IMPACT OF HORMONAL IMBALANCE, INFERTILITY AND OBESITY ON CRYPTIC PREGNANCY AS PERCEIVED BY MARRIED WOMEN IN OFFA LGA, KWARA STATE

Jamiu Abdulqudus Tosin
Mustapha Sofiyat Wuraola
Abdulkadir Abdulbasit Biodun
Aliyu Ridwan Damilola
Opeloyeru Mubaraq Oluwaseun
& Jamiu Lateefat Oluwabukola
Department of Health Promotion and Environmental Health Education
Faculty of Education
University of Ilorin. Ilorin, Nigeria.
jamiu.at@unilorin.edu.ng

Abstract

The study investigated the impact of hormonal imbalance, infertility and obesity on cryptic pregnancy as perceived by married women in Offa LGA, Kwara state. Three objectives, research questions and hypotheses guided the study. A descriptive survey research was adopted for the study. The population of the study comprises all married women in Offa LGA, Kwara State and 200 of them were sampled using multistage sampling procedure. Perceived Causes of Cryptic Pregnancy Questionnaire (PCCPQ) questionnaire which was validated, tested for reliability and that yielded a reliability coefficient of 0.72 was used for data collection. The research questions were answered with frequency counts and percentages, while Chi-square tests of goodness of fit were used to test the hypotheses at 0.05 level of significance The findings showed that hormonal imbalance, history of infertility, and obesity are causes of cryptic pregnancy as perceived by married women in Offa LGA, Kwara State (χ^2=138.90, 334.70, 117.10; df=3; p> 0.05 respectively). The study recommended that married women should maintain a healthy weight, eat a balanced diet, and engage in regular physical activity to reduce the risk of obesity and hormonal imbalances, while those with a history of infertility should be informed of the possibility of conception despite past challenges and supported in monitoring bodily changes.

Keywords: Cryptic Pregnancy, Hormonal Imbalance, Infertility, Obesity.

Introduction

Pregnancy is an important event in a life of a woman; this is the period whereby a woman is expecting. Pregnancy, according to World Health Organization (2024), is a psychological state when a foetus develops inside a woman uterus, usually after sexual intercourse. Pregnancy also known as gestation involves a sequence of events which start from fertilization of the ovum by a spermatozoon, implantation, and embryogenesis to embryonic and foetal development. It lasts for 38-40 weeks. The symptoms of pregnancy include nausea, vomiting, raised basal temperature, amenorrhea, breast and abdominal enlargement (WHO, 2024). Foetal movement can usually be felt around 18 to 20 weeks in women who are pregnant for the first time (primigravidae), and around 16 weeks in women who have been pregnant

before (multigravidae). Some pregnant women may experience pseudo menstrual flow, which is mild bleeding that resembles a period. Others could just have mild postpartum discomfort or not exhibit any typical pregnancy symptoms (Duckitt, 2023).

According to Del Giudice (2015), cryptic pregnancy occurs when a woman is unaware of her pregnancy until the last weeks or after giving delivery. In a cryptic pregnancy, the expecting mother's sexual partner, family, and doctor were all unaware of her pregnancy. In contrast to concealed pregnancy, which occurs when a woman is aware of it but choose to conceal it, cryptic pregnancy occurs when the woman is actually unaware of it (WHO, 2018). Cryptic pregnancies can be classified as either psychotic or non-psychotic. It is possible for someone with a mental illness, such as schizophrenia or bipolar disorder, to be unaware of their pregnancy. This type of mysterious pregnancy is known as psychotic. Delusions and hallucinations might alter a woman's perception of her physical changes or sensations in her body under specific conditions. For example, individuals may believe that the growing belly is the result of weight gain or disease, or they may believe that foetal movements are just random events occurring inside the body. Although psychotic denial is rare, it is extremely dangerous because if the disease is not treated, the mother and child may not receive the necessary prenatal care and may suffer injury (Wessel & Buscher, 2002).

