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Research Article

A COMPARATIVE ASSESSMENT OF KNOWLEDGE OF DANGER SIGNS OF PREGNANCY AMONGST RURAL AND URBAN WOMEN ATTENDING IMMUNIZATION CLINICS IN PRIMARY HEALTHCARE CENTERS IN BAYELSA STATE

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Abstract

Introduction: Pregnancy danger signs can show up suddenly, and difficulties can follow, which might damage or even kill the mother and her unborn child. During pregnancy, delivery, and the postpartum phase, these risk signs appear as unusual symptoms. They should be known to the expectant woman as well as to non-professionals. Birth Preparedness and Complication Readiness (BPCR) involves planning a delivery budget, making decisions in an emergency, and comprehending the process and the problems of pregnancy. One of the major components of BPCR is knowledge of danger signs of pregnancy. **Objective:** To assess and compare the knowledge of danger signs of pregnancy amongst rural and urban women attending immunization clinics in primary healthcare centers in Bayelsa State. **Methods:** It was a comparative cross-sectional study. The stratified sampling technique was used in the selection of the LGAs, and the simple random sampling technique was used in the selection of the study participants. Data were collected using a semi-structured interviewer-administered questionnaire, and the data were analyzed using SPSS version 25. **Results:** The average level of very good knowledge of danger signs of pregnancy, with a score of 50points on the Likert scale with the ten variables studied, shows that the Urban group (Yenagoa) respondents, 84.7% had very good knowledge, and the rural group (Ogbia) had 56.6% of their respondents having very good knowledge. While those who have good knowledge of danger signs of pregnancy with a score of 40points, in the Ogbia group, 24.5% of the respondents had 40 40points, and in the Yenagoa group, 12.1% had 40points. In the Ogbia group, on average, 1.7% of the respondents had poor knowledge of danger signs of pregnancy with 20points on the Likert scale, and 0.7% had very poor knowledge with 10points. None of the respondents in the Yenagoa group had poor or very poor knowledge of danger signs of pregnancy. **Conclusion:** The knowledge of danger signs of pregnancy in this study was generally high and it was higher in the urban group as compared to the rural group. There is a need for more health education, especially in rural areas, on knowledge for positive behavioral change as regards danger signs of pregnancy.

Keywords: Knowledge, Danger signs, Pregnancy, Rural and Urban women, Immunization clinics, Bayelsa State.

INTRODUCTION

Pregnancy danger indicators can appear suddenly and can be followed by complications that could cause harm or even death to the woman and her unborn child. These risk indicators are uncommon symptoms that arise during pregnancy, labor, and the postpartum period. Both the expectant mother and non-professionals should be aware of them[1].Pregnancy-related danger signs include fever, diminished fetal movements, severe abdominal pain, headaches with impaired vision, and vaginal bleeding. Immediate medical assistance is also necessary for indicators of acute weakness, sudden shortness of breath, and swelling of the hands or face. Any of these symptoms should prompt a trip to a hospital or health facility right away because they may be signs of serious infections, preeclampsia, or ectopic pregnancy, among other potentially fatal illnesses[2]. Pregnancy danger signs must be understood by women, families, and communities in order to prepare for pregnancy and its possible problems. Obstetric danger signs are symptoms that may indicate life-threatening issues that need to be treated right away during pregnancy, labor, or the postpartum phase.

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Vaginal bleeding, excruciating migraines, blurred vision, elevated fever, swollen hands or cheeks, and decreased fetal movement are some of these symptoms. Given the unpredictability of pregnancy issues, it is imperative to be aware of these symptoms. Women who possess this knowledge are more equipped to make wise decisions and seek prompt medical attention, both of which are critical for averting negative consequences[3]. Knowledge of danger signs of pregnancy, identification of a skilled birth attendant, identification of the closest appropriate care facility, plan for transportation to this care facility for delivery and/or obstetric emergencies, saving money to pay for care and other resources, identification of a potential blood donor, and decision maker in case of emergency are the major components of Birth Preparedness and Complication Readiness (BPCR) [4]. BPCR also includes planning a delivery budget, making decisions in an emergency, and comprehending the process and the problems of pregnancy. To reduce maternal morbidity and mortality, birth preparedness also involves being ready to give birth with the assistance of a qualified healthcare practitioner, and in doing so, knowledge of danger signs of pregnancy is important [5]. In the underdeveloped world, high maternal mortality is a serious issue, and Nigeria and Bayelsa State are not an exception. In addition to maternal mortality, there may be related perinatal and neonatal deaths, and Nigeria's data on these indices has not shown any improvement. The primary cause of all these delays

