, but just 4.9% among those aged 15-19. (Obare et al., 2014).

2.1.2 Factors influencing the uptake of contraceptives

Some of the factors that prevent sexually active teenagers from taking contraceptives include the availability of contraception methods and the fear of stigmatization from their peers and the larger society (Muneene, 2015). Fear of adverse effects, debate, and acceptance from sexual partners are a few of the recognized causes that discourage married couples from using contraception (UNFPA, 2010; Casey et al., 2020). In addition, the emphasis on abstinence by parents, guardians, educators, religious leaders, and other opinion shapers has served to stigmatize sex among teens. Sexually active teenagers are less likely to seek contraceptive goods and services despite their need for them due to the perception that sexual activity before to marriage is inappropriate (Muneene, 2015.).

As a result of the fact that the majority of African societies place a high priority on having a large family, contraceptives have typically encountered cultural and educational barriers (Olaitan, 2011). In addition, they lack information of contraceptives, including its use, effectiveness, and pros and downsides. Misconceptions concerning contraceptives have posed obstacles to their usage. Contraceptives, for instance, should not only be used by adults but also by married adults. Thus, teenagers are not considered a feasible target for its usage, despite the fact that a substantial percentage of adolescents still become pregnant and develop STIs (Mbachu et al., 2021). According to a research conducted by Alo et al. in Nigeria, age was not a major factor in determining the contraceptive usage of sexually active women (Alo et al., 2020). Contrary to sexually active single women, widowed, divorced, and married women were less likely to use modern contraception. Possible explanations

include a lack of partner support for contraceptive use (Olaitan, 2011), a lack of married women's autonomy in making healthy reproductive health decisions (Ewerling, 2017), and a desire to avoid stigmatization due to unplanned births in non-marital partnerships (Fubam, 2019; Alo et al., 2020).

Education level was also shown to have a significant influence on contraceptive use, with those with a higher socioeconomic class and education beyond secondary level being more likely to use modern family planning compared to those with lower education (Adeyem et al., 2016) Improved health behavior among more enlightened and wealthier individuals might be an additional possible explanation (Latunji, 2018; Alo et al., 2020).

In addition, the likelihood of using modern FP rises from 3–4 children to at least 5 children for women who have never given birth. As child timing and preventing unwanted pregnancies are the key reasons for contraception, women who want children are less prone to use modern contraceptives (Alo et al., 2020). Comparable to the results of another study, women who were knowledgeable of contraceptive alternatives utilized modern contraceptive methods much more frequently. (Semachew, 2018; Alo et al., 2020).

2.1.3 Accessibility to Contraception Services and use of contraceptives

Women of reproductive age who lack access to contemporary contraceptive services are less likely to be able to prevent the spread of HIV and other STIs and less likely to have control over their own fertility and reproduction (UNFPA, 2010; Casey et al., 2020). Because of a lack of convenient access to birth control options, about one in four women of reproductive age who are actively trying to prevent becoming pregnant are not now taking any kind of modern contraception (UNFPA, 2010). Women of childbearing age are influenced by a variety of factors that include the price and accessibility of contraceptives and contraceptive services, their prior interactions with health workers, the openness of Sexual and Reproductive Health (SRH) service providers, and their proximity to the healthcare center (Ezenwaka et al., 2020).

The negative effects of inadequate SRH fall disproportionately on women of reproductive age because of the cultural, economic, and structural hurdles that prevent teenagers from gaining access to safe and effective birth control methods (Thongmixay et al., 2019). Women of reproductive age are dissuaded from accessing and utilizing contraceptive services due to the stigma associated with teen contraception, especially if the girl is unmarried (Casey et al., 2020). Reasons for this include the stigma associated with using contraceptives and the fact that women of childbearing age are reluctant to admit to using them (Sensoy et al., 2018). However, some suppliers of contraceptives refuse to serve teenagers who are not married out of concern that doing so might normalize sexual behavior before

marriage. However, studies demonstrate that young people's sexual behavior is not affected when they are denied access to contraception (Adedini et al., 2021).

Adolescents' likelihood of using contraceptive services when necessary is influenced by their past interactions with health-care practitioners or the health-care delivery venues available to them (Munakampe et al., 2018). Adolescents are more likely to use contraceptives if they have access to services that are tailored to their needs. It is sometimes necessary to combat people's unfavorable impressions about medical care (Casey et al., 2020).

Teens in need of birth control might not be able to support themselves owing to limitations in their career opportunities, age, gender identity, or level of education. For some young women, access to a service may be constrained if she is financially dependent on a boyfriend or her parents (Starbird et al., 2016). Women of childbearing age were affected in many ways by economic reliance and financial uncertainty. Examples include women of childbearing age who may not be able to afford the time or money it would take to travel to health care facilities. The World Health Organization found that access to contraception declined in proportion to travel times to service providers (WHO, 2015). Adolescents may not have access to family planning services because of factors such as the high cost of clinic visits and the cost of contraceptives themselves, or the time and money they would need to take away from job or school to make them (Todd & Black, 2020).

2.1.4 Long-term and permanent contraceptive method (LAPM)

When women have more options for preventing pregnancy, they are more likely to try one, be happy with their choice, and use it consistently until they no longer want to. Successful reproductive health and family planning programs cannot function without LAPMs (Pariani et al., 1991; Starbird et al., 2016). Medical eligibility criteria (MEC) were developed by WHO (WHO, 2012) to boost clinicians' trust in LAMPs after fresh scientific discoveries and a deeper knowledge of the procedures confirmed their safety and efficacy. Long-term and irreversible contraceptive options include:

2.1.4.1 Intrauterine Device (IUCD)

The overall CU rate and the rate at which intrauterine contraceptives (IUCDs) are used are both significantly lower in Sub-Saharan Africa than in any other region of the world (Aliyu, 2018). After over 40 years on the market, intrauterine contraceptive devices (IUCDs) have established themselves as one of the most widely used and accessible forms of birth control (Ozcan and Klimstra, 2022). IUDs have been used by over 100 million women, making them the second most common method of contraception after elective sterilization (Aliyu, 2018). Only 16% of Africans use IUCDs, however this number is skewed by the fact that 37% of all users depend on the IUCD in North Africa. One in two

women who use contraception in Egypt and Tunisia insert an IUCD, whereas this number drops to fewer than 2% in Sub-Saharan Africa (WHO, 2010).

The "copper T380A" IUCD is the most popular type of copper-containing IUCD used in Nigeria since it offers protection for up to 12 years (Iklaki et al., 2015). The long-term efficacy, convenience, cost-effectiveness, and high user satisfaction of implants and IUCD have been well documented (Stoddard et al., 2011). However, there are several obstacles to reviving IUCD use in underdeveloped countries, despite the many discoveries and data proving the IUCD's high level of safety and efficacy and its fit for most women (WHO, 2010). Providers frequently exaggerate the link between IUCDs and unfavorable outcomes. Moreover, pervasive beliefs and misunderstandings exist at both the client and community levels (Access, quality, and use in reproductive health, 2007, Iklaki et al., 2015).

2.1.4.2 Tuballigation

In 2009, a meta-analysis conducted by the United Nations revealed that among married or cohabiting women aged 15-49, 20.3% utilized female sterilisation and 14.4% used IUCDs (Alo et al., 2020). For women who have finished their families or those who do not intend to have children, tubal ligation is a safe and effective permanent technique (WHO, 2012). In Nigeria, for instance, over 4% of contemporary contraceptive users depend on female sterilization (CBS, 2014; Alo et al., 2020). Despite being a very successful surgical non-reversible form of contraception, with a pregnancy incidence of fewer than 1% of women within a year following surgery and few women (0.4% to 2.0%) reporting adverse effects, there are a number of risks associated with the procedure (WHO,2009; Alo et al., 2020).

2.1.4.3 Vasectomy

When a woman's medical condition prevents her from using any of the contemporary female contraceptive techniques, a vasectomy would be a viable alternative (WHO, 2015). Vasectomies are advised and safe for males of reproductive age who have reached their desired family size and who understand and willingly agree to the surgery, including men who are HIV-positive or at risk for HIV infection or who have sickle cell disease (WHO, 2009; Ajayi et al., 2018). More than fifty percent of married women had an unfavorable view on the use of LAPMs, especially female sterilization and vasectomy (Alemayehu, 2012, Berihun et al., 2022).

2.2 **PHYSICAL ACTIVITY**

Physical activity (PA) is a comprehensive and multi-functional activity undertaken by all humans to sustain everyday existence, and it varies greatly across individuals and over the lifetime. The phrases "exercise," "physical activity," and "physical fitness" are frequently used interchangeably in the medical and lay communities (Gonzalez, 2017). There is substantial evidence linking adult physical

exercise to reduced risk of death from cardiovascular disease and other causes of death (Kraus et al., 2019). Physical activity (PA) at any level and at any intensity (even mild intensity) was related with a decreased risk of death, and new data from trials utilizing device-based measurements of PA confirmed and expanded this finding (Ekelund et al., 2019). For instance, when comparing the least active (referent, 1.00) to the most active (quartiles of total physical activity), the 2nd quartile (0.48 [95% CI: 0.43 to 0.54]), 3rd quartile (0.34 [95% CI: 0.26 to 0.45], and 4th quartile (0.27 [95% CI: 0.23 to 0.32]) all had lower adjusted Heart Rate (HR) (Ekelund et al., 2019). The negative association between PA and death from cardiovascular disease was also confirmed by new studies (Blond et al., 2019). Physical activity's (PA) well-established advantages in lowering the prevalence of cardiovascular disease and hypertension (O'Brien et al., 2018).

Physical activity (PA) reduces the incidence of hypertension, an important risk factor for cardiovascular disease, by promoting a number of physiological responses that generate favorable short- and long-term autonomic and haemodynamic adaptations (Nystoriak & Bhatnagar, 2018). It has been shown again and again that physical activity has a lowering effect on blood pressure in both individuals with prehypertension and those with normal blood pressure, and that it has an inverse association with the occurrence of hypertension in adults with normal blood pressure (Physical Activity Guidelines Advisory Committee, 2018). It is well-established that persons who engage in regular physical activity have a reduced risk of getting type-2 diabetes (Hu et al., 2019).

New research confirms a decreasing slope in the inverse linear connection between PA volume and T2DM prevalence as PA volume increases (Physical Activity Guidelines Advisory Committee, 2018). Increased physical activity is associated with lower colon cancer and breast cancer risks; this link has been well-established (Hmwe et al., 2016). Higher levels of PA have been linked to a lower risk of getting breast cancer and colon cancer in earlier meta-analyses of the available data (Clague & Bernstein, 2012).

Despite a vast but varied body of research analyzing the correlation between PA and adiposity across several end measures (weight gain, weight change, weight management, weight stability, weight status, and weight maintenance), the association is less well established in adult populations (Physical Activity Guidelines Advisory Committee, 2018; Andreato et al., 2019; Sultana et al., 2019). Overall, the data suggests that higher levels of PA may be linked to better measures of adiposity and attenuation of gaining weight in adults (Physical Activity Guidelines Advisory Committee, 2018). Since the creation of the 2010 Global Guidelines on PA for health, there has been a significant surge in study on PA and psychological disorders, cognition, and sleep (WHO, 2020). There was just a suggestion of a link between PA and decreased risk of cognitive and depressive deterioration in adults at the time.

One research by Schuch and coworkers found that individuals who get more exercise had a decreased chance of getting anxiety and depression than those who get less (Schuch et al., 2018.). Brain function and structure, as well as the risk of cognitive impairment and dementia in ADULTS (aged 18–64 years) are positively correlated with higher levels of moderate- to vigorous-intensity PA (Physical Activity Guidelines Advisory Committee, 2018). (Brasure et al., 2018; Northey et al., 2018). Acute and chronic physical activity both have positive effects on sleep and health-related quality of life in adults (Physical Activity Guidelines Advisory Committee, 2018). According to research on the link between PA and the alleviation of anxiety and depression as well as the prevention of their onset, PA is related with lower levels of both anxiety and depression (Gordon et al., 2018; Perez-Lopez et al., 2017). Every PA has some degree of danger. A commissioned assessment of the risks, injuries, and harms of PA in adults' free time (Lang et al., 2021) found a negative correlation between PA levels and musculoskeletal injuries, but a positive correlation between PA and fracture risk and the beginning of knee or hip osteoarthritis.

Extra data suggests that abrupt cardiac adverse effects are uncommon and linked to acute bouts of rather vigorous-intensity PA (Physical Activity Guidelines Advisory Committee, 2018). Moderate-intensity physical activity and slow increases in PA frequency, intensity, and duration are associated with the lowest risk of adverse outcomes (Physical Activity Guidelines Advisory Committee, 2018).

2.2.1 Recommended levels of physical activity

A. Recommendation for Children and Adolescents (aged 5–17 years)

Recreational and leisure activities (play, games, sports, or scheduled exercise), physical education, movement (wheeling, walking, and cycling), and domestic duties are all examples of PA that may be done by children and adolescents in school, at home, and in the community (WHO, 2020).

It is therefore recommended by WHO that:

i. Children and adolescents should average at least 60 minutes per day of moderate-to-vigorous-intensity, predominantly aerobic physical activity throughout the week.
ii. At least three times per week, vigorous aerobic activity and exercises that build muscle and bone should be added.

B. Recommendation for Adults (18-64);

Physical activity (PA) can be done by adults as a part of their daily occupational, educational, home, and community settings, such as during recreation and leisure (play, games, sports, or planned exercise), transportation (wheeling, walking, and cycling), work, or household chores (WHO, 2020).

Therefore, the World Health Organization (2020) suggests the following:

i. All adults should engage in regular PA.
ii. For major health advantages, adults should engage in at least 150–300 minutes of moderate–intensity aerobic physical activity per week, or 75–150 minutes of vigorous–intensity aerobic physical activity per week.
iii. Two or more days per week, adults should engage in muscle-strengthening exercises of moderate or greater intensity that target all major muscle groups.
iv. To reap the full health advantages of aerobic physical activity (PA), adults should engage in at least 300 minutes per week of moderate-intensity PA, or 150 minutes per week of vigorous-intensity PA, or an equivalent combination of medium- and vigorous-intensity PA.

C. Suggestion for People Over the Age of 65;

Physical activity (PA) can be a component of older individuals' everyday lives in the context of occupational, educational, home, or community contexts, such as during leisure and recreation (play, games, sports, or scheduled exercise), transit (wheeling, walking, and cycling), employment, or domestic tasks.

WHO (2020) suggests the following guidelines for all older adults:

i. Engage in regular physical activity.
ii. For major health advantages, older persons should engage in at least 150–300 minutes of moderate–intensity aerobic physical activity (PA) per week, or at most 75–150 minutes of vigorous–intensity PA per week, or an equal combination of moderate and vigorous-intensity PA.
iii. Two or more days per week, older persons should engage in muscle-strengthening exercises of mild or higher intensity that target all main muscle groups.
iv. To improve functional ability and decrease the risk of falling, older persons should engage in multi-component, diversified physical activity (PA) at a moderate or higher intensity on at least three days per week.
v. Older persons can get even greater health advantages from exercising by increasing their weekly totals of moderate-intensity aerobic physical activity to more than 300 minutes, or vigorous-intensity aerobic physical activity to more than 150 minutes, or an equal mix of the two.

2.2.2 Activity levels according to social class

Increased levels of inactivity were connected with lower social class, income, and educational achievement, according to a briefing document developed for the WHO (2010) to examine the efficacy of public health programs for boosting PA (Stalsberg & Pedersen, 2018).

Rowe, Beasley, and Adams (2004) found that a greater proportion of individuals from lower socioeconomic categories were sedentary compared to those from wealthier groups. However, when those in lower social and economic classes were physically active at a level that would improve their health, it was mostly due to work activities, which was performed in lower-paid manual employment, as opposed to activity performed during leisure time (Barr et al., 2020)

A comparison of data indicates that work activities continues to be an important factor in lower socioeconomic categories, but in more affluent groups with greater incomes and educational attainment, scheduled sport and exercise are crucial forms of physical activity (Eime et al., 2015).

2.2.3 Leisure-time activity

Morris and colleagues observed over 50 years ago that if physical activity were to be beneficial to health, it would require leisure-time exercise as society became less active (Morris et al., 1953; Kaur et al., 2020).

Several robust longitudinal studies have since confirmed that regular free time activity is associated with a lower risk of premature mortality, and that physical activity levels must be maintained in order for health benefits to accrue (Harvard Alumni Study, 1978, 1986, 2000; Health Professionals' Follow-up Study, 1996; Aerobics Longitudinal Study, 1998; Nurses' Health Study, 1997; Whitehall Study, 2000). In contrast to health guidelines, the Time Use Survey (ONS, 2005) indicated that the three most common activities in the United Kingdom were sleeping, working, and watching television/videos/DVDs/listening to music (Hamer & Stamatakis, 2014). The poll, based on the activities of 4,941 participants in the United Kingdom, indicated that watching television and hearing music account for an average of 2 hours and 37 minutes per person per day, whereas sports and outdoor activities account for an average of 10 minutes per person per day (Hamer & Stamatakis, 2014). Walking was the most common form of recreation, which may be related to the low number of sports recorded in the Time Use Study, as walking was classified as a mode of transportation rather than a form of amusement (Chen et al., 2017).

2.2.3.1 Occupational activity

Although occupational exercise's contribution to activity levels has decreased dramatically over the past 50 years, its worth in terms of energy expenditures and broader health benefits remains uncertain. Rowe et al. found that 64% of the overall activity hours of those who were active enough to achieve

health benefits were generated from work (Rowe et al., 2004). Since the 1980s, a fall in manual industries and a rise in mechanization have led to a decrease in physically intensive employment. Between 1984 and 2004, the United Kingdom had a 64% decline in employment in heavy sectors (such as mining), a 32% decline in manufacturing, and a 36% decline in fishing and agricultural activities. There has been a growth of 80% in office-based employment, especially in banking and business services, management and professional jobs, and the service sectors (Labour Force Survey, 2005). Current occupational patterns, as outlined above, indicate that significantly less energy is consumed at work than in prior generations (Dilip and Marika, 2009).

The authors were concerned about the use of job descriptors for estimating the physical activity level of sample groups due to the findings of Vaz et al. In their study comprising 198 school and college instructors, the authors discovered that the mean physical activity levels indicated a moderate rather than inactive profile in accordance with WHO recommendations. (Vaz et al., 2004). Furthermore, a research indicated that 41% of total energy expenditure was attributed to activity at work, thus emphasizing the significance of this area when evaluating daily activity levels in connection to health (Thivel et al., 2018)

Despite changes in occupational activity and more time spent sleeping, relaxing, socializing, and engaging in passive activities (Time Use Survey, 2005), a rising proportion of individuals' report feeling more overworked, anxious, or under pressure than they did in the past (Hamer & Stamatakis, 2014). In 1948, the WHO defined health as "a full condition of physical, mental, and social welfare and not only the absence of sickness or disability" (Ewles & Simnett, 2003) and despite the fact that WHO has revised and expanded its perspective since then, the relevance of physical, mental, and social wellbeing as co-factors of good health remains as vital as ever. However, although the advantages of regular physical exercise are undeniable, the role physical activity may play in preventing and treating mental health disorders is less clear (Goodwin, 2003; Bauman, 2004; Brown et al., 2005).

2.2.4 Physical activity and contraceptive use

More than 100 million young fertile women worldwide take oral contraceptive pills for menstrual management and birth control (Christin-Maitre, 2013). It has been hypothesized that contraceptives may impact athletic performance by influencing steroid hormone receptors in peripheral tissues, such as skeletal tendons and muscles (Ekenros et al., 2017). CU is related with decreased endogenous levels of natural estrogen, progesterone, free testosterone, and insulin-like growth factor I (IGF-I), but increased levels of cortisol, which may also influence the anabolic response to exercise (Eisenhofer et al., 2017).

Despite the frequency of CU in athletic groups, the effects of CU on PA levels in women who are not athletes are little studied.Although experimental studies (Crewther et al., 2018; Joyce et al., 2013; Minahan et al., 2018), narrative and systematic reviews and books (Burrows & Peters, 2007; Forsyth & Roberts, 2018) have addressed this topic, few in the PA truly understand the implications of CU on PA, as prior research has shown conflicting results (Sarwar et al., 1996; Casazza et al (Lebrun et al., 2000; Rechichi et al., 2012).

Associations between hormone CU, PA, and mood disturbances remain understudied, despite the hypothesis that estrogen-progesterone plays a role in mood problems and depression (Ehsanpour et al., 2012).

In a study conducted by Elliott Sale and her colleagues, it was shown that CU may result in somewhat worse PA performance on average compared to naturally menstruating women; nevertheless, any influence at the group level is likely to be minor. Given the effects tended to be small and varied among studies, the existing data do not support broad recommendations about the usage of CU vs non-use (Elliott Sale et al., 2020). Consequently, an individualized strategy may be preferable where PA performance is a top objective. In addition, the data revealed that PA performance was constant throughout the Contraceptive cycle.

2.2.5 Sedentary Behaviour

SB is described as time spent sitting or reclining with low energy output when awake in educational, household, community, and transportation situations (WHO, 2020). Greater SB time, particularly recreational screen time, is associated with worse health outcomes, according to research (U.S. Department of Health and Human Services, 2018; O'Brien et al., 2018). For example, more time on screen (including television viewing) is related with lower fitness and cardio-metabolic health in children and adolescents (Stiglic & Viner, 2019). Evidence from device-based evaluation of connection with sedentary behavior and intervention trials revealed small impacts, but those presently living with obesity saw more considerable effects (Biddle et al., 2017). A analysis of predominantly cross-sectional studies found that daily SB (defined as total screen time) of more than 2 hours was positively linked with juvenile overweight/obesity compared to lower levels (< 2 hours) (Fang et al., 2019). Marker et al. found no statistically significant connection between sedentary video gaming and body mass index among children or adolescents in their assessment of 20 cross-sectional studies (Marker et al., 2019)

Numerous research demonstrates unfavorable relationships between sedentary behavior and indicators of obesity in adolescents when the sedentary behavior is self-reported as screen time (Biddle et al., 2017). The analysis concluded, however, that the size of such relationships was minor and, for studies

employing device-based evaluation of sedentary time, almost nonexistent (Biddle et al., 2017). Intervention trials had small impacts, but more significant effects for those already obese (Biddle et al., 2017). The link between sedentary behaviors and measurements of obesity requires more study. Evidence suggests that there may be a negative link between SB and well-being and QOL as well as a negative relationship between depression and free screen time in children and adolescents, but this is still a new field of study (Hoare et al., 2016). For instance, longer SB durations are categorized as screen time, and some characteristics of computer use have been linked to poorer mental health (Carson et al., 2016).

Another recent review found that 5 out of 8 studies found a connection between SB and anxiety symptoms, albeit the exact nature of this relationship varied widely between SB measures used within each study (Stanczykiewicz et al., 2019). While there was no correlation between computer use/gaming and total sleep time, other research found that longer periods of TV viewing and video game use were strongly associated with unfavorable measures of behavioral conduct/pro-social behavior (Carson et al., 2016). (Belmon et al., 2019). It is probable that reverse causality is evident in the rapidly developing field of study examining the association between SB and mental health. More research is needed to provide insight on the nature and strength of this link.

2.3 **DEPRESSION**

According to several dictionaries (Webster, 1995; Oxford, 2018; Longman, 2019), there are three distinct types of depression. Initially, it might suggest a sense of despondency and lack of optimism for the future. A second definition is the act of engaging in fewer business-related actions and being less active than normal. It may also refer to a person's mental condition, including unhappiness and anxiety, which stops them from enjoying a normal life.

The diagnostic method used in the United States, known as Diagnostic Statistical Manual IV (DSM-IV), was developed by the American Psychiatric Association. It specifies numerous kinds of depression based on five basic types of criteria, namely:

Axis I: Clinical illnesses and other clinical problems that may require medical care

Personality disorders and mental retardation comprise Axis II.

Axis III: Common medical ailments

Axis IV: Psychosocial and environmental problems

Axis V: Global performance evaluation

The depressed mood must be accompanied by a constellation of additional symptoms, the constellation must be present for a certain length, and the constellation must result in considerable emotional suffering or functional impairment (Chaput et al., 1998; Zimmerman et al., 2018). Other sources describe depression in terms of the following four categories of symptoms:

a. Based on emotional characteristics, depression is characterized by emotions of melancholy, loneliness, guilt/shame, anhedonia, and previous failure (Leary, 2015). In addition, symptoms of depression in teenagers include chronic melancholy, lack of interest in once-enjoyed activities, feelings of worthlessness or inappropriate guilt, boredom, and increased irritability, aggression, or aggressiveness (National Institute of Mental Health, 2000; Pilkington, 2013).
b. Physical characteristics of depression include poor energy, weariness, agitation, lower libido, insomnia/hypersomnia, increase/decrease in appetite, and loss of interest in sex (Leary, 2015). A major change in appetite or body weight, psychomotor agitation or retardation, trouble sleeping or oversleeping, and frequent nonspecific, non-specific bodily complaints such as headaches, muscular pains, stomach aches, or fatigue are indications of depression in teens (National Institute of Mental Health, 2000; Pilkington, 2013).
c. According to cognitive characteristics, depression is characterized by decreased focus and emotions of helplessness, worthlessness, self-dislike, and self-blame (Leary, 2015). Signs and symptoms of depression in teenagers include heightened sensitivity to rejection or failure (National Institute of Mental Health, 2000; Pilkington, 2013).
d. Depression is characterized by a loss of interest in activities, disengagement, limited socializing, self-injury/suicide, sobbing, punishment, and impatience, according to behavioral characteristics (Leary, 2015). Signs and symptoms of depression in teenagers include frequent school absences or poor school performance, discussion about or attempts to run away from home, outbursts of yelling, whining, inexplicable irritation or sobbing, lack of desire in playing with friends, alcohol or substance misuse, social isolation, poor communication, trouble in relationships, and risky behavior (National Institute of Mental Health, 2000; Pilkington, 2013).

As indicated in Figure 1, these symptoms cycle automatically, and the condition of depression can last for weeks or even months (Westermeyer, 2003; Leary, 2015).

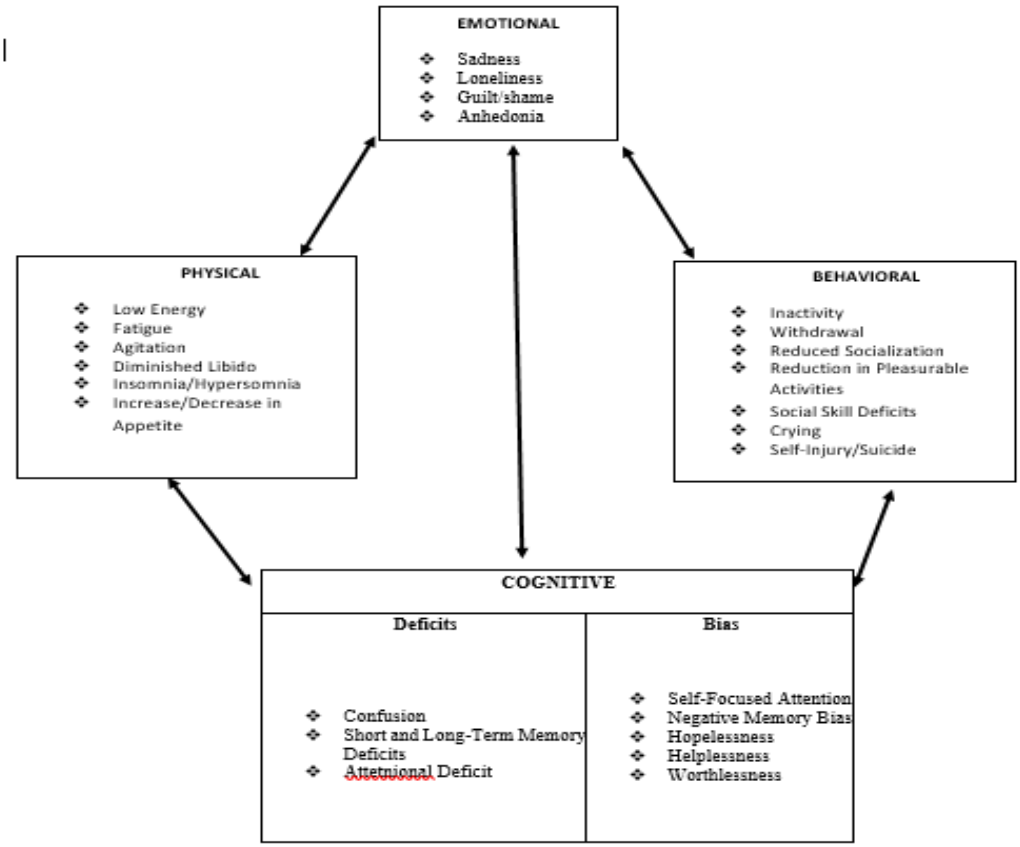

Figure 1: depression symptoms

In this study, these signs were examined using the BDI (Beck Depression Inventory), a self-rating scale developed based on the cognitive therapy idea of Beck to evaluate depression in the population. In addition, depression can be assessed using the Hamilton Rating Scale for Depression (HRS) as a clinician-rated scale for validating the accuracy of depressed symptom levels.

2.3.1 Depression types

Depression can be the result of a medical condition or a reaction to life circumstances (Casarella, 2020).

A. Depression as a medical disorder

i. Major depressive disorder

A person is diagnosed with major depressive disorder if they exhibit at least five of the following symptoms: sad or irritable mood for most of the day, considerably decreased interest or pleasure in practically all activities, considerable change in weight or appetite, insomnia or hypersomnia, weariness or lack of energy, trouble focusing or making choices, noticeable psychomotor agitation or retardation, thoughts of worthlessness or excessive guilt, and recurrent suicidal ideation or behavior

(Kennedy, 2008). These symptoms must have been present nearly every day for at least two weeks, and this symptom must indicate a change in past functioning (Casarella, 2020).

ii. Bipolar disorder

Consider a patient with a history of one or more manic or hypomanic episodes and a current depressive episode (periods of euphoria or irritability with increased energy, increased activity, decreased need for sleep, increased talkativeness, racing thoughts, inflated self-esteem). Bipolar disorder is the diagnosis in this instance (McCormick et al., 2015). When no such history exists, the teenager is diagnosed with depressive illness (Rowland, 2018).

iii. Dysthymic disorder

A person is diagnosed with dysthymic disorder if they have a sad or irritable mood with at least two of the following symptoms for at least a year: (1) a change in appetite, (2) a change in sleep, (3) poor energy or exhaustion, (4) low self-esteem, (5) trouble focusing or making decisions, or (6) a sense of hopelessness (Substance Abuse and Mental Health Services Administration, 2008). During this duration of one year, the teenager must not have been symptom-free for more than two months (Douglas et al., 2018).

B. Depression as a result of encounters.

i. Adjustment disorder with depressive disposition

This kind is identified when depressed symptoms are a result of recognizable psychosocial stress, or if the episode does not fit the criteria for depression or dysthymia. DSM-IV requires that the disturbance must occur within three months of the stressor's commencement and must resolve within six months of the stressor's cessation (Thomas and Seedat, 2018).

ii. Bereavement

This diagnosis is made when the distress produced by a loved one's death does not match the criteria for a severe depressive episode. Typical symptoms include depression, sleeplessness, reduced appetite, and concentration difficulties. Unless they continue for more than two months or are accompanied by significant psychomotor retardation or agitation, overwhelming guilt, recurring suicide thoughts, considerable functional impairment, or psychotic symptoms, they are regarded to be part of normal mourning (Thomas and Seedat, 2018).

iii. Depressive Disorders and Physical Activity

Muhammad (2020) described depression as ranging from brief bouts of misery to persistent poor mood and an inability to find pleasure. The Alameda County Study, undertaken by Camacho, Roberts, Lazarus, Caplan, and Cohen, was one of the largest longitudinal studies studying the association between mental health and physical exercise (1991). Over the course of eighteen years, information on the physical health, behavioral, social, and psychological habits of 6,928 respondents in Alameda County, California, was gathered. Camacho et al. (1991) analyzed the data across three time periods and found that persons who reported a low activity level at the beginning of the research (1965) had a higher risk of depression during the study period than those who indicated a higher activity level at baseline. In addition, those who were inactive in 1965 but raised their activity levels were not at a higher risk for depression than those who were active throughout the study period. Inversely, those who were physically active at the beginning of the research but had become sedentary by 1983 were 1.5 times more likely to develop depression.

Paffenbarger researched the incidence rates of physician-diagnosed depression among Harvard alumni for over twenty years as part of the Harvard Alumni Study. The study found a dose-response association between activity and depression in males aged 23 to 27 years, with more active guys exhibiting a 28% lower incidence of depression than the least active individuals (Paffenbarger et al., 1994)

While both of these investigations are extremely reliable, caution should be exercised when drawing conclusions. Depression is difficult to assess and likely to change often over time, which may explain why the results of following investigations have been contradictory (Brownetal et al., 2005).

Hassmen et al. (2000) examined the relationship between physical exercise and psychological well-being in 3,403 randomly chosen Finnish adults in a cross-sectional research. A statistical study based on pairwise comparisons revealed that depression ratings rose as exercise frequency decreased. Hassmen and colleagues observed that not only was regular exercise related with decreased levels of depression, but there was also a consistent connection between regular exercise and improved psychological well-being (Hassmen et al., 2000).

