ATTITUDE AND PERCEPTION TOWARDS POST-PARTUM WEIGHT GAIN AMONGST MOTHERS RECEIVING POST-NATAL SERVICES IN PUBLIC HEALTH FACILITIES IN IBADAN NORTH LOCAL GOVERNMENT AREA OYO-STATE, NIGERIA

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DEDICATION

This research work is dedicated to the Almighty God who gave me strength and the ability to complete the MPH programme, I give him all the Glory. I also dedicate this work to my wonderful parents, Rev and Mrs. Enoch Yirenkyi and to my siblings Alex, Mercy, Priscilla and David Yirenkyi.

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ABSTRACT

Excessive weight gain during pregnancy has been shown to predispose women to higher postpartum weight retention and possibly long-term overweight with long and short term consequences for both mother and the infants. Studies conducted in developed countries have implicated pregnancy-related weight gain as the most potent risk factor for postpartum weight gain. Few studies have examined and documented the role of attitude and perception of Nigerian women towards pregnancy weight gain with a view to understanding the factors that are associated with weight gain after delivery as well as identify critical areas for any intervention and/or policy advocacy. This study was therefore designed to investigate the perceptions and attitudes of women receiving postnatal services in health facilities in a low and medium income setting.

This study used a descriptive cross-sectional design to enrol 421 post-partum women accessing post-natal services from public health care facilities in Ibadan North Local Government Area, Ibadan. A validated semi-structured questionnaire was used to collect information on respondents' demographic characteristics, perception and attitude towards post-partum weight gain of mothers as well as the perceived risk factors responsible for weight gain. Overweight and obesity were defined according to 2007 WHO reference values for comparison. Data was analysed using SPSS version 18 with descriptive statistics used to summarize the data while Chi-square tests was used to achieve inferential statistics. All analysis was considered statistically significant at p-value of 0.05 or less.

Results was obtained for 421 study participants with mean age of 29.55±5.65 years, and more than half (57.4%) of the respondents aged below 30 years. The average monthly income of the mothers was 21,930 Naira ($110.20 USD) with more than half of the women (248:53.7%) earning less than the minimum wage of 18,000 Naira monthly. The prevalence of post-partum overweight among the mothers was 43.5%; this was contradictory as a greater proportion of the women (77.3%) perceived their weight as normal. Post-partum overweight was also significantly higher among mothers aged over 30 years, mothers with more than three children and women who practised Christianity (P <0.05). High blood pressure was significantly associated

with overweight. Mothers' perception and attitude towards post-partum weight gain were generally poor; although more than 65% of the mothers identified consumption of fast food, a woman's occupation, husband's influence, income and sleeping all the time as major risk factors for post-partum weight gain among post-partum women.

Findings from this study provides evidence of an increasing prevalence of overweight and obesity among post-partum women in Ibadan local Government area, besides, both the attitude and perceptions towards post-partum weight gain was also generally poor. There is need to integrate health promotion and education training/counselling services for post-partum mothers accessing post natal services in Nigeria.

Keywords: Maternal obesity, post natal, postpartum, perception, attitude, weight gain.

Word count: 460

CERTIFICATION

I certify that this study was carried out by Paulina Funmi YIRENKYI in the department of Health Promotion and Education, Faculty of Public Health, College of Medicine, University of Ibadan, Nigeria.

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ACRONYMS

BMI	Body Mass Index
HBP	High blood pressure
IOTF	International Obesity Task Force
LMICs	Low and Medium Income Countries
LMS	Least Mean Square
MDGs	Millennium Development Goals
NCDS	Non Communicable Diseases
NCHS	National Centre for Health Statistics
SASSO	South African Society for the Study of Obesity
SPAN	School Physical Activity and Nutrition questionnaire
UNFPA	United Nations Population Fund
UNICEF	United Nations Children's Fund
USDA	United States Department of Agriculture
WHO	World Health Organization
CS	Caesarean Section

CHAPTER ONE

INTRODUCTION

1.1: Background to the Study

Overweight and obesity have become a serious public health issue with far reaching social and economic implications. According to World Health Organisation (WHO), the prevalence of obesity doubled between 1980 to 2008, affecting more females compared to males (Monteiro da Silva, Marlucia and Pereira, 2013). Overweight and obesity has also been implicated as a risk factor for a number of chronic non-communicable diseases (NCDs) such as diabetes, cardiovascular diseases, and certain types of cancer. With an estimated 1.5 billion people overweight worldwide, millions of people are at risk of developing obesity-associated co-morbid diseases (WHO, 2008).

Pregnancy has been identified as one of the stages in a woman life where there is expected weight gain. Several studies conducted in the United States reported that majority of women gained more weight during pregnancy than expected; this is because during this period, there is increased nutritional demand due to the nutritional need of the growing foetus thus resulting in increased dietary intake by these women. Excessive weight gain during pregnancy has been shown to be associated with short and long term consequences for both mothers and the infants. While for the mothers, such consequences may include risk of hypertensive condition, preeclampsia, gestational diabetes, required induction of labour, caesarean section, having a stillbirth (Chang, Llanes, Gold and Fetters, 2013) and having obesity later in life with consequent risk of several NCDs; some of the effects of excessive weight gain to the infant include low APGAR score, macrosomia, seizure, polycythemia, hyperbilirubinemia and childhood obesity.

Several studies have also explored the various factors that contribute to postpartum weight gain and obesity among women of reproductive age. National surveys however reveal that women who gained more weight during pregnancy were more likely to retain more weight during the postpartum period than women with moderate weight gain. Furthermore, approximately 14%–20% of women were more than 11 pounds heavier by 6 –18 months postpartum than their weight before pregnancy (Zanotti, Capp and Wender, 2015). These findings therefore suggests ‘excessive

weight gain during pregnancy' as the singular predictor of postpartum weight retention and obesity in women of childbearing age (Tanentsapf, Heitmann and Adegboye, 2011).

In Nigeria, cultural beliefs have been shown to play a major role in excessive weight gain during pregnancy. Common cliché such as 'eating for two' are often used to justify increased dietary intake during pregnancy. Tanentsapf et al. (2011), has shown that cultural belief such as "eating for two" has been shown to contribute to a caloric intake above the ordinary demands of pregnancy. Furthermore, several studies have shown that perceptions and attitude towards overweight and obesity may also affect the desire to gain weight during pregnancy. For example, retention of body weight is reportedly seen as a sign of affluence, beauty and social standing in several Sub-Saharan African countries, with men preferring overweight ladies to slimmer ones. Chang et al. (2013) also examined the perception of women to weight gain during pregnancy and revealed that the health of the unborn baby was central to their decision on weight gain, overall body image and that the desire to return to pre-pregnancy were strong motivation to control weight gain.

Moreover, individuals who underestimate their weight have been shown to be less likely to perceive any health risk relating to their body size and consequently less likely to desire weight change or participate in healthy behaviours (Post, Mainous, Gregorie, Knoll, Diaz and Saxena, 2011). This is significant for women of childbearing age have also been reported to be susceptible to misperception of their body weight; with nearly 25% of overweight women underestimating own weight (Rahman and Berenson, 2010). The role of perception and attitude particularly those stemming from cultural norms is therefore important in understanding factors that lead to 'excessive weight gain' in post partum life. This study proposes to assess the perception and attitude of mothers towards postpartum weight gain using public health facilities in a LMIC setting.

1.2: Statement of Problem

Weight retention in the postpartum period is a concern for many women following the increase in weight during pregnancy. It is often difficult to lose weight gained after delivery thus making it a struggle to return to pre-pregnancy weight. Studies have shown that weight retention at postnatal life determines to a large extent the satisfaction of women with their body Image (Gjerdingen, Fontaine, Crow,

McGovern and Miner, 2010). Postpartum weight retention (PPWR) is increasingly becoming more common at post natal life and plays an important role in the development of obesity among women of childbearing age. If women are already obese at the start of pregnancy, high PPWR maintains or even aggravates maternal obesity, contributing to generational obesity and its associated problems (Bogaerts, Van Den Bergh, Witters and Devlieger, 2013).

Several factors have been implicated in the aetiology of postpartum weight retention. Although gestational weight gain has been shown to be the most important predictor of postpartum weight retention, yet other cultural factors particularly those that bothers on perceptions and attitudes towards weight gain of mothers have shown to provide a basis for several practices before, during and post-delivery. These lifestyle behaviours unfortunately have proven to have a greater influence on whether, as well as reproduction, lifestyle, sleep disorder and depression among others (Althuizen, Van Poppel, de Vries, Seidell, and Van Mechelen, 2011; Monteiro da Silva et al., 2013).

Although there is much awareness on PPWR in advanced countries, the story is different in Nigeria and many developing nations where overweight and obesity is perceived as a sign of prosperity or good living in most cultures. For example a study conducted in Eastern Nigeria reported a higher prevalence of postpartum weight retention (PPWR) among mothers with only 18% of the mothers able to return to their pre-pregnancy weight by 6 weeks postpartum (Okeke, Ugwu, Ezenyeaku, Ikeako and Okezie, 2013).

Several factors such as illiteracy, poverty, native customs and cultural beliefs play an important role in shaping the perceptions and attitude towards weight gain before, during and after pregnancy (Howie, 1999). While certain practices are affordable, beneficial, culturally acceptable and may have symbolic importance to local people. These traditional practices and home remedies which are often promoted by grand-mothers, village healers, midwives, native physicians, community leaders and quacks (Manandhar et al., 2001) may be harmful to these mothers in the long run. This study seeks to explore the various perceptions and attitude towards post-partum weight gain with a view to understanding the basis for the different practices of Nigerian mothers before, during and after pregnancy.

1.3: Justification

Information about weight retention without adequate understanding of the belief and culture may not lead to adoption of positive health behaviour. Most researches on weight gain among women have focused on obesity, neglecting overweight which is the preceding stage to obesity. Moreover, high incidence of overweight and obesity have been recorded among mothers in Nigeria despite higher literacy levels. This study would fill the gaps by providing evidence on overweight prevalence among post- partum women both the attitude and perceptions towards post- partum weight gain.

Furthermore, most healthcare system does not have education/counselling on healthy weight as part of routine antenatal visits to the clinics. Health care providers often avoid counselling on weight management due to sensitivity of the topic and many have felt that appropriate weight gain during pregnancy was not a high priority hence waiting until patients had gained excess weight before addressing the issue. For example, providers have perceived sensitivity to discussing weight with their patients and also expressed their own caution in addressing this topic wanting to avoid ideas of body image, specifically patients perceiving that their doctor was labelling them. Findings from this study may thus help in policy formulation, program implementation and evaluation on overweight particularly among pregnant women during their antenatal clinic visits.

1.4: Research Questions

The following research questions emerging from analysis of the problem are studied below;

i. What is the current weight status of postpartum women attending postnatal services in Ibadan North local Government Area?

ii. What are the respondents' perceptions towards post-partum weight gain in Ibadan North local Government Area?

iii. What is the attitudinal disposition of the respondents towards post-partum weight gain in Ibadan North local Government Area?

iv. What are the perceived risk factors that influence weight gain among postpartum in women Ibadan North local Government Area?

1.5: Broad Objective

This study is aimed at assessing the attitudes and perception of women receiving post natal services towards post-partum weight gain in Ibadan North Local Government Area of Oyo-state.

1.6: Specific objectives

The specific objectives for this study are to;

i. Determine the present weight status of respondents.

ii. Explore the perceptions of the respondents towards post-partum weight gain.

iii. Assess respondents' attitude towards post-partum weight gain.

iv. Identify perceived risk factors responsible for post-partum weight gain.

1.7: Hypotheses

The following hypothesis were postulated to guide the study

1. There is relationship between postpartum women socio-demographics (age, educational status, level of income) and postpartum overweight.
2. There is relationship between postpartum women current weight status and postpartum overweight.
3. There is relationship between postpartum women perception and postpartum overweight.
4. There is relationship between postpartum women attitude and postpartum overweight.

1.8: Variables

Dependent Variables: The dependent variable in this study is both perception of post-partum weight gain and attitudes toward postpartum weight gain. Both variables are assessed using a likert scale and then classified into a dichotomous yes/no, agree/disagree response. Perception will be expressed as right and wrong perception; while attitude will be expressed as positive and negative attitude.

Independent Variables**:** The independent variables in this study are socio demographic characteristics, post-partum pregnancy characteristics, perception of postpartum weight gain, attitude towards postpartum weight gain and perceived risk factors of postpartum weight gain.

CHAPTER TWO

LITERATURE REVIEW

2.1: Postpartum Weight gain

Postpartum weight gain is defined as the difference between postpartum body weight measured at the time of the clinic visit and pre-pregnancy body weight (Begum, Colman, McCargar and Bell, 2012). Although there is no consensus in the literature on an ideal time to return to pre-pregnancy weight or cut-off point for excessive weight gain, it has been suggested that the time period for assessing postpartum weight gain should be restricted to 12 or at maximum 18 months after delivery because life-style related reasons are much more likely than biological reasons to have an effect on body weight after that (Amorim, Rössner, Neovius, Lourenco and Linne (2007)*;* Schmitt, Nicholson and Schmitt, 2007). The average postpartum weight gain has been shown to differs across different populations with estimates ranging between 0.5 to 3.0 kg (Zanotti, Capp and Wender, 2015).

After delivery, some weight loss occurs rapidly when the extra fluids deposited during pregnancy are lost (IOM, 1990). The extra maternal tissues particularly fat tissues may however be lost more slowly or partly retained. From several observational studies conducted in the US, roughly 40–50% of women gained more than what was recommended during pregnancy (Viswanathan, Siega-Riz, Moos, Deierlein, Mumford, Knaack ,2008). One methodological weakness however in some of the studies that have assessed maternal weight gained was that not only was dietary information collected by very crude multiple -choice questions (Ohlin and Rössner, 1994; Olson et al., 2003) or by a short 21-item FFQ (Oken, Taveras, Popoola, Rich-Edwards and Gillman, 2007) in all except one study that used a validated FFQ (Boardley et al., 1995), there were also differences in the definition of postpartum weight gain.