is the tripartite delay that is typically seen in the provision of maternal care, which results from insufficient or complete lack of birth and emergency readiness, which could be due to lack of knowledge[4]. To make women better prepared for childbirth and any problems, education and socioeconomic level improvements are necessary. In Nigeria, other aspects of being ready for birth and complications include getting supplies, finding a qualified birth attendant, locating the birthplace, being aware of obstetric warning signs, and making travel and financial arrangements; these, at the moment, aren't optimal[4,6]. A review of some previous research on knowledge of danger signs of pregnancy was done, one of which is a community-based descriptive cross-sectional study that was conducted among 185 women of reproductive age in Samaru community in Northwestern Nigeria. Only 4.9% of the respondents had good knowledge about danger signs of pregnancy, while 3.8% of them have a good attitude, and one in ten respondents only (10.3%) has a good perception of pregnancy danger signs[7]. A cross-sectional study on pregnant women attending the prenatal clinic at a tertiary hospital in South-Western Nigeria that used a pretested and structured questionnaire to collect data on BPCR, and logistic regression was performed to determine factors affecting BPCR. Reported results showed that 325 participants, 274 (84.3%) had knowledge of BPCR components[8].

A study among 5,083 women with recent pregnancies in three northern States of Nigeria on awareness of critical danger signs of pregnancy and delivery, preparations for delivery, and utilization of skilled birth attendants, reported that less than one-third (< 33%) knew three or more danger signs of pregnancy or labor and delivery. Higher socioeconomic status was associated with knowledge of danger signs, but not with knowledge of life-threatening, critical danger signs. Antenatal care visits did not increase knowledge of critical danger signs, but they were associated with skilled birth attendance. Knowledge of critical pregnancy danger signs was also associated with skilled birth attendance[9]. A cross-sectional study in rural and urban General hospitals in Lagos State, Nigeria, reported that awareness of obstetric danger signs during pregnancy was good among rural and urban study participants, accounting for 62.4% and 68.4%, respectively. The most commonly identified danger sign in pregnancy, labor, and after delivery was bleeding from the genital tract. The awareness of danger signs during labor and after delivery identified by the women was low in both settings, though relatively higher in the urban area[10]. A similar cross-sectional descriptive study in Edo State on birth preparedness and complication readiness among pregnant women attending Primary Health Care Centres reported that one hundred and fourteen pregnant women (49.6%) were aware of at least one danger sign associated with pregnancy, labor, and postpartum, while 201 women (87.4%) had identified a skilled birth attendant. Twenty-six (11.3%) had saved money for obstetric care, and 143 (62.2%) had purchased or made plans to purchase birth supplies[11]. This study was conducted in Bayelsa State, Nigeria, encompassing both rural and urban areas. The focus was on Primary Healthcare Centers (PHCs) across different regions of the state. The study targeted women of reproductive age attending immunization clinics in selected Primary Healthcare Centers. It also assessed the knowledge and understanding of danger signs related to birth preparedness and complication readiness among both rural and urban women.

METHODOLOGY

Bayelsa State is where the study was conducted. The state lies in the latitude range of 4°15′ North and 5°23′ South. Additionally, it lies between longitudes 5°22′ West and 6°45′ East. To the east of the state is Rivers State; to the north is Delta State; and to the west and south is the Atlantic Ocean[12,13]. The Ijaw are the most numerous tribe, while there are many others present, such as the Urhobos and Igbos. Christianity is the most common religion, while some Muslims from northern Nigeria and other faiths, such as Traditional African Religion, also make up the minority. With a land area of 9,391 km2, Bayelsa state is expected to have 2,537,400 residents by 2022, according to the 2006 census[12–14].There are a total of eight (8) local government councils in the state. Local government areas include Southern Ijaw, Yenagoa, Nembe, Ogbia, Sagbama, Brass, Ekeremor, and Kolokuma/ Opokuma. The state's capital and sole urban local government area (LGA) is Yenagoa. There are 210 PHCs in the state, which are dispersed over its eight LGAs[13,15].