The non-psychotic form of cryptic pregnancy refers to a situation in which a woman is unaware that she is pregnant until late in the pregnancy or even until labour, without any underlying psychotic disorder. Affective denial and pervasive denial are two subtypes of the common non-psychotic form (Del Giudice & Wessel, 2017). In affective denial, the woman may intellectually acknowledge that she is pregnant but emotionally disengages or refuses to accept the implications of the pregnancy. This can lead to a lack of preparation for childbirth and motherhood. On the other hand, pervasive denial involves a complete unawareness of the pregnancy. Women experiencing this form may continue to menstruate or experience minimal pregnancy symptoms, leading them to believe they are not pregnant. The pregnancy is often discovered incidentally or during labour (Friedman et al., 2007). It has been demonstrated, however, that the problem is more common than first thought. The rate of unplanned births in Germany is 1: 2500, while the rate of cryptic pregnancies that are discovered after 20 weeks of gestation is 1: 475. According to Del Giudice (2015), it is predicted that there are 1: 400 deliveries in Australia and 1: 500 deliveries in the US.

The causes of cryptic pregnancy, particularly the non-psychotic types, are multifactorial. Biological factors such as hormonal imbalances, irregular menstrual cycles, and the presence of conditions like polycystic ovary syndrome (PCOS), obesity and history of infertility may contribute to the masking of pregnancy symptoms. Psychosocial factors such as young age, low socioeconomic status, recent childbirth, or a history of trauma or abuse also increase the likelihood of pregnancy denial (Delong et al., 2012). In other situations, women could be using contraception and, as a result, think that pregnancy is improbable, which would reinforce the denial (Wessel et al., 2007). In the past, cryptic pregnancies were thought to be uncommon and associated with mothers' mental health (Del Giudice, 2015).

Hormone imbalance, which results from disruptions in the body's hormonal system, is one of the main causes of cryptic pregnancy. This disruption could keep the classic signs of pregnancy from showing up, which would leave people unaware until the latter stages of pregnancy (Ajayi, 2017). A history of infertility which involves experiencing difficulty in achieving pregnancy despite having regular, unprotected sexual intercourse for 12 months or longer also contributes to the occurrence of cryptic pregnancy. Infertility is often associated with ovulatory dysfunction, which increases the likelihood of a cryptic pregnancy (Jegede, 2023). Obesity can mask pregnancy due to the accumulation of body fat, particularly in the abdominal region (Corrales et al., 2021). In some cases, obesity-related inflammation can impair implantation and foetal development, further obscuring the physical signs of pregnancy. The slow development of the foetus and the absence of a visible baby bump may result in delayed pregnancy recognition (Howell & Powell, 2017).

Statement of the Problem

Cryptic pregnancy poses significant health risks due to its late recognition and lack of prenatal care, making it a critical area for investigation. Understanding its underlying causes such as hormonal imbalance, history of infertility, and obesity, is essential for improving early detection and clinical management. A focused study on these factors will provide valuable insights for healthcare providers, promote timely intervention, and reduce maternal and foetal health risks associated with undetected pregnancies.

Despite growing international interest, there is limited empirical research on cryptic pregnancy in Nigeria, particularly in Kwara State. This study seeks to address this gap by examining the perceived causes of cryptic pregnancy among married women in Offa Local Government Area. Key variables explored include hormonal imbalance, which can suppress typical pregnancy symptoms and delay recognition; a history of infertility, where prior challenges in conception may lead women to discount the possibility of being pregnant; and obesity, which can mask physical signs of pregnancy due to excess abdominal fat and obesity-related inflammation. By investigating these contributing factors, the study aims to provide evidence-based insights that will inform health education, early detection strategies, and reproductive health interventions targeted at women of reproductive age.

Objectives of the Study

The study was guided by the following objectives:

1. To ascertain whether hormonal imbalance is a cause of cryptic pregnancy as perceived by married women in Offa local government area, Kwara state.
2. To examine if a history of infertility is a cause of cryptic pregnancy as perceived by married women in Offa local government area, Kwara state?
3. To determine if obesity is a cause of cryptic pregnancy as perceived by married women in Offa local government area, Kwara state?