Some of the studies (Oken et al., 2007) used self-reported pre-pregnancy weight as the baseline whereas weight measured at the beginning of pregnancy was used as the baseline in two other studies (Olson et al., 2003). While the other studies used a measured postpartum weight, it was self-reported by questionnaire in the study by Oken et al. (2007), which weakens the validity of the outcome.

In Nigeria, studies conducted in Enugu showed that only 18% of the women returned to their pre-pregnancy weight by 6 weeks postpartum while 82% of the mothers returned to their normal pre-pregnancy weight by 6 months postpartum (Okeke, Ugwu, Ezenyeaku, Ikeako and Okezie, 2013).

In 1990, the Institute of Medicine (IOM) established recommendations for weight gain during pregnancy based on pre-pregnancy body mass index (BMI). The recommended weight gain according to pre-pregnancy BMI categories are shown in Table 2.1.

Table 2.1: Recommended weight gain during pregnancy based on pre-pregnancy weight

PRE-PREGNANCY WEIGHT	TOTAL WEIGHT GAIN Range in kilograms (kg)	RATES OF WEIGHT GAIN IN 2ND AND 3RD TRIMESTERS Mean & range of kilograms gained/week
Underweight (BMI* < 18.5)	12.5–18 kg	0.51 (0.44–0.58) kg per week
Healthy weight (BMI 18.5 - 24.9)	11.5–16 kg	0.42 (0.35–0.50) kg per week
Overweight (BMI 25.0 - 29.9)	7–11.5 kg	0.28 (0.22–0.33) kg per week
Obese (BMI ≥ 30)	5–9 kg	0.22 (0.17–0.27) kg per week

(Source: Institute of Medicine, Updated Guidelines for Weight Gain during Pregnancy, 2009)

Gaining weight beyond the recommended ranges can result in increased maternal and fetal complications (Washington National Research Council, 2007). Some of these complications include increased risk of caesarean section, microsomia in mothers, preterm and low birth weight in babies (Viswanathan, 2008). Women with excessive weight gain are also less likely to lose this weight in the postpartum period and may, consequently, be at greater risk of beginning the next pregnancy at a higher weight status (Nohr, Vaeth, Baker, Sorensen, Olsen and Rasmussen, 2008) as well as an increased risk of obesity later in life (Rooney et al., 2005).

Overweight and obesity, is an increasing public health concern both in most developed world and now in many developing countries. It has also been implicated as a risk factor for several chronic conditions, including, diabetes, hypertension, heart

disease and some cancers (Zanotti et al., 2015). Once thought to be a problem of the western world, overweight and obesity is fast becoming a common epidemic in Sub Sahara Africa, where it's shown to be associated with poor reproductive health outcomes including ovulatory dysfunction, irregular menses, infertility, and risk of spontaneous abortion (Okoh, 2013). In addition, maternal overweight is the single most common modifiable factor in stillbirth in the developed world (Flenady, Middleton, Smith, Duke, Erwich, Khong, Neilson, Ezzati, Oopmans, Ellwood , 2011).

In the US, the prevalence of obesity among African American and White is 50% and 30% respectively, with the desire to lose weight more white compared to the Blacks. This suggests that more than half of all women in the United States are overweight or obese. In Nigeria, the prevalence of obesity and overweight among women has been put at approximately 30% and 35% respectively, although some studies have reported higher estimates (John, Chukwuonye, Chuku, Ohagwu, Imoh, Isa, Ogah, Oviasu, 2013). In the last 25 years, studies have revealed a 16% increase in obesity prevalence among women of childbearing age (Ogden, Carroll, Curtin, McDowell, Tabak and Flegal, 2006). The difference in weight gain between Nigerian women and women in most developed countries may be due to differences in lifestyle and cultural beliefs and practices; others may also be due to differences in health care system and access to both health care services at antenatal times.

It has been hypothesized that one of the reasons for the increase in prevalence of both overweight and obesity among women is the greater amount of weight gained during pregnancy (Siega-Riz, Evenson and Dole, 2004). In a study by Kavle, Mehanna, Saleh, Foaud, Ramzy, Hamad, Hassan, Khan and Galloway (2014), findings showed that some women associate healthy weight gain and fetal growth with good nutrition and the amount of food consumed; while many misunderstood the connection between nutrition and weight gain. Weight gain was also viewed as carrying an "additional person" with most pregnant women having little or no knowledge of optimal weight gain during pregnancy.

2.2: Postnatal Weight Gain and Pregnancy

Pregnancy is the only time in a woman's life when weight gain is encouraged and expected. Pregnancy and childbirth have also been associated with dramatic changes in women's body shape and size, and for many women, these changes are perceived differently. Some of these changes among others include gestational weight gain

(GWG) and postpartum weight retention. National surveys has revealed that approximately 14%–20% of women were >11 pounds heavier by 6–18 months postpartum than their weight before pregnancy (Zanotti et al., 2015).

While the Institute of Medicine (IOM) has established recommendations for weight gain during pregnancy based on pre-pregnancy body mass index (BMI), most mothers unfortunately do not know or understand how much weight they needed to gain during pregnancy and were not counselled on weight gain in relation to their pre-pregnancy weight (Kayle *et al.,* 2014). Health care providers therefore needed to provide counselling on adequate weight gain during pregnancy, and relayed the message that mothers needed to gain enough weight to have a healthy pregnancy and to support breastfeeding. Studies have also shown that women who gain more weight during pregnancy are more likely to retain more weight during the postpartum period than women with moderate weight gain. For example, studies conducted by Ushma, Siega-Riz and Amy (2011) found out that most women gained excessively during pregnancy, regardless of their ideal body shape preference.

High gestational weight gain or weight gain above the IOM's recommendations is therefore regarded as the strongest risk factor for high postpartum weight retention in studies with various follow-up periods (Walker et al., 2004; Nohr et al., 2008). Two obesity-related hormones that have been associated with gestational weight gain seem also to predict postpartum weight gain. Higher levels of leptin and insulin (Scholl and Chen, 2002) at the beginning of pregnancy have been related to greater weight retention, even when adjusted for gestational weight gain (Scholl and Chen, 2002).

2.3: Predictors of Postnatal Weight Gain

Given the importance of adequate weight gain during pregnancy, it is becoming increasingly important to understand the various risk factors for postnatal weight retention so that women at risk of gaining weight outside of recommended ranges are identified for early interventions.

Several factors have been shown to contribute significantly to mothers' weight gain at postnatal life. Some of the common factors include dietary factors, breastfeeding/lactation, physical activities and others.

2.3.1: Diet

Only a few observational studies have investigated the association between diet and postpartum weight gained. Some of these studies observed that women who increased their food intake after pregnancy retained more weight than other women (Olson et al., 2003). Weight gained was greater in women who increased their meal sizes and/or snacking frequency during and after pregnancy (a rough estimate of changes in energy intake), who increased their snack frequency to three or more snacks per day after pregnancy, or who decreased their lunch frequency starting during or after pregnancy.

A follow-up conducted by Harris et al. (1999) in the UK found that women who felt they had eaten more after delivery were 2.8 kg heavier at follow-up than before pregnancy whereas women who felt they had not eaten more had lost 1.2 kg weight during the same period. A similar relationship was found between weight gain and having had greater access to food postpartum.

Another study conducted in the US also found that women who had maintained or increased their food intake during the last six months of their pregnancy gained significantly more weight on average than women who had decreased their food intake. Additionally, women who had increased their food intake, had a 3.5-fold risk for major weight gain (>4.55 kg) at 12 months postpartum (Olson et al., 2003).

Black women have also been shown to have a higher weight gained compared to white women, mean energy intake and percentage of fat of energy intake. In the multivariable model, however, energy or fat intakes were not independently associated with postpartum weight change. In another study, a higher intake of trans-fat increased the risk of retaining at least 5 kg weight at 12 months postpartum (n=902) (Oken et al., 2007). Energy-adjusted fibre intake was inversely associated and energy-adjusted total fat intake was directly associated with the risk of retaining at least 5 kg, but not after adjustment for the other one of these two nutrients. The authors propose that trans-fat intake may be a marker for other unhealthy dietary habits or other lifestyle behaviours rather than causally associated with weight gained. However, these earlier studies indicated that increasing food intake after delivery resulted in more weight gained 12 months postpartum or later.

2.3.2: Breastfeeding (Lactation)

In a study of the Cultural Beliefs and Perceptions of Maternal Diet and Weight Gain during Pregnancy and Postpartum Family Planning in Egypt, the authors concluded that mothers reportedly consumed more foods during breastfeeding than during pregnancy. The quantity of foods consumed was perceived to be associated with the amount of milk produced with mothers also relating higher intake of nutritious foods with sufficient milk production, improved milk quality, and the well-being of both mother and child. Some foods have also been considered taboo to consume during lactation, and thus restricted from the diet of lactating mothers. Taboo foods are restricted primarily because they are seen to decrease milk production. These foods are also avoided because they are perceived to directly affect the health of the child (e.g., cause colic and gas), or because they are known to have an ill effect on the mother, which is believed to be transmitted to the child (Kavle *et al.*, 2014).

2.3.3: Physical exercise

The few observational studies examined the association between total level of physical activity and the risk for weight gained at least 12 months postpartum are the same that have reported the associations between diet and postpartum weight gain. In these studies, a lower level of physical activity during pregnancy, after pregnancy (Olson et al., 2003; Oken et al., 2007b) or during and after pregnancy was consistently associated with more postpartum weight gain.

Information on physical activity was based on self-reports in all of these studies and there was remarkable heterogeneity in the accuracy of the questions related to physical activity. The average weekly durations of activities at different intensity levels was elicited in two of the studies (Oken et al., 2007b). Oken et al. (2007b) also collected information on hours spent watching television, which was a measure of inactivity. The other studies only used multiple-choice questions to collect data on physical activity at work and in leisure time, the frequency and duration of walking and vigorous exercise (Olson et al., 2003) or changes in activity patterns after pregnancy compared to patterns before pregnancy (Harris et al., 1999).

Several observational studies thus suggested that a lower level of physical activity during and/or after pregnancy is associated with more weight gain at 12 months postpartum. Nevertheless, there are several methodological factors that made

comparison of these studies difficult. As Larson-Meyer (2002) has summarized, most of these observational studies did not define or quantify physical activity properly or take the feeding method of the infant into account and the trials included only breastfeeding women. Therefore, more studies are needed to accurately determine the association between total level physical activity and postpartum weight gain.

2.3.4: Other factors

Other factors which predisposes for postpartum weight gain include high pre-pregnancy BMI, short breastfeeding period, primiparity, smoking cessation, high calorie intake, sleep irregularity, low physical activity, age, marital status and race (Zanotti et al., 2015).

Factors that are found to influence post-partum weight gain could be found in the relationship between pre-pregnancy BMI and pregnancy weight gain. Usmah et al. (2011) in their study found that as pregnancy BMI increased, women who wanted to be thinner (discrepancy score ≥2) had decreasing risk of gaining above recommendations. There was also a clear distinction in risk between BMI categories. Women in the average and underweight BMI categories were at greater risk of excessive weight gain during pregnancy while women in the overweight and obese categories were at decreased risk of gaining excessively suspect a possible explanation may be that women in the normal and underweight categories may experience a relaxation of pre-pregnancy body image ideals and become more comfortable with weight gain as their pregnancy progresses. In contrast, obese women who preferred to be thinner may be more vigilant about gaining weight in the pregnancy period because they are started pregnancy with a higher weight and do not want to gain more weight. However, we can only hypothesize as to the possible reasons for the difference in risk of excessive weight gain between BMI categories.

Breastfeeding is often considered to promote postpartum weight loss, since milk production increases maternal energy expenditure (Butte and King, 2005). However, the observed association between breastfeeding and postpartum weight development has been surprisingly weak or absent in most studies. In some studies, women breastfeeding for at least 12 months retained less weight (Olson et al., 2003) or lost more weight by 12 months after delivery than other women. Additionally, ceasing breastfeeding or switching from exclusive to partial breastfeeding reduced the rate of postpartum weight loss. Also, women with higher breastfeeding score lost more weight on average than women with lower score by 6 months but not by 12 months postpartum.

Many other studies have found no association between breastfeeding and postpartum weight gain or weight loss by 6 to 12 months postpartum (Rooney and Schauberger,

2002; Wosje and Kalkwarf, 2004).These contradictory findings may be related to e.g. inadequate measures of the duration and intensity of breastfeeding, small sample sizes and inclusion of non-breastfeeding women who restricted their energy intake in order to lose weight (Gunderson and Abrams, 2000). On the other hand, there was an evidence that dietary intake is greater among breastfeeding women than non-breastfeeding women; this is probably due to increases in appetite stimulating prolactin levels (Lederman, 2004). Additionally, breastfeeding women may decrease their total level of physical activity. Bearing these aspects in mind, breastfeeding may have a small effect on reducing postpartum weight gain if it is continued for at least 6 months postpartum (Gore et al., 2003; Lederman, 2004).

Findings related to maternal age and parity as risk factors for postpartum weight gain was contradictory. Studies have reported higher postpartum weight gain in various age groups (Olson et al., 2003) or no association at all. Some studies have failed to show any association between parity and postpartum weight gain and other studies have reported mixed results. The time period between two consecutive pregnancies seems not to be related to postpartum weight retention (Linne and Rössner, 2003) or risk of becoming overweight before the second pregnancy (Gunderson and Selvin, 2000).

