

Determinants Of Birth Preparedness And Complication Readiness Among Pregnant Women In Oye-Ekiti, Ekiti State.

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Abstract: *This study examined the determinants of birth preparedness and complication readiness (BP/CR) among pregnant women in Oye-Ekiti, Ekiti State. The objectives of the study were to examine level of knowledge regarding BP/CR among pregnant women; to assess the attitude towards BP/CR among pregnant women; and to evaluate the factors associated with practice of BP/CR among pregnant women. The study employed a quantitative method with the use of questionnaire to obtain relevant data from 384 pregnant women in the area. Descriptive and Inferential statistics such as frequency and percentages, chi-square and logistic regression were used to analyze the data. Findings from the study revealed that, majority of the pregnant women (80%) had adequate knowledge on BP/CR while majority (53%) had unfavorable attitude towards it. The result of the chi-square revealed that majority of socio-economic and demographic characteristics are significantly associated with BP/CR ($p < 0.05$). Result of the logistic regression further revealed that, age, educational qualification, employment status and religion were the major determinant of Birth Preparedness ($p < 0.05$); those who were between 31-40 year ($OR = 0.191$) and above 40 year ($OR = 0.128$) were less likely to prepare for birth. Result further revealed that, employment status, pregnant woman and their husband's educational qualification were the major determinants of Complication Readiness ($p < 0.05$) while employment status, marital status, child birth history, closeness to healthcare center, media exposure, knowledge and attitude were the major determinants of BP/CR ($p < 0.05$). Based on the findings, it was recommended among others that, government and all concern agencies should create various means possible to educate people about the importance of BP/CR and healthcare centers should endeavor to re-orientate and positively influence pregnant women on their attitude towards BP/CR.*

Keywords: Birth preparedness, Complication Readiness, Determinant, Knowledge, Attitude

Introduction

Globally, more than 200 million women become pregnant every year (Gilda et al., 2014). Despite that majority of the pregnancies end with live baby to a healthy mother, in some cases, the event is a time of pain, suffering, and even death. A death due to complications from pregnancy or childbirth is referred to as Maternal Mortality (UNICEF, 2019). This definition is extensively defined by World Health Organization (2018) as “the death of a woman while pregnant or within 42 days of termination of pregnancy, irrespective of the duration and site of the pregnancy, from any cause related to or aggravated by the pregnancy or its management but not from accidental or incidental causes”. It is noted from the definition that, if a woman died from an accident or a health issue that has nothing to do with the pregnancy, then such death cannot be referred to as maternal death.

Maternal mortality is widely acknowledged as a general indicator of the overall health of a population, of the functioning of the health system and of the status of women in society (Measure Evaluation, n.d). There are four measure of maternal mortality, however, maternal mortality ratio (MMR) is the most widely used (Measure Evaluation, n.d). It is defined as the number of maternal deaths during a given time period per 100,000 live births during the same time period. This measure depicts the risk of maternal death relative to the number of live births and essentially captures the risk of death in a single pregnancy or a single live birth (WHO, 2018).

The rate of maternal mortality is unacceptably high worldwide. According to WHO (2019), about 295,000 women died during and following pregnancy and childbirth in 2017. It was further reported that, almost all of these deaths occurred in low-resource settings, and most could have been prevented. Haemorrhage remains the leading cause of maternal mortality, accounting for over one quarter of deaths. Similar proportions of maternal deaths were caused indirectly by pre-existing medical conditions aggravated by the pregnancy. Hypertensive disorders of pregnancy, especially eclampsia, as well as sepsis, embolism and complications of unsafe abortion also claim a substantial number of lives (WHO, 2019).

The prevalence of maternal mortality in some regions of the world mirror unevenness in access to quality health services and highlights the disparity between the poor and rich. The maternal mortality ratio in low income countries in 2017 was 462 per 100,000 live births versus 11 per 100,000 live births in high income countries (UNICEF, 2019). Sub-Saharan Africa and South Asia, account

for 86% of maternal deaths worldwide. Sub-Saharan Africans suffer from the highest maternal mortality ratio – 533 maternal deaths per 100,000 live births, this is equivalent to about 200,000 maternal deaths a year (WHO, 2019).