In a research conducted in Nigeria, around 1,100 Nigerian adolescents aged 12 to 17 were examined. Female adolescents had a greater risk of low PA than male adolescents (OR = 2.91, 95% CI = 1.51-4.26), and Senior Secondary class three was a significant predictor of depressive symptoms (OR = 3.40, 95% CI = 2.55-4.37) and poor PA (OR = 3.40, 95% CI = 2.55-4.37) Individual and school characteristics were shown to contribute to a substantial burden of depression and insufficient physical activity among the teenagers evaluated. They concluded that future research should evaluate the impact of PA among clinical samples of depressed adolescents (Adeniyi et al., 2011).

2.4 **Depression and Contraceptive Use**

According to Erica (2019), it is still widely believed that CU can have a detrimental influence on a woman's emotions, despite the literature's inability to demonstrate a consistent effect. Some research has indicated that CU increases mood outcomes (Nyberg, 2013; Ott et al., 2008; Walker & Bancroft, 1990; Young et al., 2007), but others have observed a general decline in mood (Gingnell et al., 2013, Sanders, Graham, Bass, & Bancroft, 2001; Skovlund, Mrch, Kessing, & Lidegaard, 2016). Still, other studies have identified individual variances within a single statistical sample, with some women finding mood enhancement and others seeing mood deterioration while using CU (Graham et al., 2007; Lundin et al., 2017).

Numerous studies demonstrate that women who use contraceptives enjoy a reduction in mood symptoms compared to those who do not (Nyberg, 2013; Ott et al., 2008; Erica, 2019). In 2013, an open-label, prospective research utilizing a contraception containing norgestimate shown a substantial reduction in negative mood symptoms compared to a placebo in women with severe premenstrual symptoms prior to treatment (Nyberg, 2013). Over the course of 41 months, Ott and colleagues evaluated the impact of hormonal contraceptives on teenagers using daily diaries and in-person interviews (Ott et al., 2008). They discovered that periods of regular oral contraceptive usage were substantially connected with increased positive mood and decreased negative mood effects. Walker & Bancroft (1990) assessed many parameters associated to CU in a group of adults living in an environment with high rates of poverty and intermittent use of birth control. They discovered that contraceptive users reported greater positive and lower negative mood during periods of usage compared to periods of non-use. Young et al. (2007) used data from the Sequenced Treatment Alternatives to Relieve Depression (STAR*D) study to compare mood symptoms between women taking contraceptives and women not taking contraceptives. They discovered that women taking contraceptives reported fewer instances of depressive symptoms and better overall functioning.

In contrast, quite number of previous studies indicate that women who begin using contraceptives experience mood-related negative effects. In a double-blind, placebo-controlled, randomized experiment assessing changes in brain activity and mood in women with a history of depression, women using contraceptives scored higher on depression, mood swings, and weariness than those taking a placebo (Gingnell et al., 2013). Sanders and colleagues evaluated 79 women before and after 3, 6, and 12 months of oral contraceptive (OC) usage in a separate investigation (Sanders et al., 2001). These researchers discovered that 47 percent of the women in the trial quit CU and reported considerably higher emotional adverse effect ratings than women who continued to take them. In addition, a Danish prospective cohort analysis of over a million women's hormonal CU discovered a

relationship between the use of hormonal contraceptives and future antidepressant usage and depression diagnoses (Skovlund et al., 2016). However, various generations of contraception may impact women's emotions differently. In a 2014 randomized, double-blind research, women taking a second-generation contraception were compared to those receiving a third-generation pill formulation. After beginning, the women using the second-generation contraception saw a drop in good mood and an increase in negative mood, whereas the women receiving the third-generation contraceptive experienced the reverse impact (Shahnazi et al., 2014).

Additional research indicates that contraceptives have minimal to no influence on women's mood. In a 2007 correlational study of oral contraceptive use among Australian women, the risks of developing depressive symptoms were not statistically different between women using contraceptives and those not taking them (Duke et al., 2007). The objective of an observational research conducted by Rapkin and colleagues was to determine if depression symptoms arose in women who began using a low-dose contraception and were observed for three months. Despite a drop in neuroactive steroid levels, which was anticipated to be a predictor of depressive symptoms, the women in this research did not report a significant deterioration in mood (Rapkin et al., 2006).

2.5 Quality of Life

The idea of quality of life (QOL) encompasses physical, social, emotional, and spiritual well-being (Fayers et al., 2013). QOL refers to a larger notion that includes the individual's perspective of their overall QOL and evaluation of specific QOL components. This concept includes subjective and objective aspects of quality of life (Mytko et al., 1999; Nasim et al., 2018).

The QOL idea has been extensively researched in several life areas and grouped into seven separate domains (Nasim et al., 2018). Cummins et al. (1997) described these areas and stated that QOL consists both objective and subjective components. These dimensions and domains were material well-being, health, productivity, intimacy, safety, social position, and psychological well-being (Charlemagne-Badal et al., 2015). A person's perception of their living position in respect to the customary rites and value frameworks in which they live, as well as their ambitions and goals, prospects, values, and worries. These variables influence a person's physical health, psychological condition, personal views, social ties, and relationship to the environment's defining characteristics (Visser et al., 2021).

2.5.1 Health-related quality of life

In the field of medical outcomes research, health-related quality of life (HRQOL) is one of a number of often examined factors. It comprises a vast array of human experiences, such as functioning and subjective reactions to sickness (Forestier et al., 2019). HRQOL is based on the World Health

Organization's definition of health as a state of complete physical, mental, and social well-being and not only the absence of sickness (WHO, 2020)

HRQOL may be conceptualized broadly as the ratio of an individual's actual state to their projected status. For instance, a prostate cancer patient's erectile dysfunction has no effect on his HRQOL if it is anticipated, not annoying, and not invasive to his life or self-image. In contrast, a patient who is more focused on his expectations of high erectile function following therapy may see even the smallest decline as having a significant impact on his quality of life (Michael, 2018). Unlike morbidity, which refers to the specific problems or repercussions of a disease, HRQOL studies encompass the distress associated with particular dysfunctions, any influence on normal functioning or social roles, and a composite of other psychological dimensions. HRQOL is multifaceted and includes dysfunctional effects on the individual. This necessitates diverse research teams to evaluate the whole impact of HRQOL disruptions (Gil-Lacruz et al., 2020).

QoL and HRQOL are sometimes used interchangeably; yet, they represent distinct concepts. Researchers have identified eleven distinct QOL and HRQOL definitions spanning fourteen generics and over twenty disease-specific measurements (Nasim et al., 2018).

Since the 1980s, the influence of HRQOL and related variables has expanded to cover those aspects of total QOL that may unquestionably affect health in terms of physical or mental health (Raina et al., 2014). Regarding the individual level, QOL includes physical and mental health observations and connections, health risks and circumstances, functional standing, social provision, and socioeconomic circumstance (Hann et al., 2017). These aspects, with the exception of health issues, go beyond the notion of health and being a health care provider; yet, the phrase that represents quality of life is regarded to be part of health. Consequently, the appropriate word for QOL is Health-related quality of life (HRQOL). When seen as a dimension or domain of quality of life, it is appropriate to assume that they reflect the quality of life that is deemed to be the responsibility of health care professionals or that is likely to be the target of medical intervention. Consequently, the term HRQOL has on occasion been preferred (Olsen and Misajon, 2020).

2.6 **Quality of life and Contraceptive Use**

Physical functioning, role constraints due to physical health, role limitations owing to emotional stress, vitality, mental health, social functioning, bodily discomfort, and overall health are some of the characteristics of health status that have been evaluated in connection to the measurement of health-related quality of life (Hart, 2015). Universal access to reproductive health care is crucial to achieving the 2030 Sustainable Development Goals aim of eradicating and reducing the associated costs of reproductive health problems (Adongo, 2014; International council for science, 2015). Studies on the

behaviors and variables that influence contraceptive usage among women of reproductive age on a global scale. However, data on the quality of life of women of reproductive age in poor nations in connection to their CU are few. (Salam et al., 2020).

Salam and colleagues conducted a descriptive, cross-sectional research with 323 women aged 15 to 49 years at a Nigerian tertiary hospital over the course of three months. They found that the majority of quality-of-life parameters had higher mean scores, with significant mean values in the vitality and social functioning categories among contraceptive users (72.4114.82 and 72.0718.39, respectively, p=0.029), indicating that contraceptive users have a higher quality of life (Salam et al., 2020).

Leon-Larios and her colleagues assessed university students' health-related quality of life using the SEC-Qol questionnaire in a research comprising 992 women, regardless of whether they used contraception. Women who used a contraceptive method achieved higher mean scores on the SEC-QoL questionnaire 47.09 (17.04) and 46.91 (18.73) than those who did not, indicating that women who use any type of contraception may have an improved health-related quality of life and that different contraceptive methods have varying degrees of impact on women. Similarly, women who chose a hormonal approach had a higher quality of life in terms of their health than those who picked a non-hormonal option. Participants who used hormonal contraceptives had higher scores in all health-related quality of life areas (social, menstrual, breast, and sexual) with the exception of the psychological domain, compared to those who used a non-hormonal technique or none (Leon-Larios et al., 2019).

2.7 INSTRUMENTS FOR SCREENING

2.7.1 Beck Depression Inventory (BDI)

Beck, Ward, Mendelson, Mock, and Erbaugh first introduced the original version (1961). The BDI was updated in 1971 and granted copy protection in 1978. The BDI is a 21-item self-report rating scale developed for clinical and research purposes to evaluate the presence and severity of depression in the general population (Wang & Gorenstein, 2013). The BDI may be completed in around 10 minutes. The BDI's internal consistency varies from 0.73 to 0.92, with a mean of 0.86. The BDI has strong internal consistency, with alpha values of 0.86 for psychiatric groups and 0.81 for non-psychiatric populations (Beck et al., 1988; Garca-Batista et al., 2018). Sriyong (1979) found that the Thai version had an internal consistency of 0.85. She indicated that the BDI effectively distinguishes between depressed and non-depressed teenagers, is simple to give, and can be easily analyzed.

Garca-Batista et al. (2018) recommend its usage as a screening tool for the clinical assessment of depression in adolescents. In the inventory, respondents indicate, on a 4-point Likert scale ranging from 0 (rarely or never: less than 1 day) to 3, how frequently they encountered each of 21 symptoms during the previous 2 weeks (most or all of the time: 5-7 days).

The range of total scores is from 0 to 63: normal 5 to 9, mild to moderate depression 10 to 18, moderate to severe depression 19 to 29, and severe depression 30 to 63. Sriyong (1979) suggests the following categorization for the general Thai populace: no depression 0-9, moderate depression 10-15, quite severe depression 20-29, and severe depression 30-36.

2.7.2 The Global Physical Activity Questionnaire

In 2002, the World Health Organization (WHO) created the Global Physical Activity Questionnaire (GPAQ), a revised version of the International Physical Activity Questionnaire (IPAQ) (Thompson et al., 2006), because of rising awareness of the importance of PA to health (WHO, 2018). The GPAQ was developed to supplement the IPAQ in international contexts (WHO, 2018; Thompson et al., 2006). Self-report and interview-based modalities are used in the GPAQ's standardized procedure for population-level monitoring of PA participation (WHO, 2018; Chu et al., 2015).

The initial edition of the GPAQ featured 19 questions, but a shortened version was subsequently created by deleting three duplicate questions, bringing the total number of questions in the most recent form to 16. (Hidding et al., 2018). The GPAQ consists of questions pertaining to three domains: occupational, transportation-related, and recreational Physical Activity (Chu et al., 2015). (Bull et al., 2009; Chu et al., 2015). There is a pre-set Physical Activity list for each domain to assist participants in recalling Physical Activity, ensuring the reliability and validity of the questionnaire (Hidding et al., 2018). In addition, the GPAQ may standardize gathered data, concentrating on moderate-to-vigorous physical activity (MVPA) for work and enjoyment, minutes of walking and cycling for transit alone (WHO, 2018). Notably, the GPAQ measures sedentary behavior (SB) by recording the amount of time spent sitting (WHO, 2018; Aguilar-Farias & Zamora, 2017). The GPAQ likewise utilizes "a typical week" in its questions about moderate and strenuous physical activity lasting at least 10 minutes (Bull et al., 2009). As a result, the GPAQ lacks a component that appropriately detects mild PA in the workplace and recreational environments. In order to monitor PA behaviors and give worldwide guidance for future treatments, the GPAQ has been demonstrated to be trustworthy, valid, and adaptive across all groups (Xiaofen et al., 2019).

The branch of mathematics known as psychometrics focuses on the statistical description of instrumental data as variables as well as the inferential statistical description of the connections between different variables (Russell, 2012).

Psychometrics is often focused with assessing an individual's physical traits, ability, perception of change, pain, and forms of functional capacity in rehabilitation medicine. It is possible to apply psychometric qualities to surveys, outcome measurements, clinical instruments, scales, and specific tests. The rest of this page will use the word "tool" to describe each of these categories.

GPAQ or IPAQ was meant to quantify PA, including walking, moderate exercise, and strenuous activity throughout the last week (Craig et al., 2003). Frequencies and durations of the three levels of PA were multiplied by the known metabolic equivalent of task (MET): walking (3.3 METs), moderate activity (4.0 METs), and vigorous activity (5.0 METs) (8.0 METs). The overall scores of the GPAQ or IPAQ-S were determined by adding the scores of the three levels of PA.

2.7.3 World Health Organization Quality of Life (WHOQOL)

The WHOQOL-BREF is a cross-culturally similar worldwide quality-of-life evaluation tool (Veeri et al., 2019). It is accessible in several languages for both developed and developing nations (Nedjat et al., 2008) and is a WHO-designed general QOL instrument with 26 items. The answer choices range from 1 (very unsatisfied/very poor) to 5 (extremely satisfied/excellent). It stresses subjective reactions above objective living situations, with four-week-long examinations. The questionnaire consists of four categories: physical health, psychological health, social relationships, and surroundings. The scores are translated into a linear scale ranging from 0 to 100, with 0 being the lowest QOL and 100 representing the highest (Nedjat et al., 2008)

CHAPTER THREE

3 METHODOLOGY

3.1 Introduction

This chapter outlines the models and strategies used to achieve the goals of the research. The chapter focuses on the data source, a description of the variables used in the research, and the data analysis tools. The sections 3.2 and 3.3 describe the research design and study area, respectively. Population, sample size, and sampling procedure are discussed in Sections 3.4, 3.5, and 3.6. In Sections 3.7 and 3.8, the inclusion and exclusion criteria are described, while Sections 3.9 and 3.10 address the data gathering instruments and technique. The techniques of data analysis are presented in Section 3.11, the ethical issues of the research are discussed in Section 3.12, and a chapter summary is provided in Section 3.13.

3.2 Study Design

The study used a quantitative, descriptive, cross-sectional research design to examine the relationship between CU, PA, depression, and quality of life (QOL) among women of childbearing age who were not athletes.

3.3 Study Area

The study was carried out in the Akure South Local Government Area, Ondo State, Nigeria, as per the map displayed in Appendix 1. Akure South Local government is one of the eighteen Local governments of Ondo State in Nigeria. The local government houses Akure, the capital city of Ondo State, and it is the most populous local government in the State. The local government comprises 11 political wards (Manpower Nigeria, 2022). The choice of location was informed by the report from the 2018 Nigerian Demographic and Health Survey, which indicated that Ondo State had the lowest rate of contraceptive use among the six states in the Southwest geopolitical zone of Nigeria (Nigeria Population Commission, 2018). In addition, the population of Akure was reported to have increased by more than 54% in the previous 13 years (Adedemi & Adedayo, 2019).

3.4 Study Population

Women of reproductive age in Akure south local government area, Ondo state, Nigeria, aged 18 to 50 years constituted the research population. The women were sampled from communities within the local government area**.** The principal researcher and her research assistants arranged preliminary visits to randomly selected homes following gatekeeper permission and ethics approval. During the visit, all potential participants had the opportunity to hear detailed explanations of the study procedures in their preferred languages. The participants were given an information letter explaining the detailed

procedures of the study as well as the informed consent form. During the second visit, women who met the study's inclusion criteria and volunteered to participate by signing the informed consent form were recruited as study participants. The principal researcher and her trained assistants administered the questionnaire to all consented participants using the face-to-face method. This took place in a quiet location chosen by the participant in her own home. The Yoruba translation (which has undergone the processes of standardized forward and backward translation) was used to interview participants who do not speak English.

3.5 **Sample size**

To determine the sample size for the study, the formula used for descriptive cross-sectional studies involves a population greater than 10,000. The formula is given as

$$n = \frac{Z^2pq}{d^2}$$ (Charan and Biswas, 2013)

Where n = the minimum sample size when the population is more than 10,000.

z = the standard normal deviate is set at 1.96, which corresponds to a 95% confidence level

p = contraceptive prevalence rate (CPR) in Southwest Nigeria, which was 0.31720 (Olugbenga-Bello et al., 2016)

$q = 1 - p$

d = degree of accuracy desired, which was set at 0.05

n =333.

In order to cater for non-responses, 10% of the calculated sample size was added to make a total sample size of 366.

3.6 **Sampling technique**

The respondents were chosen using a multistage sampling procedure. Five of the eleven wards in Nigeria's Akure South Local Government Area were selected at random using a ballot in the first phase. The eleven wards in the Akure local area of Nigeria are; Aponmu, Lisa, Oke Aro/Uro I, Oke Aro/Uro lI, Gbogi/Isikan I, Gbogi/Isikan II, Oda, Oshodi/Isolo, Odopetu, Owode/Imuagun, and Ijomu/Obanla. (Manpower Nigeria, 2022).

The second phase consisted of a random selection of four streets from each of the chosen wards, for a total of 20 streets (Adeyemi et al., 2016). In the third phase, 20 homes were picked methodically from each of the specified streets. In the fourth step, consenting eligible respondents from the identified

homes were interviewed. In families with more than one eligible responder, one was selected by random ballot (Adeyemi et al., 2016). However, if there were no eligible respondents in a home, the researcher picked a substitute household at random from among the unselected households.

3.7 Inclusion criteria

The participants for the study were women of childbearing age between ages 18 and 50 years. The participants have met the following inclusion criteria:

a. Have been a resident of Akure South Local Government for at least six months. Asking the respondents when they first moved to Akure South Local Government allowed the resarcher to determine this.
b. Be sedentary women who do not have regular exercise regimens. This was determined by asking respondents if they were active sportswomen or engaged in an ongoing exercise regimen.
c. Be willing to engage in the research willingly and sign a consent form.
d. Be women of menstruating age.

3.8 Exclusion criteria

Women under the age of 18 and above the age of 50 were excluded from the research. Professional athletes and individuals who engaged in regular personal workout routines were also excluded from the research.

3.9 Data collection tools

The data collection tools are described as follows:

3.9.1 A biographical questionnaire

This self-designed questionnaire was used to collect data on the socio-demographic and contraception-related characteristics of respondents (age, marital status, religion, tribe, highest education level, occupation, awareness of contraceptives, current use of contraceptives, lifetime use of contraceptives, type of contraception currently used, class of contraception currently used, duration of usage of present contraception).

3.9.2 Global Physical Activity Questionnaire

The World Health Organization created the Global Physical Activity Questionnaire (GPAQ) in 2002 as part of its step-by-step method to monitoring chronic disease risk factors [STEPS].

The STEPS methodology has been extensively adopted as a realistic method for monitoring eight critical noncommunicable disease risk factors, especially in poor nations (Armstrong and Bonita, 2003). Because it measures PA across three activity domains, GPAQ is more useful and desirable than IPAQ. The IPAQ-LF is overly comprehensive and may not be appropriate for research involving

several explanatory factors. The GPAQ monitors PA and SB levels. The questionnaire consists of 16 questions and is divided into four sections: work/school/university activity, travel to and from locations, leisure activities, and sedentary behavior. Metabolic Equivalent Tasks (METs) are used to quantify the intensity of physical activity (IPAQ Research Committee, 2005). Participants were asked about the total number of days and duration of vigorous, moderate, and walking activities, and their replies were evaluated to determine PA levels.

3.9.3 Scoring

A combined PA score was calculated using the following formulae: walking/travel MET= 4.0 x activity duration (min) x activity days; moderate MET= 4.0 x activity duration (min) x activity days and vigorous MET=8.0 x activity duration (min) x activity days. From this, total PA scores for each individual were calculated using the following equation: Total PA MET= sum of walking/travelling+ moderate+ vigorous MET-minutes/week. Total PA was categorized into low, moderate and high levels according to the guidelines of the IPAQ Research Committee (2005) (low: total PA < 600 MET mins/week, moderate: 600 MET mins/week ≤ total PA < 3000 MET mins/week, high: total PA ≥ 3000 MET mins/week).

The levels of SB were evaluated as time spent in sedentary activities such as sitting and television viewing and were categorized into participants meeting or not the recommendation for SB using the cut-off point (maximum of 7 hours per day) reported by Ku et al. (2018: 6) for subjective measurement studies. The GPAQ has acceptable reliability and a low to moderate validity (Herrmann et al. (2013).

3.9.4 Becks Depression Inventory

For the purpose of determining the extent of the patient's depression, both the original Beck Depression Inventory (Beck et al., 1996a and 1996b) and its Yoruba translation (Atowoju, 2014) were administered. The Beck Depression Inventory (BDI) is a questionnaire that consists of 21 questions. It was designed to assess the level of depressive symptoms experienced by people over the age of 13 and was created specifically for this purpose. The BDI has been used for 35 years to detect and measure depression symptoms and has been proven to have a high degree of reliability independent of demographic. It has a strong alpha value of 0.80, its construct validity has been demonstrated, and it can detect serious depressive illnesses (Snijders et al., 2006). The Yoruba version of the BDI was administered to non-literate persons. The questionnaire might be done by interview or independently.

Scoring

Each of the 21 questionnaire questions is rated on a four-point scale (0-3). The interpretation was determined by comparing the total of the ratings for the 21 elements to the minimum score requirements. The maximum possible total for the whole exam would be 63 if each question was answered with 3, while the lowest possible score would be 0 if each question was answered with a 0.

3.9.5 World Health Organization Quality of Life BREF (WHOQOL BREF)

WHOQOL BREF was used to measure respondents' health-related QOL. The WHOQOL BREF has 26 items; two from the overall QOL and general health facets and 24 from each of the 24 facets contained in the WHOQOL 100 . The questionnaire comprises four domains: physical health, psychological health, social relationships and environment. Each of the 26 items is scored on a five-point scale which is in a positive direction. The items on the overall QOL and general health are scored separately . The highest score in each domain is 100, while the highest score for overall QOL and general health is 5. Higher scores represent better QOL. The domain scores of WHOQOL BREF have been shown to have good discriminant validity, internal consistency and test-retest reliability.

3.9.6 Translation of Questionnaires into Indigenous Language

Yoruba is the indigenous language of the people of southwest Nigeria, where the study took place. Consequently. The available validated Yoruba translations of BDI and WHOQOL BREF were administered to the respondents who were not literate in English. Atowuju (2014) validated BDI in the Yoruba Language, while the criterion-related validity of a Yoruba translation of WHOQOL was established by Akinpelu et al. (2006). Since the Yoruba version of GPAQ is unavailable, the questionnaire was translated into the Yoruba language by linguistic experts at the Department of Linguistics at Adekunle Ajasin University, Akungba Akoko, Nigeria, who are proficient in both English and Yoruba Languages, and whose mother tongue is Yoruba.

The protocol was implemented in sequential order, as Fukuhara et al. (1998) highlighted. The protocol is provided as follows:

a. Forward translation of the items and answer options from the English version of the GPAQ into Yoruba by two native Yoruba speakers who are also fluent in English (Translators A and B). These translators are linguists and instructors of the Yoruba language at the university, and they worked separately to create the first two Yoruba versions of the GPAQ. As noted by Fukuhara et al., both translators were told to try for conceptual rather than literal translation and to maintain the language informal and suitable for a 14-year-reading old's level (1998). The translators were asked to provide distinct translations for each conceivable answer option.
b. The two divergent translations were harmonized and reconciled. A second bilingual translator examined the questions in the two Yoruba-translated surveys to provide a single, reconciled and unified translation. Based on agreement among the translators, elements were included in the reconciled translation. After exhausted all plausible choices, translators will choose the most acceptable solution for linguistically or culturally challenging topics.
c. Two natives who are proficient in oral and written Yoruba evaluated the Yoruba consensus translation for concreteness and ambiguity in terms of clarity, daily language use, and

conceptual similarity. They evaluated the harmonized translation on scores of difficulty and quality.

d. Two bilingual (English and Yoruba) professional translators back-translated the harmonized forward translation into English to ensure conceptual equivalence with the original source text. To authenticate the back-translated English version by comparing it to the original English version, an independent evaluation of the equivalence of the backward translations to English was performed.
e. Problematic items and answer alternatives were resolved using an iterative method.
f. The preliminary version of the Yoruba GPAC was pilot-tested by 30 individuals. The pilot test's objective was to determine if the translated Yoruba GPAC is clear and appropriate in terms of perception, grasp of varied vocabulary, and interpretations. The cognitive debriefing findings from the pilot research were utilized to refine the phrasing and structure of the questionnaire's pre-final draft.

3.10 **Data Collection Procedure**

Data were collected by the researcher and her three trained assistants using the designed biographical questionnaire. These research assistants are university undergraduates. The questionnaires were administered using the interviewer-administered method. The researcher went through the questionnaire with the research assistants, explaining each question and helping the assistants understand its purpose, to guarantee consistency and eliminate any possibility of ambiguity. Research participants were asked to fill out questionnaires between the hours of 5 and 7 o'clock in the evening, after they had returned home from work (this was a community-based cross-sectional survey) (Adeyemi et al., 2016). The structured questionnaire has four sections which elicit responses on socio-demographic information and PA, depression and QOL.

3.11 **Data Analysis**

Statistical Package for Social Sciences (SPSS) version 28 was used for data analyses. Data were tested for normality using the Shapiro-Wilk test. Descriptive statistics of mean and standard deviation were used to summarize data of continuous variables that were normally distributed while median and quartiles were used to variables with skewed data. Categorical variables were summarized using frequency tables and percentages used to summarize. Bar charts, histograms and pie charts were used for graphical illustration.

The non-parametric Quade Analysis of Covariance was used to compare the GPAQ, BDI and WHOQOL scores between contraceptive users and non-users. The socio-demographic variables (age, marital status, tribe, religion and occupation) were used as covariates in the analysis.

Recommended criteria were used to categorize levels of PA, sedentary behaviour and BDI scores. The outcome variable was current contraceptive usage or contraceptive practice. Pearson's chi-square test bivariate analysis and a multivariate logistic model were used to evaluate which variables were substantially connected with contraceptive use/practice (users and non-users). Crude and adjusted odds ratios and their confidence intervals were calculated and used to determine the significance of the association, and the regression model was adjusted for age, marital status, religion, tribe, highest education level, occupation, awareness of contraceptives, current use of contraceptives, lifetime use of contraceptives, type of contraception currently used, class of contraception currently used and duration of usage of present contraception for calculation of odds ratio. The level of significance was set at $p < 0.05$.

3.12 **Ethical Considerations**

The ethical approval for this study was obtained from Human Research Ethics Committee at Rhodes University, South Africa (Approval number: 2022-5490-6773). The ethical approval contains the following information:

a. **Access to participants:** Verbal permissions and a signed consent form were obtained from each household head. The participants were women of childbearing aged 18 -50 years in Akure South Local Government, Nigeria.
b. **Obtaining informed consent:** All participants were told of the research's purpose and aims. Then, each participant was asked for permission to participate in this study by completing a consent form. In order to access the study questionnaire, participants were required to check the box on the permission form.
c. **Right to protection against harm:** During the course of this research, participants were not subjected to any sort of injury. On average, it took between forty and sixty minutes to complete the questionnaire.
d. **Right to confidentiality and anonymity:** Participants completed the questionnaire anonymously, and the researcher preserved the participants' confidentially. We adhered to the notion of anonymity by not gathering identifying information on each participant. Responses and conclusions were kept secret from other participants so as to ensure confidentiality. Participants' names and addresses were treated as highly private information and were not shared to anybody outside of the study team, i.e., the researcher and supervisors. The study's data were saved in the cloud rather than on a personal device to prevent theft or unauthorized access.

e. **Right to freedom of choice:** A letter was utilized to advise all participants of their right to withdraw from the study at any moment throughout its duration and that they may seek access to the data acquired by the researcher. Participants were able to withdraw from the research at any time and were not penalized for refusing to provide information. Due to the anonymous nature of the questionnaire, persons who granted informed permission for participation cannot withdraw their consent after the online questionnaire has been completed and submitted.

CHAPTER FOUR

4 RESULTS

4.1 Introduction

This chapter includes the results, interpretations, and analyses of the research goals of the study. The information was summarized and presented using tables and graphs. Based on the four parts of the study's questionnaire, the data is given. In Akure South Local Government Area, Ondo State, Nigeria, 763 consenting women of reproductive age (ages 18-50) were presented the questionnaire. However, only 702 agreed to answer all questions in the questionnaire representing a response rate of 92%. Azeroual (2018) defines data cleaning as preparing data for analysis by editing and removing coding and data entry typographical errors. During data cleaning, data from 56 women did not contain enough information for this study's analysis. Consequently, data from 646 participants were entered into SPSS version 28 and analysed. During the data cleaning process, the missing values section in SPSS was used to assess the data's accuracy. The findings of the data analysis are presented in this section.

4.2 Participants' sociodemographic characteristics

The distribution of participants' sociodemographic characteristics is shown in Figures 2 to 7. Figures 2 through 7 show the graphical distributions for age, age categories, education, marital status, highest education, occupation, and tribal affiliation.

4.2.1 Distribution of study participants' age

Age data was recorded as a continuous variable, and the participants' age frequency distribution is shown in Figure 2.

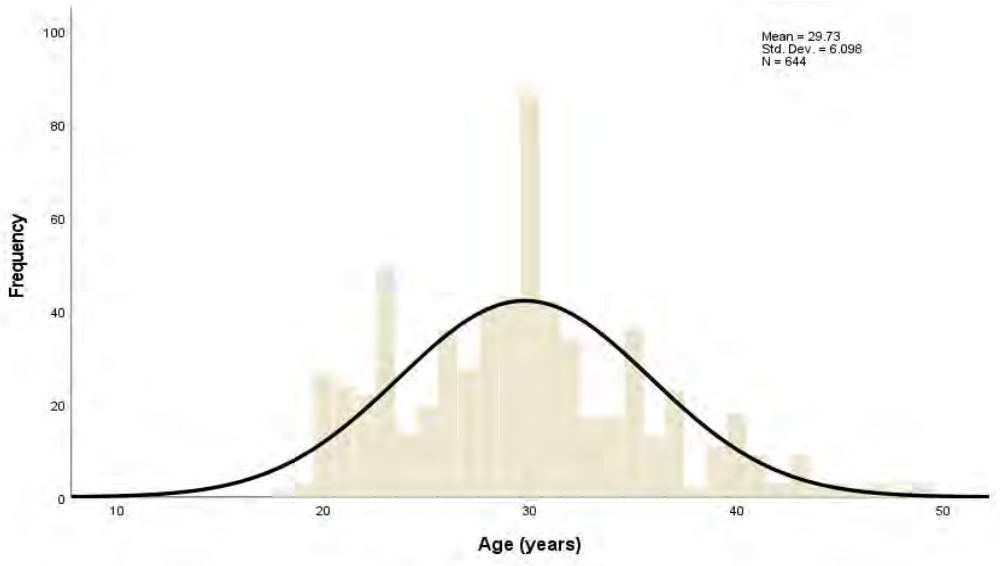

Figure 2: Distribution of participants' age

The age distribution was positively skewed and not normally distributed. The mean age was 29.73±6.10 years, ranging from 18 to 49 years of age. However, 2 respondents did not indicate their ages.

4.2.2 Distribution of respondents' age categories

The continuous age variable was transformed into age categories: < 20, 20-29, 30-39 and 40-49 years (Figure 3)

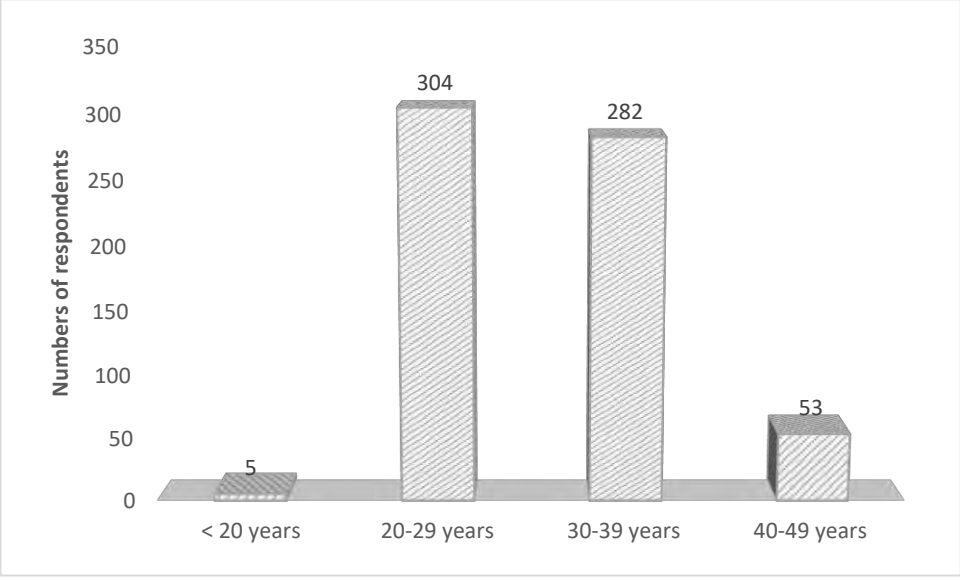

Figure 3: Distribution of respondents' age categories

The highest proportion of the respondents, 304 (47.2%), were aged 20-29 years. A minor proportion of the participants, 5 (0.8%), were under 20 years of age.

