



Research Paper

Knowledge of Obstetric Danger Signs among Women Attending Ante-Natal Clinic at Rivers State University Teaching Hospital (RSUST), Port Harcourt, Nigeria.

Dagogo, Lolia Dadokiy
PAMO University of Medical Sciences
Port Harcourt – Nigeria.

Iruo, Lawrence Ayah
Corresponding author: liruo@pums.edu.ng
PAMO University of Medical Sciences
Port Harcourt- Nigeria.

Standley, Inara Blessing
PAMO University of Medical Sciences,
Port Harcourt- Nigeria.

Ezekiel, Rosemary
PAMO University of Medical Sciences,
Port Harcourt- Nigeria.

Valentina Daminabo
Michael E. Debakey Medical Center
2002 Holcombe Blvd
Houston Texas, 77030.

ABSTRACT

This study aims to assess the knowledge of obstetric danger signs among women attending ante-natal clinic at Rivers State University Teaching Hospital. A cross sectional study design was adopted. Convenience sampling technique was utilized to select a total sample size of 111 women. A questionnaire developed by the researchers was utilized to elicit information from the women. A total of 111 questionnaires were distributed and same were completed and returned. Data was analyzed using descriptive statistics and inferential statistics and were presented as tables and figures. Pearson product moment correlation was used to test the stated null hypothesis at 0.05 level of significance. Findings show that the women had good knowledge of danger signs in pregnancy (63.1%), during the postpartum period (70.30%), however there was a decline in knowledge of danger signs during labor and childbirth (59.33%). A significant correlation was found between level of education and knowledge of danger signs in pregnancy, and also between level of education and knowledge of danger signs during labor and childbirth. However, no significant correlation was found between level of education and knowledge of danger signs during the postpartum period. A significant correlation was found between number of ante-natal visits and knowledge of danger signs in pregnancy. However, no significant correlation was found between number of ante-natal visits and knowledge of danger signs in labor and childbirth and during the postpartum period. It was recommended that awareness should be raised about obstetric danger signs at both hospital and community levels as this will allow for the reaching of more women and their families.

Keywords: Knowledge, women, obstetric danger signs

Received 25 June, 2022; Revised 05 July, 2022; Accepted 07 July, 2022 © The author(s) 2022.

Published with open access at www.questjournals.org

I. Background to the Study

Pregnancy is a term which is used to describe the period in which a fetus develops in the uterus [Eunice Kennedy Shriver National Institute of Child Health and Human Development (NICHD), 2017]. Worldwide women get pregnant and about 15% of expected births worldwide results in life-threatening complications during pregnancy, delivery, or at the postpartum period. This requires experienced and skilled providers of emergency obstetrics and newborn care in order to prevent death or life threatening problems, particularly in countries with a high burden of maternal and newborn mortality (Otolorin et al., 2015; Hibstu&Siyourn, 2017). Most pregnancies are uneventful however, some women experience complications related to their health, the fetus's health or both (Cafasso, 2016; NICHD, 2021).

Maternal mortality refers to deaths that occur due to complications from pregnancy or child birth [United Nations International Children's Emergency Fund (UNICEF), 2021]. According to WHO (2019) approximately 295,000 women died during and following pregnancy and childbirth in 2017. About 94% of these deaths occurred in low resource countries and most of the deaths were preventable. Sub-Saharan Africa and Southern Asia accounted for approximately 86% (254 000) of the estimated global maternal deaths in 2017. Sub-Saharan Africa alone accounted for roughly two-thirds (196 000) of maternal deaths, while Southern Asia accounted for nearly one-fifth (58 000). However, despite its very high maternal mortality rate in 2017, sub-Saharan Africa as a sub-region has also achieved a substantial reduction in maternal mortality rates of nearly 40% since 2000. Despite this it is estimated that over 800 women die daily from complications in pregnancy and childbirth and for every woman who dies approximately 20 suffers serious injuries, infections or disabilities (UNICEF, 2021).

Nigeria accounts for 34% of global maternal deaths; the maternal mortality rate of Nigeria is estimated to be 814 (per 100,000 live births). The lifetime risk of a Nigerian woman dying during pregnancy, childbirth, postpartum or post-abortion is 1 in 22, in contrast to the lifetime risk in developed countries which is estimated at 1 in 4,900 (Ope, 2020).

Obstetric danger signs are unexpected obstetric signs which can lead to complications in maternal health. These danger signs are mainly classified into three. The key danger signs during pregnancy include: severe vaginal bleeding, swollen hands/face, and blurred vision. The key danger signs during labor and childbirth include severe vaginal bleeding, prolonged labor (>12 h), convulsions, and retained placenta. The key danger signs during the postpartum period include severe vaginal bleeding, foul-smelling vaginal discharge, and fever (Bintabara et al., 2017).

Women's knowledge about these obstetric danger signs during pregnancy, delivery and postpartum remains low in sub-Saharan African countries this is evidenced by studies conducted in Ethiopia (Geleto, 2019), Tanzania (Bintabara et al., 2017) and Nigeria (Okoror, 2020; George et al., 2014).

A woman's knowledge of obstetric danger signs is extremely vital, this is because if a woman and her family are able to recognize the obstetric danger signs and promptly seek health care services, there will be a significant reduction in maternal morbidity and mortality. Therefore, women's knowledge about the obstetric danger signs would not only improve early detection and recognition of problems but also reduce the delay in deciding to seek obstetric care (Maseresha et al., 2016; Woldeamanuel et al., 2019). All of which will help to achieve the target of reducing global maternal mortality to less than 70 maternal deaths per 100,000 live births by 2030 (Woldeamanuel et al., 2019). Thus, an essential strategy for reducing maternal mortality is increasing knowledge of the obstetric danger signs among women, family and community at large (Maseresha et al., 2016).

It is against this background that the researcher decided to investigate the level of knowledge of women attending ante-natal clinic at Rivers State University Teaching Hospital (RSUTH).

Statement of Problem

Maternal morbidity and mortality remain a global public-health concern, especially in low-and middle-income countries. Although significant progress has been made, countries in sub-Saharan Africa still bear a substantial burden of maternal morbidity and mortality (Oguntunde, 2020).

Nigeria accounts for 34% of global maternal deaths (Ope, 2020). Between 2005 and 2015, it is estimated that over 600 000 maternal deaths and no less than 900 000 maternal near-miss cases occurred in the country. However, majority of the deaths were preventable.

Knowledge of the obstetric danger signs would modify behavioral patterns therefore allowing for the early detection of problems and prompt and adequate access to healthcare services. This will in turn lead to a reduction in maternal mortality rates. Related researches on the knowledge of obstetric danger signs among pregnant women has been done in other parts of Nigeria, but it is doubtful if any of such has been conducted in Rivers state. Therefore, this study seeks to investigate the knowledge of obstetric danger signs among women attending ante-natal clinic at Rivers State University Teaching Hospital (RSUTH).

Purpose of the Study

The purpose of this study is to determine the knowledge of women attending ante-natal clinic at Rivers State University Teaching Hospital (RSUTH) in respect to danger signs during pregnancy, labor and post -partum period.

Specific Objectives of the Study

1. To assess the knowledge of women attending ante-natal clinic at Rivers State University Teaching Hospital (RSUTH) regarding the danger signs in pregnancy.
2. To assess the knowledge of women attending ante-natal clinic at Rivers State University Teaching Hospital (RSUTH) regarding the danger signs in labor and child-birth.
3. To assess the knowledge of women attending ante-natal clinic at Rivers State University Teaching Hospital (RSUTH) regarding the danger signs in the post- partum period.

Research Questions

1. What is the level of knowledge of women attending ante-natal clinic at Rivers State University Teaching Hospital (RSUTH) regarding danger signs in pregnancy?
2. What is the level of knowledge of women attending ante-natal clinic at Rivers State University Teaching Hospital (RSUTH) regarding danger signs in labor and child-birth?
3. What is the level of knowledge of women attending ante-natal clinic at Rivers State University Teaching Hospital (RSUTH) regarding danger signs in the post partum period.

Research Hypotheses

1. There is no significant relationship between level of education and the knowledge of danger signs during pregnancy among women attending ante- natal clinic at Rivers State University Teaching Hospital (RSUTH).
2. There is no significant relationship between level of education and the knowledge of danger signs during labor and childbirth among women attending ante- natal clinic at Rivers State University Teaching Hospital (RSUTH).
3. There is no significant relationship between level of education and the knowledge of danger signs during the postpartum period among women attending ante- natal clinic at Rivers State University Teaching Hospital (RSUTH).
4. There is no significant relationship between the number of ante-natal visits and the knowledge of obstetric danger signs among women attending ante- natal clinic at Rivers State University Teaching Hospital (RSUTH).