Regarding smoking status, women who stopped smoking in early pregnancy and did not continue smoking after delivery retained more weight on average at 12 months postpartum than smokers and non-smokers in the study by Öhlin and Rössner (1990). Mixed results were obtained from a study comparing smokers to non-smokers (Gunderson and Selvin, 2000). In these studies, women who had stopped smoking were probably classified as non-smokers, which could have affected the results. In any case, while regarding former smokers as a risk group for higher postpartum weight gain due to weight retention, smoking cessation should be promoted among pregnant and postpartum women.

Duration of sleep has also been implicated in postpartum weight gain. Shorter duration of sleep has been linked to decreased leptin levels, increased hunger and appetite and obesity in general population (Sarwer et al., 2006). As many postpartum women suffer from sleep deprivation, this might increase their risk for weight retention as suggested by this review article (Sarwer et al., 2006). Gunderson et al. (2008) recently reported that women who slept ≤5 hours/day at 6 months postpartum

had 2 to 3-fold risk for retaining at least 5 kg weight at 12 months postpartum compared to women sleeping 7 hours/d, when adjusted for confounders. Additionally, a decrease in sleep duration from 6 to 12 months postpartum doubled the risk of retaining at least 5 kg at 12 months postpartum. More studies are needed to confirm these results and to examine whether duration of sleep is associated with dietary and physical activity habits among postpartum women.

Concerning other potential risk factors of postpartum weight gain, such as socioeconomic status, marital status, psychosocial factors or ethnicity, the findings were contradictory. Lower socioeconomic status, lower education level lower income was associated with higher weight gain in some studies, but not in all (Gunderson et al., 2008; Gunderson et al., 2008). Poverty level has also been identified as a modifier of the effect of light ideal body size on inadequate weight gain in studies by Usmah et al. (2011). Women greater than 185% of the poverty level had decreased risk of gaining inadequately if they preferred a light versus average body size; while women less than 185% of the poverty level had 1.76 times the risk of gaining inadequate weight if they preferred a lighter body size (versus an average size).

In some studies, single women have had higher risk for weight gain (Olson et al., 2003; Gunderson et al., 2008), whereas other studies have found no association between marital status and weight gain (Gunderson et al., 2000). Maternal depressive symptoms were related to higher weight gain (Walker, 1997; Gunderson et al., 2008), except for the study by Harris et al. (1999). Low social support may also increase the risk of weight gain whereas stress related to the new life situation may not. Results from comparisons of weight gain in different ethnic groups are not consistent but indicated that black women gained more weight postpartum than white women on average (Gunderson et al., 2000; Gunderson et al., 2008). Finally, the results concerning these various risk factors may have been inconsistent partly because of differences e.g. in the study populations, but also because only some of the studies took confounding factors into account in the analysis.

2.4: Perception of post-partum weight gain

Culture plays a major role in the way a woman perceives and prepares for her birthing experience. These cultural beliefs and norms do not only affect her during her pregnancy experience, but throughout her entire life. Each culture has its own values, beliefs and practices related to pregnancy, childbirth and postpartum life. For example

a woman's perception of her body image may influence her lifestyle which may either make her live a healthier life or engage in behaviours which may put her at risk of overweight after delivery. The relationship between body image, which is a person's perception of or attitude towards her own body, and her practices during pregnancy, has been studied (Grogan, 2006). Due to the changes which occur in a woman's body during pregnancy and child birth, some of these women may at times become dissatisfied with their body image and size (Gjerdingen et al., 2010).

Studies conducted by Usmah et al. (2011) using the Body Image Assessment for Obesity tool to measure ideal and current body sizes in 1,192 women participating in the Pregnancy, Infection and Nutrition found that women who preferred to be thinner had increased risk of excessive gain if they started the pregnancy at a BMI ≤26 kg/m2 but a decreased risk if they were overweight or obese. Comparing those who preferred thin body silhouettes to those who preferred average size silhouettes, low income women had increased risk of inadequate weight gain, while those with lower education were at risk of excessive weight gain.

Perceptions and preferences related to body shape and size are thought to differ for different populations. Findings from previous research suggests that African American women are much more likely to prefer a larger body size compared to Caucasian women and that there are cultural norms within the African American community that support higher satisfaction with weight and appearance (Lovejoy, 2001). Majority of Caucasian women (60%) preferred a light body size, most African American women chose an average body size (63%) as their ideal. Women who preferred a heavier body size (only 3% of population) tended to be less educated (<16 years) and obese prior to pregnancy (Usmah et al., 2011). The association between Body image and gestational weight gain is complex. Thus, identifying factors that affect whether certain women are at greater risk of gaining outside of guidelines may improve ability to decrease pregnancy-related health problems (Usmah et al., 2011).

2.5: Attitude towards post-partum weight gain

Attitudes towards pregnancy weight gain have also been found to influence the relationship between body image and gestational weight gain. Ferrari, Siega-Riz and Melvin, (2008) in their study, showed that majority of the study population had positive weight gain attitudes. As a result, it was not found to influence their weight gain during pregnancy. Studies conducted among different population groups

especially mothers in Nigerian population suggests that individual and societal attitudes towards weight gain, especially coupled with the perception of overweight/obesity being socially desirable may explain post-partum weight gain (Iliyasu, Abubakar, Lawan, Gajida and Jibo, 2013; Tagbo et al., 2015).

Furthermore, overweight and obesity are conditions associated with negative attitudes, demeaning social connotations and discrimination (Brown et al., 2006). Hence, even health care providers often felt that appropriate weight gain during pregnancy was not a high priority; with many of them waiting until patients had gained excess weight before addressing the issue thus avoiding counselling due to sensitivity of the topic. For example, healthcare providers perceived sensitivity to discussing weight with their patients and also expressed their own caution in addressing this topic wanting to avoid ideas of body image, specifically patients perceiving that their doctor was labelling them. Providers also believed that patients were more influenced by other factors, such as their family, habits, and culture hence the belief that their counselling had low impact on patients (Chang, et al., 2013).

2.6: Conceptual Framework

A conceptual framework is the presentation of the proposed causal linkages of a problem among a set of concepts believed to be related to the specific health problem. It is developed with the aim of providing a guide to Health Education research and practice. It is not meant to incorporate all the factors of interest but rather to show only a small part of the causal web which is selected to explain the relationships among any variables of interest of the study valued for predictability, integration of information or analogy as the case may be. For this research, the conceptual model that was adopted is the PRECEDE framework.

The PRECEDE framework: The model provides a comprehensive structure for assessing health and quality-of-life needs of the target population of interest for designing, implementing, and evaluating health promotion and also to aid other public health programmers to meet these needs. It was developed by Green, Kreuter and associates in 1970s and modified in 1999.

The acronym PRECEDE stands for Predisposing, Reinforcing and Enabling Causes in Educational Diagnosis and Evaluation (Green, Kreuter, Deeds and Patridge, 1980). It is drawn from other theories namely, the Health Belief Model, Social Learning Theory and The Theory of Reasoned Action. The model looks at the process of health goal attainment in the context of educational diagnosis. This has served as a conceptual framework in health education planning aimed at diagnosing the health problems of a community, understanding the factors that influence the people's behaviour and developing intervention to promote healthy behaviour (Green and Kreuter, 1999). The model consists of three groups of factors which are; predisposing, enabling and reinforcing factors. These factors could influence behaviour and they often called behavioural antecedent factors. The PRECEDE model is based on the premise that an educational diagnosis should precede an intervention just as a medical diagnosis precede a treatment plan (Green et al.,1980).It is multidimensional, founded in the social/behavioural sciences, epidemiology, administration and education. This helps to explain the fact that health and health behaviours have multiple causations which must be evaluated so as to have appropriate intervention.

The predisposing component deals with the personal-level cognitive factors that assess level of conscious magnitude of a given health challenge and they include: attitudes, beliefs, perceptions, knowledge, norms and culture etc. The enabling

component of PRECEDE refers to the influence of resources such as money, time, skill, facilities. The reinforcing factors include the influence of significant such as friends, family members, employers etc. The application of the precede framework is highlighted in Figure 1.1.

2.7: Application of PRECEDE Model to the current Study

The tenets of this framework were used in the selection of the variables in the assessment and design of the instrument for data collection. The framework was particularly useful in the formulation of questions related to perception and attitude of respondents towards weight gain. Questions on perception include; Gaining weight after childbirth is a norm in my culture for post-partum women, gaining weight is a sign of good living for postpartum women, a woman can add more weight after child birth due to sexual activities and during breast feeding a woman is allowed to increase her feeding habit.

Questions on attitudes are; exercise can help to reduce weigh gain amongst post-partum women, no matter the effort you make ,post-partum women cannot reduce their weight, when post-partum women eats fast foods, it has no effect on their weight.

Eating healthy diets, regular exercise, periodical checking of BMI is a health seeking behaviour which is subject to the influence of predisposing, reinforcing and enabling factors.

The Predisposing factors: This may include the perception of post-partum women towards weight gain, their attitude towards weight gain. Also the characteristics of individual such as age, level of education and work category could predispose a woman to overweight. .Some women tend to gain weight as they increase in age while some also tend to gain weight due to the nature of their job. Women with sedentary lifestyle are predisposed to overweight. Level of education is important to helping an individual to have access to information due to the advantage of their literacy level. The access to information helps in making right decisions on the proper diet needed to have a healthy weight and exhibit healthy behaviours such as exercise. Women who are more literate are likely to be familiar with terms like BMI and will be more likely to find out their BMI status than an illiterate woman who might not see a need to check her BMI status, as this will help to indicate if she is overweight or close to

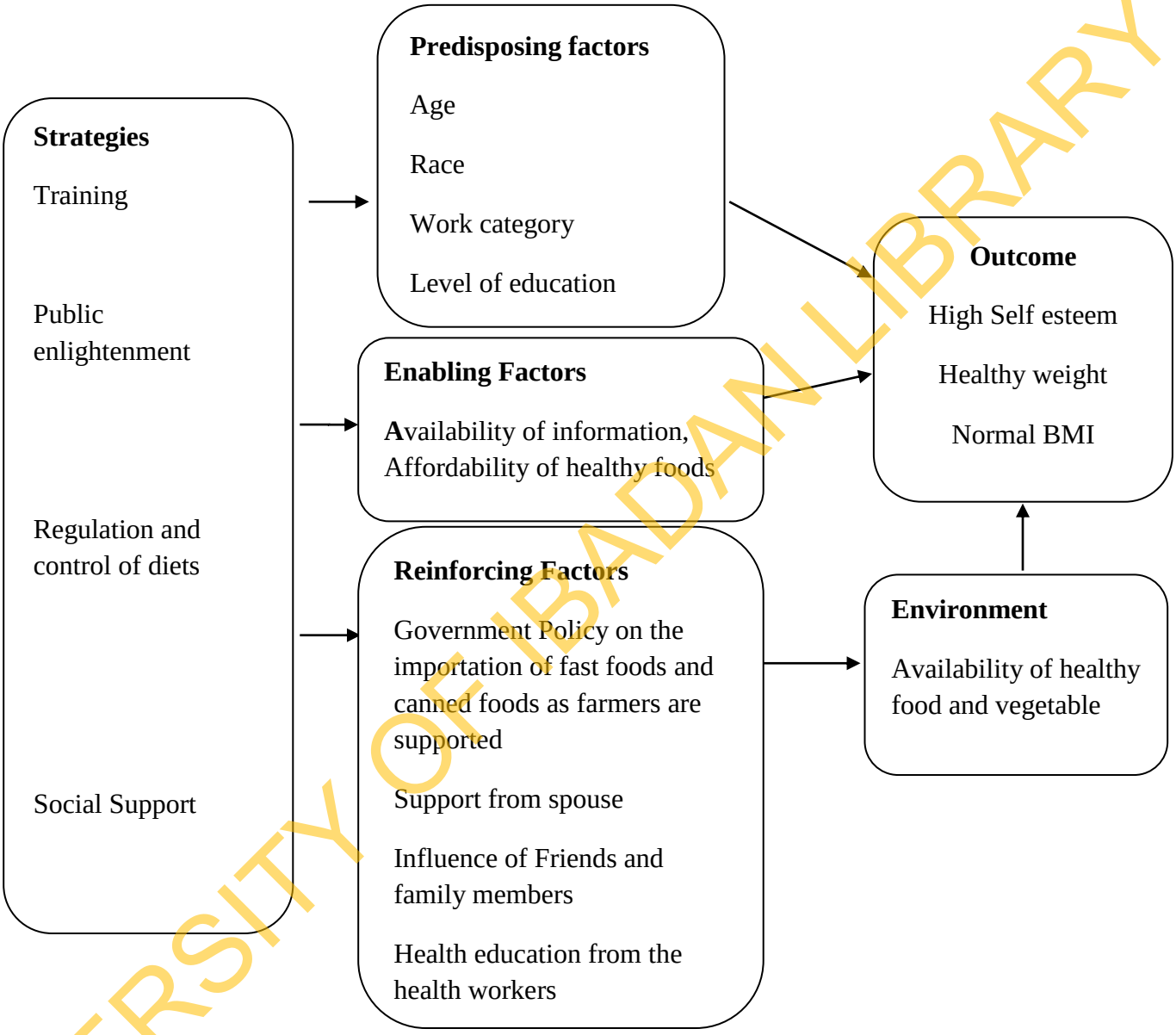
being overweight. This will further help women to desist from factors that strengthen risk of being overweight and consequently its health implications.

The Enabling factors: These are factors that enable people to act based upon their pre-dispositions. These could include affordability of healthy food items, availability of time for the purchase and preparation of healthy foods as against fast foods due to busy work schedule, availability and accessibility of health services on BMI and its health related issues.

The Reinforcing Factors: This factor encourages repetition and persistence .Family members, In–laws, groups and association individual belongs to bring about the encouragement needed for or against the weight gained. For example, regular exercise can be consistent by constant reminder by family members. This can be re-enforced when husbands insist that excess weight is not healthy.