4.2.3 Distribution of respondents' marital status

It has four categories: single, married, divorced/separated, and widowed. The distribution of respondents' marital status is presented in Figure 4.

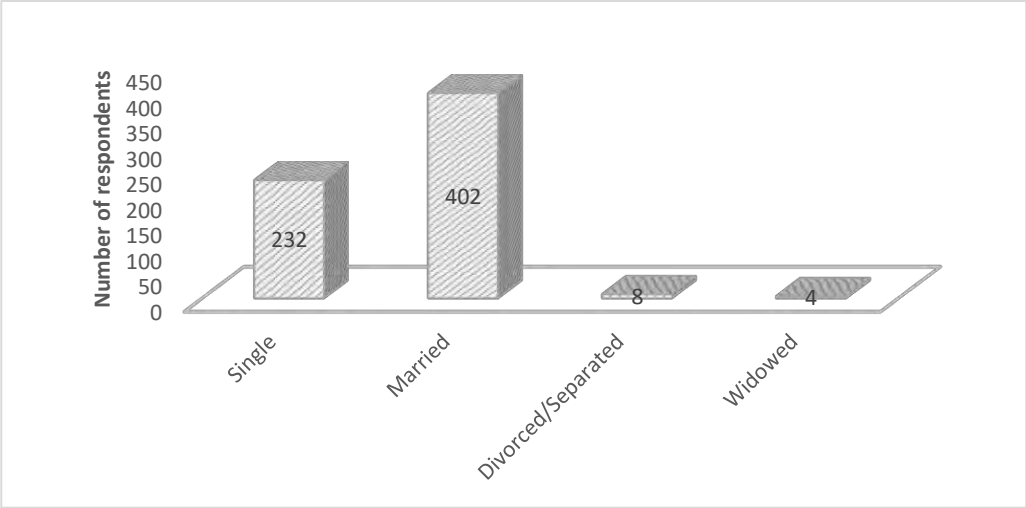

Figure 4: Distribution of respondents' marital status categories

The majority of the respondents were married 402 (62.2%), and the most minuscule proportion of the women was widowed 4 (0.6%),

4.2.4 Distribution of respondents' highest education

This category has four stages: No formal education, primary education, secondary education, and tertiary education**.** The distribution of respondents' highest education is presented in Figure 5 below

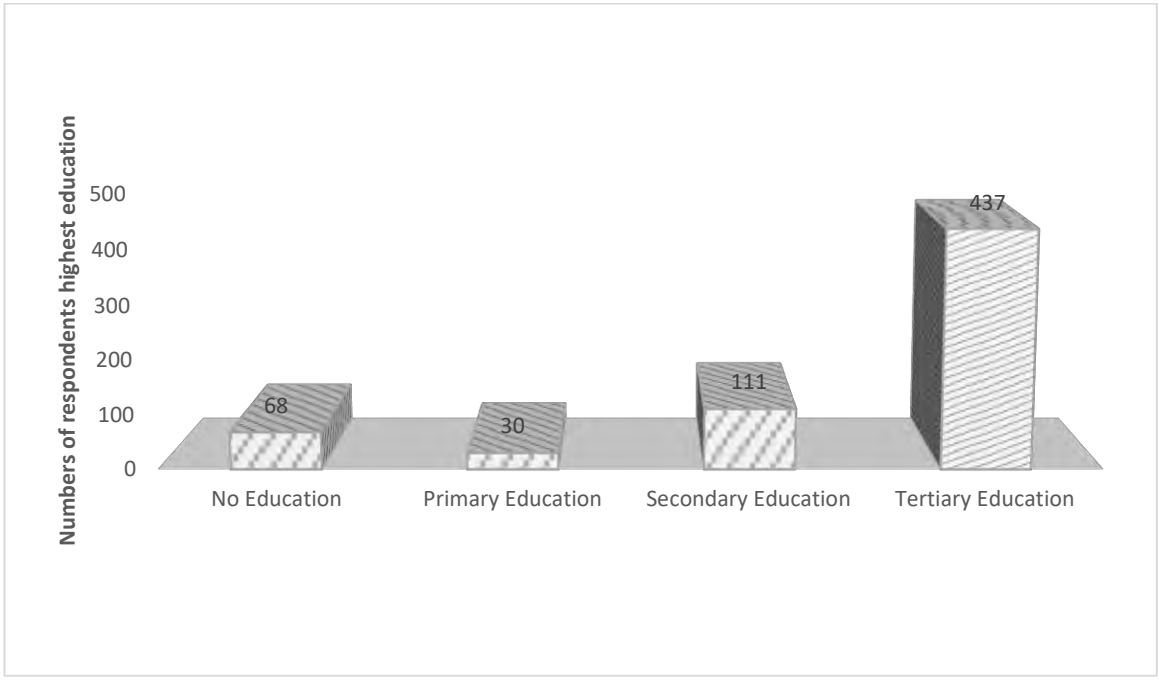

Figure 5: Distribution of respondents' highest education categories

The majority of the respondents had tertiary education, 437 (67.6%). Fewer respondents, 30 (4.6%), had primary education.

4.2.5 Occupation

This variable has five categories: unemployed, student, trader/ farmer, artisan, civil and servant. Figure 6 shows the distribution of the categories of respondents' occupation categories.

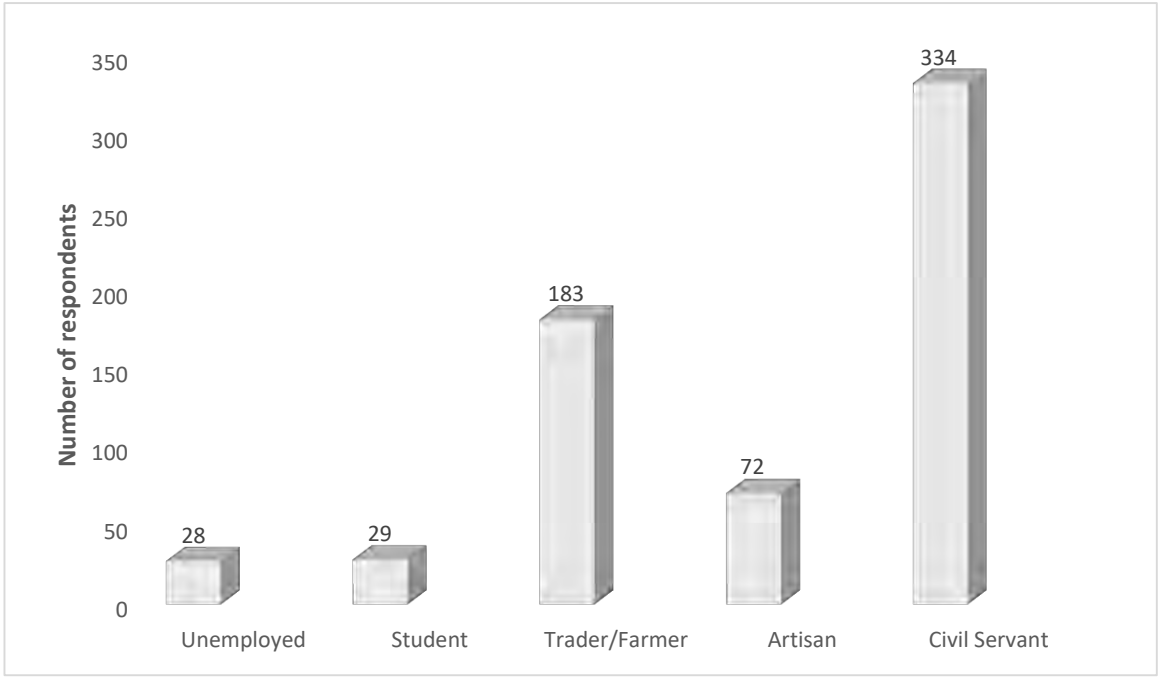

Figure 6: Distribution of respondents' occupation categories

The highest proportion of the respondents, 334 (51.7%), were civil servants. The most minor proportion of the participants, 28 (4.3%), were unemployed.

4.2.6 Tribe

This section has four stages: The Hausa, Yoruba, Igbo and others representing the minority groups in Nigeria. The distribution of the categories of respondents' Tribe categories is presented in Figure 7 below.

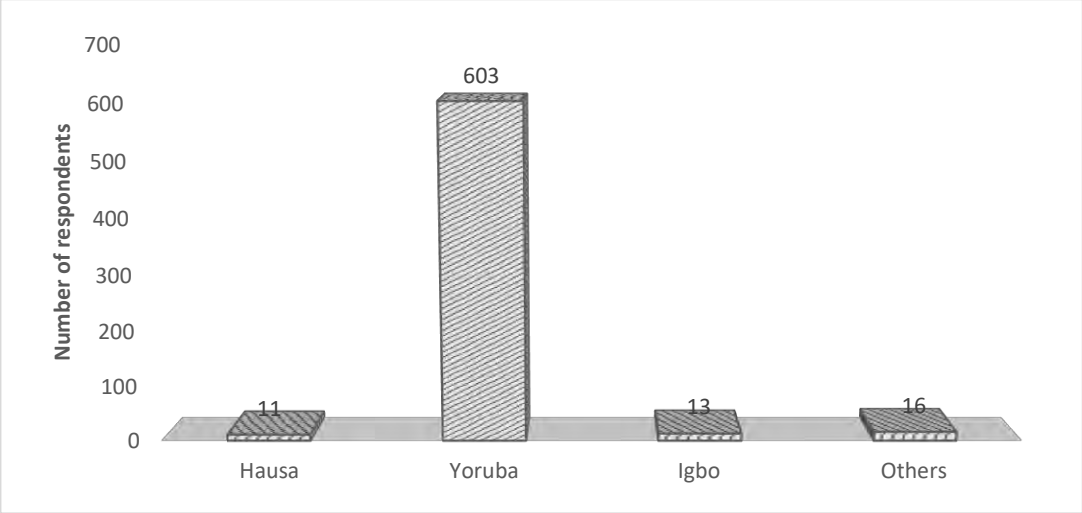

Figure 7: Distribution of respondents' tribe categories

The highest percentage of the respondents, 602 (93.8%), were of Yoruba tribal origin. The Hausas, 11 (1.7%), Igbos 13(2.0%) and those from other tribes, 16 (2.5%), followed in that order.

4.2.7 Comparison of the sociodemographic variables of contraceptive users and non-users

Respondents' sociodemographic variables were compared across contraceptive use status, and the results are presented in Table 1

Table 1: Comparison of the sociodemographic variables of conceptive users and non-users

	Contraceptive Users (n= 496)	**Contraceptive Non-users (146)**		
Variable	**Mean ± SD**	**Mean ± SD**	**t**	**p-value**
Age (years)	29.58 ± 6.02	30.44 ± 6.29	- 1.497	0.135
	n (%)	**n (%)**	**χ2**	**p-value**
Marital Status			4.158	0.245
Single	175 (35.3%)	54 (37.0%)		
Married	311 (62.7%)	90 (61.6%)		
Divorced/Separated	8 (1.6%)	0 (0.0%)		
Widowed	2 (0.4%)	2 (1.4%)		
Highest Education			2.679	0.444
No Education	56 (11.3%)	12 (8.2%)		
Primary	23 (4.6%)	7 (4.8%)		
Secondary	90 (18.1%)	21 (14.4%)		
Tertiary	327 (65.9%)	106 (72.6%)		
Occupation			5.519	0.238
Unemployed	23 (4.6%)	5 (3.4%)		
Student	24 (4.8%)	5 (3.4%)		

Trader/Farmer	146 (29.4%)	37 (25.3%)		
Artisan	60 (12.1%)	12 (8.2%)		
Civil Servant	243 (49.0%)	87 (59.6%)		
Tribe			4.733	0.192
Hausa	8 (1.6%)	2 (1.4%)		
Yoruba	468 (94.7%)	132 (91.0%)		
Igbo	9 (1.8%)	4 (2.8%)		
Others	9 (1.8%)	7 (4.8%)		

SD- Standard deviation

Respondents who were contraceptive users and non-users were statistically comparable in terms of their mean ages (p = 0.135). Results further showed that there was no significant difference in the proportions of their marital status (p = 0.245), highest education (p =0.444), occupation (0.238) and tribe (0.192).

4.3 Participants' contraception-related variables

The distribution of respondents' selected contraception-related variables is shown in Table 2 and Figure 7. Table 2 shows the distributions for awareness of contraception methods, the experience of side effects and the presence of other medical conditions, family or societal issues that got respondents worried or depressed, while Figure 7 presents the distribution of specific side effects experienced by the respondents

Table 2: Respondents' contraception-related variables

Variable	**Frequency**	**%**
Aware of contraception methods?		
No	23	3.6
Yes	617	96.4
Experiencing any side effects?		
No	492	87.2
Yes	72	12.8
Other medical conditions, family or societal issues getting you worried or depressed?		
No	502	78.6
Yes	137	21.4

Note: 3, 82 and 5 respondents did not respond on awareness of contraception methods, the experience of side effects and the presence of other medical conditions that got them worried, respectively.

Table 2 presents the summary of the distribution of respondents' contraception-related information. A very high proportion of 617 (96.4%) of the respondents were aware of contraception and different contraceptives available for uptake, and only 23 (3.6%) of the participants were unaware of contraception and different contraceptives available for uptake. A little above one-tenth of 72 (12.8%) reported experiencing side effects associated with contraception, and the remaining 72 (87.2%s) did not experience contraception-related side effects. Figure 8 below shows the distribution of side effects experienced by some of the respondents. Among the 72 respondents who reported experiencing side effects, change in weight 24 (33,33%) and headache 21 (29.17%) were the most common side effects experienced by the women.

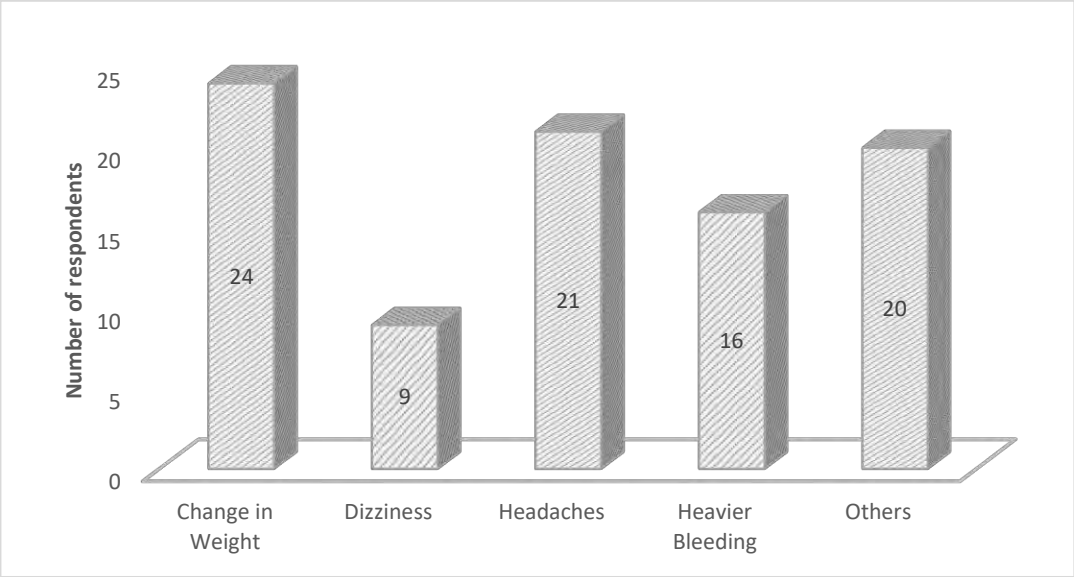

Figure 8: Distribution of side effects experienced by respondents

Regarding other issues that could get the women worried or depressed, 137 (21.4%) reported having other medical conditions and family or societal issues that got them worried or depressed, whereas 502 (78.6%) did not have such conditions/issues.

4.4 Lifetime and point prevalence of contraceptive uptake among the respondents

To address the study's objective 1, the proportions of the respondents who have used contraceptives in their lifetime and those currently using any contraception were estimated and presented in table 3. The respondents' lifetime and point prevalence of contraceptive uptake was 93.6% and 77.3%, respectively.

Table 3: Lifetime and point prevalence of contraceptive uptake among the respondents

Lifetime prevalence	Frequency	%
No	41	6.40

Yes	597	93.6
Point Prevalence		
No	146	22.7
Yes	496	77.3

8 respondents did not respond to the question on the lifetime use of contraception

4 respondents did not respond to the question on the current use of contraception

Further analysis was performed to determine the distribution of the types of contraception used by respondents who currently practised contraception and the distribution of the duration of usage.

As shown in Figure 9, of the 496 respondents who currently practice contraception, about three-fifth of the respondents, 301 (60.7%), were using male condoms, while only two respondents (0.4%) used the bilateral tubal ligation/vasectomy method. 35 (7.1%) of the respondents combined two or more contraception methods. The number of respondents who used pills, female condoms, IUCD, implants, traditional methods, injectables, and vasectomy were 47 (9.5%), 43 (8.7%), 35 (7.1%), 22 (4.4%), 5 (1%), and 6 (1.2%) respectively.

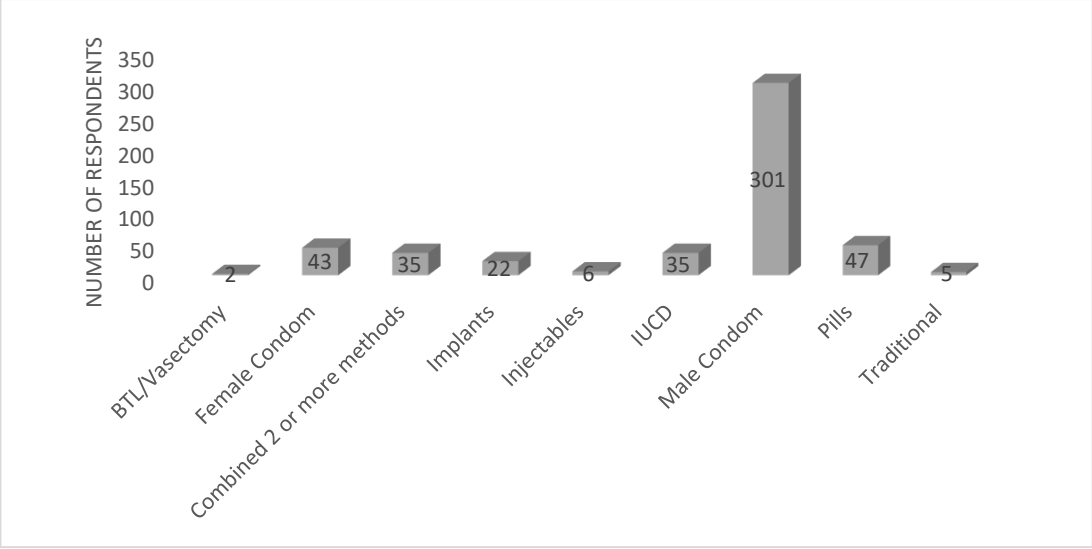

Figure 9: Distribution of type of contraception used by respondents

Figure 10 shows the distribution of the duration of current use of contraception as reported by the respondents. The majority of the participants, 237 (37.7%), have used the current contraception method for less than 1year and fewer participants, 39 (6.0%), have used the current contraception method for more than 10 years, while 87 (13.5%) were not sure of the duration of use.

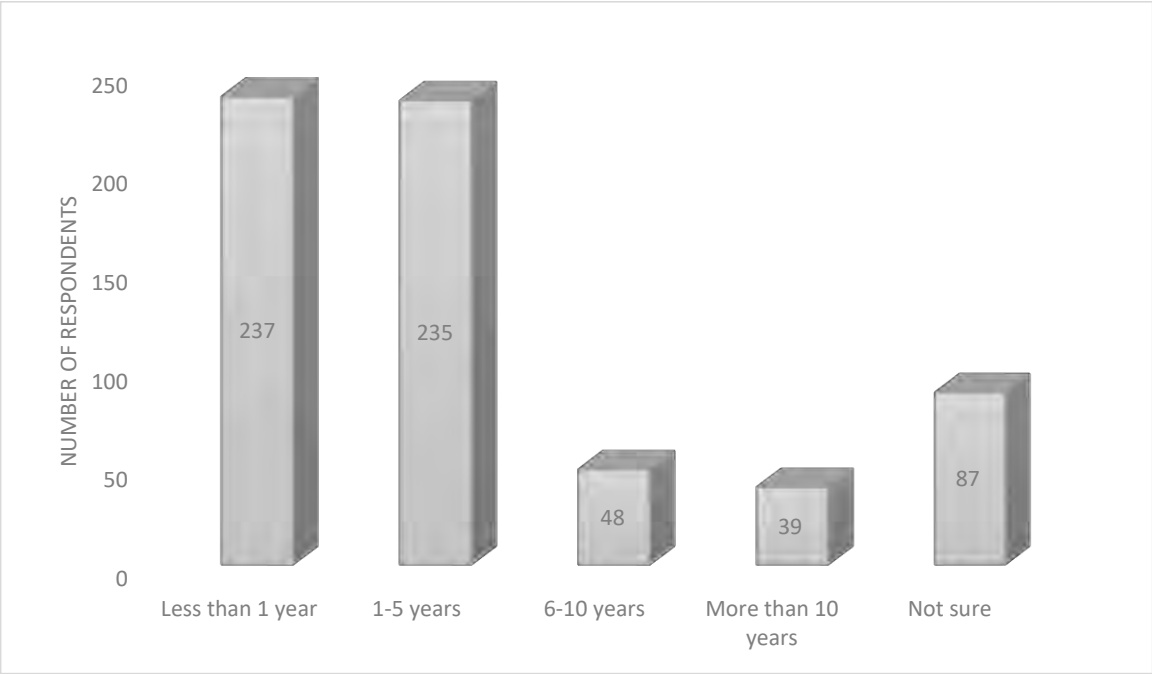

Figure 10. *Distribution of duration of use of current contraception*

4.5 **Levels of physical activity and depression status among the respondents**

To address the study's objective 2, the continuous physical activity (PA) and BDI scores were recorded and categorised as recommended in the literature and presented in Table 4. PA scores were categorised into low, moderate and high levels of PA. BDI scores were categorised into minimal, mild, moderate and severe levels of depression. The results showed that the majority, 313 (48.5%) of the respondents, had moderate PA, while a minor proportion of respondents100 (15.5%) had a high or low level of PA. A chi-square test comparison of the proportions revealed that overall, PA level was statistically comparable between contraceptive users and non-users ($p = 0.058$). However, z test comparison (with Bonferroni adjustments) showed that a significantly higher proportion of contraceptive users had moderate and high PA levels than the non-users (moderate: 81% vs 19%; high: 72.4% vs 27.6%).

Concerning depression status categories, most respondents had mild depressive status 332 (51.4%), while the most minuscule proportion had severe depressive status 8 (1.2%). Furthermore, the chi-square comparison of proportions showed a significant difference in levels of depressive status between contraceptive users and non-users ($p = 0.018$). The z-test comparison (with Bonferroni adjustments) showed that a significantly higher proportion of contraceptive users had minimal and moderate depression levels than the non-users (minimal: 67.3% vs 32.7%; moderate: 83.1% vs 16.9%).

Table 4: Levels of physical activity and depression status among the respondents

	Total	**Contraceptive users**	**Contraceptive non-users**		

Variable	n	%	N	%	n	%	χ2	p-value
Physical Activity Category							5.687	0.058
Low	100	15.6%	76	76.0%	24	24.0%		
Moderate	313	48.7%	252	81.0%	59	19.0%		
High	230	35.8%	165	72.4%	63	27.6%		
Depression Score Category							**10.024**	**0.018***
Minimal	110	17.0%	74[a]	67.3%	36[b]	32.7%		
Mild	332	51.4%	254[a]	77.2%	75[a]	22.8%		
Moderate	196	30.3%	162[a]	83.1%	33[b]	16.9%		
Severe	8	1.2%	6[a]	75.0%	2[a]	25.0%		

The same superscript letter denotes a current use of contraception categories whose column proportions do not differ significantly from each other at p < 0 .05

**3 Respondents did not respond to questions on PA*

4.6 Comparison of physical activity, depression and quality of life scores between contraceptive users and non-users

The results presented in Table 5 address objective 3. Contraceptive users had significantly higher BDI (p = 0.002), physical health QoL domain (p < 0.001), environment QoL domain (p = 0.033) and overall QoL (0.004) scores than the non-users. There was no significant difference in the median scores of PA walking (p = 0.877), PA vigorous (p = 0.813), PA moderate (p = 0.425, total PA (p = 0.427), psychological health QoL domain (p = 0.288) and social relations QoL domain (p = 0.171) between the contraceptive users and non-users.

Table 5. Quade ANCOVA comparison of physical activity, depression and quality of life scores between contraceptive users and non-users

	Contraceptive Users (n= 496)	**Contraceptive non-users (n = 146)**		
Variable	**Median (IQR)**	**Median (IQR)**	**F- value**	**p-value**
Physical Activity				

PA walking or bicycling	400.00 (0.00, 612.00)	368.00 (0.00, 657.00)	0.024	0.877
PA Vigorous	480.00 (0.00, 720.00)	480.00 (0.00, 720.00)	0.056	0.813
PA Moderate	480.00 (0.00, 720.00)	480.00 (0.00, 920.00)	0.638	0.425
Total PA	1232.00 (752.00,1698.00)	1344.00 (800.00, 1934.00)	0.630	0.427
Sedentary Time	160.00 (71.00, 275.00)	180.00 (71.50, 240.00)	0.698	0.404
Depression				
BDI Score	15.17 (11.67, 19.69)	13.59 (9.75, 17.72)	9.814	**0.002***
Quality of Life				
Physical Health	64.29 (53.57, 71.43)	58.93 (50.00, 57.86)	19.326	**< 0.001***
Psychological Health	62.50 (54.17, 75.00)	62.50 (54.17, 70.83)	1.131	0.288
Social Relations	75.00 (50.00, 83.33)	66.67 (50.00, 83.33)	1.878	0.171
Environment	65.63 (56.25, 71.88)	62.50 (53.13, 71.88)	4.545	**0.033***
Overall QoL	64.30 (56.52, 71.89)	62.05 (52.76, 69.34)	8.243	**0.004***

PA – Physical activity, BDI – Becks Depression Inventory, IQR – Interquartile range

Age, marital status, tribe, religion and occupation were used as covariates in the Quade ANCOVA analysis

4.7 Comparison of physical activity, depression and quality of life scores between hormonal contraceptive users and non-hormonal contraceptive methods

To further address objective 3, further analysis was performed, and the results are shown in Table 6. Respondents who were current hormonal contraceptive users had significantly higher median PA walking/bicycling ($p = 0.014$) scores than those who used non-hormonal contraceptives. However, there was no significant difference in the median scores of PA vigorous ($p = 0.430$), PA moderate ($p = 0.121$), total PA ($p = 0.392$), BDI ($p = 0.077$) physical health QoL domain ($p = 0.065$), environment QoL domain ($p = 0.402$), psychological health QoL domain ($p = 0.399$), social relations QoL domain ($p = 0.985$) and overall QoL ($p = 0.480$), between hormonal contraceptive users and non–hormonal contraceptive users.

Table 6: Quade ANCOVA comparison of physical activity, depression and quality of life scores between hormonal contraceptive and non–hormonal contraceptive

	Hormonal Contraceptive Users (n= 146)	**Non-hormonal Contraceptive Users (n = 350)**		
Variable	**Median (IQR)**	**Median (IQR)**	**F- value**	**p-value**
Physical Activity				
PA walking or bicycling	240.00 (0.00,480.00)	440.00 (0.00, 660.00)	6.143	***0.014***
PA Vigorous	480.00 (0.00,720.00)	480.00 (0.00, 720.00)	0.623	0.430
PA Moderate	480.00 (0.00, 960.00)	480.00 (0.00,720.00)	2.413	0.121
Total PA	1160.00 (732.00, 1836.00)	1292.00 (856.00, 1684.00)	0.734	0.392
Sedentary Time	170.00 (71.00, 275.00)	149.00 (70.00, 275.00)	0.109	0.741
Depression				
BDI Score	15.17 (9.33, 19.54)	16.33 (11.67, 21.00)	3.139	0.077
Quality of Life				
Physical Health	60.71 (57.14, 67.86)	64.28 (53.57, 75.00)	3.418	0.065
Psychological Health	62.50 (54.16, 79.16)	62.50 (54.16, 70.83)	0.714	0.399
Social Relations	75.00 (50.00, 83.33)	66.66 (50.00, 83.33)	0.000	0.985
Environment	62.50 (56.25, 71.87)	65.62 (56.25, 75.00)	0.702	0.402
Overall QoL	63.20 (55.80, 72.00)	65.21 (57.92, 72.65)	0.500	0.480

PA – Physical activity, BDI – Becks Depression Inventory, IQR – Interquartile range

Age, marital status, tribe, higher education and occupation were used as covariates in the Quade ANCOVA analysis

Hormonal, pills, injectables, IUCD, implants, combinations**.** Non-hormonal male condoms, female condoms and traditional

4.8 Sociodemographic characteristics and contraception-related variables of respondents stratified by current contraceptive use status

The results presented in section 4.6.1 were analysed for a detailed understanding of study objectives 4, 5 and 6.

4.8.1 Frequency distributions of respondents' sociodemographic characteristics were stratified by current contraceptive use status

Table 7 below shows the frequency distribution of the respondents' sociodemographic characteristics as stratified by contraceptive use status.

Table 7: Sociodemographic characteristics and contraception-related variables of respondents stratified by current contraceptive use status

	Total		**Contraceptive users**		**Contraceptive non-users**	
Variable	**n**	**%**	**N**	**%**	**N**	**%**
Total	642	100%	496	77.3%	146	22.7%
Age (years)						
< 20 years	5	0.8%	5	100%	0	0%
20-29 years	304	47.2%	228	76.0%	72	24.0%
30-39 years	282	43.8%	223	79.1%	59	20.9%
40-49 years	53	8.2%	38	71.7%	15	28.3%
Marital Status						
Single	232	35.9	175	76.4%	54	23.6%
Married	402	62.2	311	77.6%	90	22.4%
Divorced/Separated	8	1.2	8	100.0%	0	0%
Widowed	4	.6	2	50.0%	2	50.0%
Highest Education						
No Education	68	10.5	56	82.4%	12	17.6%
Primary Education	30	4.6	23	76.7%	7	23.3%
Secondary Education	111	17.2	90	81.1%	21	18.9%

Tertiary Education	437	67.6	327	75.5%	106	24.5%
Occupation						
Unemployed	28	4.3	23	82.1%	5	17.9%
Student	29	4.5	24	82.8%	5	17.2%
Trader/Farmer	183	28.3	146	79.8%	37	20.2%
Artisan	72	11.1	60	83.3%	12	16.7%
Civil Servant	334	51.7	243	73.6%	87	26.4%
Tribe						
Hausa	11	1.7	8	80.0%	2	20.0%
Yoruba	603	93.8	468	78.0%	132	22.0%
Igbo	13	2.0	9	69.2%	4	30.8%
Others	16	2.5	9	56.3%	7	43.8%

**4 respondents did not respond to the question on the current use of contraception*

Overall, 196 (51.7%) out of 496 participants were contraceptive users. Of the majority, 304 (47.2%) were aged 20-29 years, and 228 (76%) were contraceptive users. 175 (76.6%) and 311 (77.6%) of singles and married, respectively, were contraceptive users. All participants who were divorced or separated from their partners were contraceptive users. Just three-quarters of respondents with tertiary education, 327 (75.5%), were contraceptive users, and more than four-fifths of the 68 respondents with no formal education, 56 (82.4%), were contraceptive users. Just below four-fifths of traders/farmers, 146 (79.8%), who constituted the majority of the respondents, were contraceptive users, and 26 (82.8%) of the 29 students in the sample were contraceptive users. 468 (78.0%) of the 603 women from the Yoruba tribe constituted the majority of the tribe categories were contraceptive users.

4.8.2 Crude and adjusted odds ratios for sociodemographic characteristics stratified by contraceptive use status

Respondents' sociodemographic characteristics were examined to assess the relationship with current contraceptive use, and the results are presented in Table 8.