Significance of the Study

The findings of this study will provide vital information to nursing profession and other health care workers on the knowledge of pregnant women regarding obstetric danger signs.

This study stands to provide additional knowledge to the body of existing literature on the knowledge of pregnant women on obstetric danger signs in the world and of particular reference to Nigeria.

This study stands to fill the gap in the absence of related researches in Rivers state.

This study will act as a reference material to curriculum planners for future research.

The result of this study will serve as a good base or guide for future reference and it will also encourage further research on the importance of increasing the knowledge of pregnant women about obstetric danger signs as a strategy to help reduce maternal mortality rates.

If published, the study will help the government in making decision or policies that will encourage adequate sensitization of women, families and communities about obstetric danger signs.

Delimitation of the Study

This study is delimited to the knowledge of obstetric danger signs among pregnant women attending ante-natal clinic at Rivers State University Teaching Hospital (RSUTH) and does not involve other women in labor or post-partum period.

Operational Definition of Terms

Knowledge: The awareness and understanding of nurses pregnant women on obstetric danger signs.

Women: Pregnant women attending ante-natal clinic at Rivers State University Teaching Hospital (RSUTH).

Obstetric Danger Signs: Danger signs in pregnancy, labor and childbirth and the post partum period.

II. Literature Review

Concept of Obstetric Danger Signs

Obstetric danger signs are unexpected signs that can lead to complications in maternal health. Obstetric dangers are either seen or felt by the pregnant woman and it indicates that there is something either wrong with the baby or her (Terefe, 2020). Obstetric danger signs are not literal complications; they are symptoms that could be identified by the woman and her family.

Obstetric danger signs are mainly classified into three categories namely;

1. Danger signs during pregnancy,
2. Danger signs during labor and childbirth, and
3. Danger signs during the postpartum period (Bintabara et al., 2017).

Danger Signs during Pregnancy

Danger signs during pregnancy are signs that indicate a problem or problems during pregnancy which requires urgent medical attention (Ministry of Health – ManatūHauora, 2017).

The key/ major danger signs in pregnancy include the following;

1. Severe vaginal bleeding,
2. Swelling of fingers, face and legs, and
3. Severe headaches with blurred vision (WHO, 2013; Bintabara et al., 2017).

Other danger signs in pregnancy include;

- Convulsions/fits,
- Fever and too weak to get out of bed,
- Severe abdominal pain,
- Fast or difficult breathing,
- Fever,
- Abdominal pain and,
- Feels ill (WHO, 2013).

Danger Signs during Labor and Childbirth

Danger signs in labor and childbirth or delivery are signs that indicate an obstetric complication or problem during labor and childbirth (Mwilike et al., 2018)

The key/ major danger signs during labor and childbirth include:

1. Severe vaginal bleeding before the baby is born,
2. Prolonged labor (greater than 12 hours),
3. Convulsions, and
4. Retained placenta (Bintabara et al., 2017; Hesperian Health Guides, 2020).

Other danger signs during labor and childbirth include:

- Waters break but labor does not start within 24hours
- Baby lying sideways (transverse)
- Green or brown waters
- Fever (Hesperian Health Guides, 2020)

Danger signs during the postpartum period

The postpartum period is defined as period beginning after the delivery of the placenta and continuing until 6 weeks after the birth. Danger sign in the postpartum period refers to signs of an obstetric complication or problem during this period (Mwilike et al., 2018).

The key/major danger signs during the postpartum period in the woman include;

1. Severe vaginal bleeding like soaking through more than one pad in an hour or noticing large blood clots
2. Foul-smelling vaginal discharge
3. High fever (WHO, 2013; Bintabara et al., 2017; Taylor, 2021)

Other danger signs during the post partum period include:

- Fits
- Fast or difficult breathing
- Severe headaches with blurred vision
- Calf pain, redness or swelling
- Shortness of breath or chest pain.
- Swollen, red or tender breasts or nipples
- Problems urinating, or leaking
- Increased pain or infection in the perineum
- Infection in the area of the wound (redness, swelling, pain, or pus in wound site)
- Severe depression or suicidal behavior (ideas, plan or attempt) (WHO, 2013; Taylor, 2021).

Knowledge of Obstetric Danger Signs

Women's knowledge of obstetric danger signs is extremely important as it allows for reduction of the high rate of preventable deaths, which has been linked to three delays; delay in making decision to seek maternal health care; delay in locating and arriving at a medical facility; and delay in receiving skilled pregnancy care when the woman gets to the health facility.

A woman's knowledge of obstetric danger signs prompts her to seek skilled care and emergency healthcare services when she notices a danger sign (Amenu et al., 2014).

However, the level of women's knowledge of obstetric danger signs remains quite low in sub-Saharan African countries this is evidenced by studies conducted in Ethiopia (Geleto, 2019), Tanzania (Bintabara et al., 2017) and Nigeria (Okoror, 2020; George et al., 2014). This therefore, poses a problem as lack of knowledge of obstetric danger signs affects the woman's ability to seek timely and appropriate emergency care when required (Amenu et al., 2014).

Benefits of the Knowledge of Obstetric Danger Signs

A majority of pregnant women and their families are not knowledgeable of obstetric danger signs, this leads to them wasting a lot of time in recognizing the problem, getting organized, getting money, finding transport and reaching the appropriate referral facility when obstetric danger signs presents itself. Knowledge of obstetric danger signs will allow for both the woman and her family to stay healthy, take appropriate measures to ensure a safe birth, allow for the early detection of problems, reduce the delay in deciding to seek skilled obstetric care, and also allow for appropriate referral (Woldeamanuel et al., 2019; Bogale & Markos, 2015).

EMPIRICAL REVIEW

According to the study carried out by Kumar et al. (2019), on Knowledge about obstetric danger signs among pregnant women attending antenatal clinic in a tertiary care hospital in Delhi, utilizing convenience sampling technique involving a cross-sectional research study design. Three hundred and fifty-four participants were used as the sample size. The major of findings of this study showed that overall knowledge of obstetric danger signs among pregnant women was low. 48.3%, 35.6%, and 40.1% of pregnant women had knowledge about danger signs during pregnancy, labor and postpartum respectively. Majority of the women had knowledge about abdominal pain (58.4%) and severe fatigue (80.7%) as danger signs of pregnancy, while bleeding (82.5%) was the most common response as danger sign of labor. More than half had knowledge about heavy bleeding (59.9%) as danger sign of postpartum. The women lacked awareness about Convulsions (92.9%) as danger signs of pregnancy and labor, as well as smelly vaginal discharge (79.6%) in postpartum. It was recommended that awareness should be raised about obstetric danger signs as it can help in early diagnosis and referral of patients thus reducing maternal mortality and morbidity.

Similarly, Phanice and Zachary (2018), conducted a study on knowledge of obstetric danger signs among pregnant women attending antenatal care clinic at health facilities within Bureti Sub-County of Kericho County, Kenya. The research utilized an analytic cross sectional study design. One hundred and forty-nine participants were used as the sample size. The result from this study shows that overall knowledge of obstetric danger signs among pregnant women was poor. Only 4.7% of the respondents were knowledgeable about obstetric danger signs. Vaginal bleeding was the most mentioned obstetric danger sign during pregnancy (55%), at birth (32.9%) and after delivery (37.6%). The study also shows that there was a decline in the proportion of women who were knowledgeable about obstetric danger signs in pregnancy (34.2%), at birth (14.1%), and postpartum (10.1%). It was recommended that there should be sensitization campaigns to raise awareness on obstetric danger signs, organized at community level and in hospitals so as to reach all women irrespective of their social- demographic characteristics.

Another research was conducted by Thapa and Manandhar (2017), on knowledge on obstetric danger signs among antenatal mothers attending a tertiary level hospital, Nepal, using non probability, purposive sampling technique. Cross sectional study design was utilized. Three hundred participants were used as the sample size. The major findings in this study indicated that two third of the respondents (66.0%) had adequate knowledge on obstetric danger signs, while 21.0% of respondents had inadequate knowledge and few respondents (13.0%) had moderate knowledge on that. Age, educational status and gravida were not significantly associated with knowledge on obstetric danger signs but occupation and trimester of pregnancy were found to be associated with the same. It was recommended that the quality of health information about obstetric danger signs during ANC follow up should be improved.

Another research study was conducted by Maseresha, Woldemicheal, and Dube (2016), on Knowledge of obstetric danger signs and associated factors among pregnant women in Erer district, Somali region, Ethiopia, utilizing a cross sectional study design. Six hundred and sixty six participants were used as the sample size. The major findings showed that a significant proportion of pregnant women do not have knowledge of obstetric danger signs. It was recommended that intervention programs aiming to improve women's knowledge about obstetric danger signs and symptoms should consider the factors independently associated. It was also

recommended that ANC service utilization should be increased as it would improve pregnant women's knowledge about obstetric danger signs and symptoms.