Figure1.1: Precede model to explain the interplay between various risk factors for postpartum weight gain.

PRECEDE MODEL



Source: Modified from Green and Kreuter, 1999

CHAPTER THREE

METHODOLOGY

3.1: Study design and scope of study

A cross-sectional study design was used to achieve the research objectives.

3.2: Study area

The study area for this study was Ibadan north local government area which is situated in Oyo-state Nigerian. It was created by the Federal Military Government of Nigeria on the 27th of September, 1991. This Local Government was carved out of the defunct Ibadan Municipal Government along with others. The components of the Local Government cover areas between Beere, Roundabout through Oke-Are to Mokola, Oke-itunnu and Ijokodo. The other components are areas from Gate, Idi-Ape to Bashorun and up to Lagos/Ibadan expressway, Secretariat, Bodija, University of Ibadan and Agbowo areas (Olusegun, 2001).

Ibadan North Local government has its headquarters at Agodi in Ibadan. The secretariat of the local Government is presently and temporarily accommodated at Quarter 87 at Government reserved area at Agodi. The headquarters of the local Government is Bodija. It has an area of 27km squared and a population of 308,119 at the 2006 population census. It is bounded in the west by Ido and Ibadan northwest local government, bounded in the east by Lagelu, Egbeda and Ibadan Southeast Local government. It is bounded in the north by Akinyele Local government. (Olusegun, 2001).

The Local Government Area houses several educational institutions including the Nigeria Premier University- the University of Ibadan, The Polytechnic of Ibadan, many private and public secondary and primary schools, health care centres (University College Hospital, several Maternity Centres and dispensaries, General Hospital, Traditional Healing Centre, other primary health care and specialist hospital). The health facilities in the local government made it suitable for the research study. In addition, the area consists of multi-ethnic nationalities predominantly dominated by the Yoruba and others which are Igbo, Edos, Urhobos, Itsekiris, Ijaws, Hausas, Fulanis. The inhabitants are mostly traders, university and polytechnic lecturers, civil servants, students etc. with women constituting a major part of this population. Most of the women are either civil

servants or traders. This nature of work encourages sedentary lifestyle which predisposes the women to overweight.

3.3: Study population

The study population consisted of post-partum women attending postnatal services in public health facilities in Ibadan North Local Government Area of Ibadan.

3.4: Eligibility criteria

Inclusion criteria

(1) Women of reproductive age (15 – 49 years).

(2) Women within postnatal age of ≤ 12 months.

Exclusion criteria

(1) The exclusion criteria will be women that have not given birth.

(2) Women with debilitating illness.

3.5: Sample size determination

The sample size (n) was determined using Lwanga and Lemeshow (1991) sample size formula:

$$n = \frac{Z^2 p (1-p)}{d^2}$$

Where n=minimum sample size required

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

P= Prevalence of post-partum weight gain is not known and hence, 50% will be taken

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

$$n = \frac{1.96^2 \times 0.5 \times 0.5}{0.05^2} = 384$$

10% non-respondent of 253.55= 38.4

Total =38.4 +384=422.4

3.6: Sampling Technique

A multistage random sampling technique was used to select the sample population as follows:

Stage1: Selection of health facilities within Ibadan North LGA

Eleven (11) health care facilities were randomly selected out of total list of 22 health care facilities in Ibadan North LGA.

Out of 10 wards in Ibadan North, health facilities were selected from only 8 wards. This is because two (2) wards did not have a public health facility. One public health facility was randomly selected from each of the 8 wards in Ibadan North with health facilities; while an additional 3 health facilities were selected from two other wards. This is due to high number of people that access the facilities in those wards.

Wards	Health Facilities
Sango	University of Ibadan Health Service Clinic Jaja,Poly Clinic
	Samonda Primary Health Centre
Bashorun	Bashorun Primary Health Centre
Agbowo	Bodija Primary Health,
	Agbowo PHC
Yemetu	Adeoyo Maternity
Agodi	Idi-Ogungun PHC
Oke Aremo	Kola Daisi Foundation Clinic
Bodija	Institute of Child Health, UCH
Sabo	Sabo PHC

Stage2: Selection of the number of respondents in each facility

Proportionate sampling was used to determine the number of respondents to be sampled from each health facility. The average number of women was gotten from a six month aggregate from the Oyo State Ministry of Health; Monitoring and evaluation/District Health Information System Unit. The average number of mothers

who visited these clinics for post natal services was used to determine the number of mothers to be recruited from each health facility (See Appendix III for the number of women that visits each health facility monthly).

Health facility	Average number of visiting for post natal care services	Number to be recruited
University Health Service Clinic Jaja/Institute of child Health UCH	138	138/764*424 = 76
Poly Clinic	57	57/764*424 = 31
Samonda Primary Health	31	31/764*424 = 17
Bashorun Primary Health Centre	66	66/764*424 = 36
Bodija Primary Health,	55	55/764*424 = 31
Agbowo PHC	61	61/764*424 = 33
Adeoyo Maternity	205	205/764*424 = 113
Idi-Ogungun PHC	64	64/764*424 = 35
Kola Daisi Foundation Clinic	39	39/764*424 = 21
Sabo PHC	48	48/764*424 = 26
Total	**764**	**424**

Stage3: Selection of respondents from each health facility

Random sampling was used to select total number of respondents from each health facility based on the proportionate number estimated from stage 2 above. All mothers that fit into the eligibility criteria who visited the health facility on postnatal clinic days were enrolled into the study as they present themselves. The proportionate number of women for each health facility was put into consideration as calculated from the sample size. For each facility, selection of respondents stopped as soon as the target proportion for each facility was reached.

3.7: Instrument for Data Collection

A set of semi structured questionnaire was developed for data collection in both English and Yoruba (See Appendix I and II). The questionnaire was developed by the researcher based on the literature reviewed, inputs from the supervisor and health education and promotion specialists in the faculty of Public Health, University of Ibadan. The structured questionnaire was divided into five sections labelled A-E.

Section A was on the socio-demographic characteristics respondents, Section B focused on respondents postpartum characteristics in relation to postpartum weight gain, Section C was used to obtain data on respondents perception, Section D was used to obtain data on attitude towards postpartum weight gain and Section E was used to obtain information on the perceived risk factors for postpartum weight gain and if these factors were applicable to respondents.

3.8: Validity and reliability

Validity: Validity of the instrument was ensured through the development of a draft instrument by consulting relevant literatures, subjecting the draft to independent, peer and expert reviews, particularly expert in public health and comments from supervisor was used to further fine-tune the instruments.

Pre-test: The instrument was pre-tested among mothers not resident in the study area using 10% of the sample size calculated in two (2) health facilities namely Idi-Ogungun and Oke-Adu Health Centre located in Ibadan North East LGA.

Reliability: Reliability refers to the consistency of a measure. A measure is said to have high reliability if it produces consistent results under consistent conditions. Copies of pre-test questionnaires was coded, entered into a computer and analysed. Reliability was determined using the Cronbach's alpha. The result showed the correlation coefficient with a value greater than 0.5 which is said to be reliable. The Cronbach's alpha coefficient obtained was 0.73.

3.9: Method of data collection

Data was obtained using questionnaire which were pretested on 10% of the total sample size in two (2) health facilities namely Idi-Ogungun and Oke-Adu health center located in Ibadan North East LGA. Thereafter, appropriate corrections were made to the questionnaire. A Yoruba version was also developed by a Yoruba translator for the purpose of respondents not fluent in English. For the purpose of data

collection, four research assistants were hired and trained on administering of questionnaires, the training focused on the objectives and importance of the study, the study design, the importance of collecting valid data, sampling process, how to ensure respondents' informed consent, basic interviewing skills and how to review questionnaire copies for completeness prior to commencement of the data collection to ensure they had a good understanding of the instrument and the study.

Full Data Collection was carried out within a period of four weeks. Visits were paid to the heads of health facilities in the local government with a letter of introduction from the department(See Appendix IV).A letter of request for permission was written to the head of Public Health facilities; Dr Famakin for the primary health facilities at the local government (See Appendix V), Chief Medical Director of the Adeoyo Maternity Teaching Hospital (See Appendix VI) and the University College Hospital, Ibadan. After the approval of the submitted letters (See Appendix VII), well trained four research assistants were employed for the data collection. The data collection process involved the following steps;

1. Visit to all the health facilities included in the study with the letter of introduction, ethical approval and approval to conduct the study from the local Government for health facilities.
2. Booking of appointments dates with each health facilities on the postnatal clinic days.
3. Reminder of appointments dates few days prior to data collection in each facility.
4. Establishment of rapport with eligible participants.
5. Obtaining consent from the participants.
6. Administration of questionnaire to participants.
7. Weighing scale and a digital sphygmomanometer was also used to assess respondents' body weight and blood pressure respectively.
8. Collection and review of the completeness of the questionnaire.

3.10: Ethical consideration

Ethical approval was obtained from the Oyo State Ministry of Health Ethics Review Committee (Appendix VIII). The respondents' consent was obtained after provision of adequate, clear and complete information about what the study entailed. The following was taken into consideration:

Informed assent: Informed assent was obtained from all participants.

Confidentiality of data: Confidentiality of participants' information was censured by adopting a de-identified approach to data handling, with the use of unique identifiers for study participants.

Beneficence to participants: All participants received counseling of the importance of maintaining a healthy weight and engaging in a healthy lifestyle.

Non-maleficence to participants: The risk of harm to study participants was estimated as low. Participants with post-partum overweight were advised and where possible referred to a specialist for care. Password protected computerized systems was also used for data management.

Voluntariness: Participation in this research was entirely voluntary. Eligible individuals were assured of their choice to participate in the study or not.

3.11: Data management and analysis

The researcher checked all copies of administered questionnaire one after the other for completeness and accuracy. Serial number was assigned to each question for easy identification, correct data entry and analysis. A coding guide was also developed, the questionnaire coded and entered into the computer for analysis.

Analysis was done using Statistical package for Social Sciences (SPSS) version 18. Continuous variable were summarized using mean and standard deviation; while qualitative variables were grouped into categories and summarized as proportions/frequencies. Chi square was used to check for relationship between categorical variables at 95% Confidence Intervals.

3.12: Study limitation

The major limitation of this study is inability to assess respondents' pre-pregnancy weight status, thus, making it impossible to evaluate their weight retention. This was due to several reasons. Firstly, many of the respondents interviewed were not

accessing post natal care services where they had initially registered for antenatal/delivered their babies. This made accessing the pre-pregnancy weight records from their case files difficult. Secondly, even after switching to self-reported method to get this information; most respondents were unaware of their pre-pregnancy weight and in many cases differed only to the health workers. Future studies should therefore explore this outcome using prospective cohort study design to truly ascertain the post-partum retention status among women.

CHAPTER FOUR

RESULTS

4.1: Socio-demographic profile of respondents

Table 4.1 represents the socio-demographic profile of mothers receiving postnatal services in Ibadan North Local Government Area of Oyo State. A total of 421 post-partum women were enrolled in this study with a 100% response rate. The age of the total population was 29.6± 5.65 years and more than half of the women (57.4%) were below 30 years of age. The average monthly income of the mothers was 21,930 Naira ($110.20 USD) with more than half of the women earning (53.7%) less than the minimum wage of 18,000 Naira monthly. Majority of the mothers were of Yoruba ethnicity (75.8%); were married (88.9%) and had at least one child (90.0%). Most of the women have had a formal education. About 45.7% reported secondary education as their highest educational qualification while 39.0% had received tertiary education. The occupational distribution of the mother included predominantly business (32.5%) and traders (137: 29.7%); while a minority were teachers (8.9%), civil servants (6.5%), professionals (4.3%) and unemployed (7.4%). On religious status, 47.35% were Christians while 43.1% were Muslims.

Table4.1: Socio-demographic profile of respondents

	Frequency	Percent
Age		
Mean age	29.22 ± 5.65 years	
≤ 30 yrs	265	57.4
> 30 yrs	152	32.9
Educational qualification		
No formal Education	3	0.6
Primary	26	5.6
Secondary	211	45.7
Tertiary	180	39.0
Marital status		
Single	11	2.4
Married	410	88.7
Religion		
Christian	221	47.8
Islam	199	43.1
Ethnicity		
Yoruba	350	75.8
Others	70	14.2
Have children		
Yes	416	90.0
No	5	1.1

Mean number of pregnancy	2 ± 1.00	
Income		
≤18,000	248	53.7
> 18000	107	23.2
Average monthly income	N21,930 (IQR:5,000–20,000)	
Occupation		
Trader	137	29.7
Teacher	41	8.9
Civil servant	30	6.5
Business	150	32.5
Unemployed	34	7.4
Professional	20	4.3

4.2: Post-partum weight status of respondents

Table 4.2 shows the post-partum weight status and other maternal characteristics of the mothers in the study. Results showed that 43.5% of the mothers were overweight /obese; while 43.5% had normal weight. Although only 18.0% of the women reported checking their weight regularly, majority of the mothers perceived their weight as being normal (77.3%). Conversely, more than half of the mothers (51.9%) reported gaining some weight since delivery of their last child. Furthermore, only 39.4% of the mothers reported receiving counsel about their weight either before antenatal (8.0%) during antenatal clinic (22.5%) or after delivery (10.6%). In addition, majority of the women delivered their babies through vagina delivery (95.7%) while 98.6% of the women were currently breastfeeding their babies. Also, 69.3% reported that their babies were undergoing exclusive breastfeeding.