Table 8: Crude and adjusted odds ratios for respondents' sociodemographic characteristics stratified by current contraceptive use

Variable	Crude OR	95% CI	p-value	Adjusted OR	95% CI	p-value

Age (years)						
< 20 years	Undefined	Undefined	0.999	Undefined	Undefined	0.999
20-29 years	1.25	0.65 – 2.40	0.504	1.18	0.58 – 2.41	0.646
30-39 years	1.49	0.77 -2.90	0.237	1.51	0.74 – 3.07	0.256
40-49 years	**Ref**	**Ref**	**Ref**	**Ref**	**Ref**	**Ref**
Marital Status						
Single	**Ref**	**Ref**	**Ref**	**Ref**	**Ref**	**Ref**
Married	1.07	0.72 - 1.57	0.744	1.10	0.73 – 1.66	0.643
Divorced/Separated	Undefined	Undefined	0.999	Undefined	Undefined	0.999
Widowed	0.31	0.04- 2.24	0.245	0.40	0.05 – 3.14	0.383
Highest Education						
No Education	1.51	0.78 – 2.92	0.781	1.11	0.46 – 2.65	0.819
Primary Education	1.07	**0**.44 – 2.55	0.444	0.82	0.29 – 2.31	0.702
Secondary Education	1.40	0.82 – 2.34	0.823	0.94	0.46 – 1.90	0.858
Tertiary Education	**Ref**	**Ref**	**Ref**	**Ref**	**Ref**	**Ref**
Occupation						
Unemployed	**Ref**	**Ref**	**Ref**	**Ref**	**Ref**	**Ref**
Student	1.04	0.27 – 4.09	0.951	1.08	0.24 – 4.92	0.923
Trader/Farmer	0.86	0.31 - 2.41	0.771	0.81	0.26 – 2.52	0.721
Artisan	1.09	0.35 - 3.43	0.887	1.07	0.29 – 4.01	0.920
Civil Servant	0.61	0.22 – 1.65	0.327	0.57	0.17 – 1.85	0.346
Tribe						
Hausa	3.11	0.50 – 19.54	0.226	3.17	0.47 – 21.0	0.233
Yoruba	**2.76**	**1.01 – 7.54**	**0.048**	2.72	0.96 – 7.69	0.059
Igbo	1.75	0.38 – 8.14	0.476	1.41	0.29 – 6.93	0.669
Others	**Ref**	**Ref**	**Ref**	**Ref**	**Ref**	**Ref**

***Adjusted for age, marital status, highest education, tribe, occupation*

Respondents who were of Yoruba tribal origin were 2.76 times more likely to be contraceptives users compared to others who were neither Hausa nor Igbo in crude analysis (OR = 2.76, 95% CI = 1.01 – 7.54, p = 0.048), but the association did not hold in adjusted analysis. Associations between contraceptive use and age, marital status, highest education, and occupation categories were insignificant (p > 0.05).

4.8.3 Frequency distributions of contraception-related variables of respondents stratified by current contraception use status

Table 9 shows the frequency distribution of respondents' selected contraception-related variables as stratified by current contraception use status.

Table 9: Frequency distributions of contraception-related variables stratified by current use of contraceptives

Variable	Total		Contraceptive Users		Contraceptive Non-users	
	N	%	n	%	n	%
Aware of contraception methods?						
No	23	3.6%	5	21.7%	18	78.3%
Yes	617	96.4%	486	79.3%	127	20.7%
Lifetime practice and use of contraception?						
No	41	6.4%	0	0%	41	100.0%
Yes	597	93.6%	492	82.6%	104	17.4%
Experiencing any side effects?						
No	492	87.2%	430	87.4%	62	12.6%
Yes	72	12.8%	64	88.9%	8	11.1%
Other medical conditions, family or societal issues getting you worried or depressed?						
No	502	78.6%	388	77.9%	110	22.1%
Yes	137	21.4%	104	75.9%	33	24.1%

Just below four-fifths (79.3%) of the 617 respondents who were aware of contraption methods were current contraceptive users. 492 (82.6%) of the 597 women who reported having used contraceptives at one time or another in their lifetime were current contraceptive users. Most (88.9%) of the 72 respondents who reported experiencing side effects of contraceptives were current contraceptive users. Of the 137 women who reported having other medical conditions or family or societal issues that got them worried or depressed, 104 (75.9%) were contraceptive users.

4.8.4 Crude and adjusted odds ratios for contraception-related variables stratified by contraceptive use status

Respondents' contraception-related variables were examined to assess the relationship with current contraceptive use status, and the results are presented in Table 10.

Table 10: Crude and adjusted odds ratios for respondents' contraception-related characteristics stratified by current contraceptive use

Variable	Crude OR	95% CI	p-value	**AOR	95% CI	p-value
Aware of contraception methods?						
No	Ref	Ref	Ref	Ref	Ref	Ref
Yes	**13.78**	**5.02 – 37.82**	**< 0.001**	**16.04**	**5.58 - 48.14**	**< 0.001**
Lifetime practice and use of contraception?						
No	Ref	Ref	Ref	Ref	Ref	Ref
Yes	Undefine	Undefined	0.997	Undefined	undefined	0.998
Experiencing any side effects?						
No	Ref	Ref	Ref	Ref	Ref	Ref
Yes	0.87	0.40 – 1.89	0.720	1.10	0.46 –2.68	0.825
Other medical conditions, family or societal issues getting you worried or depressed?						
No	Ref	Ref	Ref	Ref	Ref	Ref

Yes	1.12	0.72 – 1.75	0.620	1.12	0.54 –2.31	2.31

AOR – Adjusted odds ratio

***Adjusted for Age, Marital Status, Education, Tribe, Occupation,*

Respondents who were aware of contraception methods were significantly more likely to be contraceptives users (AOR = 16.04, 95% CI = 5.58 - 48.14, $p < 0.001$). Associations between contraceptive use and other selected contraception-related variables were not significant ($p > 0.05$).

4.9 Associations between contraceptive use, physical activity and sedentary behaviour

4.9.1 Frequency distributions of respondents' physical activity and sedentary behaviour categories stratified by current contraception use status

The frequency distribution of respondents' physical activity and sedentary behaviour categories as stratified by current contraception use status is summarised in Table 11.

Table 11: Frequency distributions of respondents' physical activity categories stratified by current use of contraceptives

PA Category	**Total**		**Contraceptive Users**		**Contraceptive Non-users**	
	n	**%**	**n**	**%**	**n**	**%**
Low	100	15.6%	76	76.0%	24	24.0%
Moderate	313	48.7%	252	81.0%	59	19.0%
High	230	35.8%	165	72.4%	63	27.6%
SB Category						
Met recommendation	593	93.5%	461	78.3%		21.7%
Did not meet the recommendation	41	6.5%	32	78.0%		22.0%

Just above four-fifths (81.0%) of 313 respondents (majority) with moderate PA levels were contraceptive users. 76% and 72.4% of respondents with low and high PA levels were contraceptive users. 78% of respondents who did not meet recommendations for SB were contraceptive users.

4.9.2 Crude and adjusted odds ratios for the associations between respondents' physical activity, sedentary behaviour and current contraceptive use status

To further address objective 4, respondents' physical activity and sedentary behaviour levels were examined to assess the relationship between current contraceptive use status and the results are summarized in Table 12.

Table 12: Crude and adjusted odds ratios for the associations between respondents' physical activity, sedentary behaviour and current contraceptive use

PA Category	**Crude OR**	**95% CI**	**p-value**	****Adjusted OR**	**95% CI**	**p-value**
Low	**Ref**	**Ref**	**Ref**	**Ref**	**Ref**	**Ref**
Moderate	1.35	0.79 – 2.31	0.277	1.11	0.47 – 2.58	0.818
High	0.83	0.48 – 1.42	0.493	0.82	0.34 – 2.00	0.668
SB Category						
Met recommendation	Undefined	Undefined	0.997	Undefined	Undefined	0.998
Did not meet the recommendation	**Ref**	**Ref**	**Ref**	**Ref**	**Ref**	**Ref**

***Adjusted for Age, Marital Status, Education, Tribe, Occupation, Awareness of contraception methods, duration of current contraception practice, Experience of side effects, Other medical conditions, family or societal issues causing worrying*

The associations between contraceptive use and respondents' physical activity and sedentary behaviour levels were not significant in both crude and adjusted analyses ($p > 0.05$).

4.10 Associations between contraceptive use and levels of depression

4.10.1 Frequency distributions of respondents' depression levels stratified by current contraceptive use status

To address objective 5, the frequency distributions of respondents' depression levels were stratified by current contraception use status, and the results are presented in Table 13.

Table 13: Frequency distributions of respondents' depression levels stratified by current use of contraceptives status

Category	**Total**		**Contraceptive Users**		**Contraceptive Non-users**	
	n	**%**	**n**	**%**	**n**	**%**
Minimal	110	17.0%	74	67.3%	36	32.7%
Mild	332	51.4%	254	77.2%	75	22.8%

Moderate	196	30.3%	162	83.1%	33	16.9%
Severe	8	1.2%	6	75.0%	2	25.0%

More than two-thirds, 74 (67.3%) of the 110 respondents with minimal depression, were contraceptive users; 254 (77.2%) of the 332 respondents who had mild depression were contraceptives. Generally, there were higher proportions of contraceptive users among respondents with minimal, mild-moderate and severe levels of depression. Among 8 respondents with severe depression, 6 (75.0%) were contraceptive users.

4.10.2 Crude and adjusted odds ratios for the associations between respondents' depression status and current contraceptive use

To further address objective 5, the relationship between respondents' depression levels and current contraceptive use status was examined, and the results are summarized in Table 14.

Table 14 Crude and adjusted odds ratios for the associations between respondents' depression status and current contraceptive use

Depression Category	Crude OR	95% CI	p-value	**Adjusted OR	95% CI	p-value
Minimal	**Ref**	**Ref**	**Ref**	**Ref**	**Ref**	**Ref**
Mild	**1.65**	**1.03 – 2.65**	**0.039**	**3.12**	**1.43 – 6.80**	**0.004**
Moderate	**2.39**	**1.38 – 4.13**	**0.002**	**4.67**	**1.92 – 11.36**	**0.001**
Severe	1.46	0.28 – 7.59	0.653	Undefined	Undefined	.999

OR – Odds ratios

***Adjusted for Age, Marital Status, Education, Tribe, Occupation, Awareness of contraception methods, duration of current contraception practice, Experience of side effects, Other medical conditions, family or societal issues causing worrying/depression*

Respondents with mild depression levels were 3.12 times significantly more likely to be contraceptive users than those with minimal depression (AOR = 3.12, 95% CI = 1.43 – 6.80, p = 0.04). Respondents with moderate depression levels were 4.67 times more likely to be contraceptive users than those with minimal depression (AOR = 4.67, 95% CI = 1.92 – 11.36, p = 0.001).

4.11 Associations between contraceptive use and health-related quality of life

4.11.1 Crude and adjusted odds ratios for the associations between respondents' health-related quality of life and current contraceptive use

To further address objective 6, respondents' scores on the four domains of the WHOQoL BREF and overall scores were examined to assess the relationship with current contraceptive use status, and the results are summarised in Table 15.

Table 15: Crude and adjusted odds ratios for the associations between respondents' health-related quality of life and current contraceptive use

QoL Domain	Crude OR	95% CI	p-value	**Adjusted OR	95% CI	p-value
Physical Health	**1.04**	**1.02 –1.05**	**< 0.001**	**1.04**	**1.02 – 1.07**	**< 0.001**
Psychological Health	1.01	0.99 –1.02	0.188	**1.04**	**1.01 – 1.06**	**0.003**
Social Relations	1.01	0.99 –1.02	0.147	0.99	0.98 – 1.01	0.697
Environment	**1.02**	**1.01 –1.03**	**0.005**	1.02	0.99 – 1.04	0.066
Overall QoL	**1.03**	**1.01 –1.05**	**0.001**	**1.03**	**1.01 – 1.06**	**0.020**

OR – Odds ratio

***Adjusted for Age, Marital Status, Education, Tribe, Occupation, Awareness of contraception methods, duration of current contraception practice, Experience of side effects, Other medical conditions, family or societal issues causing worrying/depression*

Each additional increase in physical health (AOR = 1.04, 95% CI =1.02 – 1.07, p < 0.001), psychological health (AOR = 104, 95% CI =1.01 – 1.06, p = 0.003) and overall QoL (AOR = 1.03, 95% CI = 1.01 – 1.06, p = 0.020) scores is associated with an increase in the odds of a respondent being a contraceptive user. Specifically, each additional increase of one unit of physical health, psychological health and overall QoL scores is associated with a 4%, 4% and 3% increase in the odds of a respondent being a contraceptive user.

CHAPTER FIVE

5 DISCUSSION

This chapter provides a crucial description of the general goals that were established to conduct the research study. The primary objective of the research was to investigate the relationship between contraceptive usage, physical activity, depression, and quality of life among non-athletic women of reproductive age in Akure South Local Government, Ondo State, Nigeria. The prevalence of contraceptive usage among women of reproductive age in Akure South Local Government Area, Ondo State, Nigeria, was another target. The research also aimed to achieve the following goals:

i. To determine the levels of physical activity and depressive status of women of childbearing age in Akure South Local Government Area of Ondo State, Nigeria.
ii. To compare the physical activity, depression, and quality of life scores of women of childbearing age who used contraceptives and those of their age–matched counterparts who do not use contraceptives in Akure South Local Government of Ondo State, Nigeria.
iii. To investigate the association between contraceptive use and physical activity among women of childbearing age in Akure South Local Government of Ondo State, Nigeria.
iv. To examine the association between contraceptive use and depression among women of childbearing age in Akure South Local Government of Ondo State, Nigeria.
v. To examine the association between contraceptive use and health-related quality of life of women.

The chapter will concentrate on analyzing the key results, especially those related to contraceptive use, depression, physical activity, and quality of life.

5.1 Participants' socio-demographic characteristics

The respondents' age ranged from 18 to 49 years which is within the range of the WHO definition of women of reproductive age (15 to 49 years) (WHO 2017). The majority (47.2%) of the respondents were between the ages of 20 to 29 years, with a mean age of 29.73±6.10 which was similar to a previous study which looked at contraception prevalence and determinants among women of reproductive age group and found that the highest proportion of the respondents was aged 20-29 years (Adeyemi et al., 2016). The findings were also similar to another study done in Ibadan, Oyo State, Southwest Nigeria, where the respondents' mean age was 28.9± 5.8 years.

More than three-fifths (62.2%) of the respondents were married, which is expected in a group of reproductive-age females. This implies that married women were more inclined to seek family planning methods. The motivation to do so might be based on the ever–increasing challenges of raising children and the need to reduce the family size (Okunade et al., 2017). Furthermore, this may also be

attributed to the culture of the people of southwest Nigeria which encourages early marriage (Mobolaji, Fatusi, & Adedini, 2020; Ewepu, 2021). Ewepu noted that the proportion of Nigerian women aged 20-49 years who were first married or in union before the age of 18 years for women was 44.1%, while the age at first marriage has been associated with religion and education. In Nigeria, religious beliefs often encourage marriage at a young age and is associated with lower levels of education (Amzat, 2020; Sinai et al., 2020). Furthermore, women with limited access to education are more likely to be married before the age of 18 than those who have had the opportunity to attend school. Another issue is that lower educational attainment is often associated with lower levels of economic and social status, which can further influence the decision to marry young (Smock and Schwartz, 2020; Sassler et al., 2020; Hogendoorn et al., 2020; Ewepu, 2021; Adebowale et al., 2012). This result was also similar to research carried out in Ibadan, Oyo State, Southwest Nigeria (Salam et al.,2020).

The findings also found that 67.6% of respondents had a post-secondary degree, perhaps due to the metropolitan environment of the survey (Akure, Ondo State, Nigeria). This research's findings about the correlation between education and contraceptive use concur with those of a prior study, which found that education was the most important predictor of a woman's contraceptive use (NDHS 2013). Another research indicated that women with elementary education, secondary school, and higher education were more likely to use contraceptives than women with no formal education (Nyarko 2015: Hag et al., 2017). This is due to the fact that a greater level of education might provide easier access to contraceptive information and services (Hag et al., 2017).

The study participants being dominated by respondents from the Yoruba tribe (93.8%) is attributable to the fact that the study area is located in the southwest region of Nigeria, which the Yoruba ethnic group dominates. The result is similar to a previous study in the region that had more than half of the respondents from Yoruba ethnic groups (Okunade et al., 2017).

5.1.1 Participants' contraception-related variables

As observed in this study, a high level of contraception methods awareness indicated that the majority of the respondents had heard about contraceptives probably because of recent government and NGOs engagements in awareness programs through social media and television broadcasts (Ajaero et al., 2016). However, a study by Adefalu et al. finds out that a high portion of respondents cited friends as their primary source of information on contraceptives. Thus, the peer-to-peer transmission route is essential in contraceptive awareness (Adefalu 2018). Also, this finding agrees with Adefalu et al., who found a high proportion (82.4%) of women of reproductive age aged 15 to 49 years in North-West Nigeria being aware of at least one method of contraceptive use among women (Adefalu et al., 2016). Furthermore, the result revealed that 12.8% of the respondents were experiencing side effects; this is

because most of the respondents use condoms as their method of contraception. The result is in-line with Zimmerman et al., who found that about 23% of hormonal and IUD contraceptive users in Uganda had experienced side effects, leading them to switch or discontinue using the method altogether (Zimmerman et al., 2020: Keogh et al.,2021)

Financial difficulty, a lack of social support, domestic abuse, and other stressful life events could trigger depression and anxiety (Michl et al., 2013: Biaggi et al., 2016). Stressful life events can also cause a range of emotions, including sadness, fear, and anger (Spielberger & Reheiser, 2009). A little more than 21% of the respondents in this study reported having a medical, family, or societal issue that was causing them anxiety or depression. This is similar to a Saudi Arabian study which found that about one-third of women using contraceptives had symptoms of mood disturbance. (Alfaifi et al., 2021). This variable was used as a covariate in the analysis of the associations between contraceptive use and physical activity and health-related quality of life to eliminate the effects of confounding factors that this variable may have introduced into the current study's findings.

5.2 **Lifetime and point prevalence of contraceptive uptake among the respondents**

The high lifetime prevalence of 93.6% observed in this study is the fact that the majority of the respondents were aware of contraception options, which may have had an impact on usage. The prevalence obtained in this study is at variance with the United Nations (UN) report on contraceptive use, which indicated a lower global Contraceptive Prevalence Rate (CPR) of 63%. A 21% CPR was found for the Sub-Saharan Africa region, which was considered low compared to the global CPR average (UN, 2017). Also, the high lifetime prevalence in the current study may be because respondents were drawn from a single local government area in southwest Nigeria as compared to the United Nations report, which is based on responses from across Sub-Sahara Africa. The point prevalence of 77.3% observed in this study could also be considered high compared to global CPR. The current study's finding regarding point prevalence is at variance with the report of Osonwa and colleagues. Who found a much lower point prevalence of 21.6% of contraceptives among women of reproductive age in Calabar Metropolis in the south-south of Nigeria (Osonwa et al., 2013). Both studies were conducted in different cultural areas, which might have reflected in contraceptive beliefs and acceptance.

The study's finding is consistent with the literature that condoms are Nigeria's most used contraceptive method (Sule et al., 2015; Oluwole et al., 2016; Usman et al., 2016). When examining the respondents' occupations, students constituted the third highest proportion of the study's respondents. It is conceivable that the cohort's student subgroup used condoms because they are the most affordable option and because they are not ready for marriage. This finding is also consistent with the work of

Ojoniyi et al., who reported that 75.7% of Nigerians used male condoms in their analysis of 2018 Nigerian Demographic and Health Survey (Ojoniyi et al. 2022). This proportion of male condom use among women of childbearing age in Akure South Local Government of Ondo State, Nigeria, is higher than 29.3% observed by Atinge et al. in a study pertaining to women of reproductive age in Calabar Metropolis. This variation could be a result of the different lifestyles of the respondents based on differences in culture and geographical location (Osonwa et al., 2013; Atinge et al., 2020). Substantiating this, the report of USAID indicates that contraceptive provision in Sub-Saharan Africa has focused mainly on short-term methods such as condoms and contraceptive pills (USAID, 2021). Adedini and colleagues' report further supported this, indicating that 90% of contraceptive users in developing countries preferred modern short-acting and reversible methods (Adedini et al., 2021).

5.3 Levels of physical activity and depression status among the respondents

Overall, statistically comparable physical activity levels were observed between contraceptive users and non-users. The reason might be that the majority of the contraceptive users had tertiary education. Consequently, they value improving their PA levels and engaging in daily exercise and workouts to ensure they meet the minimum PA-cited requirements for healthy living. There is a paucity of Nigerian or African literature with which to compare this result. However, the systematic review and meta-analyses of 42 studies and 590 participants by Elliott-Sale and colleagues concluded that women who use oral contraceptive pills might have lower average exercise performance when compared to naturally menstruating women, with likely trivial group-level effect (Elliott-Sale et al., 2020). The difference may be attributed to this study's participants being users of various contraception methods. The finding is consistent with Fisher and colleagues, who found no significant association between contraceptive use and levels of PA in 125 Australian women. (Fisher et al., 2018).

A significantly higher proportion of contraceptive users were found with minimal and moderate levels of depression. This finding is at variance with McKetta and Keyes, who reported that Oral Contraceptive Pills (OCP) use is not associated with an increased risk of depressive disorders (McKetta and Keyes 2019). The participants in the current study were adult women (aged 18-49) who are more likely to experience depression than the adolescents (aged 13-18) who participated in the study by McKetta and Keyes, which may explain the difference in findings. Apart from the difference in participants' age categories, the current study also surveyed users of different contraceptive methods.

5.4 Comparison of physical activity, depression, and quality of life scores between contraceptive users and non-users

Contraceptive users and non-users had statistically comparable PA scores in terms of walking, bicycling, and vigorous activities after controlling for confounding sociodemographic and

contraception-related variables (such as awareness of contraception methods, type of contraception method, lifetime practice and use of contraception, the experience of any side effects, and presence of other medical conditions, family or societal issues getting causing worrying or depression) in analysis. As a self-reported PA instrument was used for this study, this result may be due to recall bias in the report of the respondents. However, the finding agrees with Ekenros et al., who found no significant difference in muscle strength and Hop performance between OCP and non-OCP use (Ekenros et al.,2013)

A significantly higher BDI score was found among the contraceptive users. This result is at variance with the work of de Wit et al., who observed no significant difference in depressive symptom scores between the contraceptive users and non-users of all age groups combined in the Netherlands, but a significant difference between 16-year-old users. The variation may be attributed to differences in population characteristics, sample size and study area between both studies (Wit et al., 2020).

Comparing contraceptive users and non-users in terms of Quality of Life (QoL) scores, participants using contraceptives performed better in terms of physical health, psychological health, environment domains, and overall QoL. Even though contraceptive use seems to cause some level of depression, the benefits regarding women's health-related QoL are advantageous. This could be due to non-users having more children than they can support, which is stressing them out and negatively impacting their quality of life. This study is consistent with that of Leon-Larios and her colleagues, who found university students using hormonal contraceptives with higher mean scores in all health-related quality of life domains except the psychological domain than non-users (Leon-Larios et al., 2019).

5.5 Comparison of physical activity, depression and quality of life scores between hormonal contraceptive and non–hormonal contraceptive

Non-hormonal contraceptive users are expected to be more physically active than hormonal contraceptive users since the former does not interfere with the body's natural hormone levels, so users may have more energy and feel less fatigued (Casazza et al., 2002). In addition, non-hormonal contraception does not require regular monitoring, allowing users more freedom to engage in physical activities without the need to remember to take a pill or make a doctor's appointment (National library of medicine 2017). Furthermore, some hormonal contraceptives can cause an imbalance in hormones, leading to fatigue and decreased motivation to exercise (Sharkey 2020). Contrary to the previous general knowledge in the literature (Lebrun et al., 2000; Casazza et al., 2002; Elliot-Sale et al., 2020), the non-hormonal contraceptive users in this study appear to have better walking/bicycling PA scores compared with hormonal contraceptive users. This may be plausible as hormonal contraceptives can reduce menstrual cramping, pain, and other menstrual symptoms, making exercise more comfortable

(Armour et al., 2019). Hormonal contraceptives may also reduce the risk of unplanned pregnancy, which can lead to more freedom to engage in physical activities without fear of pregnancy (Jain et al., 2012). Reducing the risks of some health conditions, such as ovarian cysts, are associated with hormonal contraceptives (Yen Sophia 2021), which may also make engaging in physical activity more accessible. Studies among non-athletic populations for direct comparison of the current study's observation appear scarce. However, the report of a recent cross-sectional study by Heyward et al. 2022 showed that non-hormonal contraceptives using women rugby players reported more significant perceived negative symptomology (back pain, nausea, sore breasts) and performance and wellness effects (fatigue, stress, mood, concentration, power, match-play) than oral contraceptive users Heyward et al. (2022).

The statistical comparability observed between hormonal and non-hormonal contraceptive users in terms of their BDI scores is consistent with the result of a systematic review and meta-analysis, which found no effect of hormonal contraceptives on depressive symptoms in adult women (deWit et al., 2020). The finding of Zettermark and colleagues corroborated this indicating that an increased prevalence of depressive symptoms related to hormonal contraceptives was most pronounced in teenage girls than in adult women (Zettermark et al., 2018). However, this finding does not agree with the results of several observational studies showing that women who use hormonal contraceptives are at increased risk for depression or report more depressive symptoms (Anderl et al., 2020; Skovlund et al., 2016; Zettermark et al., 2018;). Differences in study population characteristics and instruments used for the assessment of depression could have accounted for the observed variation in findings.

The lack of a significant difference in all the domains of health-related QoL scores between hormonal and non-hormonal contraceptive users is also consistent with the literature. In the observational study conducted by Lewandowski et al., hormonal contraceptive use was not linked to health–related QoL (Lewandowski et al., 2020). This result is nonetheless contrary to the findings of Leon-Larios and colleagues, who found hormonal contraceptive user young women with better overall QoL compared to their non-hormonal contraceptive user counterparts. (Leon-Larios et al., 2019). The difference in the QoL outcome measures used in both studies may explain the difference in findings. The present study used a generic measure -WHOQoL BREF while Leon-Larios et al. used a cross-culturally adapted measure- the Spanish Society of Contraception- Quality of Life)

5.5.1 Associations of contraceptive use status with socio-demographic characteristics.

Sociodemographic variables such as age, marital status, education, and occupation were not significantly associated with respondents' contraceptive use status. However, the result also revealed that respondents from Yoruba tribal origin had higher odds of (OR: 2.76, 95% CI: 1.01 – 7.54) using

contraceptives compared to those from other minority tribes. Apart from the study location being a predominantly Yoruba-speaking area, the tribe is notable for its high literacy level in Nigeria. Well-educated people are more likely to practice contraception than their uneducated counterparts, which may explain the reason for this finding. Supporting this, Alo et al. reported that age is not a significant factor influencing contraceptive use among sexually active women in Nigeria (Alo et al. 2020).

5.5.2 Associations of contraceptive use status with contraception-related variables

Respondents who were aware of contraception methods had significantly higher odds of being contraceptive users are expected as a high proportion of the contraceptive users were aware of contraception methods. Alo and colleagues reported that women who were aware of more family planning methods had higher odds of using modern contraceptives than those who knew fewer methods in their analysis of the 2018 survey conducted in Nigeria (Performance, Monitoring and Accountability in Nigeria (Alo et al., 2020). It is logical that greater awareness of contraception methods will be associated with a higher prevalence of contraceptive use. This underscores the need for improved access to information and education about contraception methods in order to promote contraceptive use and reduce the number of unintended pregnancies. This finding is at variance with a study in Botswana which found no association between contraceptive awareness and contraceptive use among university students (Hogue et al., 2013). The authors attributed the result to students' conscious participation in unprotected sexual activities.

5.5.3 Associations of respondents' current contraceptive use with physical activity and sedentary behaviour

The analysis of the associations of respondents' current contraceptive use status with physical activity and sedentary behaviour revealed both PA and SB were not significantly associated with contraceptive use. Despite the popularity of contraceptive use in athletic populations, the effects of contraceptive use on levels of physical activity among the non-athletic women population are poorly understood. African studies for direct comparison of this finding are not readily available. However, Elliott-Sale and her colleagues' work suggests that contraceptive use might result in a slight reduction in average physical exercise performance compared to naturally menstruating women (Elliott-Sale et al., 2020).

5.5.4 Associations between respondents' contraceptive use status and depression

Respondents with mild and moderate depression were about 3 and 5 times significantly more likely to be contraceptive users, respectively, compared to those with minimal depression. In other words, contraceptive use is associated with depression. The finding agrees with the study of Skovlund et al., conducted in Denmark, who investigated the association of hormonal contraception with depression in 1,061,997 women between the age of 15 to 34. The authors found a significant association between hormonal contraception and subsequent use of antidepressants and the first diagnosis of depression, suggesting depression is a potential adverse effect of hormonal contraceptive use among adolescent women (Skovlund et al., 2018).

5.5.5 Associations between respondents' contraceptive use status and health-related quality of life.

Each additional increase in physical health, psychological and overall QoL resulted in increased odds of a respondent being a contraceptive user. Specifically, each additional increase of one unit of physical health, psychological health, and overall QoL scores is associated with a 4%, 4%, and 3% increase in the odds of a respondent being a contraceptive user. This might be a result of the lack of worry about unintended pregnancies and the progressive improvement in maternal health in general. The couple was able to plan a family and progressively preserve their financial and social stability, attributable to their consistent and proper use of family planning techniques. This finding is consistent with another Nigerian study which found that contraceptive users had higher mean scores for vitality and social functioning domains of QoL than non-users (Salam et al., 2020). The result is at variance with the report by Gharaibeh et al., which indicated that there was no significant difference in the health status between users and non-users of contraceptives (Gharaibeh et al., 2022). Aside from the difference in the study area, the instrument used to measure QoL differed; the current study used WHOQoL, whereas Gharaibeh and colleagues used the Contraception QoL Questionnaire, which might explain the observed difference.

5.6 Strengths and Limitations of the study

This research has certain limitations; data was collected using a pre-coded structured and self-reported questionnaire; as a result, it is hard to rule out the potential of a personal interest preference, in which respondents may not have provided their correct views and behaviors. Because the research was conducted as a cross-sectional survey, causal associations should be evaluated with care. Similarly, since this research was done in southwest Nigeria, the results' generalizability to the whole nation may be restricted. The differences between Nigeria's northern, eastern, and southern areas in terms of language, culture, and religion have been documented to impact health behavior. While these limitations are acknowledged, the researcher is optimistic that the results give insight and may be used

to influence activities aimed at raising awareness and changing women of reproductive age's attitudes regarding contraceptive use. Depression is one of the most difficult health problems globally, impacting women disproportionately (Chisholm et al., 2017)

The research found that contraceptive users are more likely to be sad, indicating that reproductive health providers must screen contraceptive users for indicators of depression. The results of this study may assist Nigerian Public Health stakeholders in implementing efforts to increase contraceptive usage among women of reproductive age, as well as educating and encouraging the general public.

CHAPTER SIX

6 Conclusions and Recommendations

The study did not find any statistical association between physical activity. Future studies may consider examining the association between contraceptive use and objectively measured physical activity.

The study's findings also indicated that depressive symptoms are positively associated with contraceptive use. This suggests that using contraceptives may cause depression through a variety of routes. The study's findings might also influence policy, advising stakeholders and authorities in Nigeria's public health sector to act to lessen any adverse impacts of contraceptive use among Nigerian women of reproductive age that might be noticed.

Furthermore, the study found that women who use contraception had a better quality of life than women who do not; this suggests that Nigerian Public Health should take steps to enhance awareness of and access to contemporary contraception options for Nigerian women of reproductive age. This will enable accurate findings and better outcomes, which will aid in the health professionals' ability to observe them variable individually.

Considering the importance of family planning in maternal and child health as well as its relevance in national economic planning, as well as the other finding of this study showing that contraceptive users had better overall health-related quality of life compared to non-users, even though depression is a known serious mental health issue, the benefits of contraceptive use are overwhelming.

6.1 Implications for Public Health

This study has shown that women of childbearing using contraceptives have a degree of depression; however, the overall Quality of life of contraceptive users is relatively better than that of non-contraceptive users. These results suggest that when assisting patients with decision-making and management of contraception, healthcare professionals should take into account women's mental and emotional condition. Women with stress or depression may be perfect candidates for long-acting reversible methods. It is vital to educate women on contraceptive efficacy in education and counselling sessions. A more profound knowledge of how young women's changing mental health symptoms affect family planning choices, and outcomes will come from a future study.

Despite several studies on contraception use among women in Nigeria and Africa at large (Blackstone & Iwelunmor, 2017; Ajayi et al., 2018), additional research has brought to notice that contraceptive use alters the emotional and mental well-being of women of childbearing age. However, a limited study in Nigeria compares the association between contraceptive use with depression, Physical Activity and Quality of life. This current study has been able to unfold the association of quality of life

with contraceptive use in women of childbearing age; therefore, the study is propelling to be of great benefit to women of childbearing in encouraging them in the use of contraceptives which is assumed will enhance their general health status.