Similarly, Woldeamanuel, Lemma, and Zegeye (2019), conducted a research on knowledge of obstetric danger signs and its associated factors among pregnant women in Angolela Tera District, Northern Ethiopia. Multi-stage cluster sampling technique was used. The research utilized a cross sectional study design. Five hundred and sixty three participants were used as the sample size. Results from this study indicated that a significant proportion of pregnant women were not knowledgeable about obstetric danger signs during pregnancy, delivery and postpartum. It was recommended that continuous health education, improving the quality of health information, increasing accessibility of health facilities and appropriate counseling to pregnant mothers were important to promote the knowledge of pregnant women about obstetric danger signs.

Similarly, Tamang et al. (2021), conducted a research on knowledge and understanding of obstetric danger signs among pregnant women attending the antenatal clinic at the National Referral Hospital in Thimphu, Bhutan, utilizing a cross sectional study design. Four hundred and twenty-two participants were used as the sample size. The major findings from the study showed that a very low proportion of women (4.7%) had good knowledge, 58.1% had satisfactory knowledge and 37.2% had poor knowledge.

Similarly, Hibstu and Siyoum (2017), conducted a study on knowledge of obstetric danger signs and associated factors among pregnant women attending antenatal care at health facilities of Yirgacheffe town, Gedeo zone, Southern Ethiopia, utilizing systematic random sampling technique involving a cross-sectional research study design. Three hundred and forty-two participants were utilized as the sample size. Findings from this study showed that the level of obstetric knowledge of danger signs was low (21.9%). It was recommended that increasing knowledge or awareness of key obstetric danger signs need to be given focus as it makes women and their families ready for prompt and appropriate decisions and measures in case of obstetric danger signs among pregnant women. Also, health education dissemination strategies on obstetric danger signs and creating and promoting income generating mechanisms need to be continuously done at the health facility and community.

Similarly, Salem et al. (2018), conducted a study on Cross-sectional survey of knowledge of obstetric danger signs among women in rural Madagascar, utilizing convenience sampling technique involving a cross-sectional research study design. Three hundred and seventy-two participants were used as the sample size. The findings from this study showed that overall knowledge of obstetric danger signs was low.

Similarly, Workineh et al. (2014), conducted a study on knowledge of obstetric danger signs and its associated factors in Arba Minch town, Ethiopia. A cross sectional study design was utilized. Three hundred and ninety participants were used as the sample size. The major findings indicated that a low percentage of the women (24.1%) were knowledgeable while a majority of the women (75.9%) were not knowledgeable about obstetric danger signs that occurred during pregnancy, labor and postnatal period. It was recommended that there should be provision of information, education, facilitate income generating mechanisms, and communication targeting women, family and the community on danger signs of pregnancy and childbirth.

Another study was conducted by Tsegaye et al. (2017), on knowledge of obstetric danger signs and associated factors among pregnant women attending antenatal care at selected health facilities in Illu Ababor zone, Oromia National Regional State, south-west Ethiopia. A cross-sectional study design was utilized. Eight hundred and eight-four participants were used as the sample size. The major findings from this study suggested that the respondents were not knowledgeable about obstetric danger signs during pregnancy, labor and delivery and postpartum. It was recommended that there should be provision of information, education, and also, communication targeting women, family and the general community on danger signs of pregnancy and childbirth.

Another study was conducted by George et al. (2014), on knowledge of obstetric danger signs amongst women of reproductive age in PATHS2 Zaria cluster, Kaduna Nigeria. A cross-sectional study design was utilized. Six hundred and seventeen participants were used as the sample size. The major findings from this study suggested that a high proportion of the respondents are unaware of obstetric danger signs. It was recommended that radio broadcast should be utilized as part of efforts towards increasing the proportion of women with knowledge obstetric danger signs.

Similarly, Agunwa et al. (2015), conducted a study on knowledge of obstetric danger signs amongst women of reproductive age in rural communities in Enugu State, Nigeria. Ethiopia. A cross sectional study design was utilized. Six hundred and two participants were used as the sample size. The findings from this study indicated that majority of the respondents had a poor level of knowledge of obstetric danger signs. It was recommended that effective and sustained health education and behavioral change programs with high local content should be instituted in rural communities.

THEORETICAL FRAMEWORK

The theoretical framework adopted for this study is the health belief model (HBM). The health belief model (HBM) is a social psychological health behavior change model developed to explain and predict health-related behaviors, particularly in regard to the uptake of health services. The HBM was developed in the 1950s by social psychologists (Rosenstock, Godfrey, Hochbaum, Stephen Kegeles, and Howard Leventhal) at the U.S. Public Health Service. The HBM suggests that a person's belief in a personal threat of an illness or disease together with a person's belief in the effectiveness of the recommended health behavior or action will predict the likelihood the person will adopt the behavior. There are six constructs of the HBM namely; perceived susceptibility, perceived severity, perceived benefits, perceived barriers, cue to action and self-efficacy. The first four constructs were developed as the original tenets of the HBM. The last two were added as research about the HBM evolved (Wayne, 2019).

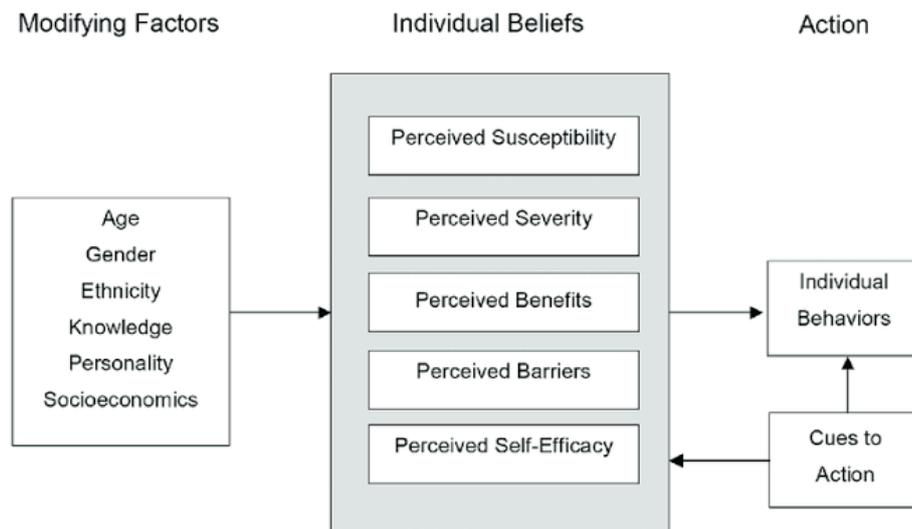


Fig 1.The health belief model (Colley et al., 2019)

Perceived susceptibility: This refers to a person's subjective perception of the risk of acquiring an illness or disease. There is wide variation in a person's feelings of personal vulnerability to an illness or disease (Wayne, 2019; Urich, 2017).

Perceived severity: This refers to a person's feelings on the seriousness of contracting an illness or disease (or leaving the illness or disease untreated). There is wide variation in a person's feelings of severity, and often a person considers the medical consequences (e.g., death, disability) and social consequences (e.g., family life, social relationships) when evaluating the severity (Wayne, 2019).

Perceived benefits:This refers to a person's perception of the effectiveness of various actions available to reduce the threat of illness or disease (or to cure illness or disease). An individual is much more likely to take a course of action in the prevention (or curing) a disease if he or she perceives such action has been beneficial (Wayne, 2019).

Perceived barriers: This refers to a person's feelings on the obstacles to performing a recommended health action. Even if an individual perceives a health condition as threatening and believes that a particular action will effectively reduce the threat, barriers may prevent engagement in the health-promoting behavior. Perceived barriers to taking action include the perceived inconvenience, expense, danger (e.g., side effects of a medical procedure) and discomfort (e.g., pain, emotional upset) involved in engaging in the behavior (Wayne, 2019).

Modifying variables: Individual characteristics, including demographic variables (age, sex, race, ethnicity, education etc), psychosocial (personality, social class, and peer and reference group pressure etc), and structural variables (for example knowledge about a given disease and prior contact with the disease), can affect perceptions (i.e., perceived seriousness, susceptibility, benefits, and barriers) of health-related behaviors. The HBM suggests that modifying variables affect health-related behaviors indirectly by affecting perceived seriousness, susceptibility, benefits, and barriers (Urich, 2017).

Cues to action:This is the stimulus needed to trigger the decision-making process to accept a recommended health action. These cues can be internal (e.g., chest pains, wheezing, etc.) or external (e.g., advice from others, illness of family member, newspaper article, etc.)(Wayne, 2019).

Self-efficacy: Self efficacy refers to the level of a person's confidence in his or her ability to successfully perform a behavior. Self-efficacy is a construct in many behavioral theories as it directly relates to whether a person performs the desired behavior (Wayne, 2019).