Maternal death in Nigeria mirrors that of the entire Sub-Saharan Africa because of the country's large population. For instance, the Nigeria Demographic and Health Survey (NDHS) report for Nigeria in 2018 shows that Nigeria has MMR of 512 deaths/100,000 live births with the confidence interval ranges from 447 to 578 deaths/100,000 live birth (NPC, 2019). In the process for removing this tide of maternal mortality ratio, studies on practice of birth-preparedness and complication readiness (BP/CR) are vital.

Birth-preparedness and complication readiness (BP/CR), developed to promote timely utilization of skilled maternal and neonatal care, refers to a process of planning for normal birth and anticipating actions needed in case of emergency. BP/CR planning often includes identifying place of delivery, identifying mode of transportation to place of delivery, making arrangements for blood donors, and saving money for the delivery (Mbonu, 2018). The concept of BP/CR which is one of the key components of Focused Antenatal Care (FANC) encourages sharing the burden of childbirth between mothers, their families, and the community at large. It is a pragmatic approach designed to overcome the three delays causing most maternal deaths worldwide (Okello, 2019). These delays are: delay in deciding to seek care, delay in getting to health facilities, and delay in obtaining care at the health facility (Okello, 2019).

However, it has been reported that the level of knowledge, attitude and practice of BP/CR is low worldwide and this is identified as major factor contributing to maternal morbidity and mortality (WHO, 2017). If mothers had adequate knowledge and practice birth preparedness it would help reduce complications related to birth (WHO, 2017). It is therefore crucial to investigate pregnant women knowledge, attitude and practice of BR/CP in every region. It is on this basis, this study is founded, to know the determinant of pregnant women's knowledge, attitude and practice of BR/CR in Oye-Ekiti.

Statement of the Problem

In Nigeria, maternal mortality remains a public health problem. The country has a Maternal Maternity Ratio (MMR) of 512 deaths per 100,000 live births (NDHS, 2018). This high statistic indicated that the country has failed to meet the Millennium Development Goal No. 5 by 2015 and already embarked on the Sustainable Development Goal No. 3 aiming at reducing global Maternal Mortality Ratio to less than 70% per 100,000 live birth by 2030 (WHO, 2017). Yet, it is unsure that, Nigeria will achieve this global maternal mortality ratio target. The high rate of the maternal mortality in every region of this country has been attributed to delay in deciding to seek care, delay in getting to health facilities, and delay in obtaining care at the health facility. These delays are attributed to pregnant women knowledge, attitude and practice of BP/CR. There are many studies which have been carried out across the world among pregnant women on their knowledge, attitude and practice of BP/CR. However, there is inconsistency among all the studies; while some studies found that pregnant women have adequate knowledge and positive attitude towards BP/CR, other studies found otherwise. This could be attributed to the difference in the study population. Thus, for every specific population, study is required to be carried out to assess the knowledge, attitude and practice of BP/CR among pregnant women. Also, majority of the recent studies did not examine various factors which might be associated with pregnant women's practice of BP/CR. On this basis, this study is conducted to investigate the level of knowledge and attitude towards BP/CR and identify major determinants associated with its practice among pregnant women in Oye-Ekiti.

Research Questions

- i. What is the level of knowledge regarding BP/CR among pregnant women in Oye-Ekiti?
- ii. What attitudes do pregnant women in Oye-Ekiti have towards BP/CR?
- iii. What are the determinants of BP/CR practice among pregnant women in Oye-Ekiti?

Methodology

This study adopted a descriptive research design. This research method involved the selection of a fraction of population under study. The target populations of this study are pregnant women that visited Health Care Centers within the Oye-Ekiti. The study adopted use of sample size determination formula for unknown population size. The formula is given as:

$$\text{Sample Size} = \frac{Z^2 \times \text{Std. Dev}(1 - \text{Std. Dev})}{(\text{Margin of Error})^2}$$

Z: is the standard normal deviation set at 95% confidence level.

Std.Dev: is the level of variance expected in the response.

Margin of error is the confidence interval.