The study was a comparative cross-sectional studyin design. The study was conducted in both rural and urban primary healthcare centers among women of childbearing age who were enrolled in immunization clinics and had given birth in the 12 months before to the study period. Using the following formula, the minimal sample size needed to compare independent groups while accounting for alpha and beta errors was estimated[16].

$$\frac{n = 2[Z\alpha + Z\beta]2\ \ \pi\,[1 - \pi]}{d2}$$

Where,

n = minimum sample size required.
Zα = Normal Standard deviation which corresponds to the desired confidence level of 95% for this study.
Zβ = this is the statistical power and 80% is selected.
π = Arithmetic average of the two proportions; i.e., arithmetic average of the rural and urban proportions.
d = Arithmetic difference between the two proportions; i.e., arithmetic difference between the rural and urban proportions.

Reports from a cross-sectional study in rural General hospitals in Lagos State, Nigeria reported that the practice of BPCR was low in the rural center with 13.2% practice[10], while, in a study on birth preparedness complication readiness and determinants among pregnant women in Ethiopia reported a practice of BPCR of 24.1%[17].

$Z\alpha = 1.96$
$Z\beta = 0.80$
$\pi = \frac{0.241 + 0.132}{2} = 0.187$
$d = 0.241 - 0.132 = 0.109$

Substituting these values in the formula above,

$$n = \frac{2[1.96 + 0.80]2 \times 0.187[1 - 0.187]}{0.1092}$$

$= 195$

Adjusting for possible non-response of 10%
Minimum sample size will now be 215
n = 215.

Two hundred and fifteen (215) women of reproductive age group who gave birth within the preceding one year who are attending immunization and antenatal clinics in both the rural and urban PHCs will be interviewed making up a total number of respondents of four hundred and thirty (430) in both the rural and urban groups. Stratified sampling method was used to group the eight local government areas (LGAs) in Bayelsa State into urban and rural local government areas. Yenagoa LGA is the only urban LGA in Bayelsa State[13]. Simple random sampling method by balloting was used to select one rural LGA out of the remaining seven rural LGA in the State. Ogbia LGA was selected. One urban (Yenagoa LGA) and one rural (Ogbia LGA) was studied and findings were compared in this study. Yenagoa LGA has thirty-three (33) PHCs while, Ogbia LGA has thirty-one (31) PHCs.

Yenagoa LGA has fifteen (15) political wards while Ogbia LGA has thirteen (13) political wards[18]. Participants in the study were chosen proportionately from the political wards in both the rural LGA (Ogbia) and the urban LGA (Yenagoa). Each political ward in the urban LGA was assigned 14 participants to be studied, while each political ward in the rural LGA was assigned 17 participants to be studied, based on the minimum calculated sample size of 215 for both the urban and rural LGAs and the fact that the urban LGA has 15 political wards and the rural LGA has 13.The researcher and his research assistants visited these primary health care facilities (PHCs) on days when immunization clinics were held, to pick participants in the various health centers in these wards using simple random sampling by balloting until the sample size was reached. Every health facility was studied and visited. Simple random sampling was used to choose study participants through balloting while the researcher and his research assistants visited these PHCs during immunization clinic days until the required sample size was reached.

An interviewer administered a semi-structured questionnaire with both closed-ended and open-ended questions were used to interview women in the reproductive age group who had given birth within the previous 12 months and were currently enrolled in immunization clinics at the chosen rural and urban PHCs in the LGAs been studied. In order to verify the degree of internal consistency of the study instrument, a reliability test was conducted on the questionnaire. Operationally, a pre-test study was conducted with 10% of the sample size, or 22 respondents, in order to assess the dependability of the study instrument utilized. With 22 respondents in each LGA, the pre-test was administered in Delta State, Ughelli North, and South Local Government Areas, respectively, in their urban and rural PHCs. To make sure the instrument measured and evaluated the items it was intended to measure in this study, its face validity was examined. To make sure it covered every aspect of the study objectives listed in the study title, the instrument's content validity was evaluated. A copy of the questionnaire's early drafts was distributed to specialists, including professors and consultants in the fields of public health and community medicine, in order to establish the questionnaire's face and content validity. A copy of the research instrument was given to each validator, along with pertinent details such as the study's purpose, research questions, and hypotheses that could be used as hints for critically evaluating the instrument's items in terms of the study's relevance, content coverage, unambiguity, adequacy, and appropriateness of the items meeting the study's goals. Ultimately, the validators' helpful critiques, counsel, and recommendations were taken into careful account and included into the instrument's final draft. Data collected were thoroughly checked for completeness and then analyzed using the computer software package SPSS (Statistical Package for the Social Sciences) version 25. A descriptive analysis of data were done using frequency tables. Chi-square statistics was used for the comparison of proportions between rural and urban categorical variables. The level of statistical significance will be set at 5%. Ethical clearance for this study was obtained from the Research and Ethics Committee of the Niger Delta University Teaching Hospital, Okolobiri, Bayelsa State.