Application of the Theoretical Framework

Perceived susceptibility: If a pregnant woman believes that she is susceptible to a particular health problem she is most likely to engage in behaviors to reduce her risk of developing the health problem. For, instance, checking herself for any obstetric danger sign and symptoms.

Perceived severity: A pregnant woman who perceive a given health problem (obstetric danger sign) as serious is more likely to engage in behaviors to prevent the health problem from occurring (or reduce its severity). For instance, pregnant woman may perceive a particular obstetric danger sign as being serious and so will take definite steps to prevent a complication from occurring or reduce the severity of the condition. However, if a pregnant woman perceives an obstetric danger sign as not being serious or as one of the symptoms of pregnancy she is more likely to ignore the sign or symptoms and not indulge in any activity that will prevent complications from occurring.

Perceived benefits: If a pregnant woman believes that a particular action will reduce susceptibility to a health problem (complications from obstetric danger sign) or decrease its seriousness, then she is more likely to engage in that behavior regardless of objective facts regarding the effectiveness of the action. For example, a pregnant woman who believes that visiting the healthcare facility when she notices an obstetric danger sign will allow for early detection of a problem and/or prevent complications from occurring thereby saving her life and that of her unborn child.

Perceived barriers: Even if an individual perceives a health condition as threatening and believes that a particular action will effectively reduce the threat, barriers may prevent engagement in the health-promoting behavior. For example a pregnant woman may notice an obstetric danger sign but is unable to get to a healthcare facility due to lack of transportation. This can result in a delay in accessing healthcare service.

Modifying variables: Modifying variables affect health-related behaviors indirectly by affecting perceived seriousness, susceptibility, benefits, and barriers. For example, the level of knowledge a pregnant woman have about obstetric danger signs influences their health behavior

Cues to action: These are events which prompts an individual to action. For example, a pregnant woman who believes she is experiencing an obstetric danger sign and is knowledgeable about the implications of the danger signs she is more likely to promptly seek healthcare services in order to reduce the severity or prevent complications from occurring.

Self-efficacy: Self-efficacy looks at a person's belief in their ability to make a health-related change. For instance a pregnant woman who beliefs that she has adequate knowledge about obstetric danger signs, and what to do if she experiences one is more likely to engage in a health behavior.

III. RESEARCH METHODS

Research design

The research design adopted in this study was a cross-sectional design. The researchers chose this design because it explains situations as they occur in their natural setting.

Research Setting

This research was conducted in Rivers State University Teaching Hospital (RSUTH). It is located in old GRA, Rivers State a neighborhood of Port Harcourt and is operated by Rivers State Hospital Management Board. It was established in March 1925 as Braithwaite Memorial Hospital and originally served as a medical facility for senior civil servants. It later became a General Hospital and has since gained status as a "Specialist Health Institution. In 2018, it was renamed to serve as a Teaching Hospital for the state owned university following the establishment of college of medical sciences officially recognized by the Federal Ministry of Health. The facility has 375 licensed beds and 731 medical staff members. Its departments include Medicine, Pediatrics, Laboratories, Radiology, Family Medicine, Obstetrics and Gynecology, Anesthesia, Surgery, Pathology, Ophthalmology, Accident Centre and the Surgical/Medical Emergency. Some other departments are Pharmacy, Finance, Maintenance and General Administration. Its Ante Natal Clinic runs from Mondays to Fridays, 8am to 4pm.

Target Population

The target population of this research consists of pregnant women attending ante-natal clinic at Rivers State University Teaching Hospital (RSUTH) during the period of the research.

Sampling Technique

Convenience sampling technique was utilized to select respondents during the period of study. The researcher chose this design because it allow for easy accessibility of the respondents.

Inclusion Criteria

Women who attend ante-natal clinic in Rivers State University Teaching Hospital (RSUTH).

Sample size

The sample size was determined using Fischer's formula;

$$n = \frac{Z_a^2 pq}{e^2}$$

Where n = minimum sample size

$Z_a^2 = 1.96^2$ (Standard normal deviate corresponding to the level of significance).

$p = 7.1\%$ (proportion of women who have knowledge on obstetric danger signs from a study by Agunwa et al, 2015).

$q = 1 - P = (100 - 7.1 = 92.9)$

$e^2 = 5\%$ level of precision

$$n = \frac{1.96^2 \times 7.1 \times 92.9}{5^2}$$

$$n = \frac{3.8416 \times 7.1 \times 92.9}{25}$$

$$n = 2533$$

$$25$$

$$n = 101$$

Adjusting for non-response (10%) = $101 + 10.1 = 111$

n = 111

Instrument for Data Collection

A questionnaire was used to collect data from respondents. The instrument was designed by the researchers so as to ascertain the Knowledge of Obstetric Danger Signs among Women Attending Ante-Natal Clinic at Rivers State University Teaching Hospital (RSUTH). The instrument is made up of four sections, A, B, C and D. Section A, comprised of the socio-demographic data of the respondents. Section B, C, and D comprised of 5 close ended questions on knowledge of danger signs in pregnancy, labor and childbirth and the post partum period respectively. Correct response to knowledge item was given 1 point, while incorrect responses were given 0 points. A knowledge score of 0-2 was considered as low knowledge levels, while a knowledge score of 3-5 was considered as good knowledge levels.

Validity of Instrument

The instrument was peer reviewed and validated by the researchers

Reliability of the Instrument

Reliability of the instrument was done using the Test-Re-test technique. Ten copies of the questionnaire were distributed to ten pregnant women attending ante-natal clinic at Obio Cottage Hospital. After 2 weeks another 10 copies of the questionnaire was administered to the same respondents; however, they were not included in the study population. Data was analyzed using Statistical Package for Social Sciences (SPSS) V.26 with the help of Cronbach's Alpha, it was detected that 19 of the items based Cronbach's Alpha was 79.6% reliable, that means that instrument was credible. A Cronbach's Alpha value above 70 is considered highly reliable.

Method of Data Collection

The data was collected over a period of one week with the researcher giving the approved questionnaire on ante-natal clinic days. The researcher was accompanied by a research assistant to administer the questionnaire to respondents. Reason for research and necessary information on how to fill the questionnaire was given to the respondents. Respondents given the opportunity to participate in the study or not and also to ask questions freely. The questionnaire was completed within 10-20 minutes and retrieved by the researcher. A total of one hundred and eleven (111) were administered and same were retrieved and used for data analysis.

Method of Data Analysis

Descriptive statistics was used to analyze the data. The results of the descriptive statistics were presented in frequency tables, percentages and figures. The hypotheses were tested using Pearson product moment correlation at $p < 0.05$ (Level of significance).

Ethical Consideration

A formal letter of permission from the researcher was submitted to the ethical review committee of the Rivers State University Teaching Hospital (RSUTH) to seek ethical approval to conduct research in Rivers State University Teaching Hospital (RSUTH). The researcher obtained verbal consent from the respondents after they were adequately informed about the purpose of the study. The respondents also had the freedom to withdraw their consent if she wished to do so. The respondents were assured of confidentiality. Information provided was treated confidentially and respondent's anonymity was adequately maintained.

Data Analyses

Table 1: Demographic data of Respondents

| Variable | Category | Frequency | Percentage (100%) |
|---|---------------------|------------|-------------------|
| Age bracket (years) | 19 years and below | 12 | 10.8 |
| | 20-24 | 61 | 55.0 |
| | 25-30 | 30 | 27.0 |
| | 30 and above | 8 | 7.2 |
| Total | | 111 | 100 |
| Marital status | Single | 39 | 36.1 |
| | Married | 72 | 64.9 |
| | Others | 0 | 0 |
| Total | | 111 | 100 |
| Highest Level of Education | Primary education | 5 | 4.5 |
| | Secondary education | 43 | 38.7 |
| | Tertiary education | 63 | 66.8 |
| Total | | 111 | 100 |
| Number of Ante-natal Clinic Visits in Current Pregnancy | 1-2 times | 12 | 10.8 |
| | 3-4 times | 52 | 46.8 |
| Pregnancy | 5-6 times | 31 | 27.9 |
| | 7-8 times | 16 | 14.4 |
| Total | | 111 | 100 |

Table 1 above shows that the respondents who were 19 years and below were 12(10.8%),61(66.0%) were between the ages of 20-24 years, 30(27.0%) were between the ages of 25-30 years, while 8(7.2%) were 30 and above.

On marital status, 39(36.1%) of the respondents were single, while 72(64.9%) were married.

On highest level of education, 5(4.6%) of the respondents indicated primary education, 43(38.7%) had secondary education and 63(56.8%) of the respondents had tertiary education.