Thus

$$Sample\ Size = \frac{1.96^2 \times 0.5(0.5)}{(0.05)^2} = 384.16$$

Therefore, the selected sample size for this study is 384. In selecting the sample, convenience sampling technique was used, this a type of sampling in which study population are sampled because they are “convenient” sources of data for the researcher.

A structured questionnaire was the major instrument used to obtain data from the respondents. The dependent variable for this study is the pregnant women’s practice of BP/CR. The practice is categorized into two (2), poor practice and good practice of BP/CR. Respondents’ practice is categorized into either of the two based on individual score in Section D of the questionnaire which captures respondent practice of BP/CR. A score below 75% of total score was considered poor while a score of 75% and above was considered good. Poor practice is coded 0 (reference category)

Knowledge of respondents on BP/CR was assessed by asking them questions about things involved in BP/CR. Respondents’ knowledge was categorized into adequate and inadequate. Respondent with adequate knowledge is coded 1 while Inadequate knowledge is coded 0 (reference category). Attitude of respondents toward BP/CR was into two (2), favorable and unfavorable attitude. Respondent with favourable attitude is coded 1 while unfavorable attitude is coded 0 (reference category). The level of exposure is categorized into three (3) which are low exposure, average exposure and high exposure.

In order to accomplish the aim and objectives of this study, various appropriate univariate (descriptive analysis) was used to describe and assess the distribution of respondents socio-demographic characteristics and their knowledge, attitude and practice of birth preparedness and complication readiness, bivariate (chi square) was used to test the association between the independent variable and dependent variable and multivariate (logistic regression) analysis was used to identify significant determinants of birth preparedness and complication readiness practice.

Results

Univariate Analysis

Table 1: Media Exposure

Category	Frequency	Percent
Low	54	14.1
Average	254	66.1
High	76	19.8
Total	384	100

Figure 1: Media Exposure Distribution

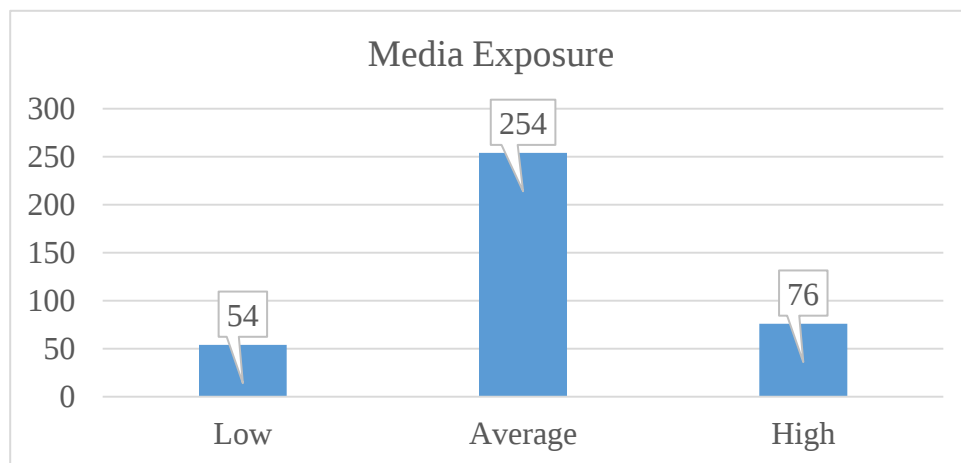


Figure 1 presents the distribution of respondents' media exposure in which they were categorized based on their internet, TV, radio and newspaper/magazine utilization frequency. As shown on the chart, majority of the respondents (66.1%) had an average media exposure followed by high media exposure (19.8%) and low media exposure (14%).