Research Questions

The following research questions were raised for the study:

1. Is hormonal imbalance a cause of cryptic pregnancy as perceived by married women in Offa local government area, Kwara state?
2. Is history of infertility a cause of cryptic pregnancy as perceived by married women in Offa local government area, Kwara state?
3. Is obesity a cause of cryptic pregnancy as perceived by married women in Offa local government area, Kwara state?

Hypotheses

The following research hypotheses were tested at 0.05 level of significance:

1. Hormonal imbalance is not significantly being perceived as a cause of cryptic pregnancy among married women in Offa local government area, Kwara state.
2. History of infertility is not significantly being perceived as a cause of cryptic pregnancy among married women in Offa local government area, Kwara state.
3. Obesity will not significantly be perceived as a cause of cryptic pregnancy among married women in Offa local government area, Kwara state.

Methodology

This study adopted a descriptive survey research design, which is suitable for studies that seek to gather information on opinions, perceptions, and/or behaviours of a particular population. The design allows researchers to systematically describe phenomena without manipulating variables (Creswell, 2014). The population for this study comprised of all 9,658 married women of 12 wards in Offa Local Government Area of Kwara State (NPC, NBS population projection, 2024). Multistage sampling procedure was used to select 200 married women as participants. In the first stage, simple random sampling techniques was used to select eight wards out of the 12 wards. The selected eight wards of 2,498 population are Balogun – 340, Shawo southwest – 250, Shawo central – 300, Essa-A – 370, Essa-B – 308, Ojomu north/northwest – 400, Ojomu central 1 – 248 and Igboidun – 382. At the second stage, a proportionate sampling technique was used to select 8% of the population from the each of the eight selected wards (Singh & Masuku, 2014). In the final stage, a convenience sampling was used to select 200 married women for the study.

The instrument used for this study was a researcher's developed questionnaire titled "Perceived Causes of Cryptic Pregnancy Questionnaire (PCCPQ)". The PCCPQ was a closed-ended type with a two-mode response type which signifies positive and negative responses to statements on the research questions. Each cryptic pregnancy causes has four related statements, making a total of 12 in the PCCPQ. The face and content validity of the PCCPQ was examined carefully by experts in the field of health promotion and environmental health education. The reliability of the PCCPQ was carried out using test-retest technique and the Pearson Product Moment Correlation (PPMC) (Orodho, 2009; Creswell, 2014). A correlation coefficient of 0.72 was obtained, establishing that the PCCPQ is reliable for the study. The

researchers ensured the collection of the PCCPQ immediately after completion to avoid loss and ensure recovery 100%. Participation was voluntary, and selected married women were assured of confidentiality and anonymity. Verbal informed consent was obtained before administering the questionnaire.

The data obtained were subjected to descriptive and inferential statistics. The research questions were answered with frequency counts and percentages, while Chi-square tests of goodness of fit were used to test the hypotheses at 0.05 level of significance, determining if the observed perceptions significantly differed from expected responses.

Results

Research Question One: Is hormonal imbalance a cause of cryptic pregnancy as perceived by married women in Offa local government area, Kwara state?

Table 1: Description of Hormonal Imbalance as a Perceived Cause of Cryptic Pregnancy

S/N	Items	Positive Response	Negative Response
1.	Hormonal changes can make it hard to detect pregnancy early.	157 (78.5%)	43 (21.5%)
2.	Irregular periods due to hormonal imbalance can confuse pregnancy detection.	188 (94.0%)	12 (6.0%)
3.	Hormonal imbalance can reduce the visibility of pregnancy symptoms.	190 (95.0%)	10 (5.0%)
4.	Women with hormonal issues may not realize their pregnant until later.	142 (71.0%)	58 (29.0%)