RESULTS

A total of 430 mothers who were attending immunization in the selected PHCs both in the Ogbia (rural PHCs) and the Yenagoa (Urban PHCs) participated in this study giving a response rate of 100%. Table 1a above shows the socio-demographic characteristics of the respondents. The mean age of respondents was 27.2 ± 7.6 for the Ogbia (Rural) and that for the Yenagoa (Urban) was 36.2 ± 9.0. The age group 25-34 constituted the majority (50.7%) of the Ogbia participants and the age 35-44 constituted the majority (36.3%) of the Yenagoa participants. The differences in the ages of the Ogbia participants as compared to that of the Yenagoa participants were statistically significant (χ^2 = 25.6; p=0.00001).Most participants 132(61.4%) amongst the Ogbia respondents and the Yenagoa 153(71.2%) were married. There was a statistically significant difference in the marital statuses between the Ogbia and the Yenagoa respondents (χ^2 = 25.5; p=0.00004). Most of the Yenagoa respondents were 198 (92.1%) and also most of the Ogbia respondents 171 (79.5%) were Christians. The differences between the Yenagoa and Ogbia respondents' choices of religion were found to be statistically significant (χ^2 = 34.8; p=0.00001). The majority of the respondents both in the Ogbia group 153 (71.2%) and the Yenagoa group 115 (53.5%) were from the Ijaw ethnic group. This was followed by the Igbo ethnic group 16 (7.4%) amongst the Ogbia respondents and, amongst the Yenagoa respondents, it was followed by the Igbo and Edo/Delta ethnic groups with 20 (9.3%) each. The differences observed in the ethnic groups in the Ogbia group as compared to the Yenagoa group were found to be statistically significant ((χ^2 = 17.4; p=0.0152).

Table 1b above shows that the majority of the mothers interviewed in both the Ogbia group 121 (55.3%) and the Yenagoa group 139 (64.7%) had tertiary education. However, higher in the Yenagoa group and other differences between the Ogbia and Yenagoa group as regards mother,'s education were not found to be statistically significant ((χ^2 = 4.0; p=0.2596). The majority of the husbands of the women interviewed who were the fathers of the children had tertiary education in both the Ogbia group 139 (68.5%) and the Yenagoa group 139 (66.5%). The differences observed in the father's education in both groups were not found to be statistically significant (χ^2 = 5.5; p=0.1402). The majority of the mothers in the Ogbia group were private sector or business owners 99(46.7%), followed closely by civil servants 53(25.0%) while, the majority of the mothers in the Yenagoa group were Artisans 65(30.7%), followed closely by civil servants 47(22.2%) and others.

Table 1a. Socio-demographic characteristics of respondents (n=215)

Variable	Ogbia (Rural)(%)	Yenagoa (Urban) (%)	χ2 (pValue)
Age (years)			
15-24	61(28.4)	54 (25.1)	25.6
25-34	109 (50.7)	69 (32.1)	(0.00001)
35-44	39 (18.1)	78 (36.3)	
45 or >	6 (2.8)	14 (6.5)	
Marital Status			
Single	33 (15.3)	6 (2.8)	25.5
Married	132 (61.4)	153 (71.2)	(0.00004)
Cohabiting	38 (17.7)	50 (23.3)	
Divorced	9 (4.2)	6 (2.8)	
Widowed	3 (1.4)	0(0)	
Religion			
Christianity	171 (79.5)	198 (92.1)	34.8
Islam	12 (5.6)	17 (7.9)	(0.00001)
African Trad. Religion	21 (9.8)	0(0)	
Others	11 (5.1)	0(0)	
Ethnic group			
Ijaw	153 (71.2)	115(53.5)	17.4
Hausa	13 (6.0)	18(8.4)	(0.0152)
Yoruba	9 (4.2)	18(8.4)	
Igbo	16 (7.4)	20 (9.3)	
Delta/Edo	15(7.0)	20 (9.3)	
Rivers	3 (1.4)	9 (4.2)	
Akwa Ibom/Cross River	3 (1.4)	9 (4.2)	
Others	3 (1.4)	6 (2.8)	

Table 1b. Socio-demographic characteristics of respondents (n=215).