Table 2: Percentage Distribution of Respondents by Knowledge on Danger Signs during Pregnancy, danger signs during labor and danger signs after labor

Knowledge on danger sign during pregnancy	Frequency	Percentage
Bleeding	336	87.5
Fever	145	37.8
Severe headache	116	30.2
Loss of consciousness	153	60.2
Convulsion	206	53.6
Swollen hands/face	179	46.6
Water breaks without labor	292	76.0
Altered fetal growth	173	45.1
Don't know	31	8.1
Knowledge on danger sign during labor		
Severe abdominal pain	238	62.0
Placental not delivered early after baby	305	79.4
Prolonged labor (>12 hours)	287	74.7
Vaginal tearing	112	29.2

Others	101	26.5
Don't know	32	8.3
Knowledge on danger sign after birth		
Severe bleeding	317	82.6
Loss of consciousness	157	40.9
Difficulty in breathing	268	69.8
Severe weakness	234	60.9
Malodorous vaginal discharge	209	54.4
Don't know	19	4.9

Figure 2: Knowledge on Danger Sign during pregnancy

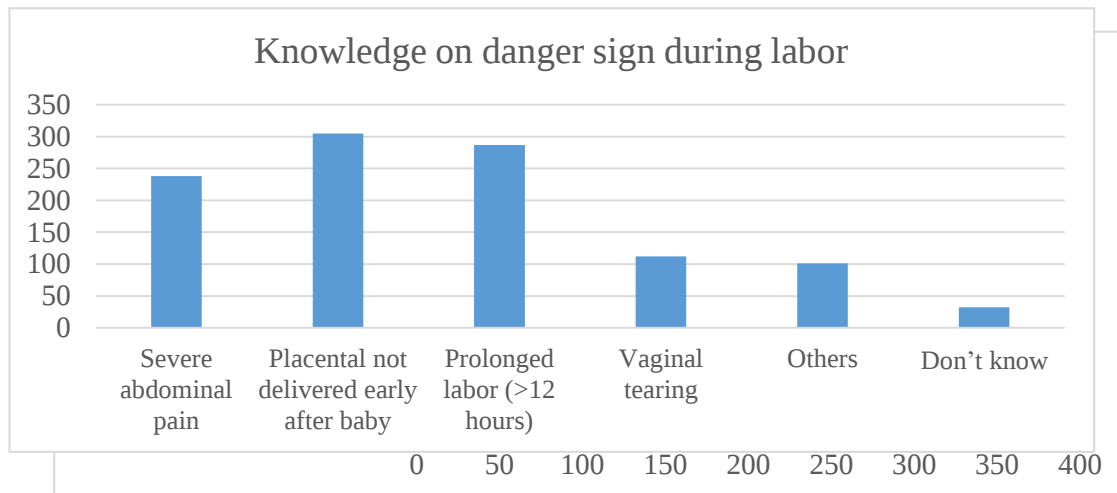


Figure 3: Knowledge on Danger Sign During labour

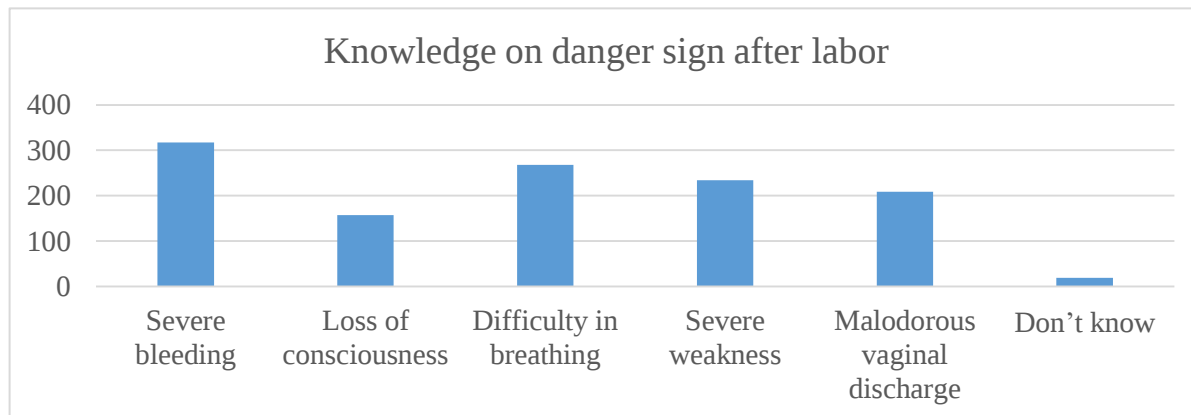


Figure 4: Knowledge on Danger Sign during Labor

Figures 2, 3 and 4 present the frequency distribution of respondents' knowledge on various danger signs during pregnancy, during labor and after birth respectively. On the knowledge on danger sign during pregnancy, 87.5% of the respondents knew about bleeding, 37.8% knew about fever, 30.2% knew about severe headache, 60.2% knew about loss of consciousness, 53.6% know about swollen hands/face, 76% knew about water breaks without labor, 45.1% knew about altered fetal growth and 8.1% did not know of any danger sign. This shows that, among the danger signs during pregnancy: bleeding, water breaks without labor, loss of consciousness and convulsion were the danger signs most commonly known among the respondents.