Table4.2: Post-partum weight status of respondents

	Frequency	Percent
Present weight status		
Underweight	14	3.0
Normal	201	43.5
Overweight/Obese	201	43.5
Method of delivery		
Vaginal delivery	396	95.7
Caesarean section	18	3.9
Currently breastfeeding?		
Yes	417	98.6
No	4	0.9
Baby on exclusive breastfeeding		
Yes	293	69.3
No	124	29.3
Often check weight?		
Regularly	83	18.0
Sometimes	308	66.7
Never	26	5.6
Last time you checked your weight		
Last week	67	14.5
Last month	194	42.0
Last year	110	23.8
Within last 6 months	24	5.2
Gained weight since delivery?		
Yes	240	51.9
No	169	36.6
Perception of current weight		
Underweight	31	6.7
Normal	357	77.3
Overweight	21	4.5
Obese	3	0.6

Ever received counsel on weight?		
Yes	182	39.4
No	234	50.6
When was counsel received		
Before ANC	37	8.0
During ANC	104	22.5
After delivery	49	10.6
NA	143	31.0

4.3: Perception of respondents towards post-partum weight gain

Figure 4.1 shows the perception of respondents towards post-partum weight gain. It was observed that 33.5% (155) had perception that does not favour overweight while 66.5% (307) had perception that favoured postpartum weigh gain. Table 4.3 itemises the mother perception on different characteristics of post-partum weight gain. Specifically, 85.1% saw weight gain as a natural part of pregnancy and 78.4% had satisfaction with their present weight. However, 67.3% perceived losing weight to be beneficial as it helps them bring a woman back to shape. In addition, 68.2% perceived gaining weight after child birth good for postpartum women while 54.3% perceived it as a cultural norm. Also, 48.9% perceived sexual activities can help to add to weight while 74.0% perceived weight as a sign of good living. Furthermore, 85.5% perceived breastfeeding allows for increase in feeding habits, 82.7% perceived a woman should consume more during breastfeeding than during pregnancy while 84.4 perceived it the other way round.

Table 4.3a: Perception of respondents on different characteristics of post-partum weight gain

PERCEPTION VARIABLES	Yes	No	I don't know
Weight gain is a natural part of pregnancy	393 (85.1)	24 (5.2)	5 (1.1)
There is satisfaction with my present weight	363 (78.4)	50 (10.8)	6 (1.3)
Losing weight is beneficial to a woman because it helps to put her back in shape.	311 (67.3)	97 (21.0)	11 (2.4)
Gaining weight after birth is good for post-partum women.	315 (68.2)	86 (18.6)	21 (4.5)
Gaining weight after child birth is a norm in my culture for post-partum women..	251 (54.3)	127 (27.5)	40 (8.7)
A woman can add more weight after child birth through sexual activities.	226 (48.9)	105 (22.7)	90 (19.1)
Gaining weight after delivery is a sign of good living.	342 (74.0)	63 (13.6)	15 (3.2)
During breastfeeding, a woman is allowed to increase her feeding habits.	395 (85.5)	20 (4.3)	1 (0.2)
A woman should consume more food during breastfeeding than during pregnancy	382 (82.7)	28 (6.1)	6 (1.3)
The quantity of foods consumed helps to produce more milk during breastfeeding.	390 (84.4)	21 (4.5)	3 (0.6)

Table 4.3b: Overall respondents' perception on different characteristics of post-partum weight gain

Overall Perception	Frequency	Percent
Good	155	33.5
Poor	307	66.5

* – Perception score was based over 10 point scale with cut off being: [≤ 5 (good perception) and >5 (poor perception)].

4.4: Attitude of respondents towards post-partum weight gain

Table 4.4b represents the attitude of respondents towards post-partum weight gain. Results showed that 19.7% (91) had positive attitudinal disposition and majority 80.3% (371) had negative attitudinal disposition towards post-partum weight gain. Their attitude towards some healthy practices is as presented in table 4.4a. Specifically, 81.0% (374) said exercise can help to reduce weight gain, 49.8% (230) said the use of food supplements can help to reduce weight, 40%(185) said the use of drugs can help in weight reduction, 59.1%(273) said eating in between meals is good for post-partum mothers. However, 50.1% respondents said no matter the effort you make, post-partum mothers cannot really do anything to reduce their weight. Furthermore, 71.1% mothers adding weight does not stop a mother from breastfeeding well. More so, 50.4% (233) so as to be healthy, it is necessary to gain weight. Same percentage believed eating fast foods has no effect on weight gain, 58.7% (271) believed that the occupation you do has nothing to do with weight gain. So Also,53.9% (249) said family planning can affect weight gain.70.6% post-partum mothers who are well to do are most likely to gain weight although if husbands disapproves, 65.2%(301) said they will not shed weight.

Table 4.4a: Attitude of respondents towards post-partum weight gain

ATTITUDE VARIABLES	Agree	Disagree	Undecided
Exercise can help reduce weight gain amongst post-partum mothers	374 (81.0)	37 (8.0)	8 (1.7)
The use of supplements is needed for weight reduction for post-partum mothers	230 (49.8)	150 (32.5)	38 (8.2)
The use of drugs helps in weight reduction for post-partum mothers	185 (40.0)	189 (40.9)	46 (10.0)
Eating in-between meals is good for post-partum mothers	273 (59.1)	120 (26.0)	26 (5.6)
No matter the effort you make, most post-partum mothers will not reduce in weight	235 (50.9)	158 (34.2)	25 (5.4)
Adding weight does not stop post-partum mothers from breast feeding well	331 (71.6)	79 (17.1)	6 (1.3)
It is necessary for post-partum mothers to gain weight so as to be healthy	233 (50.4)	174 (37.7)	13 (2.8)
When post-partum mothers eat fast foods, it has no effect on their weight	233 (50.4)	158 (34.2)	29 (6.3)
The occupation of post-partum mothers has nothing to do with weight gain	271 (58.7)	127 (27.5)	18 (3.9)
Family planning can affect post-partum mother's weight	249 (53.9)	97 (21.0)	73 (15.8)
Post-partum mothers who are well to do are more likely to gain weight	326 (70.6)	69 (14.9)	23 (5.0)
If my husband disapproves losing weight, post-partum women should not try to shed their weight	301 (65.2)	72 (15.6)	40 (8.7)

Table 4.4b: Overall attitude of respondents towards post-partum weight gain

Overall Attitude	Frequency	Percent
Positive		
	91	19.7
Negative	371	80.3

* – Attitude score was based over 12 point scale with cut off being: [≤ 6 (Positive attitude) and >6 (Negative Attitude)].

4.5: Respondents perceived risk factors for weight gain

Table 4.5 shows the results for post-partum women's perceived risk factors for weight gain. Results shows that majority of the respondents (> 65%) agreed that consumption of fast food, a woman's occupation, her husband's influence , income and sleeping all the time as the major risks for post-partum weight gain among post-partum women. Other factors which were perceived as risks for post-partum weight gain among post-partum women included birth control method used (63.4%); exclusive breastfeeding for six (6)months (63.1%); lack of exercise (58.4%) and use of contraceptive pills (46.6%).

Conversely, most respondents disagreed that smoking (62.6%), depression (57.0%) and a woman's age (49.9%) were perceived as risk factors.

Table 4.5: Respondents' perceived risk factors for weight gain

Perceived risk factors for weight gain	Yes (%)	No (%)	I don't know (%)
Consumption of fast food	305 (72.1)	99 (23.4)	15 (3.5)
Nature of a woman's job	227 (65.5)	126(29.81)	12 (2.8)
Birth control method used	268 (63.4)	102 (24.1)	48 (11.3)
Husband's influence	294 (69.5)	90 (21.3)	33 (7.8)
Income	286 (67.6)	104 (24.6)	27 (6.4)
Use of contraceptive pills	197 (46.6)	181 (42.8)	37 (8.7)
Lack of exercise	247 (58.4)	146 (34.5)	24 (5.7)
Depression	147 (34.8)	241 (57.0)	26 (6.1)
Eating late in the night	192 (45.4)	199 (47.0)	27 (6.4)
A woman's age	163 (38.5)	211 (49.9)	43 (10.2)
Smoking	109 (25.8)	265 (62.6)	38 (9.0)
Sleeping all the time	324 (76.6)	85 (20.1)	9 (2.1)
Exclusive breast feeding for 6 months	267 (63.1)	124 (29.3)	26 (6.1)

4.6: Relationship between post-partum weight status and socio demographic

Table 4.6 shows the relationship between post-partum weight status and socio demographic characteristics. Results showed a statistically significant association between post-partum overweight and the age, religion and parity of post-partum women. Post-partum women who were overweight/obese were significantly higher among women aged over 30 years (58.7%) compared to women aged 30 years and younger (42.5%). Parity was also significantly associated with post-partum overweight. Post-partum women who were overweight were significantly higher among mothers that had more than three children (61.9%) compared to mothers who had three (3) children or less. The association between post-partum overweight and other variables such as ethnicity, mode of delivery, educational level was however not statistically significant.

Table 4.6: Relationship between post-partum weight status and socio-demographic characteristics

	Post-partum weight status		
	Normal/ Underweight	**Overweight/ Obese**	P value
Age			
≤ 30 years	150 (57.5)	111 (42.5)	0.002
> 30 years	62 (15.1)	88 (58.7)	
Marital Status			
Single	7 (63.6)	4 (36.4)	0.417
Married	207 (51.2)	197 (48.8)	
Ethnicity			
Yoruba	179 (52.0)	165 (48.0)	0.597
Others	34 (48.6)	36 (51.4)	
Income			
< 18000	125 (51.0)	120 (49.0)	0.102
> 18000	44 (41.5)	62 (58.5)	
Religion			
Christian	95 (43.8)	122 (56.2)	0.001
Islam	119 (60.4)	78 (39.6)	
Number of children			
≤ 3 children	191 (54.1)	162 (45.9)	0.019*
> 3 children	24 (38.1)	39 (61.9)	

Educational level			
Nil	1 (33.3)	2 (66.7)	
Primary	12 (46.2)	14 (53.8)	0.125
Secondary	120 (57.4)	89 (42.6)	
Tertiary	81 (46.0)	95 (54.0)	
Mode of delivery			
Vaginal	205 (52.6)	185 (47.4)	0.336
CS	7 (38.9)	11 (61.1)	

4.7: Relationship between maternal characteristics and weight status

Table 4.7 showed that post-partum overweight was not significantly associated with breastfeeding status, exclusive breastfeeding, receiving any counsel on weight control, or regular checking of body weight. Post-partum overweight was also significantly higher among mothers who perceived their current weight to be overweight (85.7%) compared to other weight categories.

Another interesting finding from this study was that post-partum overweight was higher among mothers whose duration after delivery was between 1 – 6 months (52.5%), compared to mothers who were above 6 months (44.2%) or less than 6 months (37.3%).

Interestingly, the proportion of post-partum mothers who were overweight was significantly higher among mothers who reported no weight gain since delivery (52.5%) compared to those who reportedly gained some weight since delivery (41.9%).

The association between post-partum overweight and blood pressure was statistically significant as overweight post-partum women was significantly higher among those with high blood pressure compared to those whose blood pressure was normal.

Table 4.7: Relationship between maternal characteristics and weight status

Maternal characteristics	Post-partum weight status		
	Normal/ Underweight N (%)	Overweight/Obese N (%)	P value
Breastfeeding status			
Currently breastfeeding	213 (51.8)	198 (48.2)	1.00
Not currently breastfeeding	2 (50.0)	2 (50.0)	
Ever received counsel on weight			
Yes	101 (56.4)	78 (43.6)	0.092
No	111 (48.1)	120 (51.9)	
Perception of current weight			
Underweight	21 (70.0)	9 (30.0)	
Normal	183 (51.8)	170 (48.2)	0.001
Overweight	3 (14.3)	18 (85.7)	
Obese	1 (50.0)	1 (50.0)	
Duration since delivery**			
< 1 month	37 (62.7)	22 (37.3)	0.084
1 – 6 months	104 (47.5)	115 (52.5)	
> 6 months	43 (55.8)	34 (44.2)	
Have you gained weight since delivery			
Yes	97(58.1)	70 (41.9)	0.035

No	112 (47.5)	124 (52.5)	
New born baby on exclusive BF			
Yes	152 (52.8)	136 (47.2)	0.659
No	62 (50.4)	61 (49.6)	
How often you check weight			
Regularly	42 (51.9)	39 (48.1)	
Sometimes	153 (50.2)	152 (49.8)	0.110
Never	18 (72.0)	7 (28.0)	
Blood pressure			
NBP	201 (53.6)	174(46.4)	0.010
HBP	12 (31.6)	26 (68.4)	

4.8. Relationship between Perception of respondents towards weight gain and weight status

Table 4.8 shows the relationship between the post-partum women's perception about post-partum weight gain and overweight. In this study, results showed that post-partum overweight was higher among women whose perception does not favour weight gain although the relationship was not statistically significant.

Table 4.8: Relationship between Perception of respondents towards weight gain and weight status

	Post-partum weight status		
	Normal/ Underweight	**Overweight/ Obese**	P value
Perception of respondents			
Good	213 (53.8)	122 (46.2)	0.264
Poor	73 (48.0)	79 (52.0)	

4.9: Relationship between attitude of respondents and post-partum weight status

Table 4.9 shows the relationship between attitude towards post-partum weight gain and post-partum weight status. In this study, results showed that overweight/ obese was higher among post-partum mothers with positive attitudinal disposition towards post-partum weight gain (49.7%) compared to those with negative attitudinal disposition (43.8%); although, the relationship was not statistically significant.