On number of ante-natal visits in current pregnancy, 12(10.8%) of the respondents indicated that they had attended ante natal clinic 1-2 times, 52(46.8%) of the respondents had attended 3-4 times, 31(27.9%) of the respondents had attended 5-6 times, while 16(14.4%) of the respondents had attended 7-8 times.

Research Question 1: What is the level knowledge of women attending ante-natal clinic at Rivers State University Teaching Hospital (RSUTH) regarding danger signs in pregnancy?

Table 2: Respondents knowledge of danger signs in pregnancy

| ITEMS | YES | NO | I DON'T KNOW |
|---|------------|------------|--------------|
| 1. Severe vaginal bleeding is a sign of a problem in pregnancy | 111(100%) | 0 (0%) | 0 (0%) |
| 2. Swelling of the fingers, face and legs is a sign of a problem in pregnancy | 66 (59.5%) | 26 (23.4%) | 19 (17.1%) |
| 3. Severe headache is a sign of a problem in pregnancy | 56(50.5%) | 6 (5.4%) | 49 (44.1%) |
| 4. Fast breathing is a sign of a problem in pregnancy | 62 (55.9%) | 0 (0%) | 49 (44.1%) |
| 5. Convulsion is a sign of a problem in pregnancy | 70 (63.1%) | 0 (0%) | 41 (36.9%) |

Table 4.2 presents the knowledge of women attending ante-natal clinic at Rivers State University Teaching Hospital (RSUTH) regarding danger signs in pregnancy. The results shows that all 111(100%) the respondents indicated that severe vaginal bleeding was a sign of problem in pregnancy. When asked if swelling of the fingers, face and legs was a sign of problem in pregnancy, 19(17.1%) of the respondents indicated yes, 26(23.4%) indicated no and 19(17.1%) of the respondents indicated that they didn't know. On severe headache as a sign of a problem in pregnancy, 56(50.5%) of the respondents chose yes, 6(5.4%) chose no, while 49(44.1%) chose I don't know. On fast breathing being a sign of a problem in pregnancy, 62(55.9%) of the respondents chose yes, while 49(44.1%) chose I don't know. On convulsion as a sign of a problem in pregnancy, 70(63.1%) of the respondents chose yes, while 41(36.9%) of the respondents chose I don't know. Overall 41(36.9%) of the respondents had poor knowledge on the danger signs in pregnancy, while 70(63.1%) of the respondents reported good knowledge.

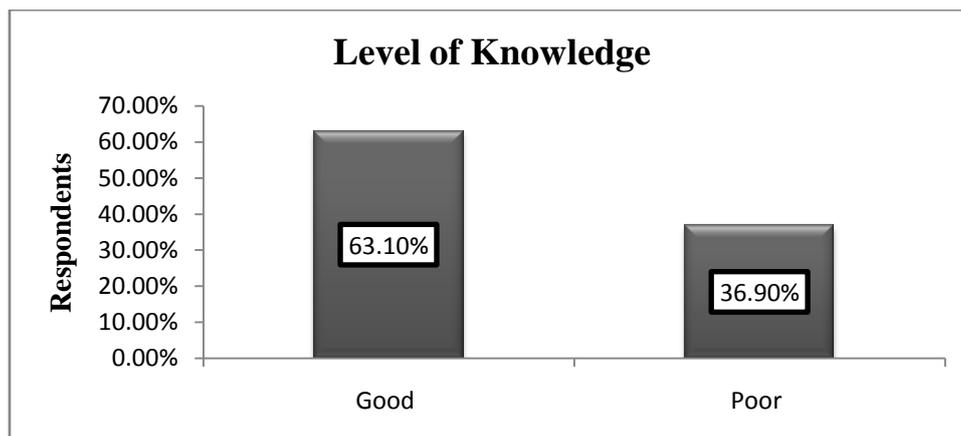


Figure 2: Showing level of knowledge of danger signs in pregnancy

Research Question 2: What is the level of knowledge of women attending ante-natal clinic at Rivers State University Teaching Hospital (RSUTH) regarding danger signs in labor and child-birth?

Table 3: Respondents knowledge of danger signs in labor and childbirth

| ITEMS | YES | NO | I DON'T KNOW |
|---|---------------|---------------|---------------|
| 1. Labor that lasts more than 12 hours is not a sign of a problem during labor and delivery? | 65 (58.6%) | 24 (21.6%) | 22 (19.8%) |
| 2. Vaginal bleeding before the baby is born is not a sign of a problem during labor and delivery? | 45 (40.5%) | 66 (59.5%) | 0 (0%) |
| 3. Convulsions during labor and delivery is not a sign of a problem? | 33 (29.7%) | 78 (70.3%) | 0 (0%) |
| 4. Retained placenta is not a sign of a problem during labor and delivery? | 33 (29.7%) | 66 (59.5%) | 12 (10.8%) |
| 5. Green or brown waters is not a sign of a problem during labor and delivery? | 39 (35.1%) | 38 (34.2%) | 34 (30.6%) |

Table 4.3 presents the knowledge of women attending ante-natal clinic at Rivers State University Teaching Hospital (RSUTH) regarding danger signs in labor and childbirth. On Labor that lasts more than 12 hours is not a sign of a problem during labor and delivery, 65(58.6%) of the respondents chose yes, 24(21.6%) of the respondents chose no, while 22(19.8%) of the respondents chose I don't know. On vaginal bleeding before the baby is born is not a sign of a problem during labor and delivery, 46(40.5%) of the respondents chose yes, and 66(59.5%) of the respondents chose no. On convulsions during labor and delivery is not a sign of a problem, 33(29.7%) of the respondents chose yes and 78(70.3%) of the respondents chose no. On retained placenta is not a sign of a problem in labor and delivery, 33(29.7%) of the respondents chose yes, 66(59.5%) of the respondents chose no, while 12(10.8%) of the respondents chose I don't know. On green or brownwaters is not a sign of a problem during labor and delivery, 39(35.1%) of the respondents chose yes, 38(34.2%) of the respondents chose no, while 34(30.6%) of the respondents chose I don't know. Overall, 66(59.5%) of the respondents had good knowledge on danger signs during labor and childbirth, while 45(40.5%) had poor knowledge.

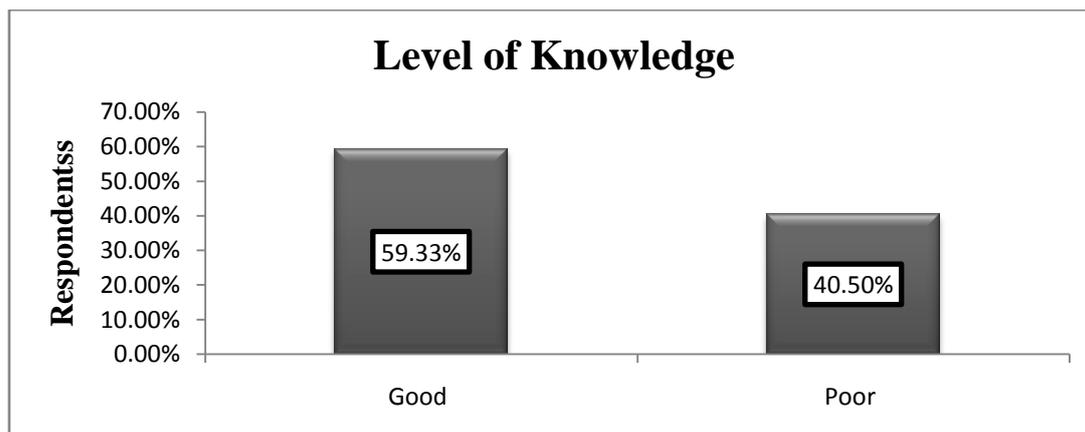


Figure 3: Showing level of knowledge of danger signs during labor and childbirth

Research Question 3: What is the level of knowledge of women attending ante-natal clinic at Rivers State University Teaching Hospital (RSUTH) regarding danger signs in the post partum period?