Variable	Ogbia (Rural)(%)	Yenagoa (Urban) (%)	χ2 (pValue)
Mother's Level of Education			
None	5 (2.3)	3 (1.4)	4.0
Primary	16 (7.4)	17 (7.9)	(0.2596)
Secondary	73 (34.0)	56 (26.0)	
Tertiary	121 (55.3)	139 (64.7)	
Father's Level of Education			
None	10 (4.9)	6 (2.9)	5.5
Primary	12 (5.9)	6 (2.9)	(0.1402)
Secondary	42 (20.7)	58 (27.8)	
Tertiary	139 (68.5)	139 (66.5)	
Mother's Occupation			
Civil servant	53 (25.0)	47 (22.2)	73.5
Private sector/Business	99 (46.7)	42 (19.8)	(0.0001)
Artisan	6 (2.8)	65 (30.7)	
Farmer	17 (8.0)	18 (8.5)	
House wife/unemployed	16 (7.5)	13 (6.1)	
Student	21 (9.9)	27 (12.7)	
Father's Occupation			
Civil servant	99 (49.5)	61 (29.2)	34.3
Private sector/Business	73 (36.5)	86 (41.1)	(0.00002)
Artisan	11 (5.5)	6 (2.9)	
Farmer	6 (3.0)	27 (12.9)	
unemployed	5 (2.5)	20 (9.6)	
Student	6 (3.0)	9 (4.3)	
Number of children			
One	111 (51.6)	47 (22.2)	44.4
Two	47 (21.9)	53 (25.0)	(5.179)
Three	31 (14.4)	57 (26.9)	
Four	14 (6.5)	32(15.1)	
Five and above	12 (5.6)	23 (10.8)	
How far is your home from the nearest health center			
2 hours or less	135 (62.8)	84 (39.6)	57.1
More than 2 hours	35 (16.3)	107 (50.5)	(0.0000)
I don't know	45 (20.9)	21(20.9)	

These differences in the mother's occupations were found to be statistically significant (χ^2 = 73.5; p=0.0001). The majority of the fathers in the Ogbia group were civil servants 99(49.5%), followed closely by private/business owners 73(36.5%) while amongst the Yenagoa group majority of the fathers were private sector/business owners 86(41.1%) followed closely by civil servants 61(29.2%). The differences observed in the occupations of the fathers in both groups were found to be statistically significant (χ^2 = 34.3; p=0.0002).

Table 2a shows that the majority of the Ogbia respondents 124(57.7%) and most of the Yenagoa respondents170(82.5%) had very good knowledge (strongly agree) that convulsion is an emergency during pregnancy; this is followed by those that had good or fair knowledge (agree) Ogbia 44(20.5%) and Yenagoa 33(16.0%); while a small number of the respondents in the Yenagoa group 3(1.5%) were indifferent (not sure) while the Ogbia group had 47(21.9%) with poor knowledge that convulsion is an emergency during pregnancy. The differences observed were statistically significant (χ^2 = 47.3; p=0.0001).