Table 4.9: Relationship between attitude of respondents towards weight gain and weight status

	Post-partum weight status		P value
	Normal/ Underweight	Overweight/ Obese	
Attitude of respondents			
Positive	165 (50.3)	163 (49.7)	0.278
Negative	50 (56.2)	38 (43.8)	

4.10: Hypothesis Testing

Bi-variate analysis was carried out to test the hypothesis of a relationship between post-partum weight gain and other independent variables including socio-demographic characteristics, maternal characteristics/weight gain, perception of weight gain and attitude towards weight gain among post-partum mothers in Ibadan. Results obtained from this study therefore leads to:

1. Rejection of the null hypothesis of no relationship between postpartum overweight and socio-demographics (age, educational status, level of income) of postpartum women. Since results showed a statistically significant relationship between post-partum overweight and postpartum women's age, religion and parity.
2. Rejection of the null hypothesis of no relationship between postpartum overweight and current weight status.
3. Failure to reject the null hypothesis of no relationship between postpartum overweight and perception of postpartum women towards post-partum weight gain; since this study didn't find sufficient statistical evidence to establish a relationship between postpartum overweight and perception of postpartum women towards postpartum weight gain.
4. Failure to reject the null hypothesis of no relationship between postpartum overweight and attitude of postpartum women towards post-partum weight gain; since this study did not find sufficient statistical evidence to establish a relationship between postpartum overweight and attitudinal disposition towards post partum weight gain.

CHAPTER FIVE

DISCUSSION, CONCLUSION AND RECOMMENDATION

This chapter focuses on the findings of this study. It is organized into the following subsections: socio-demographic information; prevalence of postpartum overweight amongst postpartum women, attitude towards post-partum weight gain amongst post-partum women, perception towards postpartum weight gain amongst postpartum women, perceived risk factors responsible for postpartum weight gain amongst postpartum women.

5.1: Socio-demographic characteristics of respondents

This study assessed the perception and attitude of post-partum women accessing post natal care from public health facilities in Ibadan North local government area, Oyo State. By educational status, majority of mothers had post primary education. This could be attributed to the fact that the study site was largely urban where a high level of literacy has been reported. Most 410(88.7%) of the women were married, this could be because the study was among mothers and could be attributed the fact that the Nigerian culture expects a woman to have a child in the confine of marriage.

5.2: Weight status of respondents

In this study, post partum weight gain is nearly half of the women studied. This may be because the women are majorly business women, civil servants, traders making them sedentary in nature. This prevalence is higher than the prevalence rate of between 30% and 35% previously reported by John et al. (2013) among Nigerian women; although much than lower a prevalence of 52% reported by Olatunbosun, Kaufman and Bella, (2011) among female civil servants in Ibadan. Moreover, this contradicts the findings in other developed countries. For example, studies conducted both in the US and Brazil revealed that post-partum overweight ranged between 14 – 29% (Ostbye et al., (2012); Zanotti et al., (2015)]. In the last 25 years, studies have revealed a 16% increase in obesity prevalence among women of childbearing age particularly among women in developing countries (Ogden et al., 2006). This may be connected to the wide adoption of westernized lifestyle among women in these countries coupled with the rapid economic development taking place in these regions. For instance, the Nigeria Economic Report by the World Bank has described Nigeria as one of the most economically developing country within the sub-Saharan African region with annual growth of 7% (NER, 2014). Furthermore, several practices

associated with dietary pattern among women, particularly perception of dietary intake during pregnancy may also account for the high prevalence observed in the present study. Several studies suggest that such perception and attitude of dietary pattern before, during and after pregnancy may be entrenched within cultural norms. For example, it is popular among Nigerian that women should increase their dietary intake during and after pregnancy since they are "eating for two".

The difference between this study and those conducted by Ostbye (2012) and Zanotti et al. (2015) may also be attributed to the difference in demographic profile of the respondents. Similarly, the difference in this study with that of Olatunbosun, Kaufman and Bella (2011) is no doubt in connection with the subject status as civil servants were the subjects in Olatunbosun's study compared to the present study where business women (32.5%) and trader (29.7%) made up the bulk of the population with civil servants comprising only 6.5% (See table 1). Thus, the higher prevalence in this study compared to that in developed countries could be attributed to several factors including environmental, lifestyle and general perception about post-partum life as well as the quality and access to health care system and services.

Furthermore, more than half of the post-partum women from this study stated that they gained weight after delivery with majority of them gaining the bulk of the weight between 1 – 6 months after delivery, this may be due to breastfeeding and rest of mind. This contradicts recent findings by Zanotti et al, (2015) who reported that approximately 14% - 20% of Brazilian women gained about 11 pounds between 6-18months post-partum. Studies conducted by Okeke et al., (2013)among women in Eastern Nigeria also showed that 18% of the mothers were able to return to their pre-pregnancy weight by 6 weeks postpartum. This may be due to breastfeeding practices of mothers between the first six months after delivery; although the association between breastfeeding and postpartum weight development has been largely weak or absent in most studies. Several authors have reported contradictory findings between breastfeeding and post-partum overweight (Rooney and Schauberger, 2002; Olson et al. 2003; Wosje and Kalkwarf, 2004; Butte and King, 2005). Another possible explanation for the higher prevalence of overweight among post-partum mothers with between 1 – 6 months post delivery period may also be linked to the cultural practice where most women have their mothers/mothers-in-law come live with them at home and help out in many of the home chores thus making the mothers engage in less

physical activities but increased dietary intake since they are generally pampered by their mothers/mothers-in-law.

Post-partum overweight has serious health implications for both the woman and later pregnancies. Several studies suggest that women gain excessive weight during pregnancy are also less likely to lose this weight in the postpartum period and may consequently be at greater risk of beginning the next pregnancy at a higher weight status (Nohr et al.,2008) as well as an increased risk of obesity later in life (Rooney et al.,2005). Besides, most Nigerian mothers do not know or understand how much weight they need to gain during pregnancy and majority of them were also not counselled on weight gain in relation to their pre-pregnancy weight (Kayle *et al*, 2014).

This study also showed a significant association between post-partum overweight and parity. Post-partum overweight was higher in mothers with more than 3 children than mothers with less; this may be due to accumulative fats from each pregnancy. It could also be due to the satisfaction of having desired number children with little or no care on their weight status .This contradicts findings by several authors who failed to show an association between parity and postpartum weight retention and other studies have reported mixed results. Linne and Rössner (2003) asserted that the time period between two consecutive pregnancies seems not to be related to postpartum weight retention or risk of becoming overweight before the second pregnancy.

5.3: Perceptions of respondents towards post-partum weight gain

In this study, higher number of respondents had perception that favours weight gain. Majority of the mothers interviewed felt that weight gain was a natural part of post delivery process while 78.4% of the women said they were satisfied with their present weight status. This finding is worrisome, besides, about 33.8% of the women who perceived their weight to be normal were actually overweight when BMI was calculated. This suggests that women who are overweight at post-partum period are largely unaware of their weight status. Several of the perceptions of post-partum women regarding weight gain are also shrouded in culture and social norms. For example, most of the women studied reported that post-partum weight gain was sign of good living and a cultural norm respectively. Several authors have shown that culture plays a major role in the way a woman perceives and prepares for her birthing experience. These cultural beliefs and norms do not only affect her during her pregnancy experience, but throughout her entire life. For example, findings from previous research suggests that African American women are much more likely to prefer a larger body size compared to Caucasian women and that there are cultural norms within the African American community that support higher satisfaction with weight and appearance (Lovejoy, 2001). Perception that favours weight gain will lead to overweight among post-partum women and this study clearly establishes that fact. Such perception may be due to poor knowledge of post-partum women regarding appropriate weight size a post-partum woman should have. Kayle et al, (2011) in a previous study, reported that mothers do not know or understand how much weight they needed to gain during pregnancy and were not counseled about weight gain in relation to their pre-pregnancy weight. This is easily seen in this study as only 18.0% of the mothers reported regularly monitoring their weight, while the majority of the mothers never border to check their weight either during pregnancy or post delivery. Interestingly, perception that favours overweight has been shown even among health care providers. Chang, et al, (2013) reported that most healthcare workers often felt that appropriate weight gain during pregnancy was not a high priority and rather waited until patients had gained excess weight before addressing the issue and avoid counselling due to sensitivity of the topic. There have also been situations when health providers perceived sensitivity to discussing weight with their patients and also expressed their own caution in addressing this topic wanting to avoid ideas of body

image, specifically patients perceiving that their doctor as labelling them. Providers also believed that patients were more influenced by other factors, such as their family, habits, and culture hence believed that their counselling had low impact on patients, (Chang, et al, 2013).

Another worrisome finding from this study is the poor level of enlightenment particularly on maintaining a healthy weight taking place at the antenatal clinics; since only 39.4% of the mothers reported to have received counsel on weight either during pregnancy or after. This could be attributed to health facility staffs not paying stronger attention to weight status in postpartum life.

5.4: Attitude of respondents towards post-partum weight gain

With respect to respondents' attitude towards post-partum weight gain, 80% of respondents in this study showed negative attitudinal disposition towards post-partum weight gain, this may be due to husbands influence satisfaction with the present weight status, the stress of the need to change wardrobe in relation to cloth size. This contradicts findings by Ferrari et al. (2008) who showed that majority of their population had positive attitudinal disposition towards weight gain. Overweight and obesity are conditions associated with negative attitudinal disposition, demeaning social connotations and discrimination (Brown et al., 2006).Also, several studies conducted among different population groups especially mothers in Nigeria suggest that there are individual and societal attitudes towards weight gain, especially coupled with the perception of overweight/obesity being socially desirable (Iliyasu et al., 2013; Tagbo et al,. 2015).

Of importance in this study are the recognition for lifestyle modification and a chance for behavioural change communication (BCC) since 81.0% of the mothers agreed that exercise can help to reduce weight gain. This may serve as an opportunity to address the high prevalence of post-partum overweight among mothers.

5.5: Perceived risk factors responsible for post-partum weight gain among respondents

Majority of the post-partum women from this study correctly identified consumption of fast food, a woman's occupation, her husband's influence, income and sleeping all the time as perceived major risks for post-partum weight gain among post-partum women. This is interesting as only a few of the respondents (39.4%) earlier reported ever receiving any form of counsel about their weight either before ANC, during

pregnancy or after. This shows that women can easily associate dietary intake with increase in body weight, although in a recent study conducted by Kavle et al (2014), the authors asserted that many women misunderstood the connection between nutrition and weight gain. Several studies have established the direct association between dietary intake and post-partum overweight. Some of these studies observed that women who increased their food intake after pregnancy retained more weight than other women (Olson et al., 2003). Weight gain was greater in women who increased their meal sizes and/or snacking frequency during and after pregnancy (a rough estimate of changes in energy intake), who increased their snack frequency to three or more snacks per day after pregnancy, or who decreased their lunch frequency starting during or after pregnancy. A follow-up conducted by Harris et al., (1999) in the UK found that women who felt they had eaten more after delivery were 2.8 kg heavier at follow-up than before pregnancy whereas women who felt they had not eaten more had lost 1.2 kg weight during the same period. A similar relationship was found between weight gain and having had greater access to food postpartum.

Furthermore, the duration of sleep was correctly identified by the study participants. Studies have also implicated duration of sleep as a risk for postpartum weight gain. Shorter duration of sleep has been linked to decreased leptin levels, increased hunger and appetite and obesity in general population. Sarwer et al. (2006) in a review asserted that postpartum women may suffer from sleep deprivation which might increase their risk for weight gain. A study also reported that women who slept ≤5 hours/day at 6 months postpartum had 2 to 3-fold risk for retaining at least 5 kg weight at 12 months postpartum compared to women sleeping 7 hours/d, when adjusted for confounders (Gunderson et al., 2008).

Other factors which were perceived as risks for post-partum weight gain among post-partum women included birth control methods used (63.4%); exclusive breastfeeding for six (6) months (63.1%); lack of exercise (58.4%) and use of contraceptive pills (46.6%).

Conversely, majority of the women studied disagreed that smoking, depression and a woman's age were risks for post-partum weight gain. Previous findings relating maternal age and postpartum weight gain have been largely contradictory. Some studies have reported higher postpartum weight gain in various age groups (Olson et al. 2003) while others showed no association at all. Maternal depressive symptoms

have also been related to higher weight gain and retention (Walker 1997; Gunderson et al. 2008). This is contradictory to findings from this study where majority of the women disagreed that depression was a risk for post-partum weight gain. This is probably because Nigerian women enjoy social support provided by both immediate and extended family members. Furthermore, low social support may also increase the risk of weight retention whereas stress related to the new life situation may not. Results from comparisons of weight retention in different ethnic groups are not consistent but indicate that black women gain more weight postpartum than white women on average (Gunderson et al. 2000; Gunderson et al. 2008).

5.6: Implication of study findings for health promotion and education in Nigeria.

Findings from this study have serious implications for health education and promotion practice in Nigeria.

First is the impact of a high overweight prevalence among post-partum mothers at the different health facilities in the country. Majority of the women from this study were ignorant of the risk of overweight while only a few women monitored their weight. There is need to incorporate health promotion talks during clinic visits by pregnant mothers and since weight control for post-partum women starts from the time of pre and during pregnancy, such information dissemination avenues will help to promote healthier lifestyle habits such as eating healthy diet, engaging in appropriate physical activities and carry out self-monitoring of body weight among pregnant mother, and thus debunk the belief of weight gain as a sign of better standard of living.

Secondly, is the poor perception regarding body weight gain among the general female population in Nigeria and in most developing countries. This study showed that several post-partum women generally had a poor perception of their body weight. For example our study showed that majority who perceived that they had normal weight, were actually overweight. Additionally, spouse' approval for or against weight gain was a strong determinant whether a woman was going to add or lose weight. Hence, the need for sensitizing husbands on healthy weight status. This will also help to plan program where husbands are inculcated into the healthy weight scheme for their wives and also serve as reminders. This suggests that a perception that favours of weight gain is high among the general populace and these perceptions may be deeply entrenched within cultural norms. Health education programs are needed for post-partum mothers, but also to the general female population as this will

help to reduce the prevalence of overweight as well as the chronic health conditions associated with obesity such as hypertension, diabetes and cardiovascular disease.