On the knowledge of danger signs during labor, 62% of the respondents knew about severe abdominal pain, 79.4% knew about placental not delivered early after baby, 74.7% knew about prolonged labor (>12 hours), 29.2% knew about vaginal tearing, 26.5% knew about others and 8.3% did not know any danger sign. This result indicates that, among the danger signs during labor, placental not delivered early after baby, prolonged labor (>12 hours) and abdominal pain

were the widely known danger sign among the respondents.

On the knowledge on danger sign after birth, 82.6% of the respondents knew about sever bleeding, 40.9% knew about loss of consciousness, 69.8% knew about difficulty in breathing, 60.9% knew about severe weakness and 54.4% knew about malodorous vaginal discharge and 4.9% did not know of any danger sign. This shows that, majority of the danger signs after birth were widely known about the respondents.

Table 3: Percentage Distribution of Knowledge on Birth Preparedness/Complication Readiness

Status	Frequency	Percent
Inadequate	78	20.3
Adequate	306	79.7
Total	384	100

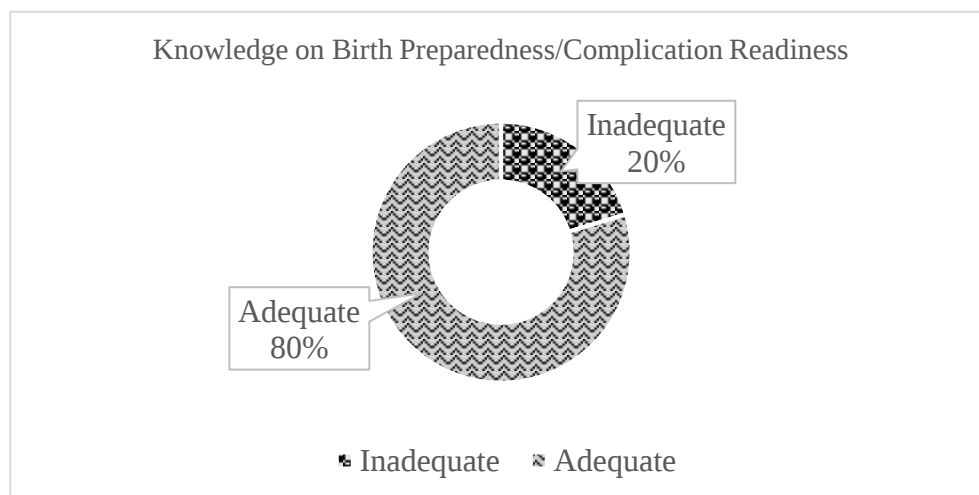


Figure 5: Knowledge towards Birth Preparedness/Complication Readiness

Figure 5 presents the distribution of respondents' knowledge, attitude and BP/CR status respectively. As shown in figure 5, 80% of the respondents had adequate knowledge on BP/CR while 20% had inadequate knowledge on BP/CR. This indicates that, majority of the respondents had an adequate knowledge on BP/CR.