REFERENCES

Adebowale, S. A., Fagbamigbe, F. A., Okareh, T. O., & Lawal, G. O. (2012). Survival analysis of timing of first marriage among women of reproductive age in Nigeria: regional differences. *African journal of reproductive health*, 16(4), 95–107.

Adedini S.A., Mobolaji J.W., Alabi M., Fatusi A.O. (2021) Changes in contraceptive and sexual behaviours among unmarried young people in Nigeria: Evidence from nationally representative surveys. *PLoS ONE* 16(2): e0246309. https://doi.org/10.1371/journal.pone.0246309

Adefalu A.A., Ladipo OA.., Akinyemi O.O., Popoola O.A., Latunji O.O., Iyanda O.F. (2018). Awareness and opinions regarding contraception by women of reproductive age in North-West Nigeria. *Pan African Med Journal*., 28;30:65. doi: 10.11604/pamj.2018.30.65.12975. PMID: 30344849; PMCID: PMC6192713.

Adewale, S A. A., Olugbenga-Bello O.A., Adeoye, M.O., Salawu, A.A., Aderinoye, M.A.A. (2018) Contraceptive prevalence and determinants among women of reproductive age group in Ogbomoso, Oyo State, Nigeria https://www.dovepress.com/

Ajaero, C.K., Odimegwu, C., Ajaero, I.D. *et al*.Access to mass media messages, and use of family planning in Nigeria: a spatio-demographic analysis from the 2013 DHS. *BMC Public Health* **16**, 427. https://doi.org/10.1186/s12889-016-2979-z

Ajayi AI, Adeniyi OV, Akpan W. (2018). Use of traditional and modern contraceptives among childbearing women: findings from a mixed methods study in two southwestern Nigerian states. *BMC Public Health*. 9;18(1):604. doi: 10.1186/s12889-018-5522-6. PMID: 29739372; PMCID: PMC5941455.

Ajayi, A.I., Nwokocha, E.E., Akpan, W. *et al.* (2016). Use of non-emergency contraceptive pills and concoctions as emergency contraception among Nigerian University students: results of a qualitative study. *BMC Public Health* **16,** 1046.

Akinpelu AO, Maruf FA, BOA A. (2006) Validation a Yoruba translation of the World Health Organisation's quality of life scale-short form among stroke survivors in south western Nigeria. African Journal of Medicine and Medical Sciences, 2006;35:417–21.

Alfaifi M., Najmi A.H., Swadi K.H., Almushtawi A.A., Jaddoh S.A. (2021). Prevalence of contraceptive use and its association with depression among women in the Jazan province of Saudi Arabia. *J Family Med Prim Care*. 10(7):2503-2511. doi: 10.4103/jfmpc.jfmpc_1308_20.

Aliyu AA. (2018). Family Planning Services in Africa: The Successes and Challenges; (Available from:http://www.intechopen.com/books/family-planning/family-planning-services-in-africa-the successes-and-challenges) DOI: 10.5772/intechopen.7222

Alo, O.D., Daini, B.O., Omisile, O.K. *et al.* (2020). Factors influencing the use of modern contraceptive in Nigeria: a multilevel logistic analysis using linked data from performance monitoring and accountability 2020. *BMC Women's Health*, **20:** 191. https://doi.org/10.1186/s12905-020-010596

Alyahya, M.S., Hijazi, H.H., Alshraideh, H.A. et al (2019). Do modern family planning methods impact women's quality of life? Jordanian women's perspective. Health Qual Life Outcomes 17, 154 https://doi.org/10.1186/s12955-019-1226-6

Amo-Adjei J, Mutua M, Mukiira C, Mutombo N, Athero S, Ezeh A, Izugbara C. (2019). Fertility intentions and the adoption of long-acting and permanent contraception (LAPM) among women: evidence from Western Kenya. BMC Womens Health. 1;19(1):26. doi: 10.1186/s12905-019-0716-3. PMID: 30709344; PMCID: PMC6359762

Amzat, J. (2020). Faith effect and voice on early marriage in a Nigerian state. *SAGE Open*, *10*(2), 2158244020919513.

Anjana, R.M.; Sudha, V.; Lakshmipriya, N.; Subhashini, S. (2015). Reliability and validity of a new physical activity questionnaire for India. Int. J. Behav. Nutr. Phys. Act. 12, 40–51.

Anouk E. de wit, Ymkje A., Marrit K., Celeste S., Ante A. Fokkema, Robert A. Schoevers & Erik J. Giltay (2021). Hormonal contraceptive use and depressive symptoms: systematic review and network meta-analysis of randomised trials. BJPsych Open (2021) 7, e110, 1–11. doi: 10.1192/bjo.2021.64

Armour, M., Ee, C.C., Naidoo, D., Ayati, Z., Chalmers, K.J., Steel, K.A., et al. (2019). Exercise for dysmenorrhoea. *Cochrane Database Syst Rev*. 25];(9). Available from: https://www.cochranelibrary.com/cdsr/doi/10.1002/14651858.CD004142.pub4/full

Armstrong, T.; Bull, F. (2006). Development of the World Health Organization Global Physical Activity Questionnaire (GPAQ). J. Public Health, 14, 66–70

Asadisarvestani, K. et al. (2017) 'Determinants of Contraceptive Usage among Married Women in Shiraz, Iran', Journal of Midwifery and Reproductive Health, 5(4), pp. 1041–1052. doi: 10.22038/jmrh.2017.8771.

Atinge S, Balogun M, Umahi E and Ejim C, (2020). Prevalence and determinants of current contraceptive use among married women in Jada Local Government Area, Adamawa State, Nigeria. *Annals of Health Research*. 6 (3) 265-275

Atowoju, A.A. (2014). Effects of a Twelve-Week Arm Ergometry Training on Selected Health Indices of Lower Limb Paralytic Poliomyelitis Survivors, An unpublished Ph.D. thesis. Department of Physiotherapy, College of Medicine, University of Ibadan, Nigeria.

Bakhshani, Nour Mohammad & Hosseinbor, Mohsen & Shahraki, Zahra & Sakhavar, Nahid. (2014). Premenstrual Syndrome Symptomatology among Married Women of Fertile Age based on Methods of Contraception (Hormonal versus Non-Hormonal Methods of Contraception). Global journal of health science. 6. 105-11. 10.5539/gjhs.v6n2p105.

Bansode OM, Sarao MS, Cooper DB. Contraception. [Updated 2022 Jul 25]. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2022 Jan-. Available from: https://www.ncbi.nlm.nih.gov/books/NBK536949/

Barr, A.L., Partap, U., Young, E.H. *et al.* (2020). Sociodemographic inequities associated with participation in leisure-time physical activity in sub-Saharan Africa: an individual participant data meta-analysis. *BMC Public Health* **20,** 927.

Beck, A.T., Steer, R.A., Ball, R., Ranieri, W (1996b). Comparison of Beck Depression Inventories -1A and 11 in psychiatric outpatients. Journal of Personality Assessment, 67 (3), 588–597

Berihun D. Tegegne, Mesfin A. Belete, Jembere T. Deressa (2022). Women's intention to use long acting and permanent contraceptive methods and associated factors among family planning users in Addis Ababa, Ethiopia: A Cross sectional study. African Journal of Reproductive Health. 26 (4):31 DOI: 10.29063/ajrh2022/v26i4.3

Biaggi, A., Conroy, S., Pawlby, S., & Pariante, C. M. (2016). Identifying the women at risk of antenatal anxiety and depression: A systematic review. *Journal of affective disorders*, 191, 62–77. https://doi.org/10.1016/j.jad.2015.11.014

Blackstone, S.R., Iwelunmor, J. (2017). Determinants of contraceptive use among Nigerian couples: evidence from the 2013 Demographic and Health Survey. *Contracept Reprod Med* **2**, 9. https://doi.org/10.1186/s40834-017-0037-6

Bola Lukman Solanke (2017). “Factors influencing contraceptive use and non-use among women of advanced reproductive age in Nigeria. Journal of Health, Population and Nutrition 36:1 DOI 10.1186/s41043-016-0077-6

Bongaarts, J., Mauldin, W. P. and Phillips, J. F. (1990) ‘The demographic impact of family planning programs’, Studies in Family Planning, 21(6), pp. 299–310. doi: 10.2307/1966918.

Bull F, Al-Ansari S, Biddle SJH, Borodulin K, Buman MP, Dempsey PC, et al (2020). World Health Organization 2020 Guidelines on Physical Activity and Sedentary Behaviour. Brit J Sports Med. 2020. (in press).

Bull, F.C.; Maslin, T.S.; Armstrong, T.P. (2009) “Global Physical Activity Questionnaire (GPAQ): Nine country reliability and validity study. J. Phys. Act. Health, 6, 790–804. [CrossRef] [PubMed]

Butler C, Zeman AZJ (2005) Neurological syndromes which can be mistaken for psychiatric conditionsJournal of Neurology, Neurosurgery & Psychiatry 2005;76:i31-i38.

Casey, S. E., Gallagher, M. C., Kakesa, J., Kalyanpur, A., Muselemu, J. B., Rafanoharana, R. V., & Spilotros, N. (2020). Contraceptive use among adolescent and young women in North and South Kivu, Democratic Republic of the Congo: a cross-sectional population-based survey. PLoS medicine, 17(3), e1003086.

Chen C, Tsai LT, Lin CF, Huang CC, Chang YT, Chen RY, Lyu SY. (2017). Factors influencing interest in recreational sports participation and its rural-urban disparity. PLoS One. 25;12(5):e0178052. doi: 10.1371/journal.pone.0178052. PMID: 28542455; PMCID: PMC5444777

Chi PC, Bulage P, Urdal H, Sundby J. A (2015) qualitative study exploring the determinants of maternal health service uptake in post-conflict Burundi and Northern Uganda. BMC Pregnancy Childbirth. 2015;15:1–14.

Chisholm, C. A., Bullock, L., & Ferguson II, J. E. J. (2017). Intimate partner violence and pregnancy: epidemiology and impact. American journal of obstetrics and gynecology, 217(2), 141-144.

Christine Anderl , Gu, Li, Frances, S.Chen (2020). Oral contraceptive use in adolescence predicts lasting vulnerability to depression in adulthood Child Psychol Psychiatry. 61(2):148-156. doi: 10.1111/jcpp.13115.

Chu, A.H.Y.; Ng, S.H.X.; Koh, D.; Müller-Riemenschneider, F. (2015) “Reliability and validity of the self- and interviewer-administered versions of the Global Physical Activity Questionnaire (GPAQ). PLoS ONE, 10, e0136944.

Clark, S., & Brauner-Otto, S. (2015). Divorce in sub-Saharan Africa: Are unions becoming less stable?. Population and Development Review, 41(4), 583-605.

Claudia Barth, Arno Villringer, Julia Sacher.(2015) Hormones affect neurotransmitters and shape the adult female brain during hormonal transition periods. Front Neurosci. 9: 37. Published online 2015 Feb 20. doi: 10.3389/fnins.2015.00037

Cleland, C.L., Hunter, R.F., Kee, F. et al., (2014). Validity of the Global Physical Activity Questionnaire (GPAQ) in assessing levels and change in moderate-vigorous physical activity and sedentary behaviour. BMC Public Health 14, 1255. https://doi.org/10.1186/1471-2458-14-1255

Cleveland Clinic, Ohio 44195/800.223.2273/ Last reviewed by a Cleveland Clinic medical professional on 08/18/2022. https://my.clevelandclinic.org/health/articles/11427-birth-control-options. Accessed FEB 7 2023

Craig CL, Marshall AL, Sjöström M, et al., (2013) International physical activity questionnaire: 12-country reliability and validity. Med Sci Sports Exerc. 2003;35(8):1381-1395.

Gretchen A. Casazza, Sang-Hoon Sun, Benjamin F. Miller, Franco M. Navazio, and George A. Brooks. (2002) Effects of oral contraceptives on peak exercise capacity. J Appl Physiol 93: 1698–1702, 10.1152/japplphysiol.00622.2002

Crewther BT, Hamilton D, Kilduff LP, Drawer S, Cook CJ. (2018) "The effect of oral contraceptive use on salivary testosterone concentrations and athlete performance during international field hockey matches." J Sci Med Sport. ;21(5):453–6.

Cummins, R. A. (1997). Assessing quality of life. In R. I. Brown (Ed.), Quality of life for people with disabilities (second ed.). United Kingdom: Stanley Thornes (Publishers) Ltd.

Del Pozo-Cruz J, Garcia-Hermoso A, Alfonso-Rosa RM, Alvarez-Barbosa F, Owen N, Chastin S, et al., (2018) Replacing sedentary time: meta-analysis of objective-assessment studies. Am J Prev Med. 2018;55(3):395–402.

De Moor MH, Beem AL, Stubbe JH, Boomsma DI, De Geus EJ. (2006). Regular exercise, anxiety, depression and personality: a population-based study. PrevMed.42(4):273-9. doi: 10.1016/j.ypmed. 2005.12.002. Epub 2006 Jan 24. PMID: 16439008.

Dempsey, P.C., Biddle, S.J.H., Buman, M.P. et al., (2020) New global guidelines on sedentary behaviour and health for adults: broadening the behavioural targets. Int J Behav Nutr Phys Act 17, 151. https://doi.org/10.1186/s12966-020-01044-0

de Zwart PL, Jeronimus BF, de Jonge P, et al. (2019). "Empirical evidence for definitions of episode, remission, recovery, relapse and recurrence in depression: a systematic review". Epidemiology and Psychiatric Sciences. 28 (5): 544–562. doi:10.1017/S2045796018000227. PMID 29769159

de Wit A.E., Booij, S.H., Giltay EJ, Joffe H, Schoevers RA, Oldehinkel AJ. (2020). Association of Use of Oral Contraceptives With Depressive Symptoms Among Adolescents and Young Women. *JAMA Psychiatry,* 77(1):52–59. doi:10.1001/jamapsychiatry.2019.2838

Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5). American Psychiatric Association. 2013.

Dilip Ahuja, Marika Tatsutani, "Sustainable energy for developing countries", S.A.P.I.EN., (2009), Online since 27 November 2009, connection on 27 April 2021.

Douglas M. Maurer, Tyler J. Raymond, and Bethany N. Davis, (2018) Depression: Screening and Diagnosis. Madigan Army Medical Center, Tacoma, Washington. Am Fam Physician. 98(8):508-515.

Dunstan, D.; Barr, E.; Healy, G.; Salmon, J.; Shaw, J.; Balkau, B.; Magliano, D.; Cameron, A.; Zimmet, P.; Owen, N. (2010) . Television viewing time and mortality: The Australian diabetes, obesity and lifestyle study (AusDiab). 121, 384–391.

Edwardson, C.L.; Gorely, T.; Davies, M.J.; Gray, L.J.; Khunti, K.; Wilmot, E.G.; Yates, T.; Biddle, S.J.H. (2012) Association of Sedentary Behaviour with Metabolic Syndrome: A Meta-Analysis. PLoS ONE 7, e34916.

Egede, J. O., Onoh, R. C., Umeora, O. U., Iyoke, C. A., Dimejesi, I. B., & Lawani, L. O. (2015). Contraceptive prevalence and preference in a cohort of south-east Nigerian women. Patient preference and adherence, 9, 707–714. https://doi.org/10.2147/PPA.S72952

Ehsanpour, Soheila & Mohammadifard, Maedeh & Shahidi, Shahla & Nekuei, Nafisehsadat. (2010). A comparative study on attitude of contraceptive methods users towards common contraceptive methods. Iranian journal of nursing and midwifery research. 15. 363-70.

Eime, Rochelle & Charity, Melanie & Harvey, Jack & Payne, Warren. (2015). Participation in sport and physical activity: Associations with socio-economic status and geographical remoteness Health behavior, health promotion and society. BMC public health. 15. 434. 10.1186/s12889-015-1796-0.

Eisenhofer G., Peitzsch M., Kaden D., Langton K., Pamporaki C., Masjkur J., et al. (2017). Reference intervals for plasma concentrations of adrenal steroids measured by LC-MS/MS: impact of gender, age, oral contraceptives, body mass index and blood pressure status. Clin. Chim. Acta 470 115–124. 10.1016/j.cca.2017.05.002

Ekelund U, Brown WJ, Steene-Johannessen J, Fagerland MW, Owen N, Powell KE, et al., (2019) Do the associations of sedentary behaviour with cardiovascular disease mortality and cancer mortality differ by physical activity level? A systematic review and harmonised meta-analysis of data from 850 060 participants. Br J Sports Med;53(14):886–94

Ekenros L., Papoutsi Z., Friden C., Dahlman Wright K., Linden Hirschberg A. (2017). Expression of sex steroid hormone receptors in human skeletal muscle during the menstrual cycle. Acta Physiol. 219 486–493. 10.1111/apha.12757

Ekenros L, Hirschberg AL, Heijne A, Fridén C. (2013). Oral contraceptives do not affect muscle strength and hop performance in active women. *Clin J Sport Med*. 23(3):202-7. doi: 10.1097/JSM.0b013e3182625a51. PMID: 22948447.

Eko Jimmy E, Osonwa Kalu O, Osuchukwu Nelson C, Offiong Dominic A. (2013) Prevalence of Contraceptive use among women of reproductive age in Calabar Metropolis, Southern Nigeria. International Journal of Humanities and Social Science Invention ISSN (Online): 2319–7722, ISSN (Print): 2319–7714 www.ijhssi.org 2:6 PP.27–34.

Elliott-Sale K.J., McNulty K.L., Ansdell P., Goodall S., Hicks K.M., Thomas K., Swinton P.A., Dolan E. (2020). The Effects of Oral Contraceptives on Exercise Performance in Women: A Systematic Review and Meta-analysis. *Sports Med,* 50(10):1785-1812. doi: 10.1007/s40279-020-01317-5

Ewepu, G. (2021). 44% of girls in Nigeria married off before 18th birthday — Report. Available from: https://www.vanguardngr.com/2021/11/44-of-girls-in-nigeria-married-off-before-18th-birthday-report/ (Accessed December 1 2022)

Ewerling F, Lynch JW, Victora CG, van Eerdewijk A, Tyszler M, Barros AJ. (2017). The SWPER index for women's empowerment in Africa: development and validation of an index based on survey data. Lancet Glob Health. 5(9):e916–e23.

Ezebuiro Nnamdi (2019), The Use of Family Planning Devices. Students 'Attitude Nigeria, MunichGRINVerlag, https://www.grin.com/document/496781

Ezenwaka, U., Mbachu, C., Ezumah, N., Eze, I., Agu, C., Agu, I., & Onwujekwe, O. (2020). Exploring factors constraining utilization of contraceptive services among adolescents in Southeast Nigeria: an application of the socio-ecological model. BMC Public Health, 20, 1-11.

Farrokh-eslamlou, Hamidreza & Oshnouei, Sima & Heshmatian, Behnam & Akbari, Elham. (2014). "Premenstrual syndrome and quality of life in Iranian medical students." Sexual & Reproductive Healthcare. 6. 10.1016/j.srhc.2014.06.009.

Fedewa, M. V., Hathaway, E. D., Higgins, S., Das, B. M., Forehand, R. L., Schmidt, M. D., & Evans, E. M. (2018). Interactive associations of physical activity, adiposity, and oral contraceptive use on C-reactive protein levels in young women. Women and Health, 58(2), 129–144. https://doi.org/10.1080/03630242.2017.1292341

Fisher R.N., McLellan C.M., Sinclair W.H., & Minahan C. (2018). The Perceived Benefits and Barriers for Oral Contraceptive Use in Women Grouped for Physical-Activity Level - An Exploratory Study. J Womens Health, Issues Care, 7:1.

Fubam RM, Odukogbe AA, Dairo MD. (2019). Psychological and social effects of pregnancy in unmarried young women in Bui, Northwest, Cameroon. Am J Biomed Life Sci. 7(6):190–8. https://doi.org/10.11648/j.ajbls.20190706.21

Gahungu, J., Vahdaninia, M. & Regmi, P. (2021). The unmet needs for modern family planning methods among postpartum women in Sub-Saharan Africa: a systematic review of the literature. Reprod Health 18, 35. https://doi.org/10.1186/s12978-021-01089-9

García-Batista, Zoilo Emilio et al.., (2018) "Validity and reliability of the Beck Depression Inventory (BDI-II) in general and hospital population of Dominican Republic." PloS one vol. 13,6 e0199750. doi:10.1371/journal.pone.0199750

Gharaibeh. M.K., Alsharm S., Al Maaitah R., Heilat H.B., & Marayan L. (2022). Quality of Life and Health Status of Jordanian Women Users of Various Contraceptive Methods and Associated Factors: Implications for Contraceptive Policies. *Patient Prefer Adherence*. 15;16:403-412. doi: 10.2147/PPA.S344822.

Gichengi, M. N. (2019). Adolescent Attitudes Towards The Provision And Use Of Contraceptives In Kamukunji Constituency, Nairobi City County (Doctoral dissertation, University of Nairobi).

Gilda S., Lori S. A., & Rubina H. (2016) Unmet Need for Contraception in Developing Countries: Examining Women's Reasons for Not Using a Method. Guttmacher Institute. The Guttmacher Institute is registered as a 501(c)(3) nonprofit organization under the tax identification number 13-2890727.

Gin S Malhi, MD, J John Mann, MD (2018) "Depression" The lancet. VOLUME 392, ISSUE 10161, P2299-2312. DOI: https://doi.org/10.1016/S0140-6736(18)31948-2

Gingnell, M., Engman, J., Frick, A., Moby, L., Wikström, J., Fredrikson, M., & Sundström Poromaa,I. (2013) . Oral contraceptive use changes brain activity and mood in women with previous negative affect on the pill : A double-blinded, placebo-controlled randomized trial of a levonorgestrel-

containing combined oral contraceptive. Psychoneuroendocrinology, 38(7), 1133–1144. https://doi.org/10.1016/j.psyneuen.2012.11.006

Global recommendations on physical activity for health. (WHO, 2010) WHO Library Cataloguing-in-Publication Data

Gretchen A.C., Sang-Hoon S., Benjamin F.M., Franco M.N., & George A.B. (2002) . Effects of oral contraceptives on peak exercise capacity J Appl Physiol 93:1698–1702, 10.1152/japplphysiol.00622.2002

Hamer, M., & Stamatakis, E. (2014). Prospective study of sedentary behavior, risk of depression, and cognitive impairment. Medicine and science in sports and exercise, 46(4), 718–723. https://doi.org/10.1249/MSS.0000000000000156

Haq I., Sakib S., & Talukder A. (2017). Sociodemographic Factors on Contraceptive Use among Ever-Married Women of Reproductive Age: Evidence from Three Demographic and Health Surveys in Bangladesh. *Med Sci (Basel).* 6;5(4):31. doi: 10.3390/medsci5040031.

Heyward, O., Elliott-Sale, K. J., Roe, G., Emmonds, S., Hornby, K., Stokes, K. A., & Jones, B.. (2022). Oral contraceptive use in Premiership and Championship women's rugby union: perceived symptomology, management strategies, and performance and wellness effects. Science and Medicine in Football, 1–8. https://doi.org/10.1080/24733938.2022.2156588

Hidding, L.M.; Chinapaw, M.J.M.; van Poppel, M.N.M.; Mokkink, L.B.; Altenburg, T.M. (2018) "An updated systematic review of childhood physical activity questionnaires". Sports Med., 48, 2797–2842.

Higgins, J. A.,& Smith, N. K. (2016). The Sexual Acceptability of Contraception: Reviewing the Literature and Building a New Concept. Journal of sex research, 53(4-5), 417–456. https://doi.org/10.1080/00224499.2015.1134425

Hirayama F, Lee AH, Binns CW, Leong CC, Hiramatsu T. (2008) Physical activity of patients with chronic obstructive pulmonary disease: implications for pulmonary rehabilitation. J Cardiopulm Rehabil Prev. 28(5):330-334

Hoare, E.; Milton, K.; Foster, C.; Allender, S. (2016) The associations between sedentary behaviour and mental health among adolescents: A systematic review. Int. J. Behav. Nutr. Phys. Act. 13, 1–22.

Hoque, M.E., Ntsipe, T., & Mokgatle-Nthabu, M. (2013). Awareness and practices of contraceptive use among university students in Botswana. *SAHARA Journal*, 10(2):83-8. doi: 10.1080/17290376.2013.869649.

Hu, F.B.; Leitzmann, M.F.; Stampfer, M.J.; Colditz, G.A.; Willett, W.C.; Rimm, E.B. (2001) Physical Activity and Television Watching in Relation to Risk for Type 2 Diabetes Mellitus in Men. JAMA Intern. Med. 161, 1542–1548.

Hu, F.B.; Li, T.Y.; Colditz, G.A.; Willett, W.C.; Manson, J.E. (2003) Television watching and other sedentary behaviors in relation to risk of obesity and type 2 diabetes mellitus in women. JAMA 289, 1785–1791.

Iklaki, Christopher & Njoku, Charles & Se, Abeshi & Emechebe, Cajethan & Ekabua, John. (2015). Nigeria: Why the Preference for Cooper T IUD?. 3. 777-782.

Iñaki Lete and Oihane Lapuente "Contraceptive options for women with premenstrual dysphoric disorder: current insights and a narrative review". Open Access J Contracept. 2016; 7: 117–125. Published onl

INEC. (2019). Polling Units – INEC Nigeria. https://www.inecnigeria.org/elections/polling-units/

Jamal Saghir and Jena Santoro (2018) (Center for Strategy and International Studies) Urbanization in Sub-Saharan Africa.

John Ross And Karen Hardee (2013) "Access to contraceptive methods and prevalence of Use" J Biosoc Sci. ; 45(6): 761–778. doi: 10.1017/S0021932012000715

Joseph E. Donnelly, Charles H. Hillman, Darla Castelli, Jennifer L. Etnier, Sarah Lee, Phillip Tomporowski, Kate Lambourne, Amanda N. Szabo-Reed (2017) Physical Activity, Fitness, Cognitive Function, and Academic Achievement in Children: A Systematic Review Med Sci Sports Exerc. 48(6): 1197–1222.

Joyce S, Sabapathy S, Bulmer A, Minahan C. (2013), "Effect of long-term oral contraceptive use on determinants of endurance performance". J Strength Cond Res.;27(7):1891–6.

Karen L. Smarr Autumn L. Keefer (2011). "Measures of depression and depressive symptoms: Beck Depression Inventory-II (BDI-II), Center for Epidemiologic Studies Depression Scale (CES-D), Geriatric Depression Scale (GDS), Hospital Anxiety and Depression Scale (HADS), and Patient Health Questionnaire-9 (PHQ-9).

Katon W, Lin EHB, Kroenke K. The association of depression and anxiety with medical symptom burden in patients with chronic medical illness. Gen Hosp Psychiatry. 2007;29(2):147–55.

Katzmarzyk, P.T.; Church, T.S.; Craig, C.L.; Bouchard, C. Sitting time and mortality from all causes, cardiovascular disease, and cancer. Med. Sci. Sports Exerc. 2009, 41, 998–1005.

Kaur H, Singh T, Arya YK and Mittal S (2020). Physical Fitness and Exercise During the COVID-19 Pandemic: A Qualitative Enquiry. Front. Psychol. 11:590172.

Kaya Yilmaz (2013). "Comparison of Quantitative and Qualitative Research Traditions: epistemological, theoretical, and methodological differences". European Journal of Education, pp. 311-325 (15 pages). https://www.jstor.org/stable/26357806

Kehinde, S.Okunade., Ebunoluwa, D., Adegbenga, A., Adebayo S. (2017). A 3-Year Review of the Pattern of Contraceptive Use among Women Attending the Family Planning Clinic of a University Teaching Hospital in Lagos, Nigeria. http://www.ajmhs.org. Last accessed: 13 December, 2022.

Kennedy S. H. (2008). Core symptoms of major depressive disorder: relevance to diagnosis and treatment. Dialogues in clinical neuroscience, 10(3), 271–277.

Keogh, S. C., Otupiri, E., Castillo, P. W., Chiu, D. W., Polis, C. B., Nakua, E. K., & Bell, S. O. (2021). Hormonal contraceptive use in Ghana: the role of method attributes and side effects in method choice and continuation. Contraception, 104(3), 235-245.

Kerr, J.; Anderson, C.; Lippman, S.M. (2017) Physical activity, sedentary behaviour, diet, and cancer: An update and emerging new evidence. Lancet Oncol. E457–E471.

Khadijeh A. S., Suet Leng Khoo, Noor Malina Malek, Suziana Mat Yasin, Aliyar Ahmadi. (2017) J Midwifery Reprod Health.; 5(4): 1041-1052

Kwan, I., & Onwude, J. L. (2015). Premenstrual syndrome. BMJ Clinical Evidence, 2015. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4548199/

Lancet (2021) https://www.thelancet.com/series/physical-activity-2021

Latunji OO, Akinyemi OO. (2018). Factors influencing health-seeking behaviour among civil servants in Ibadan, Nigeria. Ann Ibadan Postgrad Med. 16(1):52–60 PMID: 30254559; PMCID: PMC6143883.

Laxmi Tamang, Camille Raynes-Greenow, Kirsten Black (2017) Factors associated with contraceptive use among sexually active Nepalese youths in the Kathmandu Valley. Contracept Reprod Med 2, 13.

Leary M. R. (2015). Emotional responses to interpersonal rejection. Dialogues in clinical neuroscience, 17(4), 435–441.

Lebrun, C.M., Petit, M.A., McKenzie, D.C., Taunton, J.E., Prior, J.C. (2000). Decreased maximal aerobic capacity with use of a triphasic oral in highly active women: a randomised controlled trial. *Br J Sports Med*. 37(4):315–20.

Lee, W., Lee, S., Ahn, J. et al., (2022). Premenstrual syndrome incidence rate and risk factors among the working population in the Republic of Korea: a prospective cohort study. BMC Women's Health 22, 265. https://doi.org/10.1186/s12905-022-01852-5

Leon-Larios Fatima., Vazquez-Valeo, C.G., Sanchez-Sanchez, A., Gomez-Baya, D., Macías-Seda, J., & Cabezas-Palacios, M.N. (2019). Health-related quality of life in undergraduate women using any contraceptive. *Health Qual Life Outcomes*. 24;17(1):90. doi: 10.1186/s12955-019-1157-2. PMID: 31126343; PMCID: PMC6534913.

Leontine Alkema, Dr Doris Chou, Daniel Hogan, Sanqian Zhang, Ann-Beth Moller, Alison Gemmill, (2015) DOI:https://doi.org/10.1016/S0140-6736(15)00838-7 World Health Organization.

Licata, J. C. (2020). The Politics of Norplant: Feminism, Civil Rights, and Social Policy in the 1990s. The University of North Carolina at Greensboro.

Li, F.; Mao, L.; Chen, P. Physical activity and prevention of chronic disease in Chinese youth: A public health approach. J. Sport Health Sci. 2019, 8, 512–515.

Liu Y, Li Y, Bai YP, Fan XX. (2019). Association Between Physical Activity and Lower Risk of Lung Cancer: A Meta-Analysis of Cohort Studies. Front Oncol. 22;9:5. doi: 10.3389/fonc.2019.00005. PMID: 30723700; PMCID: PMC6349707.

Luis Bahamondes, M. Valeria Bahamondes, Lee P. Shulman, Non-contraceptive benefits of hormonal and intrauterine reversible contraceptive methods, Human Reproduction Update, Volume 21, Issue 5, September/October 2015, Pages 640–651, https://doi.org/10.1093/humupd/dmv023

Lunani L.L., Abaasa A/, Omosa-Manyonyi G. (2018) Prevalence and Factors Associated with Contraceptive Use Among Kenyan Women Aged 15-49 Years. AIDS Behav.;22(1):125-130. doi: 10.1007/s10461-018-2203-5. PMID: 29943124; PMCID: PMC6132050.

Lynch, B.M. (2010) Sedentary Behavior and Cancer: A Systematic Review of the Literature and Proposed Biological Mechanisms. Cancer Epidemiol. Biomark. Prev. 19, 2691–2709

Malm, C., Jakobsson, J., & Isaksson, A. (2019). Physical Activity and Sports-Real Health Benefits: A Review with Insight into the Public Health of Sweden. Sports (Basel, Switzerland), 7(5), 127. https://doi.org/10.3390/sports7050127

Marques, A., Bordado, J., Peralta, M. et al. (2020) Cross-sectional and prospective relationship between physical activity and depression symptoms. Sci Rep 10, 16114. https://doi.org/10.1038/s41598-020-72987-4

Martino Belvederi Murri, Panteleimon Ekkekakis, Marco Magagnoli, Domenico Zampogna, Simone Cattedra, Laura Capobianco, Gianluca Serafini, Pietro Calcagno, Stamatula Zanetidou, and Mario Amore (2018). "Physical Exercise in Major Depression: Reducing the Mortality Gap While Improving Clinical Outcomes "Front Psychiatry; 9:762. doi:10.3389/fpsyt.2018.00762

Matthews, C.E.; George, S.M.; Moore, S.C.; Bowles, H.R.; Blair, A.; Park, Y.; Troiano, R.P.; Hollenbeck, A.; Schatzkin, A. (2012) Amount of time spent in sedentary behaviors and cause-specific mortality in US adults. Am. J. Clin. Nutr., 95, 437–445. [CrossRef

Mbachu, C.O., Agu, I.C., Obayi, C. et al., (2021). Beliefs and misconceptions about contraception and condom use among adolescents in south-east Nigeria. Reprod Health 18, 7. https://doi.org/10.1186/s12978-020-01062-y

Mekonnen, G., Enquselassie, F., Tesfaye, G., & Semahegn, A. (2014). Prevalence and factors affecting use of long acting and permanent contraceptive methods in Jinka town, Southern Ethiopia: A cross sectional study. The Pan African Medical Journal, 18. https://doi.org/10.11604/pamj.2014.18.98.3421

McKetta, S., & Keyes, K.M. (2019). Oral contraceptive use and depression among adolescents. Ann Epidemiol.;29:46-51. doi: 10.1016/j.annepidem.2018.10.002.