Table 2a. Knowledge of Dangers Signs of Pregnancy

Variable	Ogbia (Rural)(%)	Yenagoa (Urban) (%)	$\chi 2$ (pValue)
Convulsion is an emergency during pregnancy			
Strongly agree	124 (57.7)	170 (82.5)	47.3
Agree	44 (20.5)	33 (16.0)	(0.0001)
Not sure	47 (21.9)	3 (1.5)	
Disagree	0(0)	0(0)	
Strongly disagree	0(0)	0(0)	
Total	215 (100.0)	206 (100.0)	
Vaginal bleeding is an emergency during pregnancy			
Strongly agree	153 (71.2)	174 (84.5)	19.0
Agree	47 (21.9)	32 (15.5)	(0.0007)
Not sure	15 (7.0)	0(0)	
Disagree	0(0)	0(0)	
Strongly disagree	0(0)	0(0)	
Total	215 (100.0)	206 (100.0)	
Abdominal pains and cramps are an emergency during pregnancy			
Strongly agree	113 (52.6)	155 (74.2)	21.3
Agree	70 (32.6)	36 (17.2)	(0.0002)
Not sure	32 (14.9)	18 (8.6)	
Disagree	0(0)	0(0)	
Strongly disagree	0(0)	0(0)	
Total	215 (100.0)	209 (100.0)	
Severe headaches and blurred vision an emergency during pregnancy			
Strongly agree	110 (51.2)	191 (90.1)	70.0
Agree	62 (28.8)	15 (7.1)	0.0001)
Not sure	34 (15.8)	6 (2.8)	
Disagree	0(0)	0(0)	
Strongly disagree	0(0)	0(0)	
Total	215 (100.0)	212 (100.0)	
The absence of fetal movement is an emergency during pregnancy			
Strongly agree	156 (72.6)	189 (89.2)	20.7
Agree	42 (19.5)	20 (9.4)	(0.0003)
Not sure	17 (7.9)	3 (1.4)	
Disagree	0(0)	0(0)	
Strongly disagree	0(0)	0(0)	
Total	215 (100.0)	212 (100.0)	
Edema of the face and hands is an emergency during pregnancy			
Strongly agree	94 (43.7)	169 (80.9)	65.2
Agree	54 (25.1)	24 (11.5)	0.0001)
Not sure	59 (27.4)	13 (6.2)	
Disagree	6 (2.8)	3 (1.4)	
Strongly disagree	2 (0.9)	0(0)	
Total	215 (100.0)	209 (100.0)	

The majority of the respondents were in both the Ogbia group 153(71.2%) and the Yenagoa group 174(84.5%) had very good knowledge (strongly agree) that vaginal bleeding is an emergency during pregnancy; this is followed by those that had good or fair knowledge (agree) Ogbia 47(21.9%) and Yenagoa 32(15.5%); while none of the respondents in the Yenagoa group were indifferent but the Ogbia group had 15(7.0%) that were indifferent about vaginal bleeding as an emergency during pregnancy. None of the respondents in both groups had poor knowledge. The differences observed were statistically significant (χ^2 = 19.0; p=0.0007). The majority of the respondents in both the Ogbia group 113(52.6%) and the Yenagoa group 155(74.2%) had very good knowledge (strongly agree) that abdominal pains and cramps are emergencies during pregnancy; this is followed by those that had good or fair knowledge (agree) Ogbia 70(32.6%) and Yenagoa 36(17.2%); while 18(8.6%) of the respondents in the Yenagoa group were indifferent (not sure) and in the Ogbia group 32(14.9%) were indifferent about abdominal pains and cramps as an emergency during pregnancy. None of the respondents in both groups had poor knowledge. The differences observed were statistically significant (χ^2 = 21.3; p=0.0002). The majority of the respondents in both the Ogbia group 110(51.2%) and most of respondents in the Yenagoa group 191(90.1%) had very good knowledge (strongly agree) that severe headache and blurred vision are emergencies during pregnancy; this is followed by those that had good or fair knowledge (agree) Ogbia 62(28.8%) and Yenagoa 15(7.1%); while 6(2.8%) of the respondents in the Yenagoa group were indifferent (not sure) and in the Ogbia group 34(15.8%) were indifferent about severe headache and blurred vision as an emergency during pregnancy. None of the respondents in both groups had poor knowledge. The differences observed were statistically significant (χ^2 = 70.0; p=0.0001). The majority of the respondents in both the Ogbia group 156(72.6%) and most of the respondents in the Yenagoa group 189(69.2%) had very good knowledge (strongly agree) that the absence of fetal movement is an emergency during pregnancy; this is followed by those that had good or fair knowledge (agree) Ogbia 42(19.5%) and Yenagoa 20(9.4%); while 3(1.4%) of the respondents in the Yenagoa group were indifferent (not sure) and in the Ogbia group 17(7.9%) were indifferent about the absence of fetal movement as an emergency during pregnancy. None of the respondents in both groups had poor knowledge. The differences observed were statistically significant (χ^2 = 20.7; p=0.0003).The majority of the respondents in both the Ogbia group 94(43.7%) and most of the respondents in the Yenagoa group 169(80.9%) had very good knowledge (strongly agree) that the edema of the face and hands is an emergency during pregnancy; this is followed by those that had good or fair knowledge (agree) Ogbia 54(25.1%) and Yenagoa 24(11.5%); while 13(6.2%) of the respondents in the Yenagoa group were indifferent (not sure) and in the Ogbia group 59(27.4%) were indifferent about edema of the face and hands as an emergency during pregnancy.