Table 4: Percentage Distribution of Attitude towards Birth Preparedness/Complication Readiness

Status	Frequency	Percent
Unfavourable	204	53.1
Favorable	180	46.9
Total	384	100

Figure 6: Attitude on Birth Preparedness/Complication Readiness

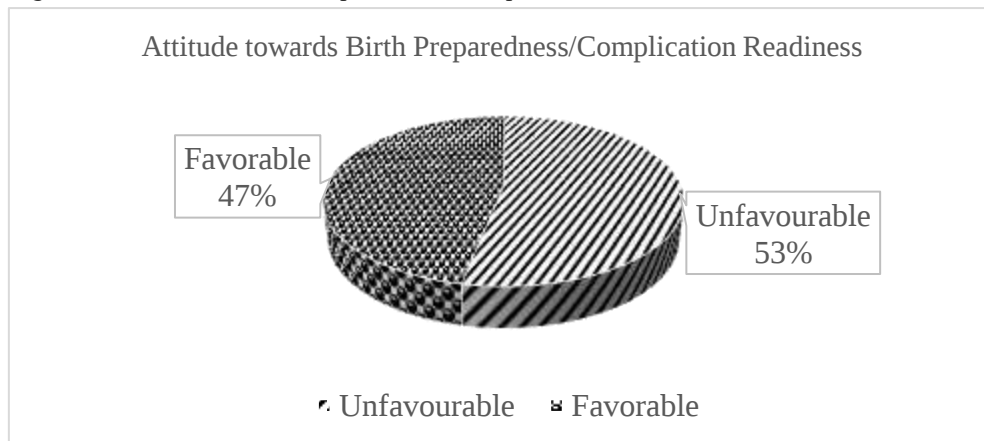


Figure 6 shows that, 47% of the respondents had a favorable attitude towards BP/CR while 53% had unfavorable attitude towards BP/CR. This shows that, most of the respondents had unfavorable attitude toward BP/CR.

Table 5: Percentage Distribution of Birth Preparedness/Complication Readiness Status

Status	Frequency	Percent
Poor	168	43.8
Good	216	56.3
Total	384	100

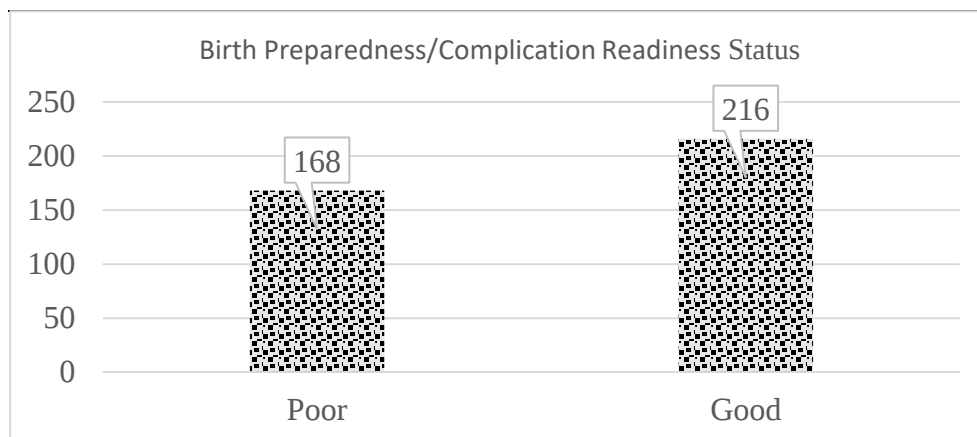


Figure 7: Birth Preparedness/Complication Readiness Status

As shown in figure 7, out of the 384 respondents, 168 (43.7%) had poor BP/CR while 216 (57.3%) had good BP/CR. This shows that, majority of the respondents had a good birth preparedness and complication readiness.

4.7 Bivariate Analysis

In this section, the significant association between each independent variable and the dependent variable were examined using Pearson Chi-square test. The decision on whether or not to reject the null hypothesis of no significant association is being made at 5% alpha level.