Table 4: Respondents knowledge of danger signs in the post partum period

| ITEMS | YES | NO | I DON'T KNOW |
|--|---------------|---------------|---------------|
| 1. Severe vaginal bleeding like soaking through more than one pad in an hour or noticing large blood clots is a sign of a problem during the postpartum period | 74 (66.7%) | 31 (27.9%) | 6 (5.4%) |
| 2. A foul smelling discharge is a sign of a problem during the postpartum period | 84 (75.7%) | 19 (17.1%) | 8 (7.2%) |
| 3. Swollen, red or tender breasts or nipples is a sign of a problem during the postpartum period | 65 (58.6%) | 36 (32.4%) | 10 (9.0%) |
| 4. Problems urinating or leaking is a sign of a problem during the postpartum period | 44 (39.6%) | 61 (55.0%) | 6 (5.4%) |
| 5. High fever is a sign of a problem in the postpartum period | 86 (77.5%) | 6 (5.4%) | 19 (17.1%) |

Table 4.4 presents the knowledge of women attending ante-natal clinic at Rivers State University Teaching Hospital (RSUTH) regarding danger signs in the post partum period. On severe vaginal bleeding like soaking through more than one pad in an hour or noticing large blood clots is a sign of a problem during the postpartum period, 74(66.7%) of the respondents chose yes, 31(27.9%) chose no, while 6(5.4%) chose I don't know. On a foul smelling discharge is a sign of a problem during the postpartum period, 84(75.7%) of the respondents chose yes, 19(17.1%) chose no, while 8(7.2%) chose I don't know. On swollen, red or tender breasts or nipples is a sign of a problem during the postpartum period, 65(58.6%) of the respondents chose yes, 36(32.4%) chose no, while 10(9.0%) chose I don't know. On problems urinating or leaking is a sign of a problem during the postpartum period, only 44(39.6%) of the respondents correctly chose yes, 61(55.0%) chose no, while 6(5.4%) chose I don't know. On high fever is a sign of a problem in the postpartum period, 86(77.5%) of the respondents chose yes, 6(6.4%) chose no while 19(17.1%) chose I don't know. Overall, 78(70.3%) of the respondents had good knowledge on danger signs in the postpartum period, while 33(29.7%) had poor knowledge.

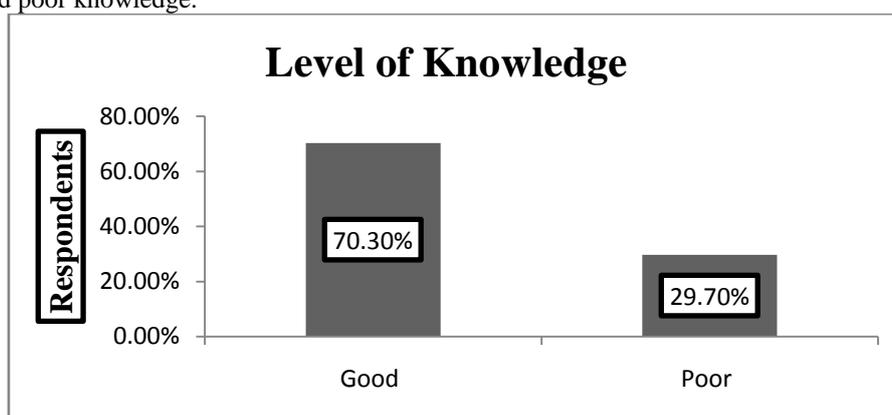


Figure 4: Showing level of knowledge of danger signs during the postpartum period
Hypothesis Testing

Decision Rule

The pre-set level of significance for this study is 0.05. The hypothesis put forward by the researcher in this study is the null hypothesis (Ho) which means that there is no significant association between the variables being considered. The p-value indicate the significance or the probability values, if it exceeds the pre-set value of significance ($p > 0.05$), the hypothesis stated will be accepted, however, if the p-value is less than or equal to 0.05 (≤ 0.05), the hypothesis will be rejected.

Hypothesis 1

There is no significant relationship between level of education and the knowledge of danger signs during pregnancy among women attending ante- natal clinic at Rivers State University Teaching Hospital (RSUTH).

Table 5: Pearson Product Moment Correlation showing the correlation between level of education and the knowledge of danger signs during pregnancy among women attending ante-natal clinic at Rivers State University Teaching Hospital (RSUTH)

| Variable | Knowledge | Decision |
|--------------------|--------------------------------|-------------|
| Level of education | Pearson Correlation -.315** | Ho rejected |
| | Sig. (2-tailed) .001 | |
| | N 111 | |

** . Correlation is significant at the 0.01 level (2-tailed).

Table 5, indicate that there is a significant relationship between level of education and the knowledge of danger signs during pregnancy among women attending ante- natal clinic at Rivers State University Teaching Hospital (RSUTH) ($r = -.315$, $p = 0.001$). Therefore, the null hypothesis is rejected. This implies that the level of education of women attending ante- natal clinic at Rivers State University Teaching Hospital (RSUTH) contributes to their knowledge.

Hypothesis 2

There is no significant relationship between level of education and the knowledge of danger signs during labor and childbirth among women attending ante- natal clinic at Rivers State University Teaching Hospital (RSUTH).

Table 6: Pearson Product Moment Correlation showing the correlation between level of education and the knowledge of danger signs during labor and childbirth among women attending ante-natal clinic at Rivers State University Teaching Hospital (RSUTH)

| Variable | Knowledge | Decision |
|--------------------|-------------------------------|-------------|
| Level of education | Pearson Correlation .367** | Ho rejected |
| | Sig. (2-tailed) .000 | |
| | N 111 | |

** . Correlation is significant at the 0.01 level (2-tailed).

Table 6, indicate that there is a significant relationship between level of education and the knowledge of danger signs during labor and childbirth among women attending ante- natal clinic at Rivers State University Teaching Hospital (RSUTH) ($r = .367$, $p = 0.000$). Therefore, the null hypothesis is rejected. This implies that the level of education of women attending ante- natal clinic at Rivers State University Teaching Hospital (RSUTH) contributes to their knowledge of dangers in the labor and childbirth.

Hypothesis 3

There is no significant relationship between level of education and the knowledge of danger signs during the postpartum period among women attending ante- natal clinic at Rivers State University Teaching Hospital (RSUTH).

7: Pearson Product Moment Correlation showing the correlation between level of education and Table the knowledge of danger signs during the postpartum period among women attending ante-natal clinic at Rivers State University Teaching Hospital (RSUTH)

| Variable | Knowledge | Decision |
|--------------------|------------------------------|-------------|
| Level of education | Pearson Correlation -.118 | Ho accepted |
| | Sig. (2-tailed) .218 | |
| | N 111 | |

Table 7, indicate that there is no significant relationship between level of education and the knowledge of danger signs during the postpartum period among women attending ante- natal clinic at Rivers State University

Teaching Hospital (RSUTH) ($r = -.118$, $p = .218$). Therefore, the null hypothesis is accepted. This implies that the level of education of women attending ante- ante-natal clinic at Rivers State University Teaching Hospital (RSUTH) has no association with their knowledge of danger signs during the postpartum period.

Hypothesis 4

There is no significant relationship between the number of ante-natal visits and the knowledge of obstetric danger signs among women attending ante- natal clinic at Rivers State University Teaching Hospital (RSUTH).

Table 8: Pearson Product Moment Correlation showing the correlation between number of ante-natal visits and the knowledge of obstetric danger signs among women attending ante-natal clinic at Rivers State University Teaching Hospital (RSUTH)

| Variable | Number of ante-natal visits | Decision |
|--|-----------------------------|----------|
| Knowledge of danger signs in pregnancy | Pearson Correlation | .270** |
| | Sig. (2-tailed) | .004 |
| | N | 111 |
| Knowledge of danger signs during labor and child birth | Pearson Correlation | .103 |
| | Sig. (2-tailed) | .284 |
| | N | 111 |
| Knowledge of danger signs during the postpartum period | Pearson Correlation | .158 |
| | Sig. (2-tailed) | .098 |
| | N | 111 |

** Correlation is significant at the 0.01 level (2-tailed).

Table 8, indicate that there is a significant relationship between the number of ante-natal visits and the knowledge of dangers in pregnancy among women attending ante- natal clinic at Rivers State University Teaching Hospital (RSUTH) ($r = .270^{**}$, $p = 0.004$). Therefore, the null hypothesis is rejected. This implies that the number of ante-natal visits of women attending ante- natal clinic at Rivers State University Teaching Hospital (RSUTH) contributes to their knowledge of dangers in pregnancy.

The table also shows that there is no significant relationship between the number of ante-natal visits and the knowledge of dangers during labor and childbirth among women attending ante- natal clinic at Rivers State University Teaching Hospital (RSUTH) ($r = .103$, $p = .284$). Therefore, the null hypothesis is accepted. This implies that the number of ante-natal visits of women attending ante- natal clinic at Rivers State University Teaching Hospital (RSUTH) has no association with their knowledge of dangers in during labor and childbirth.

It is also shown that that there is no significant relationship between the number of ante-natal visits and the knowledge of dangers during labor the postpartum period among women attending ante- natal clinic at Rivers State University Teaching Hospital (RSUTH) ($r = .158$, $p = .098$). Therefore, the null hypothesis is accepted. This implies that the number of ante-natal visits of women attending ante- natal clinic at Rivers State University Teaching Hospital (RSUTH) has no association with their knowledge of dangers in during the postpartum period.

IV. DISCUSSION

Knowledge of Danger Signs in Pregnancy among Women Attending Ante-Natal Clinic at Rivers State University Teaching Hospital.