5.7: Conclusion

In conclusion, findings from this study suggest that post-partum women accessing post natal services generally have negative attitudinal disposition and poor perception regarding post-partum weight gain. This was shown to be largely shrouded in cultural and social norms that dominate the African culture. Furthermore, with an observed overweight prevalence of 43.5% among these mothers, this was higher than previous studies among the same population. Post-partum women also reported poor perception of risk factors for weight gain; this indicates poor levels of knowledge of appropriate weight needed for women especially during and after pregnancy. Respondents were also largely unaware of the health implications of overweight and obesity. Health education and promotion efforts therefore need to be intensified especially through the maternity clinics during pregnancy and after birth. Furthermore, public health interventions need to be implemented at community levels through community mobilisation & advocacy, as well as training of health workers. This will help in proper education of women about the dangers of overweight, proper utilisation of health facilities, as well as debunk the poor perceptions associated with culture.

5.8: Recommendations

To tackle the growing menace of overweight and obesity among post-partum women in developing countries, we recommend the following:

1. Targeted efforts to promote healthier diet and encourage more physical activities should be channelled towards mothers particularly during pregnancy by health workers; this will help in preventing a rise in the prevalence of overweight.
2. Intervention for weight control programs needs to be expanded beyond the women accessing antenatal care to include their significant others such as their spouses who have an immense influence on women's perception of their body weight. The impact of such interventions will be better health outcomes for both mother and child especially at fetal life and during childbirth.

3. Efforts to promote healthier living among children to counter the socio-cultural beliefs of associating overweight with signs of better standard of living, must be much more holistic and approach broadened beyond the traditional views to include the families, schools and larger community.
4. Encourage pregnant mothers to carry out self-monitoring of body weight which will a drastic reduction associated with overweight.
5. Husband should be adequately sensitized on health matters, inculcated into weight monitoring programmes and serve as reminders for their wives.

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APPENDIX I

Serial №_____

ATTITUDE AND PERCEPTION TOWARDS POST-PARTUM WEIGHT GAIN AMONGST MOTHERS RECEIVING POST-NATAL SERVICES

QUESTIONNAIRE

Dear respondent,

Greetings: I am a master student of public health in the Department of Health Promotion and Education, Faculty of Public Health, College of Medicine, University of Ibadan. I am conducting a research project titled ‘‘ATTITUDE AND PERCEPTION TOWARDS POST-PARTUM WEIGHT GAIN AMONGST MOTHERS RECEIVING POST-NATAL SERVICES IN PUBLIC HEALTH FACILITIES IN IBADAN NORTH LOCAL GOVERNMENT, OYO STATE , NIGERIA’’ as part of the requirement for the award of the degree. It is expected that the outcome of the study will provide the basis for health education and information on the attitude and perception of post-partum women towards weight gain in Ibadan North and by extension Nigeria as a country. This study will also avail public health professionals and planners to design an intervention suitable from the study. I intend to gather information from you on the topic and will be very grateful if you can spare some minutes to participate in the study by completing the questionnaire. There are no rights or wrong answers; you are encouraged to give honest response as much as possible. No name is required and utmost confidence of your identity, response and opinion will be ensured. Thank you.

Would you like to participate? Yes ☐ No ☐ (If “No”, STOP THE INTERVIEW)

INSTRUCTIONS: Please tick ☑ or fill in answers where appropriate

SECTION A: Socio-demographic characteristics of respondents

1. Age of Respondent (as at last birthday) …….years

2. Marital status (1) Single ☐ (2.) Married ☐ (3) Divorced ☐ (4.) Widowed ☐ (5.) Separated ☐ (6.) Co-habiting☐
3. Religion 1. Christianity ☐ 2. Islam ☐ 3. Traditional☐ 4. Others (specify)…….
4. Ethnicity 1. Yoruba☐ 2. Hausa ☐ 3. Igbo ☐ 4. Others (specify)……..……
5. Highest level of education 1. No formal education ☐ 2. Primary ☐ 3. Secondary ☐ 4. Tertiary ☐ 5. Others, specify……
6. Occupation _____
7. What is your average Monthly income/salary……
8. Do you have any child/children? (1). Yes ☐ (2) No ☐
9. Number of pregnancies you have had (1). 1 ☐ (2) 2 ☐ (3). 3 ☐ (4) 4 ☐ (5)Others, specify ☐
10. How many children do you have? (1). 1 ☐ (2) 2 ☐ (3). 3 ☐ (4) 4 ☐ (5) Others, specify ☐
11. How old is your (youngest) child? ……..
12. What was the method of delivery you had for present child? (1). Normal ☐ (2). Caesarean section ☐

SECTION B. POST-PARTUM WEIGHT GAIN AMONGST MOTHERS

13. How long ago (in days) did you deliver your present child? _____
14. Are you presently breastfeeding your child? 1. Yes ☐2. No ☐
15. If yes, for how long now have you been breastfeeding your child? _____
16. Is your present baby on exclusive breastfeeding? 1. Yes ☐2. No ☐
17. How often do you check your weight? (1).Regularly ☐ (2). Sometimes ☐ (3). Never ☐
18. When last did you check your weight? Last week☐ last month ☐ last year☐, others specify.

19. Will you say you have gained more weight since your last delivery? 1.Yes☐2. No ☐

20. What was your weight (in kg) when you delivered your present baby? ……

21. What do you think about your current weight? (1) Underweight ☐ (2).Normal ☐ (3) Overweight ☐ (4).Obese☐

22. Have you ever received any counseling on weight gain? 1. Yes ☐2. No ☐

23. If yes when did you receive this counseling?

(1) Before Pregnancy (2). During ANC ☐(3). After delivery ☐

SECTION C: PERCEPTION OF MOTHERS TOWARDS POSTPARTUM WEIGHT-GAIN.

INSTRUCTION: Kindly fill in the correct response by ticking the right response that applies to you.				
S/№	**VARIABLES**	**1.YES**	**2.NO**	**3.I don't know**
24.	Weight gain is a natural part of pregnancy.			
25.	There is satisfaction with my present weight.			
26.	Losing weight is beneficial to a woman because it help put her back in shape.			
27.	Gaining weight after child birth is good for post-part women.			
28.	Gaining weight after child birth is a norm in my culture for post-partum women.			
29.	A woman can add more weight after child birth through sexual activities.			
30.	Gaining weight after delivery is a sign of good living.			
S/№	**VARIABLES**	**1.YES**	**2.NO**	**3.I don't know**
31.	During breast feeding, a woman is allowed to increase her feeding habits.			
32.	A woman should consume more food during breastfeeding			

	than during pregnancy.			
33.	The quantity of foods consumed helps to produce more milk during breastfeeding.			

SECTION D: ATTITUDES OF MOTHERS TOWARDS POST-PARTUM WEIGHT GAIN.

S/№	VARIABLES	1. Agree	2. Disagree	3. Undecided
34.	Exercise can help to reduce weight-gain amongst post-partum mothers.			
35.	The use of food supplements is needed for weight reduction for post-partum mothers.			
36.	The use of drugs helps in weight reduction for post-partum mothers.			
37.	Eating in-between meals is good for post-partum mothers.			
38.	No matter the effort you make, most post-partum women will not reduce in weight.			
39.	Adding weight does not stop post-partum mothers from breastfeeding well.			
40.	It is necessary for post-partum mothers to gain weight so as to be healthy.			
41.	When post-partum mothers eat fast foods, it has no effect on their weight.			
42.	The occupation of post-partum mothers has nothing to do with weight gain.			
43.	Family planning can affect post-partum mothers' weight gain.			
44.	Post-partum mothers who are well to do are more likely to gain weight.			
45.	If husband disapproves losing weight, post-partum women should not try to shed their weight.			

SECTION E: PERCEIVED FACTORS RESPONSIBLE FOR POST-PARTUM WEIGHT GAIN AMONGST MOTHERS.

46. What are some of the things you think can make a post-partum woman to gain weight after delivery?

S/№	**Risk factors for weight gain after delivery (You can tick more than one option)**	**1. Yes**	**2. No**	**3. I don't know**	**4. Tick ✓ any of the factors applicable to you**
a)	Consumption of fast food				
b)	Nature of a woman's job				
c)	Birth control method used				
d)	Husband's influence				
e)	Income				
f)	Use of contraceptive pills				
g)	Lack of exercise				
h)	Depression				
i)	Eating late in the night				
j)	A woman's age				
k)	Smoking				
l)	Sleeping all the time				
m)	Exclusive breast feeding for 6 months				

47. What is your present weight (in kg)_____

48. What is your height (in meters)? ……...

49. Measurement of waist-line circumference ……

50. Measurement of blood pressure…….....

APPENDIX II

Nomba idawe mo……

ISESI ATI ERO SI SISANRASI AWON MOMO-OLOMO LEYIN IBIMO TI WONGBA ITOJU TOROMO MOMO LEYIN OMO-BIBI

IWE-IBEERE

Olukopa mi tooto,

Mokiyin lopolopo, moje akeko igboye-keji ti ipolongo-ilera ati eko, Eka ti ilera gbogbo-ilu, Imo-isegun, Unifasiti ti Ibadan. Monse iwadi lori "ISESI ATI ERO SISANRASI AWON MOMO-OLOMO LEYIN IBIMO LARIN AWON TINGBA ITOJU NI IJOBA ARIWA IBADAN, IPINLE OYO, NIGERIA." si okan nipa omuye si gbigba oye-keji. Asimo dajupe abajade/ arigbamun iwadi yi ti yio si wulo fun ifesemunle awon nkan toye ki eniyan mo lori eko-ilera si isesi ati ero awon momo-olomo leyin ibimo ni ijoba ibile ariwa ati ni ilu Naijiria. Iwadi yi yio tun fi nkan otun fun awon akosemose eto ilera ati aseto latise ilana todara sigbayegbadun eni tonbimo. Osiwumi lati gba ero yin lori koko iwadi yi, atipe, inu mi yio sidun ti ebaleefi asiko yin die sile lati kopa ninu didahun iwe-ibeere yi ni ekunrere. Ki esimodajupe kosi si awon idahun ti otona abi kotona, asiroyin latipese awon idahun toje otito boselewu kori. Akosife ki eko oruko yin ati nkankan tolefiyinhan gbogbo ni kowa ni ipamo, akanilo idahun si ipinu yin nikan ni anife si. Adupe pupo.

Nje emafe latikopa ninu iwadi yi bi? Beeni☐ Beeko ☐ (Tobaje "Beeko" jowo maba idahun siwadi yi lo mo)

ATONA: Jowo maaki (√) abi dahun sinu awon ibeere yi bobaseye

EKA A: AWON NKAN IDAMO NIPA OLUDAHUN

1. Ojo-ori oludahun (nigba ojo-ibi tokoja)……..odun

2. Ipo ibagbe yin? 1. Apon nimi☐ 2. Motiloko☐ 3. Atikora ☐
4. Opo binrin/kunrin☐ 5. Motituka☐ 6. Ngbepo ☐

3 Esin wo ni esin ti e nsin? 1. Igbagbo ☐ 2. Musulumi ☐ 3. Esin abalaye☐
iv. Omiran (se alaye)?…….

4. Eya wo niyin? 1. Yoruba☐ 2. Hausa☐ 3.Igbo ☐ 4. Omiran (se alaye)……

5. Kinni iwe togaju ti eka? 1. Nkola ile-iwe☐ 2. Ile-iwe alakobere ☐ 3. Ile-iwe girama ☐ 4. Ile-iwe giga ☐ 5 Omiran……

6. Ise ti ense……..

7. Elo ni owo to saba ma nwole funyin ni osu……..

8. Nje eni omo/awon omo? 1. Beeni ☐ 2. Beeko ☐

9. Iye oyun ti eti ni ri? 1. Ekan ☐ 2. Emeji ☐ 3. Emeta ☐ 4. Emerin ☐
5. Omiran, salaye…….....

10. Omo melo ni eni? 1. Ekan ☐ 2. Emeji ☐ 3. Emeta ☐ 4. Emerin ☐
5. Omiran, salaye…….....

11. Omo odun melo ni (abigbeyin) omo yin?.....

12. Bawoni ese bi omo abigbeyin yi? 1. Modabi funrami ☐ 2. Nipa ise-abe ☐

EKA B: SISANRASI AWON MOMO-OLOMO LEYIN IBIMO

13. Oti to igbawo seyin (ni ojo) ti etibi omo naa yi?.....

14. Nje e nfun omo loyan lowo? 1. Beeni ☐ 2. Beeko ☐

15. Tobaje beeni, fun igbawo seyin ni eti nfun omo naa loyan?.....

16. Nje omo abigbeyin ti engbe lowo yi ni efun ni oyan lasan lalai fi ounje kankan le rara?

1. Beeni ☐ 2. Beeko ☐

17. Oma nto igbawo ati igbawo ti ema nye iwon yin wo? 1. Lemolemo ☐ 2. kokan ☐
3. Nkoyewori ☐

18. Nigbawo ni eti ye iwon yin wo kanin? Ose-tokoja ☐ Osu-tokoja ☐ Odun-tokoja ☐ Omiran, salaye.....

19. Nje elesope eti sanra si leyin omo yi ti ebi?.....

20. Kinni iwon yin (ni kg) nigbati ebi omo eyi ti ebi gbeyin?.....

21. Kinni enro nipa iwon yin tolowura si yi? 1. Monfe-kojueyilo ☐ 2. Odara-bayi ☐
3. Otitobiju ☐ 4. Motisanraju ☐

22. Nju etigba imoran kankan ri bi lorin lilowura si? 1. Beeni ☐ 2. Beeko ☐

23. Tobaje beeni, nigbawo ni egba imoran yi? 1. Kinto-loyun ☐ 2. Nigba-timoloyun ☐ 3.Leyin-ibimo ☐

EKA D: ERO AWON MOMO-TOSESEBI OMO SI SISANRASI LEYIN IBIMO

ILANA: Jowo dahun awon ibeere yi pelu awon idahun tobamun nipa mimaaki eyi tobayin mun.				
S/No	**AWON AYIPADA**	**1. BEENI**	**2. BEEKO**	**3. NKOMO**
24.	Sisanrasi je nkan toromo oyun ninu.			
25.	Otemilorun pelu iwon mi bayi.			
26.	Jijosi je nkan tonse anfani fun awon obinrin toripe oun mun pada bo sipo.			
27.	Sisanrasi leyin ibimo dara fun awon momo tosese bimo tan.			
28.	Sisanrasi leyin ibimo je nti amope oye kosele fun awon momo-olomo tosese bi omo tan.			
29.	Obinrin lesanrasi leyin ibimo tobauni awon ibalopo.			
30.	Arasisan leyin omo bibi je amin todara.			
31.	Nigba omu fifun omo, wonma nfun obinrin loreofe latimaje ounje pupo si.			
32.	Obinrin ye komaje ounje pupo nigba ti obanfun omo loyan ju igba ti oloyun lo.			
33.	Iwon awon ounje ti wonbaje ma nje ki woni omi/miliki si ni oyan nigba fifun omo loyan.			