Table 6: Socio-Economic and Demographics and Birth Preparedness

Variables	Birth Preparedness		χ^2	df	P-value
	Poor	Good			
Age					
Below 20 years	24	20	20.517	3	0.000
	54.50%	45.50%			
20-30 years	47	114			
	29.20%	70.80%			
31-40 years	59	88			
	40.10%	59.90%			
Above 40 years	21	11			
	65.60%	34.40%			
Educational qualification					
No formal education	17	33	53.717	3	0.000
	34.00%	66.00%			
Primary education	32	10			
	76.20%	23.80%			
Secondary education	82	92			
	47.10%	52.90%			
Tertiary education	20	98			
	16.90%	83.10%			
Husband educational qualification					
No formal education	6	19	33.127	3	0.000
	24.00%	76.00%			
Primary education	10	19			
	34.50%	65.50%			
Secondary education	86	65			
	57.00%	43.00%			
Tertiary education	49	130			
	27.40%	72.60%			
Employment status					
Unemployed	44	38	21.384	2	0.000
	53.70%	46.30%			
Civil servant	22	80			
	21.60%	78.40%			
Self-employed	85	115			

	42.50%	57.50%			
Religion					
Islam	60	93	2.809	2	0.245
	39.20%	60.80%			
Christianity	75	126			
	37.30%	62.70%			
Traditional/others	16	14			
	53.30%	46.70%			
Marital status					
Unmarried	29	47	0.943	2	0.624
	38.20%	61.80%			
Married	106	168			
	38.70%	61.30%			
Separated/widowed	16	18			
	47.10%	52.90%			
Average monthly income					
Below ₦ 50,000	99	106	18.695	2	0.000
	48.30%	51.70%			
#50,000-100,000	44	88			
	33.30%	66.70%			
Above ₦ 100,000	8	39			
	17.00%	83.00%			

Table 4.7 shows the contingency table and respective result of chi-square test of association between various socio-economic/demographic and birth preparedness of respondents. As shown on the table, there was significant association between various socio-economic as well as demographic characteristics and birth preparedness ($p < 0.05$) except for religion and marital status which had no significant association with birth preparedness ($p > 0.05$). The results are further explained below.

As shown on the association between age and birth preparedness, 54.50% of respondents below 20 years had poor birth preparedness, 29.20% of those age 20-30 years had poor birth preparedness, 40.10% of those age 31-40 years had poor birth preparedness and 65.60% of above 40 years had poor birth preparedness. The chi-square test result indicates that, age had a significant association with birth preparedness ($\chi^2 = 20.517$, $p\text{-value} < 0.05$).

Regarding association between educational qualification and birth preparedness, 34.00% of the respondents with no formal education had poor birth preparedness, 76.20% with primary education had poor birth preparedness, 47.10% with secondary education had poor birth preparedness and 16.90% with tertiary education had poor birth preparedness. The chi-square test result indicates that, educational qualification had a significant association with birth preparedness ($\chi^2 = 53.717$, $p\text{-value} < 0.05$).

In regard to association between husband educational qualification and birth preparedness, 24.00% of respondents whose husband had no formal education had poor birth preparedness, 34.50% of those whose husband had primary education had birth preparedness, 57.00% of those whose husband had secondary education had poor birth preparedness and 27.40% of those whose husband had tertiary education had birth preparedness. The chi-square test result indicates that, husband education qualification had a significant association with birth preparedness ($\chi^2 = 33.127$, $p\text{-value} < 0.05$).

On the association between employment status and birth preparedness, 53.70% of the respondents that were unemployed had poor birth preparedness. 21.60% of those who were civil servant had poor birth preparedness. 42.50% of those who were self-employed had poor birth preparedness. The chi-square test result indicates that, employment status had a significant association with birth preparedness ($\chi^2 = 21.384$, $p\text{-value} < 0.05$).

Regarding the association between religion and birth preparedness, 39.20% of those practicing Islam had poor birth preparedness. 37.30% of those practicing Christianity had poor birth preparedness and 53.30% of those practicing Traditional/Others religion had poor birth preparedness. The chi-square test result indicates that, religion had no significant association with birth preparedness ($\chi^2=2.809$, p-value<0.05).

On the assessment of association between marital status and birth preparedness, 38.20% of those unmarried had poor birth preparedness while 38.70% of those married had poor birth preparedness and 47.10% of those separated/widowed had poor birth preparedness. The chi-square test result indicates that, marital status had no significant association with birth preparedness ($\chi^2=0.943$, p-value<0.05).