Table 1 shows that the majority of married women perceived hormonal imbalance as a significant factor contributing to cryptic pregnancy. A large proportion (78.5%) agreed that hormonal changes can make it difficult to detect pregnancy early. An even higher percentage (94.0%) affirmed that irregular menstrual cycles resulting from hormonal imbalance could lead to confusion when trying to detect pregnancy. Furthermore, 95.0% of respondents agreed that hormonal imbalance can reduce the visibility of common pregnancy symptoms. Lastly, 71.0% of the participants believed that women experiencing hormonal issues may not realize they are pregnant until the later stages. This implies that hormonal imbalance is a cause of cryptic pregnancy as perceived by married women in Offa local government area, Kwara state.

Research Question Two: Is history of infertility a cause of cryptic pregnancy as perceived by married women in Offa local government area, Kwara state?

Table 2: Description of History of Infertility as a Perceived Cause of Cryptic Pregnancy

S/N	Items	Positive Response	Negative Response
5.	Women with history of infertility may not suspect pregnancy right away.	181 (90.5%)	19 (9.5%)
6.	Infertility struggles can make women dismiss early pregnancy symptoms.	185 (92.5%)	15 (7.5%)
7.	Past infertility can delay recognizing changes in the body related to pregnancy.	178 (89.0%)	22 (11.0%)
8.	Women with infertility history may need extra support to detect pregnancy	181 (90.5%)	19 (9.5%)

Table 2 highlights strong agreement among respondents regarding the influence of infertility history on delayed pregnancy recognition. A significant majority (90.5%) agreed that women with a history of infertility may not suspect pregnancy immediately, while only 9.5% disagreed. Similarly, 92.5% of respondents acknowledged that infertility struggles can lead women to dismiss early signs of pregnancy, with just 7.5% offering a contrary view. Furthermore, 89.0% affirmed that past infertility experiences can delay awareness of bodily changes associated with pregnancy, compared to 11.0% who disagreed. Lastly, 90.5% believed that women with a history of infertility may require additional support to detect pregnancy, while 9.5% did not share this belief. This implies that history of infertility is a cause of cryptic pregnancy as perceived by married women in Offa local government area, Kwara state.

Research Question Three: Is obesity a cause of cryptic pregnancy as perceived by married women in Offa local government area, Kwara state?

Table 3: Description of Obesity as a Perceived Cause of Cryptic Pregnancy

S/N	Items	Positive Response	Negative Response
9.	Obesity can hide early signs of pregnancy.	188 (94.0%)	12 (6.0%)
10.	Irregular period caused by obesity can make it harder to detect pregnancy.	142 (71.0%)	58 (29.0%)
11.	Excess bodyweight can make pregnancy symptoms less noticeable.	188 (94.0%)	12 (6.0%)
12.	Maintaining a healthy weight help in recognizing pregnancy symptoms earlier.	178 (89.0)	22 (11.0%)
	Mean	**174**	**26**

	(87.0%)	**(13.0%)**

Table 3 reveal that a strong consensus among respondents that obesity contributes to delayed recognition of pregnancy, which aligns with the hypothesis that it may be a contributing factor to cryptic pregnancy. A significant majority (94.0%) agreed that obesity can hide early signs of pregnancy, and an identical proportion (94.0%) affirmed that excess body weight can make pregnancy symptoms less noticeable. Additionally, 71.0% of respondents believed that obesity-induced irregular periods can make it harder to detect pregnancy, indicating moderate agreement. Furthermore, 89.0% of the women agreed that maintaining a healthy weight helps in recognizing pregnancy symptoms earlier, emphasizing the perceived importance of weight management. This implies that obesity is a cause of cryptic pregnancy as perceived by married women in Offa Local Government Area, Kwara State.

Hypotheses One: Hormonal imbalance is not significantly being perceived as a cause of cryptic pregnancy among married women in Offa local government area, Kwara state.