Michl, L. C., McLaughlin, K. A., Shepherd, K., & Nolen-Hoeksema, S. (2013). Rumination as a mechanism linking stressful life events to symptoms of depression and anxiety: Longitudinal evidence in early adolescents and adults. *Journal of Abnormal Psychology*, 122(2), 339–352. https://doi.org/10.1037/a0031994

Mikkelsen, S. S. et al. (2010). A cohort study of leisure time physical activity and depression. Prev. Med. 51, 471–475. https://doi.org/10.1016/j.ypmed.2010.09.008.

Minahan C, O'Neill H, Sikkema N, Joyce S, Larsen B, Sabapathy S. (2018). "Oral contraceptives augment the exercise pressor reflex during isometric handgrip exercise". Physiol Rep.;6(5):e13629

Miraji, K. A., & Babune, G. J. (2021). Modern or Traditional: Factors Influencing the Adoption of Family Planning Methods among Women in Urban District Zanzibar. Management, 9(3), 54-63.

Mobolaji, J.W., Fatusi, A.O. & Adedini, S.A. (2020). Ethnicity, religious affiliation and girl-child marriage: a cross-sectional study of nationally representative sample of female adolescents in Nigeria. *BMC Public Health,* **20**, 583. https://doi.org/10.1186/s12889-020-08714-5

Muhammad A, Kanwar H. S., Jaffar A., Tasnim R., Arash Z. (2020) The Influence of Illness Perception, Anxiety and Depression Disorders on Students Mental Health during COVID-19 Outbreak in Pakistan: A Web-Based Cross-Sectional Survey. 10.21203/rs.3.rs-30128/v1

Muneene, L. N. (2015). Factors Influencing Use of Contraceptives among Sexually Active Adolescents in Nairobi County's Non-Formal Settlements: The Case of Adolescents in Majengo Sub County (Doctoral dissertation, University of Nairobi).

Myrthe M. van Dijk, Nehalennia van Hanegem, Maria E. de Lange, Anne Timmermans, (2015). "Treatment of Women With an Endometrial Polyp and Heavy Menstrual Bleeding: A Levonorgestrel-Releasing Intrauterine Device or Hysteroscopic Polypectomy". Journal of Minimally Invasive Gynecology, 22(7) 1153-1162, https://doi.org/10.1016/j.jmig.2015.06.016.

National Collaborating Centre for Mental Health (UK) (2011). Common Mental Health Disorders: Identification and Pathways to Care. Leicester (UK): British Psychological Society. 123(2),

National Library of Medicine (2017), Contraception: Hormonal contraceptives. Available from: https://www.ncbi.nlm.nih.gov/books/NBK441576/ (Accessed 17 January 2023)

National Population Commission (NPC) [Nigeria] and ICF (2019) Nigeria Demographic and Health Survey 2018. National Population Commission (NPC) [Nigeria] and ICF, Abuja, Rockville.

Neetu A. J., Amy O. T. & Meselech R. (2020) Quality of Contraceptive Use and Women's Paid Work and Earnings in Peri-Urban Ethiopia, Feminist Economics, 26:1, 23-43, DOI: 10.1080/13545701.2019.1632471

Nigeria Demographic and Health Survey 2013. National Population Commission (NPC) [Abuja, Nigeria] and ICF International [Rockville, Maryland, USA]; 2014.

Nsubuga, H., Sekandi, J.N., Sempeera, H. et al. (2015). Contraceptive use, knowledge, attitude, perceptions and sexual behavior among female University students in Uganda: a cross-sectional survey. BMC Women's Health 16, 6 https://doi.org/10.1186/s12905-016-0286-6

Nyarko, S. H. (2015). Prevalence and correlates of contraceptive use among female adolescents in Ghana. BMC women's health, 15, 1-6.

Obare, F., Rajamani, D., & RamaRao, S. (2014). Assessing the potential market for a Progesterone Contraceptive Vaginal Ring (PCVR) as a new contraceptive option in sub-Saharan Africa using needs-based market segmentation.

Ogboghodo E.O., Adam V.Y., Wagbatsoma V.A. (2017). Prevalence and determinants of contraceptive use among women of child-bearing age in a rural community in southern Nigeria. Journal of Community Medicine and Primary Health Care, 29 (2).

Ogundele OJ, Pavlova M, Groot W. (2018). Examining trends in inequality in the use of reproductive health care services in Ghana and Nigeria. BMC Pregnancy Childbirth. 18:492.

Ojelabi, A. O., Bamgboye, A. E., & Ling, J. (2020). Psychometric Properties of SF-36 in Sickle Cell Disease Patients Attending Outpatient Clinics in Ibadan, Nigeria. International Journal of Research and Reports in Hematology, 2(4), 1-10.

Olaitan O.L. (2011) Factors influencing the choice of family planning among couples in Southwest Nigeria. Int J Med Med Sci. 3(7):227–32.

Oluyemi T Adeosun and Oluwaseyi Omowunmi Popogbe (2020), Population growth and human resource utilization nexus in Nigeria. https://www.emerald.com/insight/2632-279X.htm

Ojoniyi O.O., Ogujiuba K., Stiegler N. (2022). Susceptibility of Nigerian adolescents to pregnancy and use of modern contraceptives. *African Journal of Reproductive Health*, 25;26(2):106-17. DOI: 10.29063/ajrh2022/v26i2.10

Okorie T., Osuchukwu N. & Eko, J. (2013). Prevalence of contraceptive use among women of reproductive age in Calabar Metropolis, Southern Nigeria.

Oluwole, E. O., Kuyinu, Y. A., Goodman, O. O., Odugbemi, B. A., & Akinyinka, M. R. (2016). Factors influencing the uptake of modern family planning methods among women of reproductive age in a rural community in Lagos state. *International Journal of Tropical Disease & Health* doi: 10.9734/IJTDH/2016/20373

Omokhodion, F., Onadeko, M., Balogun, O. (2007). Contraceptive use among hairdressers in South-west Nigeria. *J Obstet Gynecol,* 27:612–614.

Onyeso, O.K.K., Umunnah, J.O., Ibikunle, P.O., Odole, A.C., Anyachukwu, C.C., Ezema, C.I., Nwankwo, M.J. (2019). Physiotherapist's musculoskeletal imaging profiling questionnaire: Development, validation and pilot testing', South African Journal of Physiotherapy. 75(1):1-12

Orwa, J., Gatimu, S. M., Ngugi, A., Agwanda, A., & Temmerman, M. (2022). Factors associated with use of long-acting reversible and permanent contraceptives among married women in rural Kenya: A community-based cross-sectional study in Kisii and Kilifi counties. Plos one, 17(10), e0275575.

Owen, N.; Sparling, P.B.; Healy, G.N.; Dunstan, D.W.; Matthews, C.E. Sedentary behavior: Emerging evidence for a new health risk. Mayo Clin. Proc. 2010, 85, 1138–1141.

Oyedokun, A.O. (2007) Determinants of Contraceptive Usage: Lessons from Women in Osun State, Nigeria. Journal of Humanities and Social Sciences, 1, 1-14.

Ozcan, K., & Klimstra, D. S. (2022). A Review of Mucinous Cystic and Intraductal Neoplasms of the Pancreatobiliary Tract: Recent Advances. *Archives of Pathology & Laboratory Medicine*, *146*(3), 298-311.

Patterson R, McNamara E, Tainio M, de Sa TH, Smith AD, Sharp SJ, et al., (2018) Sedentary behaviour and risk of all-cause, cardiovascular and cancer mortality, and incident type 2 diabetes: a systematic review and dose response meta-analysis. Eur J Epidemiol. 33(9):811–29.

Peltzer K, Pengpid S. (2015) "Contraceptive non-use and associated factors among university students in 22 countries". Afri Health Sci. 15(4):1056-64. http://dx.doi.org/10.4314/ahs.v15i4.2

Petra Brhlikova, Allyson M Pollock, and Rachel Manners. J R Soc Med. (2011) ; 104(1): 25–34.

Philomina A.A., Samuel D., Benedicta K.A., Alfred Y., Refah M. A., (2018). Modern contraceptive use among women of reproductive age in Ghana: Analysis of the 2003–2014 Ghana Demographic and Health Surveys. *BMC Women's Health*, 18:141 https://doi.org/10.1186/s12905-018-0634-9

Piirtola, M., Kaprio, J., Kujala, U. M., Heikkilä, K., Koskenvuo, M., Svedberg, P., Silventoinen, K., & Ropponen, A. (2016). Association between education and future leisure-time physical inactivity: a study of Finnish twins over a 35-year follow-up. BMC public health, 16, 720.

Pilkington, Vanessa (2013). Researching how people experience emotional suffering subsequently diagnosed as depression. (Unpublished Doctoral thesis, City University Online)

Prentice, A.M. and Jebb, S.A. (1995) Obesity in Britain: Gluttony or sloth? British Medical Journal, 311, 437-439

Rakhi, Jain, & Sumathi Muralidhar (2011) Contraceptive Methods: Needs, Options and Utilization. *Obstet Gynaecol India*. 61(6): 626- 634. doi: 10.1007/s13224-011-0107-7 PMCID: PMC3307935

Rechichi C, Dawson B. (2009) "Effect of oral contraceptive cycle phase on performance in team sport players". J Sci Med Sport;12(1):190-5. doi: 10.1016/j.jsams.2007.10.005. Epub 2007 Dec 4. PMID: 18054842.

Rezende, L.; Rodrigues, L.M.; Rey, L.J.; Keihan, R.M.V.; Luiz, O. Sedentary Behavior and Health Outcomes: An Overview of Systematic Reviews. PLoS ONE 2014, 9, e105620.

Richard Wike And Katie Simmons (2015). Health Care, Education Are Top Priorities in Sub-Saharan Africa. https://www.pewresearch.org/global/2015/09/16/health-care-education-are-top-priorities-in-sub-saharan-africa/

Roberts, C-M & Forsyth, Jacky. (2018). The Exercising Female: Science and Application. 10.4324/9781351200271.

Role of physical activity in the management and assessment of rheumatoid arthritis patients. (2017) Reumatología Clínica (English Edition) 13(4):214-220.

Ross, J., & Hardee, K. (2013). Access to contraceptive methods and prevalence of use. Journal of biosocial science, 45(6), 761–778.

Ross John & Hardee Karen & Mumford, Elizabeth & Eid, Sherrine. (2002). Contraceptive Method Choice in Developing Countries. International Family Planning Perspectives. 28. 32-40. 10.2307/3088273.

Russell, EW. (2012) Chapter 2: The Nature of Science. The Scientific Foundation of Neuropsychological Assessment: With Applications to Forensic Evaluation. Elsevier Inc.

Rütten A, Pfeifer K. (2016) National recommendations for physical activity and physical activity promotion. Erlangen: FAU University Press.

Sabina Klara Lewandowski (2020)"Quality of life and mental health in adolescent users of oral contraceptives. Results from the nationwide, representative German Health Interview and Examination Survey for Children and Adolescents (KiGGS)." Quality of Life Research29:2209–2218.

Saunders, T.J.; Chaput, J.P.; Tremblay, M.S. Sedentary Behaviour as an Emerging Risk Factor for Cardiometabolic Diseases in Children and Youth. Can. J. Diabetes. 2014, 38, 53–61.

Sabina K. Lewandowski, Gunnar Duttge & Thomas Meyer (2020). Quality of life and mental health in adolescent users of oral contraceptives. Results from the nationwide, representative German Health Interview and Examination Survey for Children and Adolescents (KiGGS). Quality of Life Research 29:2209–2218 https://doi.org/10.1007/s11136-020-02456-y

Semachew KA, Tarekegn M, Embiale N. (2018). Knowledge, attitude and practice towards family planning among reproductive age women in a resource limited setting of Northwest Ethiopia. BMC Res Notes. 11(1):577

Sensoy, N., Korkut, Y., Akturan, S., Yilmaz, M., Tuz, C., & Tuncel, B. (2018). Factors affecting the attitudes of women toward family planning. Fam Plann, 13(33), 2.

Sexual and reproductive health: WHO; (2017). Available at: http://www.who.int/reproductive health/topics/infertility/definitions/en/. Accessed on 12th March 2020.

Shongwe, P., Ntuli, B., & Madiba, S. (2019). Assessing the Acceptability of Vasectomy as a Family Planning Option: A Qualitative Study with Men in the Kingdom of Eswatini. International journal of environmental research and public health, 16(24), 5158.

Sinai, I., Omoluabi, E., Jimoh, A., & Jurczynska, K. (2020). Unmet need for family planning and barriers to contraceptive use in Kaduna, Nigeria: culture, myths and perceptions. *Culture, health & sexuality*, *22*(11), 1253-1268.

Skovlund CW, Mørch LS, Kessing LV, Lange T, Lidegaard Ø. (2018). Association of Hormonal Contraception With Suicide Attempts and Suicides. Am J Psychiatry.;175(4):336-342.

Skovlund, C.W., Morch, L.S., Kessing, L.V., Lidegaard, O. (2016). Association of hormonal contraception with depression. JAMA Psychiatry, 73(11): 1154–62.

Snijders, A.H., Robertson, M.M., Orth, M. (2006). Beck Depression Inventory is a Useful Screening tool for Major Depressive Disorder in Gilles de la Tourette Syndrome. Journal of Neurology, Neurosurgery and Psychiatry, 77, 787–789.

Soheila Ehsanpour, MSc, Maedeh Mohammadifard and Nafise Sadat Nekouyi, MSc (2010) Iran J Nurs Midwifery Res.; 15(Suppl1): 363–370.

Soheila Ehsanpour, MSc, Maedeh Mohammadifard and Nafise Sadat Nekouyi Song, Y.; Anette, A.; Ma, J.; Li, L.; Lei, Y.; Randall, S.; Stafford, J.; Prochaska, J. (2014) National trends in stunting, thinness and overweight among Chinese school-aged children. Int. J. Obes. 2018, 43, 402–411.

Sophie Christin-Maitre (2013). History of oral contraceptive drugs and their use worldwide. Best Pract Res Clin Endocrinol Metab. (1):3-12. doi: 10.1016/j.beem.2012.11.004. Epub 2012 Dec 25. PMID: 23384741.

Sophia yen, MD, MPH. Lowering risk of ovarian cysts using birth control. Pandia Health, INC. info@pandiahealth .com updated 2021.

Spielberger, C. D., & Reheiser, E. C.. (2009). Assessment of Emotions: Anxiety, Anger, Depression, and Curiosity. *Applied Psychology: Health and Well-being*, 1(3), 271–302. https://doi.org/10.1111/j.1758-0854.2009.01017.x

Stalsberg, R., & Pedersen, A. V. (2018). Are Differences in Physical Activity across Socioeconomic Groups Associated with Choice of Physical Activity Variables to Report?. International journal of environmental research and public health, 15(5), 922. https://doi.org/10.3390/ijerph15050922

Starbird, E., Norton, M., & Marcus, R. (2016). Investing in Family Planning: Key to Achieving the Sustainable Development Goals. Global health, science and practice, 4(2), 191–210.

Stoddard, A., McNicholas, C., & Peipert, J. F. (2011). Efficacy and safety of long-acting reversible contraception. Drugs, 71, 969-980.

Sule, S. S., Omotese, I., Onajole, A. T., & Ogunowo, B. E. (2015). Contraceptive methods awareness and use among women of reproductive age in an urban district of Lagos, Nigeria. *Journal of Community Medicine and Primary Health Care*, 27(1), 104-119.

Szucs, L.E., Lowry, R., Fasula, A.M. (2019). Condom and Contraceptive Use Among Sexually Active High School Students — Youth Risk Behavior Survey, United States. *MMWR Suppl* 2020;69(Suppl-1):11–18.

Tawakalit, O. Salam, Olushola, A.M., Sufiyan, A. M., Adedotun, A.A. (2020). Contraceptive use and quality of life among women of reproductive age, attending a general outpatient clinic in a Nigerian tertiary hospital. *International Journal of Reproduction, Contraception, Obstetrics and Gynecology*, 9(7):2932-293. http://dx.doi.org/10.18203/2320-1770.ijrcog20202736

Thivel D, Tremblay A, Genin PM, Panahi S, Rivière D and Duclos M (2018). Physical Activity, Inactivity, and Sedentary Behaviors: Definitions and Implications in Occupational Health. Front. Public Health 6:288. doi: 10.3389/fpubh.2018.00288

Thompson, D.; Batterham, A.M.; Bock, S.; Robson, C.; Stokes, K. (2006) “Assessment of low-to-moderate intensity physical activity thermogenesis in young adults using synchronized heart rate and accelerometry with branched-equation modeling.” J. Nutr. 2006, 136, 1037–1042

Thongmixay, S., Essink, D. R., Vongxay, V., Sychareun, V., & W. Broerse, J. E. (2019). Perceived barriers in accessing sexual and reproductive health services for youth in Lao People’s Democratic Republic. PLoS ONE, 14(10). https://doi.org/10.1371/journal.pone.0218296

Todd, N., & Black, A. (2020). Contraception for Adolescents. Journal of clinical research in pediatric endocrinology, 12(Suppl 1), 28–40.

Tremblay, M.S.; Aubert, S.; Barnes, J.J.; Saunders, T.; Carson, V.; Latimer, A.; Chastin, S.; Altenburg, T.; Jm Chinapaw, M. (2017) Sedentary Behavior Research Network (SBRN) -Terminology Consensus Project process and outcome. Int. J. Behav. Nutr. Phys. Act. 14, 1–17.

UK Chief Medical Officers' Physical Activity Guidelines (2019). Department of Health and Social Care, Llwodraeth Cymru Welsh Government, Department of Health Northern Ireland and the Scottish Government.

United Nations, Department of Economic and Social Affairs, Population Division (2017). World Contraceptive Use (POP/DB/CP/Rev2017). Last accessed: 17 August 2022.

United Nations, Department of Economic and Social Affairs, Population Division (2015). Trends in Contraceptive Use Worldwide 2015 (ST/ESA/SER.A/349).

United Nations, Department of Economic and Social Affairs, Population Division (2019). Contraceptive Use by Method 2019: Data Booklet (ST/ESA/SER.A/435).

United States Agency for International Development. Inequalities in the use of family planning and reproductive health services: implications for policies and programs. Washington, DC: USAID; 2005.

Usman, S. O., Kalejaye, O. O., Isola, I. N., Oluwaniyi, O., Ojogbede, A. K., & Adu, A. S. (2016). Family planning practices among rural community women in Nigeria. *Journal of Experimental and Integrative Medicine*, (2), 88-92. doi: 10.5455/jeim.120716.or.155

Wang, Y. P., & Gorenstein, C. (2013). Assessment of depression in medical patients: a systematic review of the utility of the Beck Depression Inventory-II. Clinics (Sao Paulo, Brazil), 68(9), 1274–1287.

Wang, Y., Chau, C. K., Ng, W. Y., & Leung, T. M. (2016). A review on the effects of physical built environment attributes on enhancing walking and cycling activity levels within residential neighborhoods. Cities, 50, 1-15.

Weggemans RM, Backx FJG, Borghouts L, Chinapaw M, Hopman MTE, Koster A, et al. (2017) Dutch physical activity guidelines. Int J Behav Nutr Phys Act. 2018;15(1):58.

Whitney Wharton, Carey E. Gleaso, Sandra R. M. S. Olson, Cynthia M. Carlsson, and Sanjay Asthana. (2012) Au "Neurobiological Underpinnings of the Estrogen – Mood Relationship". Curr Psychiatry Rev. 8(3): 247–256. doi: 10.2174/157340012800792957

WHO's Global health estimate (2016) Available online https://data.worldbank.org/indicator/SH.DTH.NCOM.ZS (accessed on 30 June 2022).

Win, S., Parakh, K., Eze-Nliam, C. M., Gottdiener, J. S., Kop, W. J., & Ziegelstein, R. C. (2011). Depressive symptoms, physical inactivity and risk of cardiovascular mortality in older adults: the Cardiovascular Health Study. Heart (British Cardiac Society), 97(6), 500–505. https://doi.org/10.1136/hrt.2010.209767

Winkler UH, Ferguson H, Mulders JA. (2004) Cycle control, quality of life and acne with two low-dose oral contraceptives containing 20 microg ethinylestradiol. Contraception. 69(6):469-76. doi: 10.1016/j.contraception.2003.12.017.

World Health Organization (2020). https://www.who.int/health-topics/physical-activity#tab=tab_1

World Health Organization (2022) https://www.who.int/news-room/fact-sheets/detail/physical-activity#:~:text=do%20at%20least%20150%20minutes,aerobic%20and%20muscle%2Dstrengthening%20activities

World health organization https://apps.who.int/iris/bitstream/handle/10665/353747/9789289057738-eng.pdf

WHO's Global health estimate (2016) Available online https://data.worldbank.org/indicator/SH.DTH.NCOM.ZS (accessed on 30 June 2022).

World Health Organization. Global action plan on physical activity 2018–2030: more active people for a healthier world. https://www.who.int/ncds/prevention/physical-activity/global-action-plan-2018-2030/en/: World Health Organization: Geneva, Switzerland; 2018.

Word health organization (2022) https://www.who.int/publications/i/item/9789240015128

World Health Organization. Global Physical Activity Questionnaire (GPAQ) Analysis Guide. Available online: http://www.who.int/ncds/surveillance/steps/resources/GPAQ_Analysis_Guide. pdf (accessed on 4 November 2021)

Xiaofen D. Keating, Ke Zhou, Xiaolu Liu, Michael Hodges, Jingwen Liu, Jianmin Guan, Ashley Phelps and Jose Castro-Piñero (2019). "Reliability and Concurrent Validity of Global Physical Activity Questionnaire (GPAQ): A Systematic Review"; Accepted; Published: Int. J. Environ. Res. Public Health 2019, 16, 4128; doi:10.3390/ijerph16214128.

Young, D.R.; Hivert, M.-F.; Alhassan, S.; Camhi, S.M.; Ferguson, J.F.; Katzmarzyk, P.T.; Lewis, C.E.; Owen, N.; Perry, C.K.; Siddique, J.; et al. Sedentary Behavior and Cardiovascular Morbidity and Mortality A Science Advisory from the American Heart Association. Circulation 2016, 134, E262–E279.

Yuan-Pang WangI and Clarice Gorenstein (2013). "Assessment of depression in medical patients: A systematic review of the utility of the Beck Depression" Inventory-II Clinics (Sao Paulo). 68(9): 1274–1287. doi: 10.6061/clinics/2013(09)15

Zettermark, S., Perez V.R, Merlo, J. (2018). Hormonal contraception increases the risk of psychotropic drug use in adolescent girls but not in adults: a pharmaco epidemiological study on 800 000 Swedish women. PLoS One, 13(3):e0194773.

Zhang, J.; Chaaban, J. The economic cost of physical inactivity in China. Prev. Med. 2013, 56, 75–78.

Zimmerman, L.A., Sarnak, D.O., Karp, C. *et al.* Association between experience of specific side-effects and contraceptive switching and discontinuation in Uganda: results from a longitudinal study. *Reprod Health* **18**, 239 (2021). https://doi.org/10.1186/s12978-021-01287-5

Zhou, M.; Wang, H.; Zeng, X.; Yin, P.; Zhu, J.; Chen, W.; Li, X.; Wang, L.; Wang, L.; Liu, Y. (2019) Mortality, morbidity, and risk factors in China and its provinces, 1990–2017: A systematic analysis for the Global Burden of Disease Study 2017. Lancet, 394(1145–1158).

APPENDIX 1

Instructions for participants:
Answer all questions.
Kindly mark the (X) options that correspond to the appropriate answers on close ended questions and write your answer in full on open-ended questions. Ensure honest and genuine responses to all questions
Kindly note that all information provided will be kept strictly confidential.

SECTION A: SOCIO-DEMOGRAPHIC DATA

1. What is your age in years? ……..

2. Marital Status

Single	
Married	
Divorced/Separated	
Widowed	

3. **Highest Educational Qualification**

No education	
Primary education	
Secondary education	
Tertiary education	

4. Your Occupational status

Unemployed	
Student	
Trader/Farmer	
Artisans	
Civil servants	

5. Tribe

Hausa	
Igbo	
Yoruba	
Others	

6. Are you aware of contraception methods?

Yes	
No	

7. Have you ever practised contraception or used contraceptives in your lifetime?

Yes	
No	

8. Do you currently practise contraception or use contraceptives?

Yes	
No	

9. If your answer to 10 above is "yes" what type of contraceptive method are you using? ***(Kindly note that you can choose more than one option)***

Male condom	
Female condom	
Diaphragm	
Injectables	
IUCD	
Pills	
Implants	
Vasectomy	
Bilateral tubal ligation	
Traditional (armlet, ring, padlock)	
Natural (periodic abstinence, breastfeeding, interruption of coitus	

10. How long have been practising or using current contraception method?

Less than 1 year	
1-5 years	
6-10 years	
More than 10 years	

11. Are you experiencing any side effects of using contraception?

Yes	
No	

12. If your answer to question 11 is "yes", which of the following side effects do you experience?

Heavier bleeding (menstrual changes)	
Headaches	
Dizziness	
Change in weight	
Others	

Others, please specify …….

…… …..

13. Do you think there are other medical conditions, family or societal issues that are getting you worried and possibly get you depressed?

Yes	
No	

if yes, Kindly mention them

……
……
……
……
……

SECTION 2: General Physical Activity Questionnaire

The following questions ask about the time you spend doing different types of physical activity in a typical week. Please answer these questions even if you do not consider yourself to be a physically active person.

Think first about the time you spend doing work. Think of work as the things that you have to do such as paid or unpaid work, study/training, household chores, harvesting food/crops, fishing or hunting for food, seeking employment. In answering the following questions 'vigorous-intensity activities' are activities that require hard physical effort and cause large increases in breathing or heart rate, 'moderate-

intensity activities' are activities that require moderate physical effort and cause small increases in breathing or heart rate.

Questions		Response	Code
"Activity at work"			
1	Does your work involve vigorous-intensity activity that causes large increases in breathing or heart rate like *[carrying or lifting heavy loads, digging or construction work*] for at least 10 minutes continuously.	Yes 1 No 2 *If No, go to P 4*	P1
2	In a typical week, on how many days do you do vigorous-intensity activities as part of your work?	Number of days ⌊__⌋	P2
3	How much time do you spend doing vigorous-intensity activities at work on a typical day?	Hours : minutes hrs ⌊__⌋ : ⌊__⌋ mins	P3 (a-b)
4	Does your work involve moderate-intensity activity that causes small increases in breathing or heart rate such as brisk walking *[or carrying light loads*] for at least 10 minutes continuously?	Yes 1 No 2 *If No, go to P 7*	P4
5	In a typical week, on how many days do you do moderate-intensity activities as part of your work?	Number of days ⌊__⌋	P5
6	How much time do you spend doing moderate-intensity activities at work on a typical day?	Hours : minutes hrs ⌊__⌋ : ⌊__⌋ mins	P6 (a-b)
Travel to and from places			

The next questions exclude the physical activities at work that you have already mentioned. Now I would like to ask you about the usual way you travel to and from places. For example, to work, for shopping, to market, to place of worship			
7	Do you walk or use a bicycle (*pedal cycle*) for at least 10 minutes continuously to get to and from places?	Yes 1 No 2 *If No, go to P 10*	P7
8	In a typical week, on how many days do you walk or bicycle for at least 10 minutes continuously to get to and from places?	Number of days ⌊__⌋	P8
9	How much time do you spend walking or bicycling for travel on a typical day?	Hours : hrs ⌊__⌋⌊__⌋ : minutes ⌊__⌋⌊__⌋ mins	P9 (a-b)
Recreational activities			
The next questions exclude the work and transport activities that you have already mentioned. Now I would like to ask you about sports, fitness and recreational activities (leisure).			
10	Do you do any vigorous-intensity sports, fitness or recreational (*leisure*) activities that cause large increases in breathing or heart rate like [*running or football,]* for at least 10 minutes continuously	Yes 1 No 2 *If No, go to P 13*	P10
11	In a typical week, on how many days do you do vigorous- intensity sports, fitness or recreational (*leisure*) activities?	Number of days ⌊__⌋	P11
12	How much time do you spend doing vigorous-intensity sports, fitness or recreational activities on a typical day?	Hours : minutes hrs ⌊__⌋⌊__⌋ : ⌊__⌋⌊__⌋ mins	P12 (a-b)
Physical Activity (recreational activities) contd.			
Questions		**Response**	**Code**

13	Do you do any moderate-intensity sports, fitness or recreational *(leisure*) activities that causes a small increase in breathing or heart rate such as brisk walking,(*cycling, swimming, volleyball*) for at least 10 minutes continuously?	Yes 1 No 2 *If No, go to P16*	P13
14	In a typical week, on how many days do you do moderate-intensity sports, fitness or recreational (*leisure*)activities?	Number of days ⌊__⌋	P14
15	How much time do you spend doing moderate-intensity sports, fitness or recreational (*leisure*) activities on a typical day?"	Hours : minutes" hrs ⌊__⌋⌊__⌋ : ⌊__⌋⌊__⌋ mins	P15 (a-b)
Sedentary behaviour			
The following question is about sitting or reclining at work, at home, getting to and from places, or with friends including time spent [sitting at a desk, sitting with friends, travelling in car, bus, train, reading, playing cards or watching television], but do not include time spent sleeping.			
16	How much time do you usually spend sitting or reclining on a typical day?	Hours : minutes hrs ⌊__⌋⌊__⌋ ⌊__⌋⌊__⌋ mins	P16 (a-b)

Section 3: Beck Depression Inventory

Instructions: This section consists of 21 groups of statements. Please read each group of statements carefully. And then pick out the one statement in each group that best describes the way you have been feeling during the past two weeks, including today. Circle the number beside the statement you have picked. If several statements inthe group seem to apply equally well, circle the highest number for that group. Be sure that you do not choose more than one statement for any group.

1.

0 I do not feel sad.
1 I feel sad
2 I am sad all the time and I can't snap out of it.
3 I am so sad and unhappy that I can't stand it.

2.

0 I am not particularly discouraged about the future.
1 I feel discouraged about the future.
2 I feel I have nothing to look forward to.
3 I feel the future is hopeless and that things cannot improve.

3.

0 I do not feel like a failure.
1 I feel I have failed more than the average person.
2 As I look back on my life, all I can see is a lot of failures.
3 I feel I am a complete failure as a person.

4.

0 I get as much satisfaction out of things as I used to.
1 I don't enjoy things the way I used to.
2 I don't get real satisfaction out of anything anymore.
3 I am dissatisfied or bored with everything.

5.

0 I don't feel particularly guilty
1 I feel guilty a good part of the time.
2 I feel quite guilty most of the time.
3 I feel guilty all of the time.

6.

0 I don't feel I am being punished.
1 I feel I may be punished.
2 I expect to be punished.
3 I feel I am being punished.

7.

0 I don't feel disappointed in myself.
1 I am disappointed in myself.
2 I am disgusted with myself.
3 I hate myself.

8.

0 I don't feel I am any worse than anybody else.
1 I am critical of myself for my weaknesses or mistakes.
2 I blame myself all the time for my faults.
3 I blame myself for everything bad that happens.

9.

0 I don't have any thoughts of killing myself.
1 I have thoughts of killing myself, but I would not carry them out.
2 I would like to kill myself.
3 I would kill myself if I had the chance.

10

0 I don't cry any more than usual.
1 I cry more now than I used to.
2 I cry all the time now.
3 I used to be able to cry, but now I can't cry even though I want to.

11.

0 I am no more irritated by things than I ever was.

1 I am slightly more irritated now than usual.
2 I am quite annoyed or irritated a good deal of the time.
3 I feel irritated all the time.

12.
0 I have not lost interest in other people.
1 I am less interested in other people than I used to be.
2 I have lost most of my interest in other people.
3 I have lost all of my interest in other people.

13.
0 I make decisions about as well as I ever could.
1 I put off making decisions more than I used to.
2 I have greater difficulty in making decisions more than I used to.
3 I can't make decisions at all anymore.

14.
0 I don't feel that I look any worse than I used to.
1 I am worried that I am looking old or unattractive.
2 I feel there are permanent changes in my appearance that make me look unattractive
3 I believe that I look ugly.

15.
0 I can work about as well as before.
1 It takes an extra effort to get started at doing something.
2 I have to push myself very hard to do anything.
3 I can't do any work at all.

16.
0 I can sleep as well as usual.
1 I don't sleep as well as I used to.
2 I wake up 1-2 hours earlier than usual and find it hard to get back to sleep.
3 I wake up several hours earlier than I used to and cannot get back to sleep.