Findings from this study shows women had a good knowledge of the danger signs in pregnancy. The most recognized danger in pregnancy was found to be severe vaginal bleeding 111(100%). This finding is in agreement with Phanice and Zachary (2018), who indicated that vaginal bleeding was the most mentioned obstetric danger sign in pregnancy. The women however lacked awareness about severe headache as a danger sign in pregnancy as only 56(50.5%) correctly answered to severe headache as a danger sign in pregnancy.

Generally, 41(36.9%) of the respondents had poor knowledge on the danger signs in pregnancy, while 70(63.1%) of the respondents reported good knowledge. This shows that a majority of the women attending ante-natal clinic at Rivers State University Teaching Hospital were knowledgeable on the danger signs in pregnancy. In contrast to this, Kumar et al. (2019), reported unacceptably low level of knowledge of danger signs in pregnancy.

Knowledge of Danger Signs during Labor and Childbirth among Women Attending Ante-Natal Clinic at Rivers State University Teaching Hospital.

Findings from this study shows that the most recognized danger signs during labor and childbirth were convulsions 78(70.3%), vaginal bleeding before the baby is born 66(59.5%) and retained placenta 66(59.5%).

This finding disagrees with Kumar et al. (2019), who indicated that women lacked knowledge of convulsion as been a danger sign in labor. Also a low percentage of the respondents were able to correctly identify prolonged labor 24(21.6%) and green or brown waters 38(34.2%) as danger signs during labor and childbirth.

Generally, 66(59.5%) of the respondents had good knowledge on danger signs during labor and childbirth, while 45(40.5%) had poor knowledge. This finding however, disagrees with Woldeamanuel et al. (2019), who indicated that pregnant women were knowledgeable about obstetric danger signs during labor and delivery.

Knowledge of Danger Signs during the Postpartum Period among Women Attending Ante-Natal Clinic at Rivers State University Teaching Hospital.

Findings from this study shows that women 84(75.7%) were knowledgeable about foul smelling discharge been a danger sign during the postpartum period. This finding disagrees with Kumar et al. (2019), who indicated that women lacked knowledge of foul smelling discharge as a danger sign during the postpartum period. Women were also knowledgeable on high fever 86(77.5%) and severe vaginal bleeding like soaking through more than one pad in an hour or noticing large blood clots 74(66.7%) were obstetric danger signs during the postpartum period. However, there was a decline in the proportion of women who were knowledgeable on problems urinating or leaking 44(39.6%) and swollen, red or tender breasts or nipples 65(58.6%) as been danger signs during the postpartum period. Generally, a majority 78(70.3%) of the respondents had good knowledge on danger signs in the postpartum period, while a low proportion 33(29.7%) recorded poor knowledge. This disagrees with Tsegayeet et al. (2017), who indicated that pregnant women were not knowledgeable of the dangers signs during the postpartum period.

Hypothesis 1:

The hypothesis shows that there is a significant relationship between level of education and the knowledge of danger signs during pregnancy among women attending ante- natal clinic at Rivers State University Teaching Hospital (RSUTH) ($r = -.315$, $p = 0.001$). These findings lead the rejection of the null hypothesis.

Hypothesis 2:

The hypothesis shows that there is a significant relationship between level of education and the knowledge of danger signs during labor and childbirth among women attending ante- natal clinic at Rivers State University Teaching Hospital (RSUTH) ($r = .367$, $p = 0.000$). These findings lead the rejection of the null hypothesis.

Hypothesis 3:

The hypothesis shows that there is no significant relationship between level of education and the knowledge of danger signs during the postpartum period among women attending ante- natal clinic at Rivers State University Teaching Hospital (RSUTH) ($r = -.118$, $p = .218$). These findings lead the acceptance of the null hypothesis.

Hypothesis 4:

The hypothesis shows that there is a significant relationship between the number of ante-natal visits and the knowledge of dangers in pregnancy among women attending ante- natal clinic at Rivers State University Teaching Hospital (RSUTH) ($r = .270^{**}$, $p = 0.004$). These findings lead to the rejection of the null hypothesis.

The hypothesis shows that there is no significant relationship between the number of ante-natal visits and the knowledge of dangers during labor and childbirth among women attending ante- natal clinic at Rivers State University Teaching Hospital (RSUTH) ($r = .103$, $p = .284$). These findings lead to the acceptance of the null hypothesis.

The hypothesis also shows that there is no significant relationship between the number of ante-natal visits and the knowledge of dangers during labor the postpartum period among women attending ante- natal clinic at Rivers State University Teaching Hospital (RSUTH) ($r = .158$, $p = .098$). These findings lead to the acceptance of the null hypothesis.

Implications of findings to Nursing

Based on the findings, respondents have good knowledge of obstetric danger signs in pregnancy, during labor and childbirth and during the postpartum period. However, there seem to be a decline in the number of women who were knowledgeable about the danger signs in pregnancy, during labor and childbirth and during the postpartum period. Nurses need to continuously educate women of childbearing ages, pregnant women and their families about obstetric dangers signs, and give appropriate counseling on what to do when these dangers are noticed, as this will help modify behavioral patterns and further reduce maternal mortality and morbidity rates.

Limitation of the study

The researcher encountered the following problems in the course of the study:

- ❖ Time constraint: the researcher had limited time to carry out the research work.
- ❖ Insufficient finance: since the researcher is a student, the little money the researcher had did not allow the researcher to cover a very large population for the study.

V. Summary

This research was a cross-sectional research design on knowledge of obstetric danger signs among women attending ante-natal clinic at Rivers State University Teaching Hospital (RSUTH).

Three (3) objectives and three (3) research questions were formulated to guide the study. Literature was reviewed by various authors on the concept, theory and empirical studies of the topics. The target population was pregnant women who attended ante-natal clinic at Rivers State University Teaching Hospital (RSUTH) during the period of research from which a sample size of 111 was drawn. Data was collected using questionnaire and analyzed based on research questions using SPSS v.26, and presented in tables and figures. The results shows that a majority of the women attending ante-natal clinic at Rivers State University Teaching Hospital were knowledgeable on the danger signs in pregnancy 70(63.1%), while 41(36.9%) of the respondents had poor knowledge on the danger signs in pregnancy. Also, 66(59.5%) of the respondents reported good knowledge on danger signs during labor and childbirth, while 45(40.5%) had poor knowledge and 78(70.3%) of the respondents had good knowledge on danger signs in the postpartum period, while a low proportion 33(29.7%) recorded poor knowledge. Suggestion for further studies was made and conclusion drawn based on the findings of the study.

VI. Conclusion

Based on the findings, the following conclusions were drawn: majority of women attending ante-natal clinic at Rivers State University Teaching Hospital have good knowledge of obstetric danger signs. However, a good proportion of the respondents are not knowledgeable about obstetric danger signs.

VII. Recommendations

Considering the findings obtained from the study, the following recommendations were made:

1. Awareness should be raised about obstetric danger signs at both hospital and community levels as this will allow for the reaching of more women and their families and in turn reduce maternal mortality and morbidity.
2. Pregnant women should be encouraged to utilize ante-natal services as this will improve their awareness of obstetric danger signs.
3. There should be continuous health education of both the pregnant woman and her families about obstetric danger signs as this will allow for early detection of a problem and eliminate delay in seeking obstetric care.
4. Healthcare workers should continuously update their knowledge on obstetric danger signs so as to provide correct, appropriate and quality information about obstetric danger signs to their clients.

Suggestions for further studies

The researcher suggests that further studies should be carried out in other areas:

1. The researcher suggests a replication of the study on awareness of obstetric danger signs among pregnant women in other parts of the country.
2. More research should be conducted to know the factors that influence the awareness of obstetric danger signs among pregnant women.