Table 2b: Knowledge of Dangers Signs of Pregnancy

Variable	Ogbia (Rural)(%)	Yenagoa (Urban) (%)	χ2 (pValue)
High Fever is an emergency during pregnancy			
Strongly agree	92 (42.8)	182 (87.1)	94.0
Agree	68 (31.6)	21 (10.0)	(0.00001)
Not sure	47 (21.9)	6 (2.9)	
Disagree	6 (2.8)	0 (0)	
Strongly disagree	2 (0.9)	0 (0)	
Total	215 (100.0)	209 (100.0)	
Loss of Consciousness is an emergency during Pregnancy			
Strongly agree	156 (72.6)	191 (91.4)	27.1
Agree	39 (18.1)	15 (7.2)	(0.00001)
Not sure	15 (7.0)	3 (1.4)	
Disagree	2 (0.9)	0 (0)	
Strongly disagree	3 (1.4)	0 (0)	
Total	215 (100.0)	209 (100.0)	
Difficulty with Breathing is an emergency during Pregnancy			
Strongly agree	134 (62.3)	179 (85.6)	40.8
Agree	44 (20.5)	27 (12.9)	(0.00001)
Not sure	24 (11.2)	3 (1.4)	
Disagree	11 (5.2)	0 (0)	
Strongly disagree	3 (1.4)	0 (0)	
Total	215 (100.0)	209 (100.0)	
Blurred vision is an emergency			
Strongly agree	85 (39.5)	170 (81.3)	
Agree	56 (26.0)	30 (14.4)	(0.00001)
Not sure	60 (27.9)	9 (4.3)	
Disagree	12 (5.6)	0 (0)	
Strongly disagree	2 (0.9)	0 (0)	
Total	215 (100.0)	209 (100.0)	

The few respondents in both the Ogbia 6(2.8%) and the Yenagoa group 3(1.4%) had poor knowledge (disagree). Two respondents (0.9%) in the Ogbia group had very poor knowledge (strongly disagree) while none of the Yenagoa respondents had very poor knowledge. The differences observed were statistically significant ($\chi^2 = 65.2$; p=0.0001).

Table 2b above shows that the majority of the respondents in both the Ogbia group 92(42.8%) and most of the respondents in the Yenagoa group 182(87.1%) had very good knowledge (strongly agree) that high fever is an emergency during pregnancy; this is followed by those that had good or fair knowledge (agree) Ogbia 68(31.6%) and Yenagoa 21(10.0%); while 6(2.9%) of the respondents in the Yenagoa group were indifferent (not sure) and in the Ogbia group 47(21.9%) were indifferent about high fever as an emergency during pregnancy. A few respondents in the Ogbia 6(2.8%) had poor knowledge (disagree). Two respondents (0.9%) in the Ogbia group had very poor knowledge (strongly disagree) while none of the Yenagoa respondents had poor or very poor knowledge. The differences observed were statistically significant ($\chi^2 = 94.0$; p=0.0001). Most of the respondents in both the Ogbia group 156(72.6%) and the Yenagoa group 191(91.4%) had very good knowledge (strongly agree) that loss of consciousness is an emergency during pregnancy; this is followed by those that had good or fair knowledge (agree) Ogbia 39(18.1%) and Yenagoa 15(7.2%); while 3(1.4%) of the respondents in the Yenagoa group were indifferent (not sure) and in the Ogbia group 15(7.0%) were indifferent about loss of consciousness as an emergency during pregnancy. A few respondents in the Ogbia 2(0.9%) had poor knowledge (disagree). Three respondents (1.4%) in the Ogbia group had very poor knowledge (strongly disagree) while none of the Yenagoa respondents had poor or very poor knowledge. The differences observed were statistically significant ($\chi^2 = 27.1$; p=0.0001).