17.
0 I don't get more tired than usual.
1 I get tired more easily than I used to.
2 I get tired from doing almost anything.
3 I am too tired to do anything.

18.
0 My appetite is no worse than usual.
1 My appetite is not as good as it used to be.
2 My appetite is much worse now.
3 I have no appetite at all anymore.

19.
0 I haven't lost much weight, if any, lately.
1 I have lost more than five pounds.
2 I have lost more than ten pounds.
3 I have lost more than fifteen pounds.

20.
0 I am no more worried about my health than usual.
1 I am worried about physical problems like aches, pains, upset stomach, or constipation.
2 I am very worried about physical problems and it's hard to think of much else.

3 I am so worried about my physical problems that I cannot think of anything else.

21.

0 I have not noticed any recent change in my interest in sex.
1 I am less interested in sex than I used to be.
2 I have almost no interest in sex.
3 I have lost interest in sex completely.

Section 4: WHOQOL-BREF

The following questions ask how you feel about your quality of life, health, or other areas of your life. I will read out each question to you, along with the response options. **Please choose the answer that appears most appropriate.** If you are unsure about which response to give to a question, the first response you think of is often the best one.

Please keep in mind your standards, hopes, pleasures and concerns. We ask that you think about your life **in the last four weeks.**

		Very poor	Poor	Neither poornor good	Good	Very good
1.	How would you rate yourquality of life?	1	2	3	4	5

		Very dissatisfied	Dissatisfied	Neither satisfied nor dissatisfied	Satisfied	Very satisfied
2.	How satisfied are you with yourhealth?	1	2	3	4	5

The following questions ask about **how much** you have experienced certain things in the last four weeks.

		Not at all	A little	A moderate amount	Very much	An extreme amount
3.	To what extent do you feel thatphysical pain prevents you from doing what you need to do?	5	4	3	2	1
4.	How much do you need any medical treatment to functionin your daily life?	5	4	3	2	1
5.	How much do you enjoy life?	1	2	3	4	5

6.	To what extent do you feel yourlife to be meaningful?	1	2	3	4	5

		Not at all	A little	A moderate amount	Very much	Extremely
7.	How well are you able toconcentrate?	1	2	3	4	5
8.	How safe do you feel in yourdaily life?	1	2	3	4	5
9.	How healthy is your physicalenvironment?	1	2	3	4	5

The following questions ask about how completely you experience or were able to do certain things in the last four weeks.

		Not at all	A little	Moderately	Mostly	Completely
10.	Do you have enough energy foreveryday life?	1	2	3	4	5
11.	Are you able to accept yourbodily appearance?	1	2	3	4	5
12.	Have you enough money tomeet your needs?	1	2	3	4	5
13.	How available to you is the information that you need inyour day-to-day life?	1	2	3	4	5
14.	To what extent do you have theopportunity for leisure activities?	1	2	3	4	5

		Very poor	Poor	Neither poornor good	Good	Very good
15.	How well are you able to getaround?	1	2	3	4	5

		Very dissatisfied	Dissatisfied	Neither satisfied nor dissatisfied	Satisfied	Very satisfied

16.	How satisfied are you with yoursleep?	1	2	3	4	5
17.	How satisfied are you with your ability to perform yourdaily living activities?	1	2	3	4	5
18.	How satisfied are you withyour capacity for work?	1	2	3	4	5
19.	How satisfied are you withyourself?	1	2	3	4	5

20.	How satisfied are you with yourpersonal relationships?	1	2	3	4	5
21.	How satisfied are you withyour sex life?	1	2	3	4	5
22.	How satisfied are you with thesupport you get from your friends?	1	2	3	4	5
23.	How satisfied are you with the conditions of your living place?	1	2	3	4	5
24.	How satisfied are you with youraccess to health services?	1	2	3	4	5
25.	How satisfied are you withyour transport?	1	2	3	4	5

The following question refers to how often you have felt or experienced certain things in thelast four weeks.

		Never	Seldom	Quite often	Very often	Always
26.	How often do you have negative feelings such as bluemood, despair, anxiety, depression?	5	4	3	2	1

Do you have any comments about the assessment?

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APPENDIX 2

PARTICIPANT INFORMED CONSENT DECLARATION

(To be signed by research participants)

Research Project Title: Associations between contraceptive use, physical activity, depression, and quality of life among women of child bearing age in Akure South Local Government of Ondo State, Nigeria.

Alimi Olabisi Ganiyat from the Department of Human kinetics and Ergonomics Rhodes University, has requested my permission to participate in the above-mentioned research project.

The nature and the purpose of the research project and of this informed consent declaration have been explained to me in a language that I understand.

I am aware that:

1. The purpose of the research project is to help others researcher within the line of study get access to more information. It will also be of help to women of child bearing to understand contractive use in relationship to activity, depression and quality of life It will also create inform policy change guiding government and public sectors in health planning as regards the usage of contraceptives among women in Nigeria.

2. Rhodes University has given ethical clearance to this research project (*tracking number: 5490*) and I have seen/may request to see the clearance certificate by contacting the Ethics Coordinator (ethics-committee@ru.ac.za).

3 a. The findings will provide evidence-based information regarding the association between contraceptive use, physical activity, depression, and quality of life among women of child bearing age in Nigeria.

b. The outcome of the study may benefit the future of family planning research and practice regarding the development and implementation of evidence-based counseling tools to promote the uptake and continuation of the current method mix.

c. It may also encourage investment in the development of new family planning technologies that fit the lifestyles and needs of women in low- and medium-income countries such as Nigeria.

d. The research findings may also inform policy change, directing stakeholders and authorities in the Nigerian public health sector to implement measures to mitigate any observed negative effects of contraceptive use among Nigerian women of childbearing age.

4. I will participate in the project by completing a questionnaire that elicits responses on socio-demographic characteristics, physical activity, depression, and health related quality of life.

5. My participation is entirely voluntary and should I at any stage wish to withdraw from participating further, I may do so without any negative consequences.

6. I will not be compensated for participating in the research, but my out-of-pocket expenses will be reimbursed.
7. Participants will not be exposed to any form of physical harm while taking part in the study. However, some items of the BDI and WHOQoL BREF may cause little psychological distress to the participants. To mitigate this risk, participants will be provided with as much information as possible during informed consent and debriefing. The psychologist will be available to address participants if they have issues with any of the items on the questionnaires.

8. The Researcher intends to publish the research results in the form of scientific conference presentation and publication in DHET accredited journal. However, confidentiality and anonymity of records will be maintained, and my name and identity will not be revealed to anyone who has not been involved in conducting the research, *unless I indicate to the contrary/recognise that as a public figure, my identity will inevitably be/become known in which case I agree to and accept the loss of confidentiality.*

9. In terms of the Protection of Personal Information Act (No. 4, 2013), it remains my right to request the Researcher to provide me with a detailed explanation of exactly how confidentiality and anonymity will be achieved. I may request to know how my personal information will be stored securely, and for how long it will be stored.

10. If any data collected from me for this research project is to be used by the researcher for any further project, I am to be informed in writing, and my written consent requested again. I need not give consent if such further research is incompatible with the initial data presented for this study (POPIA, s15(3)). Equally, I can simply reject the request. In such cases a formal request needs to be made by the researcher via the Ethics Coordinator (ethics-committee@ru.ac.za).

11. In terms of the Protection of Personal Information Act, I possess the right to receive feedback about this research. This will take the form of special written request to the researcher *unless I elect not to receive feedback.*

5. Any further questions that I might have regarding the research, or my participation will be answered by Miss Alimi Olabisi Ganiyat, Email g20a9763@campus.ru.ac.za or Professor Candice Christie, Email c.christie@ru.ac.za, phone no, +27835616936, Rhodes contact: Interim Ethics Coordinator Ms Danielle de Vos email d.devos@ru.ac.za phone no: +2746 603 7727.

6. By signing this informed consent declaration, I am not waiving any legal claims, rights or remedies.

7. A copy of this informed consent declaration will be given to me, and the original will be kept on record. I **agree/disagree** (SELECT APPLICABLE) to the Researcher's request to take photographs and/or videos of me as part of this research project, recognising that agreement here is likely to raise the risk of compromising my anonymity and that steps will be taken to ensure this does not happen if my approval is granted.

8. I **agree/disagree** with the Researcher's request to voice record my comments and opinions during interviews, the purpose of which is to ensure the accurate recording of my views. Furthermore, I have the right to request a copy of interview transcriptions to confirm that my opinions are accurately recorded.

9. A copy of this informed consent declaration will be given to me, and the original will be kept on record by the researcher.

I, ……., have read the above information / confirm that the above information has been explained to me in a language that I understand and I am aware of this document's contents. I have asked all the questions that I wished to ask and these have been answered to my satisfaction. I fully understand what is expected of me during the research.

I have not been pressurized in any way and I voluntarily agree to participate in the above-mentioned project.

……. …….

Participants signature **Date**

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19 March 2022

Prince Adewale Adegbemi,

The chairman,

Akure South Local Government Area

Akure,

Ondo State, Nigeria.

Dear Prince Adegbemi

REQUEST FOR PERMISSION TO CONDUCT RESEARCH

I am a registered Master's student in the Department of Human Kinetic and Ergonomics at the Rhodes University. My supervisor is professor Candice Christie.

The proposed topic of my research is: Associations between contraceptive use, physical activity, depression and quality of life among women of child bearing age in Akure South Local Government, Ondo State Nigeria. The objectives of the study are:

(a) To determine the prevalence of contraceptive use among women of child bearing age in Akure South Local Government of Ondo State, Nigeria.
(b) To determine the levels of physical activity and depressive status of women of child bearing age in Akure South Local Government of Ondo State, Nigeria.
(c) To compare the physical activity, depression, and quality of life scores of women of child bearing age who used contraceptives and those of their age –matched counterparts who do not use contraceptives in Akure South Local Government of Ondo State, Nigeria

(d) To investigate the association between contraceptive use and physical activity among women of child bearing age in Akure South Local Government of Ondo State, Nigeria.
(e) To determine the association between contraceptive use and depression among women of child bearing age in Akure South Local Government of Ondo State, Nigeria.
(f) To determine the association between contraceptive use and health-related quality of life of the women.

I am hereby seeking your consent to conduct a research in your local government. To assist you in reaching a decision, I have attached to this letter:

(a) A copy of an ethical clearance certificate issued by the University
(b) A copy the research instruments which I intend using in my research

Should you require any further information, please do not hesitate to contact me or my supervisor. Our contact details are as follows:

g20a9763@campus.ru.ac.za, +27812186504.

Prof Candice Christie (email: c.christie@ru.ac.za; phone: +27835616936)

Upon completion of the study, I undertake to provide you with a feedback

Your permission to conduct this study will be greatly appreciated.

Yours sincerely,

Olabisi Ganiyat Alimi

RESEARCH STUDY INFORMATION LETTER

19th May, 2022

Good Day

My name is Olabisi Ganiyat Alimi, **I WOULD LIKE TO INVITE YOU TO PARTICIPATE** in a research study on Association between contraceptive use, physical activity, depression and quality of life among women of child bearing age in Akure South Local Government of Ondo State, Nigeria.

Before you decide on whether to participate, I would like to explain to you why the research is being done and what it will involve for you. **I will go through the information letter with you and answer any questions you have.** This should take about 10 to 20 minutes. The study is part of a research project being completed as a requirement for a Master's Degree in Human Kinetics and Ergonomics through Rhodes University, South Africa.

THE PURPOSE OF THIS STUDY is to investigate the associations between contraceptive use, physical activity, depression and quality of life among women of child bearing age in Akure South Local Government of Ondo State, Nigeria.
Below, I have compiled a set of questions and answers that I believe will assist you in understanding the relevant details of participation in this research study. Please read through these. If you have any further questions I will be happy to answer them for you.

DO I HAVE TO TAKE PART? No, you don't have to. It is up to you to decide to participate in the study. I will describe the study and go through this information sheet. If you agree to take part, I will then ask you to sign a consent form. However, you may decide to withdraw your consent before the questionnaire is submitted, once submitted you can no longer withdraw participation due to anonymity

WHAT EXACTLY WILL I BE EXPECTED TO DO IF I AGREE TO PARTICIPATE? You will be required to voluntarily fill a structured questionnaire containing questions that asks about your socio-demographic information, general physical activity questionnaire [GPAQII], Becks' depression questionnaire and WHO Quality of life ref questionnaire. The questionnaire will take 20-30 to be completed.

WHAT WILL HAPPEN IF I WANT TO WITHDRAW FROM THE STUDY? If you decide to participate, you are free to withdraw your consent at any time without giving a reason and without any consequences. If you wish to withdraw your consent, you should inform me as soon as possible.

IF I CHOOSE TO PARTICIPATE, WILL THERE BE ANY EXPENSES FOR ME, OR PAYMENT DUE TO ME: You will not be paid to participate in this study and you will not bear any expenses

RISKS INVOLVED IN PARTICIPATION: Participants will not be exposed to any form of physical harm while taking part in the study. However, some items of the BDI and WHOQoL BREF may cause little psychological distress to the participants. To mitigate this risk, participants will be provided with as much information as possible during informed consent and debriefing. The psychologist will be available to address participants if they have issues with any of the items on the questionnaires.

BENEFITS INVOLVED IN PARTICIPATION: The findings will provide evidence-based information regarding the association between contraceptive use, physical activity, depression, and quality of life among women of child bearing age in Nigeria.

The outcome of the study may benefit the future of family planning research and practice regarding the development and implementation of evidence-based counseling tools to promote the uptake and continuation of the current method mix.

It may also encourage investment in the development of new family planning technologies that fit the lifestyles and needs of women in low- and medium-income countries such as Nigeria.

The research findings may also inform policy change, directing stakeholders and authorities in the Nigerian public health sector to implement measures to mitigate any observed negative effects of contraceptive use among Nigerian women of childbearing age

WILL MY PARTICIPATION IN THIS STUDY BE KEPT CONFIDENTIAL? Yes. Names on the questionnaire/data sheet will be removed once analysis starts. All data and back-ups thereof will be kept in password protected folders and/or locked away as applicable. Only I or my research supervisor will be authorized to use and/or disclose your anonymized information in connection with this research study. Any other person wishing to work with you anonymized information as part of the research process (e.g. an independent data coder) will be required to sign a confidentiality agreement before being allowed to do so.

OR

WILL MY TAKING PART IN THIS STUDY BE ANONYMOUS? Yes. Anonymous means that your personal details will not be recorded anywhere by me. As a result, it will not be possible for me or anyone else to identify your responses once these have been submitted.

WHAT WILL HAPPEN TO THE RESULTS OF THE RESEARCH STUDY? The results will be written into a research report that will be assessed. In some cases, results may also be published in a scientific journal. In

either case, you will not be identifiable in any documents, reports or publications. You will be given access to the study results if you would like to see them, by contacting me.

WHO IS ORGANISING AND FUNDING THE STUDY? The study is being organized by me, under the guidance of my research supervisor at the Department of Human Kinetics and Ergonomics in Rhodes University, South Africa. The study has not received any funding

WHO HAS REVIEWED AND APPROVED THIS STUDY? Before this study was allowed to start, it was reviewed in order to protect your interests. This review was done first by the Department of Human Kinetics and Ergonomics, and then secondly by the Human Research Ethics Committee at the Rhodes University. In both cases, the study was approved.

WHAT IF THERE IS A PROBLEM? If you have any concerns or complaints about this research study, its procedures or risks and benefits, you should ask me. You should contact me at any time if you feel you have any concerns about being a part of this study. My contact details are:

Name: Olabisi Ganiyat Alimi
Phone number: +2347032746595, +27812186504
Email: ganiyat9817@gmail.com

You may also contact my research supervisor:
Professor Candice Christie
Phone number: +27835616936
Email:c.christie@ru.ac.za

If you feel that any questions or complaints regarding your participation in this study have not been dealt with adequately, you may contact the Chairperson of the Human Research Ethics Committee at Rhodes University:
Name of research ethic committee chairperson
Rhodes contact: Interim Ethics Coordinator Ms Danielle de Vos
phone no: +2746 603 7727.

Email: d.devos@ru.ac.za
FURTHER INFORMATION AND CONTACT DETAILS: Should you wish to have more specific information about this research project information, have any questions, concerns or complaints about this research study, its procedures, risks and benefits, you should communicate with me using any of the contact details given above.

RHODES UNIVERSITY
Where leaders learn

Rhodes University Human Research Ethics Committee
PO Box 94, Makhanda, 6140, South Africa
t: +27 (0) 46 603 7727
f: +27 (0) 46 603 8822
e: ethics-committee@ru.ac.za
NHREC Registration number: RC-241114-045

https://www.ru.ac.za/researchgateway/ethics/

Researcher:

Olabisi Ganiyat Alimi

24 May 2022

Olabisi Alimi

Email: g20a9763@campus.ru.ac.za

Review Reference: 2022-5490-6773

Dear Ms Alimi

Title: Associations between contraceptive use, physical activity, depression and quality of life among women of child bearing age in Akure South Local Government Of Ondo State, Nigeria.

Researcher: Ms Olabisi Ganiyat Alimi

Supervisor: Prof Candice Christie

This letter confirms that the above research proposal has been reviewed and **APPROVED** by the Rhodes University Human Research Ethics Committee (RU-HREC). Your Approval number is: 2022-5490-6773

Approval has been granted for 1 year. An annual progress report will be required in order to renew approval for an additional period. You will receive an email notifying you when the annual report is due.

Please ensure that the ethical standards committee is notified should any substantive change(s) be made, for whatever reason, during the research process. This includes changes in investigators. Please also ensure that a brief report is submitted to the ethics committee on the completion of the research. The purpose of this report is to indicate whether the research was conducted successfully, if any aspects could not be completed, or if any problems arose that the ethical standards committee should be aware of. If a thesis or dissertation arising from this research is submitted to the library's electronic theses and dissertations (ETD) repository, please notify the committee of the date of submission and/or any reference or cataloguing number allocated.

Sincerely,

Prof Arthur Webb

Chair: Rhodes University Human Research Ethics Committee, RU-HREC

cc: Ms Danielle de Vos - Ethics Coordinator

LETA ALAYE IWADI

Oṣu karun Ọjọ ikankandinlogun, Ọdun 2022

Ojo dada,

Oruko mi ni Olabisi Ganiyat Alimi, **MO FE PE YIN LATI KOPA** ninu iwadi iwadi lori Ẹgbẹ laarin lilo oogun didena oyun, ere idaraya, ibanujẹ ati didara igbesi aye laarin awọn obinrin ti ọjọ ibimọ ni ijọba ibilẹ gusu ti Akure South ti Ipinle Ondo, Nigeria.

Ṣaaju ki o to pinnu lori boya lati kopa, Emi yoo fẹ lati ṣalaye fun ọ idi ti iwadii naa ṣe n ṣe ati ohun ti yoo kan fun ọ. Emi yoo lọ nipasẹ lẹta alaye pẹlu rẹ ati dahun ibeere eyikeyi ti o ni. Eyi yẹ ki o gba to iṣẹju 10 si 20. Iwadi na jẹ apakan ti iṣẹ akanṣe iwadi ti o pari bi ibeere fun Iwe-ẹkọ giga ni Awọn human Kinetics ati Ergonomics nipasẹ University Rhodes, South Africa.

IDI EKO YI ni lati sewadii egbe laarin lilo oogun oyun, ise idaraya, isora ati igbe aye to dara laarin awon obinrin ti won ti wa ni ojo ibi ni ijoba ibile Akure South ni Ipinle Ondo, Nigeria.

Ni isalẹ, Mo ti ṣe akojọpọ awọn ibeere ati awọn idahun ti Mo gbagbọ pe yoo ṣe iranlọwọ fun ọ ni oye awọn alaye ti o yẹ ti ikopa ninu iwadii iwadii yii. Jọwọ ka nipasẹ awọn wọnyi. Ti o ba ni awọn ibeere siwaju sii Emi yoo dun lati dahun wọn fun ọ.

NJE MO NIPA LATI KOPA? Rara, o ko ni latI kopa. O wa ku si ọ lati pinnu lati kopa ninu iwadi naa. Emi yoo ṣe apejuwe iwadi naa ati lọ nipasẹ iwe alaye yii. Ti o ba gba lati kopa, Emi yoo beere lọwọ rẹ lati fowo si fọọmu igbanilaaye kan. Bibẹẹkọ, o le pinnu lati yọ ifọkansi rẹ kuro ṣaaju ki o to fi iwe ibeere silẹ, ni kete ti o ba ti fi silẹ iwọ ko le yọkuro ikopa mọ nitori ailorukọ

KINNI GAAN NI EMI YOO SE TI MO BA GBA LATI KOPA? Iwọ yoo nilo lati atinuwa fọwọsi iwe ibeere eleto kan ti o ni awọn ibeere ti o beere nipa alaye-aye-ẹda eniyan rẹ, ibeere iṣẹ ṣiṣe ti ara gbogbogbo [GPAQII], Becks' depression ibeere ati WHO Didara ti aye ref ibeere. Iwe ibeere naa yoo gba iṣẹju 20 – 30 lati pari.

KINI YOO ṢE TI MO BA FE JADEDE NINU IKỌKỌ NA? Ti o ba pinnu lati kopa, o ni ominira lati yọkuro ifọkansi rẹ nigbakugba laisi fifun idi kan ati laisi eyikeyi abajade. Ti o ba fẹ yọkuro aṣẹ rẹ, o yẹ ki o sọ fun mi ni kete bi o ti ṣee.

TI MO BA YAN LATI PIPIN, NJE OWO KAN WA FUN MI, TABI ISANWO NIPA MI: A o san owo fun yin lati kopa ninu iwadi yi, kosi sibi inawo kankan.

Awọn ewu ti o kan ninu ikopa: Awọn olukopa kii yoo farahan si eyikeyi iru ipalara ti ara lakoko ti o kopa ninu iwadi naa. Bibẹẹkọ, diẹ ninu awọn nkan ti BDI ati WHOQoL BREF le fa aibalẹ ọkan ninu ọkan si awọn olukopa. Lati dinku eewu yii, awọn alabaṣe yoo pese alaye pupọ bi o ti ṣee ṣe lakoko ifọwọsi alaye ati asọye. Onimọ-jinlẹ yoo wa lati koju awọn olukopa ti won ba ni awọn ọran pẹlu eyikeyi awọn nkan ti o wa lori awọn iwe ibeere.

NJE IPAPA MI NINU IKỌKỌ YI ṢỌ NINU ASIRI BI? Awọn awari yoo pese alaye ti o da lori ẹri nipa ajọṣepọ laarin lilo oyun, iṣẹ ṣiṣe ti ara, ibanujẹ, ati didara igbesi aye laarin awọn obinrin ti ọjọ-ibi ọmọ ni Nigeria.

Abajade ti iwadii le ṣe anfani fun ọjọ iwaju ti iwadii igbero idile ati adaṣe nipa idagbasoke ati imuse ti awọn irinṣẹ idamọran ti o da lori ẹri lati ṣe agbega igbega ati itesiwaju ti idapọ ọna lọwọlọwọ.

O tun le ṣe iwuri fun idoko-owo ni idagbasoke awọn imọ-ẹrọ igbero idile tuntun ti o baamu awọn igbesi aye ati awọn iwulo awọn obinrin ni awọn orilẹ-ede kekere- ati alabọde-owo-owo bii Nigeria.

Awọn abajade iwadii naa tun le sọ fun iyipada eto imulo, didari awọn onipindoje ati awọn alaṣẹ ni eka ilera gbogbogbo ti orilẹ-ede Naijiria lati ṣe awọn igbese lati dinku eyikeyi awọn ipa odi ti a rii ti lilo idena oyun laarin awọn obinrin Naijiria ti ọjọ ori won wa lenu ibimọ.

TABI

NJE IPAPA MI NINU IKỌKỌ YI MA ṢIṢẸNIBI? Bẹẹni. Ailorukọ tumọ si pe awọn alaye ti ara ẹni kii yoo ṣe igbasilẹ nibikibi nipasẹ mi. Bi abajade, kii yoo ṣee ṣe fun emi tabi ẹnikẹni miiran lati ṣe idanimọ awọn idahun rẹ ni kete ti o ti fi awọn wọnyi silẹ.

KINNI YOO Ṣẹlẹ si awọn esi ti IWỌWỌWỌRỌ? Awọn abajade yoo wa ni kikọ sinu ijabọ iwadi ti yoo ṣe ayẹwo. Ni awọn igba miiran, awọn abajade tun le ṣe atẹjade ninu iwe akọọlẹ imọ-jinlẹ. Ni eyikeyi idiyele, iwọ kii yoo ṣe idanimọ ni eyikeyi awọn iwe aṣẹ, awọn ijabọ tabi awọn atẹjade. A yoo fun ọ ni alaye si awọn abajade ikẹkọ ti o ba fẹ lati rii wọn, nipa kikan si mi.

TANI NṢE to ati Ngbawo Ikẹkọọ naa? Iwadi naa ni a ṣeto nipasẹ mi, labẹ itọsọna ti alabojuto iwadii mi ni Ẹka ti Kinetics Eniyan ati Ergonomics ni Ile-ẹkọ giga Rhodes, South Africa. Iwadi na ko ti gba eyikeyi igbeowosile

TANI O TI TUNTUN TI O SI fọwọsi Ikẹkọọ YI? Ṣaaju ki o to gba iwadi yii laaye lati bẹrẹ, a ṣe atunyẹwo rẹ lati le daabobo awọn ifẹ rẹ. Atunwo yii ni akọkọ ṣe nipasẹ Ẹka ti Kinetiki Eniyan ati Ergonomics, ati lẹhinna keji nipasẹ Oluko ti Igbimọ Ẹwa Iwadi ni Ile-ẹkọ giga Rhodes. Ni awọn ọran mejeeji, a fọwọsi iwadi naa.

TI O BA WA NI Isoro? Ti o ba ni awọn ifiyesi tabi awọn ẹdun ọkan nipa iwadi iwadi yii, awọn ilana rẹ tabi awọn ewu ati awọn anfani, o yẹ ki o beere lọwọ mi. O yẹ ki o kan si mi nigbakugba ti o ba lero pe o ni awọn ifiyesi nipa jijẹ apakan ti ikẹkọ yii. Awọn alaye olubasọrọ mi ni:

Oruko: Olabisi Ganiyat Alimi
Nọmba foonu: +2347032746595, +27812186504
Imeeli: ganiyat9817@gmail.com

O tun le kan si alabojuto iwadii mi:
Ojogbon Candice
Christie
Imeeli:c.christie@ru.ac.za

Ti o ba lero pe eyikeyi ibeere tabi awọn ẹdun ọkan nipa ikopa rẹ ninu iwadi yii ko ti ni itọju daradara, o le kan si Alaga ti Oluko ti Igbimọ Ẹwa Iwadi Imọ-jinlẹ ni Ile-ẹkọ giga Rhodes:

Orukọ alaga igbimọ iwa iwadi
Rhodes contact: Interim Ethics Coordinator Ms Danielle de Vos
phone no: +2746 603 7727.
Email: d.devos@ru.ac.za

ALAYE Siwaju sii ati Awọn alaye Olubasọrọ: Ti o ba fẹ lati ni alaye pato diẹ sii nipa alaye iṣẹ akanṣe iwadii yii, ni eyikeyi ibeere, awọn ifiyesi tabi awọn ẹdun nipa iwadi iwadi yii, awọn ilana rẹ, awọn eewu ati awọn anfani, o yẹ ki o ṣe ibasọrọ pẹlu mi ni lilo eyikeyi awọn alaye olubasọrọ fun loke.

Oluwadi:
Olabisi Ganiyat Alimi
ibuwọlu

Yoruba Language version of the Access Letter Requesting Permission to Conduct Research

IWE IWE iwọle TO NBEERE AYE LATI SE IWADI

Ile-ẹkọ giga Rhodes

Opopona gbigbẹ,

Grahamstown,

6139

Omo Oba Adewale Adegbemi

Alaga,

Ijoba Ibile Guusu Akure ti Ipinle Ondo ni Naijiria,

Ni Ojo kankandin niogun,, Osun Karun Odun 2O22

Omo Oba Adewale Adegbemi

IBEERE FUN AYE LATI SE IWADI

Mo jẹ ọmọ ile-iwe Titunto ti o forukọsilẹ ni Ẹka ti Kinetic Eda Eniyan ati Ergonomics ni Ile-ẹkọ giga Rhodes. Alabojuto mi ni ọjọgbọn Candice Christie.

Koko iwadi mi ti a dabaa ni: Awon egbe laarin lilo oogun Idena oyun, ere idaraya, ibanuje ati igbe aye to dara laarin awon obinrin ti ojo ibimo ni ijoba ibile Akure South, Ondo State Nigeria:

a) Láti mọ bí lílo oògùn idena olóyún ṣe gbilẹ láàárín àwọn obìnrin tí ọjọ́ orí wọn ti bímọ ní ìjọba ìbílẹ Gúúsù Akure ní ìpínlẹ Ondo, Nàìjíríà.

b) Lati pinnu awọn ipele ere idaraye ati ipo aibalẹ ti awọn obinrin ti ọjọ ibimọ ni ijọba ibilẹ Gusu Gusu ti Akure ti Ipinle Ondo, Nigeria.

c) Lati ṣe afiwe ere idaraya, ibanujẹ, ati didara igbesi aye ọpọlọpọ awọn obinrin ti ọjọ-ori won ti o lo awọn oogun idena oyun ati awọn ẹlẹgbẹ ti o baamu ti ko lo awọn oogun idena oyun ni ijọba ibilẹ Gusu Akure ti Ipinle Ondo, Nigeria.

d) Lati ṣe iwadii idapọ laarin lilo oogun idena ati ise ere idaraya laarin awọn obinrin ti ọjọ ibimọ ni ijọba ibile Akure South ti Ipinle Ondo, Nigeria.

e) Lati pinnu ifarapọ laarin lilo oogun idena oyun ati ibanujẹ laarin awọn obinrin ti ọjọ ibimọ ni ijọba ibilẹ South South ti Ipinle Ondo, Nigeria.

f) Lati pinnu ifarapọ laarin lilo oogun idena oyun ati didara igbesi aye ilera ti awon obinrin

Mo n wa aṣẹ rẹ lati ṣe iwadii ni ijọba agbegbe rẹ……. Lati ṣe iranlọwọ fun ọ lati de ipinnu kan, Mo ti so mọ lẹta yii:

a) Ẹda ti iwe-ẹri imukuro ihuwasi ti Ile-ẹkọ giga ti funni.

b) Ẹda awọn ohun elo iwadii eyiti Mo pinnu lati lo ninu iwadii mi

Ti o ba nilo alaye siwaju sii, jọwọ ma ṣe ṣiyemeji lati kan si mi tabi alabojuto mi. Awọn alaye olubasọrọ wa bi atẹle: g20a9763@campus.ru.ac.za, +27812186504

Prof Candice Christie (email: c.christie@ru.ac.za; phone: +27835616936)

Ni ipari ikẹkọ, Mo ṣe lati pese esi fun ọ

Ìyọ̀nda rẹ láti darí ìkẹ́kọ̀ọ́ yìí yóò jẹ́ ìmọ́rírì gidigidi.

Emi ni ti yin nitoto,

Ibuwọlu

Oruko

Olabisi Ganiyat Alimi

Yoruba Language version of the PARTICIPANT INFORMED CONSENT DECLARATION.

Ìkéde ìfọwọ́sí ALÁKÀNṢẸ

(Lati fowo si nipasẹ awọn olukopa iwadii)

Akọle Iṣẹ Iwadi: Awọn ẹgbẹ laarin lilo oyun, iṣẹ ṣiṣe ti ara, ibanujẹ, ati didara igbesi aye laarin awọn obinrin ti ọjọ ibimọ ni ijọba ibilẹ Gusu Gusu ti Akure ti Ipinle Ondo, Nigeria.

Mo mọ pe:

1. Idi ti iṣẹ akanṣe iwadi ni lati ṣe iranlọwọ fun awọn oniwadi miiran laarin laini ikẹkọ lati ni iraye si alaye diẹ sii. Yoo tun jẹ iranlọwọ fun awọn obinrin ti ibimọ ọmọ lati ni oye lilo adehun ni ibatan si iṣẹ ṣiṣe, ibanujẹ ati didara igbesi aye Yoo tun ṣeda iyipada eto imulo alaye ti n ṣe itọsọna ijọba ati awọn apakan ti gbogbo eniyan ni eto eto ilera nipa lilo awọn oogun idena laarin awọn obinrin ni Nigeria ..... (lati pari nipasẹ Oluwadi ati/tabi Alabojuto).

2. Ile-ẹkọ giga Rhodes ti funni ni idasilẹ ihuwasi si iṣẹ akanṣe iwadi yii (Nọmba Ifọwọsi Ethics) ati pe Mo ti rii / le beere lati wo iwe-ẹri idasilẹ nipa kikan si Alakoso Ethics (ethicscommittee@ru.ac.za).