EKA E: ERO AWON MOMO-TOSESEBI OMOTAN SI SISANRASI LEYIN IBIMO

ILANA: Jowo dahun awon ibeere yi pelu awon idahun tobamun nipa mimaaki eyi tobayin mun.				
S/No	**AWON AYIPADA**	**1. FARAMO**	**2. NFARAMO**	**3. NKOSETAN**
34.	Ere-idaraya leranilowo latidin sisanrasi larin awon momo tosesebi omo.			
35.	Lilo orisirisi awon afikun ounje jije wulo fun mimun adinku wa si sisanrasi larin awon momo tosesebi omo.			
36.	Lilo awon oogun kan lejeki mimun adinku wa si sisanrasi larin awon momo tosesebi omo.			
37.	Jije orisirisi larin awon ounje-jije dara fun awon			

	momo tosesebi omo.			
38.	Gbogbo igbiyanju ti alese, opo awon momo tosese bimo kole dinku ni sisanrasi			
39.	Fifikun titobisi koleda sisanrasi awon momo tosese bimo si fifun omo loyan.			
40.	Oje dandan fun awon momo tountoju omo lati sanrasi kiwon lebawa ni ipo ilera pipe.			
41.	Nigbati awon momo tountoju omo baje awon ounje kiakia tiwonta, koleni ipa si sisanrasi won.			
42.	Ise awon momo tountoju omo koni nkankanse pelu sisanrasi.			
43.	Ifetosomo bibi ledena titobisi awon momo tountoju omo.			
44.	Awon momo tountoju omo tiwonsirijaje seese kiwon sanra.			
45.	Ti awon oko kobafaramo sisadinku arasisan, awon momo tountoju omo kogbodo din titobi won ku.			

EKA E: AWON NKAN TOLEFA KI AWON MOMO-TOSESEBI OMOTAN SI SISANRASI LARIN WON.

46. Kinni awon nkana ti ero toleje ki awon momo tountoju omo lowo sanrasi leyin ibimo?

S/No	**Awon onfa si sisanrasi leyin ibimo (ele maaki eyi toju eyokan lo)**	**1. Beeni**	**2. Beeko**	**3. Nkomo**	**4.Falasi eyi toba ba mu**
A	Jije ounje werewere tiwontipese sile				
B	Iru ise ti iru iya tountoju omo lowo banse				
D	Lilo ona idena si omo bibi				
E	Ipa oko				
E	Ntonwole				
F	Lilo awon oogun idana oyun nini				
G	Aise ere-idaraya				
Gb	Idunu-okan				
I	Jije ounje ni oru				
H	Ojo-ori obinrin				
J	Fifa-siga				
K	Sisun ni gbogbo igba				
J	Fifun omo ni oyan nikan ni osu-mefa lini lila				

47. Kinni iwon yin lowolowo bayi (ni kg)…….

48. Kinni gigasi yin (ni meters)?.....

49. Sise iwon ibadi yika…….

50. Sise iwon ifunpa fun eje……

APPENDIX III

List of Women that visits each health facility monthly in Ibadan North Local Government

Ibadan North	Sango	Ward	Ibadan University Health Service Clinic Jaja	54	72	72	94	95		41	52	71	89	74		46	59	80	70		
Ibadan North	Sabo Ward	Sabo Primary Health Centre		36	69	69	83	34	57	22	63	54	142	25	22	18	34	43	104	18	13
Ibadan North	Basorun Ward	Ashi Health Post		18	18	35	53	16	35	8	27	31	63	15	17	8	31	14	42	17	16
Ibadan North	Sango	Ward	Polytechnic Clinic	42	18	62	52	40	28	48	30	70	145	146	36	10	20	73	125	100	22
Ibadan North	Agbowo Ward	Agbowo Primary Health Centre		53	73	81	87	73	73	47	59	74	77	44	46	38	79	71	61	54	60
Ibadan North	Oke Itunu Ward	Foremost Base Hospital		18	15	9	18	6	35	7	5	1	1	2	6	9		2	2	3	8
Ibadan North	Yemetu Ward	Vine Branch Medical							8						2						5
Ibadan North	Sango	Ward	Samonda Primary Health Centre	17	34	34	34	35	34	6	39	48	30	21	33	8	31	50	53	31	32
Ibadan North	Agodi Ward	Idera De Primary Health Centre			50			37			28			44			30			25	
Ibadan North	Agodi Ward	Idi-Ogungun Primary Health Centre		13	53	69	91	59	131	37	64	60	124	41	78	30	73	59	78	43	67
Ibadan North	Agbowo Ward	Bodija Primary Health Centre		36	72	55	72	61	32	34	58	53	97	51	56	26	76	44	107	56	50
Ibadan North	Sango	Ward	Jubilee Hospital		19	20	19		18		8	8	8		8			10	10		9
Ibadan North	Bodija Ward	Obasa primary Health center		36	72	90	144	36	54	11	28	41	49	12	23		32	50	65		24
Ibadan North	Yemetu Ward	Adeo Teaching Hospital		368	281	412	432	216		275	273	229	315	227		193	235	##	195	103	
Ibadan North	Agbowo Ward	Barika Primary Health Centre		27	47	22	55	23	13	17	31	19	55	15	17	14	21	63	60	6	17
Ibadan North	Sango	Ward	Sango Primary Health Centre	33	50	58	64	50	52	35	35	50	37	32	43	38	67	54	40	26	73
Ibadan North	Basorun Ward	Basorun Primary Health Centre		31	70	68	105	34	37	27	34	58	166	24	78	27	72	73	150	31	138
Ibadan North	Oke Aremo Ward	Oke Are Primary Health Centre		18	33	92	64	33	45	12	56	51	57	25		9	45	54	76	18	36
Ibadan North	Bodija Ward	University College Hospital					290	29	36				73						2020	28	11
Ibadan North	Oke Itunu Ward	Oke Itunu Primary Health Centre		15	17	18	28	17	16	7	13	22	36	17	22	15	12	13	37	15	13
Ibadan North	Ago Tapa Ward	Group Medical Clinic		19	20	20	20		20	18	20	18	20		18	18	18	18	19		19
Ibadan North	Agbowo Ward	Doctor'Poly Clinic							17						17						

APPENDIX IV

DEPARTMENT OF
HEALTH PROMOTION AND EDUCATION
AFRICAN REGIONAL HEALTH EDUCATION CENTRE
FACULTY OF PUBLIC HEALTH, COLLEGE OF MEDICINE
UNIVERSITY OF IBADAN
Tel: 08108955615 | E-mail: healthpromed@yahoo.com | collegeinfo@comui.edu.ng

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Our Ref. HPE/SF.

24th July, 2015

The Secretary,
Oyo State Research Ethical Review Committee,
Ministry of Health,
Secretariat,
Ibadan.

LETTER OF INTRODUCTION

Re: YIRENKYI, Paulina F.
Matric No:180851

This is to certify that the bearer YIRENKYI, Paulina F. is an MPH (Health Promotion and Education) student in the Department of Health Promotion and Education, Faculty of Public Health, University of Ibadan.

The student is to carry out research on a project titled: "**Attitude and Perception Towards Post-Partum Weight Gain Amongst Mothers Receiving Post-Natal Services in Primary Health Facilities in Ibadan North Local Government**".

Kindly accord her all necessary assistance she may require.

Thank you.

F. O. Oshiname

For: Professor O. Oladepo

HEAD
DEPARTMENT OF HEALTH
PROMOTION & EDU
COLLEGE OF MEDI
UNIVERSITY OF IBA
IBADAN, NIGERIA

Professor O. Oladepo
Head

APPENDIX V

APPENDIX 4

IBADAN NORTH LOCAL GOVERNMENT
DEPARTMENT OF PRIMARY HEALTH CARE
Local Government Secretariat
P.M.B. 45, Agodi Gate, Ibadan. Tel. 8106804, 8106802

Your Ref: _____

Our Ref: _____

Date: 03-08-2015

The Head of Health Facilities
Ibadan North Local Government
Agodi-Gate

Dear Heads,

PERMISSION TO CONDUCT RESEARCH WORK BY YIRENKYI PAULINA FUNMI

Kindly allow the above named post-graduate student from the Faculty of Public Health; College of Medicine, University of Ibadan to enter your health facility to collect information from mothers during immunization clinic. She is conducting a study on **"Attitude and perception towards postpartum weight gain amongst mothers receiving post-natal services in Ibadan North Local Government"**. The outcome of the study will be of immense benefit to our health system

In this direction, I want you to assist her in order to have quality result at the end.

Thanks for your co-operation.

Yours sincerely,

03/08/2015

Dr Famakin M
PMOH/PHC Director
Ibadan North Local Government
Agodi-Gate

Ibadan North Local Government
Agodi, Oyo State.

APPENDIX VI

Department of Health Promotion and Education,
Faculty of Public Health,
University of Ibadan,
Ibadan.
7th of September, 2015.

The Chief Medical Director,
Adeoyo Maternity Teaching Hospital,
Adeoyo Road,
Ibadan.

Dear Dr,

REQUEST FOR THE PERMISSION TO CARRY-OUT RESEARCH STUDY

I, Yirenkyi Paulina Funmi,a master student of Public Health from the above named department and institution with matric number 180851,hereby request for your permission to carry-out a research study titled "PERCEPTION AND ATTITUDE TOWARDS POST-PARTUM WEIGHT-GAIN AMONGST MOTHERS RECEIVING POST-NATAL SERVICES IN PUBLIC HEALTH FACILITIES IN IBADAN NORTH LOCAL GOVERNMENT AREA,OYO STATE."

Adeoyo Hospital being one of the biggest public health facility in the local government of interest with high number of women receiving post-natal care, will serve as one of the major health facility for the study.

The instrument for the collection of data will be through the use of questionnaires which will be administered by competent research assistants to mothers receiving post-natal services in the health facility.

All procedures relating to conducting research ethically in Oyo state has been carried out and I will ensure that all rules and ethical procedures are obeyed adequately.

I will be grateful if my request is granted.

Thank you.

Yours Faithfully,

Yirenkyi Paulina Funmi,
08035848052.

APPENDIX VII

Department of Health Promotion and Education
Faculty of Public Health,
University of Ibadan,
Ibadan.
7th of September, 2015.

The Chief Medical Director,
Adeoyo Maternity Teaching Hospital,
Adeoyo Road,
Ibadan.

Approved
7-09-15

Dear Dr,

REQUEST FOR THE PERMISSION TO CARRY-OUT RESEARCH STUDY

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All procedures relating to conducting research ethically in Oyo state has been carried out and I will ensure that all rules and ethical procedures are obeyed adequately.

I will be grateful if my request is granted.

Thank you.

Yours Faithfully,

Yirenkyi Paulina Funmi,
08035842052.

APPENDIX VIII

TELEGRAMS..... TELEPHONE.....

MINISTRY OF HEALTH

DEPARTMENT OF PLANNING, RESEARCH & STATISTICS DIVISION

PRIVATE MAIL BAG NO. 5027, OYO STATE OF NIGERIA

Your Ref. No. .....

All communications should be addressed to the Honorable Commissioner quoting

Our Ref. No. AD 13/ 479/935 August, 2015

The Principal Investigator,
Department of Health Promotion and Education,
Faculty of Public Health,
College of Medicine,
University of Ibadan,
Ibadan.

Attention: Yirenkyi Paulina

ETHICAL APPROVAL FOR THE IMPLEMENTATION OF YOUR RESEARCH PROPOSAL IN OYO STATE

This is to acknowledge that your Research Proposal titled: "A Review of Attitude and Perception Towards Post-Partum Weight Gain amongst Mothers Receiving Post-Natal Services in Public Health Facilities in Ibadan North Local Government, Oyo State. " has been reviewed by the Oyo state Review Ethical Committees.

2. The committee has noted your compliance. In the light of this, I am pleased to convey to you the full approval by the committee for the implementation of the Research Proposal in Oyo State, Nigeria.

3. Please note that the National Code for Health Research Ethics requires you to comply with all institutional guidelines, rules and regulations, in line with this, the Committee will monitor closely and follow up the implementation of the research study. However, the Ministry of Health would like to have a copy of the results and conclusions of findings as this will help in policy making in the health sector.

4. Wishing you the best.

Signature & Date

Sola Adeniyi (Dr)
Director, Planning, Research & Statistics
Secretary, Oyo State, Research Ethical Review Committee