REFERENCES

- [1]. Agunwa, C.C., Nnebue, C.C., Duru, C.B, Aniebue, P.N., Aniebue, U.U., & Ifeadike, C.O. (2015). Knowledge of Obstetric Danger Signs among Women of Reproductive Age in Rural Communities in Enugu State, Nigeria. *American Journal of Health Research*, 3(6), 376-380. <https://doi.org/10.11648/j.ajhr.20150306.20>
- [2]. Amenu, G., Mulaw, Z., Seyoum, T., & Bayu, H. (2014). Knowledge about Danger Signs of Obstetric Complications and Associated Factors among Postnatal Mothers of Mechekel District Health Centers, East Gojjam Zone, Northwest Ethiopia. *Hindawi Publishing Corporation Scientifica*, 7. <https://doi.org/10.1155/2016/3495416>
- [3]. Bintabara, D., Mpembeni, R.N.M. & Mohamed, A.A. (2017). Knowledge of obstetric danger signs among recently-delivered women in Chamwino district, Tanzania: a cross-sectional study. *BMC Pregnancy and Childbirth* 17, 276. <https://doi.org/10.1186/s12884-017-1469-3>
- [4]. Bogale, D., & Marko, D. (2015). Knowledge of obstetric danger signs among child bearing age women in Goba district, Ethiopia: a cross-sectional study. *BMC Pregnancy and Childbirth*, 15, 77. <https://doi.org/10.1186/s12884-015-0508-1>
- [5]. Cafasso, J. (2016). Complications during Pregnancy and Delivery. Healthline. <https://www.healthline.com/health/pregnancy/delivery-complications#risk-factors>
- [6]. Colley, S.K., Kane, P.K.M., & Gibson, J.M. (2019). Risk Communication and Factors Influencing Private Well Testing Behavior: A Systematic Scoping Review. *International Journal of Environmental Research and Public Health*, 16(22), 4333. <https://doi.org/10.3390/ijerph16224333>
- [7]. Eunice Kennedy Shriver National Institute of Child Health and Human Development. (2021). What are some common complications of pregnancy? <https://www.nichd.nih.gov/health/topics/pregnancy/conditioninfo/complications>
- [8]. Eunice Kennedy Shriver National Institute of Child Health and Human Development. (2017). About Pregnancy. <https://www.nichd.nih.gov/health/topics/pregnancy/conditioninfo#:~:text=Pregnancy%20is%20the%20term%20used,segments%20of%20pregnancy%2C%20called%20trimesters>
- [9]. Geleto, A., Chojeanta, C., Musa, A., & Loxton, D. (2019). WOMEN's Knowledge of Obstetric Danger signs in Ethiopia (WOMEN's KODE): A systematic review and meta-analysis. *Systematic Reviews*, 8, 63. <https://doi.org/10.1186/s13643-019-0979-7>

- [10]. George, S.O., Yisa, I.O., &Alamode, G. (2014). Knowledge of obstetric danger signs amongst women of reproductive age in PATHS2 Zaria cluster, Kaduna Nigeria. *Pubmed*, 23(1), 26-32. <https://pubmed.ncbi.nlm.nih.gov/24946451/>
- [11]. Hesperian Health Guides.(2020). Danger signs during labor.https://en.hesperian.org/hhg/A_Health_Handbook_for_Women_with_Disabilities: Danger_signs_during_labor
- [12]. Hibstu, T., &Siyoum, Y.D. (2017).Knowledge of obstetric danger signs and associated factors among pregnant women attending antenatal care at health facilities of Yirgacheffe town, Gedee zone, Southern Ethiopia.*Archives of Public Health*, 75, 35.<https://doi.org/10.1186/s13690-017-0203-y>
- [13]. Kumar, A., Yadav, G., Zutshi, V., &Bodat, S. (2019). Knowledge about obstetric danger signs among pregnant women attending antenatal clinic in a tertiary care hospital of Delhi: a cross sectional study. *International Journal of Reproduction, Contraception, Obstetrics and Gynecology*, 8(9), 3738-3743.<http://dx.doi.org/10.18203/2320-1770.ijrcog20193808>
- [14]. Maseresha, N., Woldemichael, K., &Dube, L. (2016).Knowledge of obstetric danger signs and associated factors among pregnant women in Erer district, Somali region, Ethiopia. *BMC Women's Health*, 16(30).<https://doi.org/10.1186/s12905-016-0309-3>
- [15]. Ministry of Health – ManatūHauora.(2017). Danger signs during pregnancy.<https://www.health.govt.nz/your-health/pregnancy-and-kids/pregnancy/helpful-advice-during-pregnancy/danger-signs-during-pregnancy>
- [16]. Mwilike, B., Nalwadda, G., Kagawa, M., Malima, K., Mselle, L., &Horiuchi, S. (2018). Knowledge of danger signs during pregnancy and subsequent healthcare seeking actions among women in Urban Tanzania: a cross-sectional study. *BMC Pregnancy and Childbirth*, 18, 4.<https://doi.org/10.1186/s12884-017-1628-6>
- [17]. Okoror, C.E.M., &Omuemu, V.O. (2021). Knowledge of obstetric danger signs among antenatal clinic attendees in South–South Nigeria. *Health Care for Women International*. <https://doi.org/10.1080/07399332.2021.1941025>
- [18]. Ope, B.W. (2020).Reducing maternal mortality in Nigeria: addressing maternal health services’ perception and experience. *Journal of Global Health Reports*, 4.<https://doi.org/10.29392/001c.12733>
- [19]. Otolorina, E., Gomez, P., Curriec, S., Thapad, K., &Daob, B. (2015). Essential basic and emergency obstetric and newborn care: From education and training to service delivery and quality of care. *International Journal of Gynecology & Obstetrics*, 130, S46-S53.<https://doi.org/10.1016/j.ijgo.2015.03.007>
- [20]. Phanice, O.K., & Zachary, M.O. (2018).Knowledge of Obstetric Danger Signs among Pregnant Women Attending Antenatal Care Clinic at Health Facilities within Bureti Sub-County of Kericho County, Kenya. *Research in Obstetrics and Gynecology*, 6(1), 16-21. <https://doi.org/10.5923/j.rog.20180601.03>
- [21]. Salem, A., Lacour, O., Scaringella, S., Herinianasolo, J., Benski, A.C., Stancanelli, G., Vassilakos, P., Petignat, P., & Schmidt, N.C. (2018). Cross-sectional survey of knowledge of obstetric danger signs among women in rural Madagascar. *Pregnancy and Childbirth*, 18, 46.<https://doi.org/10.1186/s12884-018-1664-x>
- [22]. Tamang, T., Dorji, T., Yoezer, S., Phuntsho, T., &Dorji, P. (2021). Knowledge and understanding of obstetric danger signs among pregnant women attending the antenatal clinic at the National Referral Hospital in Thimphu, Bhutan: a cross-sectional study. *BMC Pregnancy and Childbirth*, 21, 104.<https://doi.org/10.1186/s12884-021-03580-4>
- [23]. Taylor, M. (2021).Postpartum Complications and Warning Signs.<https://www.whattoexpect.com/first-year/postpartum-health-and-care/postpartum-warning-signs-tips/>
- [24]. Terefe, N., Nigussie, A., &Tadele, A. (2020).Prevalence of Obstetric Danger Signs during Pregnancy and Associated Factors among Mothers in Shashemene Rural District, South Ethiopia.*Journal of Pregnancy*, 7. <https://doi.org/10.1155/2020/6153146>
- [25]. Thapa, B., &Manandhar, K. (2017). Knowledge on obstetric danger signs among antenatal mothers attending a tertiary level hospital, Nepal. *Journal of College of Medical Sciences-Nepal*, 13, 4. <https://doi.org/10.3126/jcmsn.v13i4.18093>
- [26]. Tsegaye, D., Shuremu, M., Bidira, K., &Negero, B. (2017). Knowledge of obstetric danger signs and associated factors among pregnant women attending antenatal care at selected health facilities in IlluAbabor zone, Oromia National Regional State, south-west Ethiopia. *International Journal of Nursing and Midwifery*, 9(3), 22-32. <https://doi.org/10.5897/IJNM2016.0230>
- [27]. United Nations International Children's Emergency Fund.(2021). Maternal mortality.<https://data.unicef.org/topic/maternal-health/maternal-mortality/#:~:text=Maternal%20mortality%20refers%20to%20deaths,to%20UN%20inter%20Agency%20estimates>.
- [28]. Ulrich, A. (2017). Methods for Stress Management.<https://psu.pb.unizin.org/kines082/chapter/the-health-belief-model/>
- [29]. Wayne, W. (2019).The health belief model.*Boston University School of Public Health*.<https://sphweb.bumc.bu.edu/otlt/mph-modules/sb/behavioralchange/theories/behavioralchange/theories2.html>
- [30]. Woldeamanuel, G.G., Lemma, G., &Zegeye, B. (2019).Knowledge of obstetric danger signs and its associated factors among pregnant women in AngolelaTera District, Northern Ethiopia.*BMC Research Notes*, 12, 606.<https://doi.org/10.1186/s13104-019-4639-8>
- [31]. Workineh, Y., Hailu, D., Gultie, T., Degefu, N., Mihrete, M., Shimeles, M., Mahino, M., Guesh, M., &Alemu, M. (2014).Knowledge of obstetric danger signs and its associated factors in ArbaMinch town, Ethiopia.*American Journal of Health Research*, 2(5), 255-259. <https://doi.org/10.11648/j.ajhr.20140205.16>
- [32]. World Health Organization. (2013). Counselling for Maternal and Newborn Health Care: A Handbook for Building Skills. Geneva. <https://www.ncbi.nlm.nih.gov/books/NBK304178/>
- [33]. World Health Organization.(2019). Maternal mortality.<https://www.who.int/news-room/fact-sheets/detail/maternal-mortality>