3 a.Nipa ikopa ninu iṣẹ akanṣe iwadi yii, a. Awọn awari yoo pese alaye ti o da lori ẹri nipa ajọṣepọ laarin lilo oyun, iṣẹ ṣiṣe ti ara, ibanujẹ, ati didara igbesi aye laarin awọn obinrin ti ọjọ-ibi ọmọ ni Nigeria.

b. Abajade ti iwadii le ṣe anfani fun ọjọ iwaju ti iwadii igbero idile ati adaṣe nipa idagbasoke ati imuse ti awọn irinṣẹ idamọran ti o da lori ẹri lati ṣe agbega igbega ati itesiwaju ti idapọ ọna lọwọlọwọ.

c. O tun le ṣe iwuri fun idoko-owo ni idagbasoke awọn imọ-ẹrọ igbero idile tuntun ti o baamu awọn igbesi aye ati awọn iwulo awọn obinrin ni awọn orilẹ-ede kekere- ati alabọde-owo-owo bii Nigeria.

d. Awọn abajade iwadii naa le tun sọ fun iyipada eto imulo, didari awọn ti o nii ṣe ati awọn alaṣẹ ni eka ilera gbogbogbo ti orilẹ-ede Naijiria lati ṣe awọn igbese lati dinku eyikeyi awọn ipa odi ti a rii ti lilo idena oyun laarin awọn obinrin Naijiria ti ọjọ ori won wa lenu ibimọ.

4. Emi yoo kopa ninu iṣẹ akanṣe naa nipa ipari iwe ibeere kan ti o fa awọn idahun lori awọn abuda ẹda-aye, iṣẹ ṣiṣe ti ara, ibanujẹ, ati didara igbesi aye ti o ni ibatan si ilera.

5. Ikopa mi jẹ atinuwa patapata ati pe ti MO ba fẹ ni eyikeyi ipele fẹ lati yọkuro lati kopa siwaju, MO le ṣe laisi eyikeyi awọn abajade odi.

6. Emi kii yoo san san fun ikopa ninu iwadi naa, ṣugbọn awọn inawo mi ti ko si ni yoo san pada. (Ti o ba jẹ ẹsan, pese awọn alaye) ṣe alabapin si iboju-ara ti o wa tẹlẹ lilo awọn idena oyun ati ipa laarin awọn obinrin ti ọjọ ibimọ ọmọ.

7. Awọn ewu atẹle ni nkan ṣe pẹlu ikopa mi:
   Awọn alabaṣe kii yoo farahan si eyikeyi iru ipalara ti ara nigba ti won n kopa ninu iwadi naa. Bibẹẹkọ, diẹ ninu awọn nkan ti BDI ati WHOQoL BREF le fa aibalẹ ọkan ninu ọkan si awọn olukopa. Lati dinku eewu yii, awọn alabaṣe yoo pese alaye pupọ bi o ti ṣee ṣe lakoko ifọwọsi alaye ati asọye. Onimọ-jinlẹ yoo wa lati koju awọn olukopa ti won ba ni awọn ọran pẹlu eyikeyi awọn nkan ti o wa lori awọn iwe ibeere
8. Oluwadi naa pinnu lati ṣe atẹjade awọn abajade iwadii ni irisi igbejade apejọ ti imọ-jinlẹ ati titẹjade ni iwe iroyin DHET ti a fọwọsi. Sibẹsibẹ, asiri ati ailorukọ ti awọn igbasilẹ yoo wa ni ipamọ, ati pe orukọ mi ati idanimọ mi ko ni han si ẹnikẹni ti ko ni ipa ninu ṣiṣe iwadi naa, ayafi ti mo ba tọka si / mọ pe gẹgẹbi eniyan ti ara ilu, idanimọ mi yoo daju pe ko ṣeeṣe. jẹ / di mimọ ninu ọran ti Mo gba ati gba isonu ti asiri.

9. Ni awọn ofin ti Idaabobo ti Ofin Alaye ti ara ẹni (No. 4, 2013), o jẹ ẹtọ mi lati beere lọwọ Oluwadi lati pese alaye ti o ni kikun ti gangan bi asiri ati ailorukọ yoo ṣe waye. Mo le beere lati mọ bi alaye ti ara ẹni mi yoo ṣe fipamọ ni aabo, ati fun igba melo ni yoo tọju.

10. Ti eyikeyi data ti a gba lọwọ mi fun iṣẹ akanṣe iwadi yii ni oluṣewadii yoo lo fun iṣẹ akanṣe miiran, a gbọdọ sọ fun mi ni kikọ, ati ifọwọsi kikọ mi tun beere. Nko nilo ifọkansi ti iru iwadi siwaju sii ko ba ni ibamu pẹlu data akọkọ ti a gbekalẹ fun iwadi yii (POPIA, s15(3)). Bakanna, Mo le jiroro ko ibeere naa. Ni iru awọn ọran naa ibeere ibeere ni lati ṣe nipasẹ oniwadi nipasẹ Alakoso Ẹwa (ethics-committee@ru.ac.za).

11. Ni awọn ofin ti Idaabobo ti Ofin Alaye ti ara ẹni, Mo ni ẹtọ lati gba esi nipa iwadi yii. Eyi yoo gba irisi pataki kikọ ibeere si oluwadii.

12. Eyikeyi ibeere siwaju sii ti MO le ni nipa iwadii naa, tabi ikopa mi yoo dahun nipasẹ Miss Alimi Olabisi Ganiyat, Imeeli g20a9763@campus.ru.ac.za tabi Ọjọgbọn Candice Christie, Imeeli: c.christie@ru.ac.za. phone no, +27835616936, Rhodes contact: Interim Ethics Coordinator Ms Danielle de Vos email d.devos@ru.ac.za phone no: +2746 603 7727.
13. Nipa wíwọlé ìwífún ìfohùnṣọkan ifitonileti yii, Emi ko kọ eyikeyi awọn ẹtọ ti ofin, awọn ẹtọ tabi awọn atunṣe.

14. Ẹ̀dà ìkéde ìyọ̀nda ìmọ̀ràn yìí ni a ó fi fún mi, a ó sì fi ìpilẹ̀ṣẹ̀ náà pamọ́ sí àkọsílẹ̀. Mo gba / ko gba (Yan TO WU) si ibeere Oluwadi lati ya awọn fọto ati/tabi awọn fidio ti mi gẹgẹbi apakan ti iṣẹ iwadii yii, ni mimọ pe adehun nibi ṣee ṣe lati gbe eewu ti ibaje

ailorukọ mi dide ati pe awọn igbesẹ yoo ṣe lati rii daju eyi ko ṣẹlẹ ti o ba gba ifọwọsi mi.

15. Mo gba / ko gba pẹlu ibeere Oluwadi lati ṣe igbasilẹ awọn asọye ati awọn ero mi lakoko awọn ibere ijomitoro, idi eyi ni lati rii daju gbigbasilẹ deede ti awọn iwo mi. Pẹlupẹlu, Mo ni ẹtọ lati beere ẹda kan ti awọn iwe ifọrọwanilẹnuwo lati jẹrisi pe awọn imọran mi ti gbasilẹ ni pipe.

16. Ẹ̀dà ìkéde ìfọwọ́sọ̀rọ̀ ìsọfúnni yìí ni a ó fi fún mi, àtipilẹ̀ṣẹ̀ náà ni a ó fi pamọ́ sí ìpamọ́ nípasẹ̀ olùṣèwádìí

Emi, ……., ti ka alaye ti o wa loke / jẹrisi pe alaye ti o wa loke ti ṣe alaye fun mi ninu iwe kan ede ti mo loye ati pe Mo mọ awọn akoonu inu iwe yii. Mo ti beere gbogbo awọn ibeere ti Mo fẹ lati beere ati pe wọn ti ni idahun si itẹlọrun mi. Mo loye ni kikun ohun ti a reti lati ọdọ mi lakoko iwadii naa.

Emi ko ti ni titẹ ni eyikeyi ọna ati pe Mo fi atinuwa gba lati kopa ninu iṣẹ akanṣe ti a mẹnuba loke.

……. …….

Olukopa Ọjọ Ibuwọlu

YORUBA VERSION OF THE QUESTIONNIARE.

Awọn ilana fun awọn olukopa:

Dahun gbogbo ibeere.

Jowo samisi pẹlu (X) awọn aṣayan ti o baamu awọn idahun ti o yẹ ni ipari isunmọ awọn ibeere ati kọ idahun rẹ ni kikun lori awọn ibeere ṣiṣi. Rii daju otitọ ati awọn idahun otitọ si gbogbo awọn ibeere. Jọwọ ṣe akiyesi pe gbogbo alaye ti a pese yoo wa ni ipamọ to muna

IPIN A: SOCIO-DEMOGRAPHIC DATA

1. Kini ọjọ ori rẹ ni awọn ọdun? …….

Ni isalẹ Ogun ọdun	
20-29 ọdun	
30-39 ọdun	
40-49 ọdun	
50 ọdun ati ju bẹẹ lọ	

2. Ipo igbeyawo

Apon	
Se igbeayawo	
Ilemọṣu / Iyapa	
Opo	

3. Giga Educational afijẹẹri

Ko si eko	
Ẹkọ alako beere	
Atẹle eko, girama	
Ẹkọ ile-ẹkọ giga	

4. Ipo iṣẹ rẹ

Alainiṣẹ	
Omo ile iwe	
Onisowo / Agbe	
Awọn onișọnà	
Awon osise ilu	

5. Ẹya

Hausa	
Igbo	
Yoruba	
Awọn miiran	

6. Njẹ o mọ awọn ọna idena oyun?

Bẹẹni	
Rara	

7. Njẹ o ti ṣe adaṣe idena oyun tabi lo awọn idena oyun ni igbesi aye rẹ?

Bẹẹni	
Rara	

8. Njẹ o n ṣe idena oyun lọwọlọwọ tabi lo awọn idena oyun?

Bẹẹni	
Rara	

9. Ti idahun rẹ si 10 loke jẹ "bẹẹni" iru ọna idena oyun wo ni o nlo?

Kondomu okunrin	
Kondomu Obinrin	
Diaphragm	
Awọn abẹrẹ	
IUCD	
Awọn oogun	
Awọn ifibọ	
Vasectomy	
Ifilelẹ tubal meji	
Ibile (armlet, oruka, padlock)	
Adayeba (abstinence igbakọọkan, fifun ọmu, idalọwọduro ti coitus	

10. Bawo ni o ti pẹ to ti nṣe adaṣe tabi lilo ọna idena oyun lọwọlọwọ?

O kere ju ọdun 1 lọ	

1-5 ọdun	
6-10	
Diẹ ẹ sii ju ọdun 10 lọ	

11**. Njẹ o ni iriri eyikeyi awọn ipa ẹgbẹ ti lilo idena oyun?**

Bẹẹni	
Rara	

12. Ti idahun rẹ si ibeere 11 jẹ "bẹẹni", wo ninu awọn ipa ẹgbẹ atẹle ni o ni iriri?

Ẹjẹ ti o wuwo (awọn iyipada ninu oṣu)	
Awọn orififo	
Rirera	
Yipada ni iwuwo	
Awọn miiran	

Awọn miiran, jọwọ
pato……
…….

……
……

13. Ṣe o ro pe awọn ipo iṣoogun miiran wa, ẹbi tabi awọn ọran awujọ ti o mu ọ ni aibalẹ ati o ṣee ṣe ki o ni irẹwẹsi?

Bẹẹni	
Rara	

ti o ba ti je bẹẹni, Jowo darukọ wọn

……
……
……
……

……
……
……

IPIN B: Gbogbogbo Ibeere Iṣẹ ṣiṣe ti ara

Awọn ibeere atẹle wọnyi beere nipa akoko ti o lo lati ṣe awọn orisirisi iṣẹ ṣiṣe ti ara ni ọsẹ aṣoju kan. Jọwọ dahun awọn ibeere wọnyi paapaa ti o ko ba ka araṛẹ si eniyan ti o ni agbara nipa ti ara.

Ronu akọkọ nipa akoko ti o lo lati ṣe iṣẹ. Ronu pe iṣẹ bi awọn ohun ti o ni lati ṣe gẹgẹbi iṣẹ ti o sanwo tabi ti a ko sanwo, ikẹkọ / ikẹkọ, awọn iṣẹ ile, ikore ounjẹ / awọn irugbin, ipeja tabi sode ounjẹ, wiwa iṣẹ. Ni idahun awọn ibeere wọnyi 'awọn iṣẹ ṣiṣe-kikankikan' jẹ awọn iṣẹ ṣiṣe ti o nilo igbiyanju ti ara lile ti o fa alekun nla ni mimi tabi oṣuwọn ọkan, "awọn iṣẹ ṣiṣe iwọntunwọnsi" jẹ awọn iṣẹ ṣiṣe ti o nilo igbiyanju ti ara iwọntunwọnsi ati fa alekun kekere ninu mimi tabi ọkan oṣuwọn.

Awọn ibeere		**Idahun Awọn ibeere**	**Koodu**
Iṣẹ-ṣiṣe ni ibi iṣẹ			
1.	Njẹ iṣẹ rẹ kan iṣẹ ṣiṣe-kikankikan ti o fa alekun nla ni mimi tabi oṣuwọn ọkan bii [gbigbe tabi gbígbé awọn ẹru wuwo, n walẹ tabi iṣẹ ikole] fun o kere ju iṣẹju mẹwa 10 nigbagbogbo?	Beeni 1 Bẹẹkọ 2 Ti Bẹẹkọ, lọ si P4	P1
2.	Ní ọsẹ kan, ọjọ mélòó ni o máa ń ṣe àwọn ìgbòkègbodò alágbára ńlá gẹ́gẹ́ bí ara iṣẹ́ rẹ?	Nọmba ti awọn ọjọ ⌊__⌋	P2
3.	Elo akoko ni o lo lati ṣe awọn iṣẹ ṣiṣe ti o lagbara ni iṣẹ ni ọjọ aṣoju?	Awọn wakati iṣẹju ⌊__⌋⌊__⌋ ⌊__⌋⌊__⌋ Wakati iseju.	P3 (a-b)
4.	Njẹ iṣẹ rẹ kan iṣẹ ṣiṣe iwọntunwọnsi pe fa kekere posi ni mimi tabi okan oṣuwọn bi nrin brisk [*tabi gbigbe awọn ẹru tofuye*] fun o kere ju iṣẹju mẹwa 10 nigbagbogbo?	Beeni 1 Bẹẹkọ 2 Ti Bẹẹkọ,	P4

		lọ si P7	
5.	Ni ọsẹ kan aṣoju, ọjọ melo ni o ṣe awọn iṣẹ ṣiṣe iwọntunwọnsi gẹgẹbi apakan ti iṣẹ rẹ?	Nọmba ti awọn ọjọ ⌊__⌋	P5
6.	Elo akoko ni o lo lati ṣe awọn iṣẹ ṣiṣe iwọntunwọnsi ni iṣẹ ni ọjọ aṣoju?	Awọn wakati iṣẹju ⌊__⌋⌊__⌋ ⌊__⌋⌊__⌋ Wakati iseju.	P6 (a-b)

Irin ajo lọ si ati lati awọn aaye			
Awọn ibeere atẹle yoo yọkuro awọn iṣẹ ṣiṣe ti ara ni iṣẹ ti o ti ṣọ tẹlẹ. Bayi Emi yoo fẹ lati beere lọwọ rẹ nipa ọna deede ti o rin irin-ajo si ati lati awọn aye. Fun apẹẹrẹ lati ṣiṣẹ, fun riraja, si ọja, si ibi ijọsin. [fi awọn apẹẹrẹ miiran sii ti o ba nilo]			
7.	Ṣe o nrin tabi lo keke (pipedali) fun o kere ju iṣẹju mẹwa 10 nigbagbogbo lati lọ si ati lati awọn aaye?	Beeni 1 Bẹẹkọ 2 Ti Bẹẹkọ, lọ si P 10	P7
8	Ni ọsẹ kan aṣoju, ọjọ melo ni o rin tabi keke fun o kere ju iṣẹju 10 nigbagbogbo lati lọ si ati lati awọn aaye?	Nọmba ti awọn ọjọ ⌊__⌋	P8
9.	Elo akoko ni o n rin tabi gigun kẹkẹ fun irin-ajo ni ọjọ aṣoju?	Awọn wakati iṣẹju ⌊__⌋⌊__⌋ ⌊__⌋⌊__⌋ Wakati iseju.	P9 (a-b)
Awọn iṣẹ iṣere			
Awọn ibeere atẹle yọkuro iṣẹ ati awọn iṣẹ gbigbe ti o ti mẹnuba tẹlẹ. Ni bayi Emi yoo fẹ lati beere lọwọ rẹ nipa awọn ere idaraya, amọdaju ati awọn iṣẹ iṣere (afẹfẹ), [fi sii awọn ofin to wulo].			
10.	Ṣe o ṣe eyikeyi awọn ere-idaraya-kikankikan, adaṣe tabi awọn iṣẹ iṣere (afẹfẹ) ti o fa alekun nla ni mimi tabi oṣuwọn ọkan bi [nṣiṣẹ tabi bọọlu,] o kere ju iṣẹju mẹwa 10 nigbagbogbo?	Beeni 1 Bẹẹkọ 2 Ti Bẹẹkọ,	P 10

		lọ si P 13	
11	Ni ọsẹ kan aṣoju, ni awọn ọjọ melo ni o ṣe awọn ere idaraya ti o ni agbara, amọdaju tabi awọn iṣẹ iṣere (afẹfẹ)?	Nọmba ti awọn ọjọ ⌊__⌋	P11
12	Elo akoko ni o n lo lati ṣe awọn ere-idaraya ti o lagbara, adaṣe tabi awọn ere idaraya ni ọjọ aṣoju?	Awọn wakati iṣẹju ⌊__⌋⌊__⌋ ⌊__⌋⌊__⌋ Wakati iseju.	P12 (a-b)
Iṣẹ ṣiṣe ti ara (awọn iṣẹ ere idaraya) contd.			
Awọn ibeere		**Idahun Awọn ibeere**	**Koodu**
13.	Ṣe o ṣe eyikeyi awọn ere idaraya ti o ni iwọntunwọnsi, amọdaju tabi awọn iṣẹ iṣere (afẹfẹ) ti o fa alekun kekere ninu mimi tabi oṣuwọn ọkan gẹgẹbi nrin iyara, (gigun kẹkẹ, odo, folliboolu) fun o kere ju iṣẹju mẹwa 10 nigbagbogbo bi?	Beeni 1 Bẹẹkọ 2 Ti Bẹẹkọ, lọ si P 16	P13
14.	Ni ọsẹ kan aṣoju, ni awọn ọjọ melo ni o ṣe awọn ere idaraya ti o ni iwọntunwọnsi, adaṣe tabi awọn iṣẹ iṣere (afẹfẹ)?	Nọmba ti awọn ọjọ ⌊__⌋	P14
15.	Elo akoko ni o n lo lati ṣe awọn ere idaraya ti o ni iwọntunwọnsi, adaṣe tabi awọn iṣẹ ere idaraya (akoko isinmi) ni ọjọ aṣoju kan?	Awọn wakati iṣẹju ⌊__⌋⌊__⌋ ⌊__⌋⌊__⌋ Wakati iseju.	P15 (a-b)
Sedentary ihuwasi			
Ibeere ti o tẹle jẹ nipa joko tabi jijo ni ibi iṣẹ, ni ile, wiwa si ati lati awọn aaye, tabi pẹlu awọn ọrẹ pẹlu akoko ti a lo (joko ni tabili kan, joko pẹlu awọn ọrẹ, rin irin-ajo ni ọkọ ayọkẹlẹ, ọkọ ayọkẹlẹ, ọkọ oju-irin, kika, awọn kaadi tabi wiwo tẹlifisiọnu], ṣugbọn ko pẹlu akoko ti o lo sisùn.			
16	How much time do you usually spend sitting or reclining on a typical day?	Awọn wakati iṣẹju ⌊__⌋⌊__⌋ ⌊__⌋⌊__⌋ Wakati iseju.	P16 (a-b)

Abala 3: Beck Depression Inventory

Awọn itọnisọna: Abala yii ni awọn ẹgbẹ 21 ti awọn alaye. Jọwọ ka ẹgbẹ kọọkan ti awọn alaye ni pẹkipẹki. Ati lẹhinna yan gbólóhùn kan ninu ẹgbẹ kọọkan ti o ṣe apejuwe julọ ti ọna ti o ti

ni rilara ni ọsẹ meji sẹhin, pẹlu loni. Yi nọmba ti o wa lẹba alaye ti o ti mu. Ti ọpọlọpọ awọn alaye ninu ẹgbẹ ba dabi ẹni pe o lo deede daradara, yika nọmba ti o ga julọ fun ẹgbẹ yẹn. Rii daju pe o ko yan ju ẹyọkan lọ fun ẹgbẹ eyikeyi.

1.

0 Emi ko banuje.

1 Mo ni ibanujẹ

2 Mo n banujẹ nigbagbogbo ati pe emi ko le yọ kuro ninu rẹ.

3 Inú mi bàjẹ́, inú mi kò dùn tóbẹ́ẹ̀ tí n kò lè fara dà á.

2.

0 Emi ko ni irẹwẹsi paapaa nipa ọjọ iwaju.

1 Ìrẹ̀wẹ̀sì bá mi nípa ọjọ́ iwájú.

2 Mo lero pe emi ko ni nkankan lati reti.

3 Mo lero pe ọjọ iwaju ko ni ireti ati pe awọn nkan ko le dara.

3.

0 Emi ko lero bi ikuna.

1 Mo lero Mo ti kuna diẹ sii ju apapọ eniyan.

2 Bí mo ṣe ń ronú nípa ìgbésí ayé mi, gbogbo ohun tí mo lè rí ni ọ̀pọ̀lọpọ̀ ìkùnà.

3 Mo lero pe emi jẹ ikuna pipe gẹgẹbi eniyan kan.

4.

0 Mo ni itelorun pupọ ninu awọn nkan bi mo ti ṣe tẹlẹ.

1 Mi o gbadun awon nnkan bi mo ti se tele.

2 Emi ko ni itẹlọrun gidi ninu ohunkohun mọ.

3 Mo ko ni itẹlọrun tabi sunmi pẹlu ohun gbogbo.

5.

0 Emi ko lero paapaa jẹbi

1 Mo lero jẹbi kan ti o dara apa ti awọn akoko.

2 Mo lero pe o jẹbi pupọ ni ọpọlọpọ igba.

3 Mo lero ẹbi ni gbogbo igba.

6.

0 Emi ko lero pe a n jiya mi.

1 Mo lero pe mo le jiya.

2 Mo nireti lati jiya.

3 Mo lero pe a n jiya mi.

7.

0 Emi ko ni ibanujẹ ninu ara mi.

1 Inu mi dun mi.

2 Mo kórìíra ara mi.

3 Mo korira ara mi.

8.

0 Emi ko lero pe Mo buru ju ẹnikẹni miiran lọ.

1 Mo máa ń ṣàríwísí ara mi nítorí àìlera mi tàbí àṣìṣe mi.

2 Mo máa ń dá ara mi lẹ́bi nígbà gbogbo fún àwọn àṣìṣe mi.

3 Mo máa ń dá ara mi lẹ́bi fún gbogbo ohun búburú tí ó ṣẹlẹ̀.

9.

0 Emi ko ni ero eyikeyi lati pa ara mi.

1 Èmi ní èrò láti pa ara mi, ṣùgbọ́n èmi kì yóò mú wọn jáde.

2 Emi yoo fẹ lati pa ara mi.

3 Emi yoo pa ara mi ti MO ba ni aye.

10.

0 Emi ko sunkun ju igbagbogbo lọ.

1 Mo sunkun ju ti tele lo.

2 Mo sunkun ni gbogbo igba bayi.

3 Mo máa ń sunkún tẹ́lẹ̀, àmọ́ ní báyìí n kò lè sunkún bó tilẹ̀ jẹ́ pé mo fẹ́.

11.

0 N kò bínú nípa àwọn nǹkan bí mo ti wà rí.

1 Mo binu diẹ sii ni bayi ju igbagbogbo lọ.

2 Mo binu tabi binu pupọ ni akoko yẹn.

3 Mo máa ń bínú ní gbogbo ìgbà.

12.

0 Emi ko padanu anfani si awọn eniyan miiran.

1 Mi ò fi bẹ̀ẹ̀ nífẹ̀ẹ́ sí àwọn èèyàn bíi ti tẹ́lẹ̀.

2 Mo ti pàdánù ọ̀pọ̀ ìfẹ́ mi nínú àwọn ẹlòmíràn.

3 Mo ti pàdánù gbogbo ìfẹ́ mi nínú àwọn ẹlòmíràn.

13.

0 Mo ṣe awọn ipinnu nipa bi mo ti le ṣe.

1 Mo ti pa ṣiṣe awọn ipinnu diẹ sii ju ti tẹlẹ lọ.

2 Ó máa ń ṣòro fún mi láti ṣèpinnu ju bí mo ṣe máa ń ṣe tẹ́lẹ̀ lọ.

3 Emi ko le ṣe awọn ipinnu rara.

14.

0 Nko lero pe oju mi buru ju bi mo ti tele lo.

1 Mo ṣàníyàn pé mo dàrú tàbí tí kò fani mọ́ra.

2 Mo lero pe awọn iyipada ayeraye wa ninu irisi mi ti o jẹ ki n dabi ẹni ti ko wuyi

3 Mo gbagbo pe mo wo oju.

15.

0 Mo le ṣiṣẹ nipa daradara bi tẹlẹ.

1 O nilo afikun igbiyanju lati bẹrẹ ni ṣiṣe nkan kan.

2 Mo ni lati ti ara mi gidigidi lati ṣe ohunkohun.

3 Nko le se ise kankan rara.

16.

0 Mo le sun bi igbagbogbo.

1 Nko sun bi mo ti tele.

2 Mo ji ni wakati 1-2 ṣaaju ju igbagbogbo lọ ati pe o nira lati pada si sun.

3 Mo jí ní ọ̀pọ̀lọpọ̀ wákàtí ṣáájú ju bí mo ti máa ń ṣe tẹ́lẹ̀ lọ, n kò sì lè padà sùn.

17.

0 Emi ko rẹ diẹ sii ju igbagbogbo lọ.

1 Mo máa ń rẹ̀ mí ní ìrọ̀rùn ju bí mo ti máa ń ṣe tẹ́lẹ̀ lọ.

2 Ó rẹ̀ mí láti ṣe nǹkankan.

3 Ó ti rẹ̀ mí jù láti ṣe ohunkóhun.

18.

0 Ounjẹ mi ko buru ju igbagbogbo lọ.

1 Ìfẹ́ mi kò dára bí ti tẹ́lẹ̀ rí.

2 Èèyàn mi ti burú sí i báyìí.

3 Emi ko ni itunnu rara.

19.

0 Emi ko padanu iwuwo pupọ, ti o ba jẹ eyikeyi, laipẹ.

1 Mo ti padanu diẹ sii ju poun marun.

2 Mo ti padanu diẹ sii ju poun mẹwa.

3 Mo ti padanu diẹ ẹ sii ju poun meedogun.

20.

0 Emi ko ni aniyan nipa ilera mi ju igbagbogbo lọ.

1 Mo ṣe aniyan nipa awọn iṣoro ti ara bii irora, irora, inu inu, tabi àìrígbẹyà.

2 Mo máa ń ṣàníyàn gan-an nípa àwọn ìṣòro ti ara, ó sì ṣòro láti ronú nípa ohun mìíràn.

3 Ìṣòro ara mi ń ṣe mí lọ́kàn débi pé mi ò lè ronú nípa nǹkan míì.

21.

0 Emi ko ṣe akiyesi eyikeyi iyipada laipẹ ninu iwulo mi ni ibalopọ.

1 N kò nífẹ́ẹ́ sí ìbálòpọ̀ ju bí mo ti máa ń ṣe tẹ́lẹ̀ lọ.

2 Mo ni fere ko si anfani ni ibalopo .

3 Mo ti pàdánù ìfẹ́ nínú ìbálòpọ̀ pátápátá.

Abala 4: WHOQOL-BREF

Awọn ibeere wọnyi beere bi o ṣe lero nipa didara igbesi aye rẹ, ilera, tabi awọn agbegbe miiran ti igbesi aye rẹ. Emi yoo ka ibeere kọọkan fun ọ, pẹlu awọn aṣayan idahun. **Jọwọ yan idahun ti o han julọ ti o yẹ.** Ti o ko ba ni idaniloju nipa idahun wo lati fun ibeere kan, idahun akọkọ ti o ronu nigbagbogbo jẹ eyiti o dara julọ.

Jọwọ tọju awọn iṣedede rẹ, awọn ireti, awọn igbadun ati awọn ifiyesi rẹ. A beere pe ki o ronu nipa igbesi aye rẹ **ni ọsẹ mẹrin to kọja.**

		Ko dara rara	Ko dara	Aairin meeji	O dara	Dapa pupo
1.	Bawo ni iwọ yoo ṣe iwọn didara igbesi aye rẹ?	1	2	3	4	5

		Ko dara rara	Ko dara	Aairin meeji	O dara	Dapa pupo
2.	Bawo ni o ṣe ni itẹlọrun pẹlu ilera rẹ?	1	2	3	4	5

Awọn ibeere atẹle wọnyi beere **nipa iye** ti o ti ni iriri awọn nkan kan ni ọsẹ mẹrin sẹhin.

		Kii ṣe rara	Iwọn	iwọntunwọnsi	diẹ pupọ	Pupọ iye to gaju
3.	Si iwọn wo ni o lero pe irora ti ara ṣe idiwọ fun ọ lati ṣe ohun ti o nilo lati ṣe?	5	4	3	2	1
4.	Elo ni o nilo eyikeyi itọju ilera lati ṣiṣẹ ni igbesi aye ojoojumọ rẹ?	5	4	3	2	1
5.	Elo ni o gbadun igbesi aye?	1	2	3	4	5
6.	Obá tẹ mẹ wẹ a nọ mọdọ gbẹzan towe tindo zẹẹmẹ jẹ?	1	2	3	4	5

		Kii ṣe rara	Iwọn	iwọntunwọnsi	diẹ pupọ	Pupọ iye to gaju

7.	Bawo ni o ṣe le ṣojumọ daradara?	1	2	3	4	5
8.	Bawo ni ailewu ṣe lero ninu igbesi aye rẹ ojoojumọ?	1	2	3	4	5
9.	Bawo ni ilera ni ayika ti ara rẹ?	1	2	3	4	5

Awọn ibeere atẹle wọnyi beere nipa bii o ṣe ni iriri patapata tabi ni anfani lati ṣe awọn nkan kan ni ọsẹ mẹrin to kọja.

		Kii ṣe rara	Iwọn	iwọntunwọnsi	diẹ pupọ	Pupọ iye to gaju
10.	Ṣe o ni agbara to fun igbesi aye ojoojumọ?	1	2	3	4	5
11.	Ṣe o le gba irisi ti ara rẹ bi?	1	2	3	4	5
12.	Njẹ o ni owo ti o to lati pade awọn aini rẹ?	1	2	3	4	5
13.	Báwo ni ìsọfúnni tó o nílò ṣe wà fún ọ nínú ìgbésí ayé rẹ ojoojúmọ́?	1	2	3	4	5
14.	Obá tẹ mẹ wẹ a tindo dotẹnmẹ hundote lọ na nuwiwa ayidedai tọn jẹ?	1	2	3	4	5

		Ko dara rara	Ko dara	Aairin meeji	O dara	Dapa pupo
15.	Bawo ni o ṣe le wa ni ayika daradara?	1	2	3	4	5

		Ko dara rara	Ko dara	Aairin meeji	O dara	Dapa pupo
16.	Báwo ni oorun rẹ ti tẹ ẹ lọ́rùn?	1	2	3	4	5
17.	Bawo ni o ṣe ni itẹlọrun pẹlu agbara rẹ lati ṣe awọn iṣẹ igbesi aye ojoojumọ rẹ?	1	2	3	4	5

18.	Bawo ni o ṣe ni itẹlọrun pẹlu agbara rẹ fun iṣẹ?	1	2	3	4	5
19.	Bawo ni inu rẹ ti tẹlọrun fun ara rẹ?	1	2	3	4	5
20.	Bawo ni o ṣe ni itẹlọrun pẹlu awọn ibatan ti ara ẹni?	1	2	3	4	5
21.	Bawo ni inu rẹ ṣe tẹlọrun pẹlu igbesi aye ibalopọ rẹ?	1	2	3	4	5
22.	Bawo ni o ti ni itẹlọrun pẹlu atilẹyin ti o gba lati ọdọ awọn ọrẹ rẹ?	1	2	3	4	5
23.	Bawo ni inu rẹ ti tẹlọrun pẹlu ipo ibugbe rẹ?	1	2	3	4	5
24.	Bawo ni o ṣe ni itẹlọrun pẹlu iraye si awọn iṣẹ ilera?	1	2	3	4	5
25.	Bawo ni o ni itẹlọrun pẹlu irinna rẹ?	1	2	3	4	5

Ibeere atẹle n tọka si iye igba ti o ti ni imọlara tabi ni iriri awọn nkan kan ni ọsẹ mẹrin sẹhin.

		Ko si rara	O sowon	Igba kankan	Deede	Nigbagbogbo
26.	Igba melo ni o ni awọn ikunsinu odi gẹgẹbi iṣesi buluu, aibalẹ, aibalẹ, ibanujẹ?	5	4	3	2	1

Ṣe o ni awọn asọye nipa igbelewọn?