Table 4: Chi-Square Summary of Hormonal Imbalance as a Perceived Cause of Cryptic Pregnancy

	N	**df**	**Cal. χ^2 value**	**Crit. χ^2 value**	**P-value**	**Remark**
Variable	200	3	138.90	7.81	0.000	$H0_1$ Rejected

Table 4 shows the calculated chi-square value of 138.90 generated p-value of 0.00 which is less than 0.05 alpha level. The null hypothesis which stated that hormonal imbalance will not significantly be a cause of cryptic pregnancy as perceived by married women in Offa local government area, Kwara state was rejected. This implies that hormonal imbalance is significantly a cause of cryptic pregnancy as perceived by married women in Offa local government area, Kwara state.

Hypothesis Two: History of infertility is not significantly being perceived as a cause of cryptic pregnancy among married women in Offa local government area, Kwara state.

Table 5: Chi-Square Summary of History of Infertility as a Perceived Cause of Cryptic Pregnancy

	N	**df**	**Cal. χ^2 value**	**Crit. χ^2 value**	**P-value**	**Remark**
Variable	200	3	334.70	7.81	0.000	$H0_2$ Rejected

Table 5 shows the calculated chi-square value of 334.70 generated p-value of 0.00 which is less than 0.05 alpha level. The null hypothesis which stated that history of infertility will not significantly be a cause of cryptic pregnancy as perceived by married women in Offa local government area, Kwara state was rejected. This implies that history of infertility is significantly a cause of cryptic pregnancy as perceived by married women in Offa local government area, Kwara state.

Hypothesis Three: Obesity will not significantly be perceived as a cause of cryptic pregnancy among married women in Offa local government area, Kwara state.

Table 6: Chi-Square Summary of Obesity as a Perceived Cause of Cryptic Pregnancy

	N	df	Cal. χ^2 value	Crit. χ^2 value	P-value	Remark
Variable	200	3	117.10	7.81	0.000	$H0_3$ Rejected

Table 6 shows the calculated chi-square value of 117.10 generated p-value of 0.00 which is less than 0.05 alpha level. The null hypothesis which stated that obesity will not significantly be a cause of cryptic pregnancy as perceived by married women in Offa local government area, Kwara state was rejected. This implies that obesity is significantly a cause of cryptic pregnancy as perceived by married women in Offa local government area, Kwara state.

Discussion of Findings

The findings from this study revealed that hormonal imbalance is a statistically significant cause of cryptic pregnancy as perceived by married women in Offa Local Government Area, Kwara State. The result ($\chi^2 = 138.00$, $p < 0.05$) led to the rejection of the null hypothesis, confirming a strong association between hormonal dysfunction and cryptic pregnancy. This outcome is consistent with global and regional scientific literature, which identifies hormonal imbalance as a critical contributor to undetected pregnancies. Hormonal imbalances, especially those involving low levels of human chorionic gonadotropin (hCG), can delay or obscure common pregnancy symptoms such as nausea, amenorrhea, and breast enlargement (Del Giudice, 2015). In particular, women with irregular menstrual cycles, often caused by endocrine disorders such as polycystic ovary syndrome (PCOS), may continue to experience bleeding throughout pregnancy, further complicating detection (Unver, 2017). Studies have shown that a significant number of women experiencing cryptic pregnancies report continued menstruation or spotting, low foetal movement, and no noticeable weight gain (Wessel, 2017).

A case series by Wessel (2017) found that 86% of women who experienced cryptic pregnancy continued to menstruate during gestation, and many had no early pregnancy symptoms due to fluctuating hormone levels. Furthermore, Emmanuel et al. (2020) observed that women with hormone-related disorders such as PCOS and thyroid dysfunction often fail to produce the hormonal signals necessary for early pregnancy detection, such as elevated hCG levels. These disruptions can prevent the body from exhibiting recognizable signs of gestation. In addition, studies in evolutionary biology suggest that cryptic pregnancy may be a physiological response to unresolved psychological conflict, where hormone regulation is affected by stress or trauma, contributing further to unrecognized gestation (Del Giudice et al., 2016). This theory aligns with the idea that hormonal suppression, whether from physical or psychological sources, can mask typical maternal changes.