Most of the respondents in both the Ogbia group 134(62.3%) and the Yenagoa group 179(85.6%) had very good knowledge (strongly agree) that difficulty with breathing is an emergency during pregnancy; this is followed by those who had good or fair knowledge (agree) Ogbia 44(20.5%) and Yenagoa 27(12.9%); while 3(1.4%) of the respondents in the Yenagoa group were indifferent (not sure) and in the Ogbia group 24(11.2%) were indifferent about difficulty with breathing as an emergency during pregnancy. Several respondents in the Ogbia group 11(5.2%) had poor knowledge (disagree). Three respondents (1.4%) in the Ogbia group had very poor knowledge (strongly disagree) while none of the Yenagoa respondents had poor or very poor knowledge. The differences observed were statistically significant ($\chi^2 = 40.8$; p=0.0001). The majority of the respondents in both the Ogbia group 85(39.5%) and most of the respondents in the Yenagoa group 170(81.3%) had very good knowledge (strongly agree) that blurred vision is an emergency during pregnancy; this is followed by those that had good or fair knowledge (agree) Ogbia 56(26.0%) and Yenagoa 30(14.4%); while 9(4.3%) of the respondents in the Yenagoa group were indifferent (not sure) and in the Ogbia group 60(27.9%) were indifferent about blurred vision as an emergency during pregnancy. Some respondents in the Ogbia 12(5.6%) had poor knowledge (disagree). Two respondents (0.9%) in the Ogbia group had very poor knowledge (strongly disagree) while none of the Yenagoa respondents had poor or very poor knowledge. The differences observed were statistically significant ($\chi^2 = 87.8$; p=0.0001). The average level of very good knowledge of danger signs of pregnancy with a score of 50points on the Likert scale with the ten variables as shown in the table 4.4a and 4.4b above shows that the Urban group (Yenagoa) respondents, 84.7% had very good knowledge (Strongly Agree) and the rural group (Ogbia) had 56.6% of their respondents having very good knowledge (Strongly Agree). While, those that have good knowledge of danger signs of

pregnancy with a score of 40points on the Likert scale, in the Ogbia group 24.5% of the respondents had 40points on the Likert scale (Agree) and in the Yenagoa group 12.1% had 40points on the Likert scale and had good knowledge on the average. In the Ogbia group, on the average, 1.7% of the respondents had poor knowledge danger signs of pregnancy (Disagree) with 20points on the Likert scale and 0.7% had very poor knowledge with 10points. None of the respondents in the Yenagoa group had poor or very poor knowledge of danger signs of pregnancy.

DISCUSSION

The average level of knowledge of danger signs of pregnancy with a highest score of 50points on a Likert scale with ten variables showed that 84.7% of the Yenagoa respondents had very good knowledge of danger signs of pregnancy with knowledge of up to ten danger signs of pregnancy as compared with the Ogbia respondents with 56.6% of their respondents having very good knowledge. This is a higher level of knowledge of danger signs of pregnancy in the urban (Yenagoa) when compared to the study on awareness of danger signs of pregnancy done in rural and urban general hospitals in Lagos, Nigeria[10] that reported knowledge levels of 68.4% in the urban respondents, and 62.4% amongst the rural respondents. The knowledge level among the rural respondents in this Lagos study is higher than the 56.6% knowledge level reported by the rural (Ogbia) respondents in this study. A far higher level of knowledge of danger signs of pregnancy was also observed when findings from this study was compared to reports from the study in South-East Nigeria[19] on knowledge of danger signs amongst both urban and rural respondents that reported knowledge of danger signs of 47.4% in the urban and 24.4% amongst the rural respondents. Findings from this study on knowledge of danger signs was higher than many other reported studies that has been carried out in the past, such as the study in the community of Samaru, Northwestern Nigeria[7] that reported that 4.9% had good knowledge; a study in a tertiary hospital in South-Western Nigeria[8] that reported that 27.4% knew key danger signs; a study in Edo State[11] on awareness of danger signs that reported that 49.6% of the respondents had good knowledge of danger signs of pregnancy; and a study in South-West Ethiopia[20] and a study in Tanzania[21] that reported knowledge of danger signs of 43.2% and 31.0% respectively. Overall, the knowledge level of danger signs of pregnancy was found to be generally high when compared to findings from past literature, and this could be attributed to improved health education during antenatal and immunization care services at the primary healthcare centres where this study was conducted.

Conclusion

The knowledge of danger signs of pregnancy in this study was generally high as compared to many previous studies and it was higher in the urban group as compared to the rural group. There is need for more health education especially in the rural areas for more awareness and knowledge for positive behavioral change as regards knowledge of danger signs of pregnancy.

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