The second hypothesis examined whether a history of infertility is perceived as a significant cause of cryptic pregnancy among married women in Offa Local Government Area. The statistical result ($\chi^2 = 334.700$, $p < 0.05$) led to the rejection of the null hypothesis,

indicating that infertility is significantly associated with cryptic pregnancy from the participants' perspective. This finding aligns with previous studies that have established a strong connection between infertility and delayed pregnancy recognition. Women with a history of infertility may be psychologically conditioned to believe that conception is unlikely or impossible, leading them to misinterpret or ignore signs of pregnancy (Araoye, 2019). Psychological denial resulting from long-term infertility struggles may also contribute to cryptic pregnancy. Wessel (2017) explained that emotional coping mechanisms developed by women facing infertility could blunt their cognitive and emotional recognition of bodily changes associated with pregnancy.

Similarly, Ajayi and Akintola (2020) described cases where women with previous fertility issues failed to detect pregnancy until labour, often due to irregular ovulation patterns and persistent disbelief. Moreover, fertility issues are often linked with hormonal imbalances and ovulatory dysfunction, both of which contribute to atypical pregnancy presentations, such as continued bleeding or mild abdominal changes (Emmanuel et al., 2020). These symptoms may prevent women from realizing they are pregnant, especially when combined with a medical history of unsuccessful conception attempts. The third hypothesis assessed whether obesity is perceived as a significant contributor to cryptic pregnancy. The chi-square analysis (χ^2 = 117.100, $p < 0.05$) also resulted in the rejection of the null hypothesis, indicating a significant perception among respondents that obesity can obscure the signs of pregnancy. This perception is supported by various studies that identify obesity as a factor that physically and hormonally complicates pregnancy recognition. Martin (2021) explained that excess body fat can mask abdominal enlargement or foetal movement, making it difficult for women to visually or physically perceive pregnancy progression. In addition, obesity-related hormonal imbalances can disrupt menstrual regularity and ovulation, making it harder to detect conception (Unver, 2017).

Obese women are also more likely to experience anovulation, light or irregular periods, and altered hCG levels, all of which may contribute to the absence of expected pregnancy symptoms (Ajayi, 2017). According to research by Bushra and Sandoz (2018), 86% of women with cryptic pregnancies in their case study had continued periods and experienced little to no change in body shape or breast size. These indicators suggest that excess body mass can obscure both external and internal signs of gestation. In addition, the psychological aspect of obesity, such as body image issues or health anxieties, may lead some women to avoid or dismiss pregnancy-related symptoms until delivery is imminent (Wessel, 2017). Thus, the perception among women in Offa that obesity is a contributing factor to cryptic pregnancy is consistent with international and clinical evidence.

Conclusion

Based on the findings of the study concluded that hormonal imbalance, infertility and obesity are significant causes of cryptic pregnancy as perceived by married women in Offa local government area, Kwara state.

Recommendations

Based on the findings, the following recommendation were made:

1. The establishment of frequent hormonal screening programs for women who take hormonal contraception or have irregular menstrual cycles should be a top priority for government and health agencies. Women should be made aware of the effects of hormone imbalances on reproductive health, particularly their tendency to conceal early pregnancy symptoms, through public health campaigns.
2. Women who have a documented history of infertility should be informed about the possibility of becoming pregnant in spite of past setbacks and encouraged to keep a close eye on any changes in their bodies. Healthcare professionals should be well trained to recognise psychological denial or misconceptions about reproductive status, especially those working in primary care and family planning clinics.
3. Women who are obese should be informed about how their body composition may affect their ability to detect pregnancy as well as their ability to conceive. Primary healthcare institutions should also offer specific suggestions for women who are pursuing pregnancy or who are currently in reproductive age groups, as well as incorporate BMI screening into their programs for women of reproductive age.

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