Regarding the association between average monthly income and birth preparedness, 48.30% of those earning below #50,000 had poor birth preparedness, 33.30% of those earning between #50,000-#100,000 had poor birth preparedness and 17.00% of those earning above #100,000 had poor birth preparedness. The chi-square test result indicates that, average monthly income had a significant association birth preparedness ($\chi^2=18.695$, p-value<0.05).

Table 7: Socio-Economic and Demographics and Complication Readiness

Variables	Complication Readiness		χ^2	df	P-value
	Poor	Good			
Age					
Below 20 years	37	7	44.948	3	0.000
	84.10%	15.90%			
20-30 years	74	87			
	46.00%	54.00%			
31-40 years	42	105			
	28.60%	71.40%			
Above 40 years	18	14			
	56.30%	43.80%			
Educational qualification					
No formal education	47	3	121.429	3	0.000
	94.00%	6.00%			
Primary education	35	7			
	83.30%	16.70%			
Secondary education	73	101			
	42.00%	58.00%			
Tertiary education	16	102			
	13.60%	86.40%			
Husband educational qualification					
No formal education	18	7	81.263	3	0.000
	72.00%	28.00%			
Primary education	25	4			
	86.20%	13.80%			

Secondary education	90	61			
	59.60%	40.40%			
Tertiary education	38	141			
	21.20%	78.80%			
Employment status					
Unemployed	63	19	86.047	2	0.000
	76.80%	23.20%			
Civil servant	10	92			
	9.80%	90.20%			
Self-employed	98	102			
	49.00%	51.00%			
Religion					
Islam	80	73	8.907	2	0.012
	52.30%	47.70%			
Christianity	75	126			
	37.30%	62.70%			
Traditional/others	16	14			
	53.30%	46.70%			
Marital status					
Unmarried	57	19	35.635	2	0.000
	75.00%	25.00%			
Married	101	173			
	36.90%	63.10%			
Separated/widowed	13	21			
	32.30%	67.70%			
Average monthly income					
Below #50,000	133	72	85.336	2	0.000
	64.90%	35.10%			
#50,000-100,000	38	94			
	28.80%	71.20%			
Above #100,000	0	47			
	9.20%	90.80%			

Table 7 shows the contingency table and respective result of chi-square test of association between various socio-economic/demographic and complication readiness of respondents. The table shows that there exist a significant association between socio-economic as well as demographic characteristics and complication readiness ($p < 0.05$). The results are further explained below.

As shown on the association between age and complication readiness, 84.10% of respondents below 20 years had poor complication readiness, 46.00% of those age 20-30 years had poor complication readiness, 28.60% of those age 31-40 years had poor complication readiness and 56.30% of above 40 years had poor complication readiness. The chi-square test result indicates that, age had a significant association with complication readiness ($\chi^2=44.948$, p-value<0.05).

Regarding association between educational qualification and complication readiness, 94.00% of the respondents with no formal education had poor complication readiness, 83.30% with primary education had poor complication readiness, 42.00% with secondary education had poor complication readiness and 13.60% with tertiary education had poor complication readiness. The chi-square test result indicates that, educational qualification had a significant association with complication readiness ($\chi^2=121.429$, p-value<0.05).

In regard to association between husband educational qualification and complication readiness, 72.00% of respondents whose husband had no formal education had poor complication readiness, 86.20% of those whose husband had primary education had complication readiness, 59.60% of those whose husband had secondary education had poor complication readiness and 21.20% of those whose husband had tertiary education had complication readiness. The chi-square test result indicates that, husband education qualification had a significant association with complication readiness ($\chi^2=81.263$, p-value<0.05).

On the association between employment status and complication readiness, 76.80% of the respondents that were unemployed had poor complication readiness. 9.80% of those who were civil servant had poor complication readiness. 49.00% of those who were self-employed had poor complication readiness. The chi-square test result indicates that, employment status had a significant association with complication readiness ($\chi^2=86.047$, p-value<0.05).

Regarding the association between religion and complication readiness, 52.30% of those practicing Islam had poor complication readiness. 37.30% of those practicing Christianity had poor complication readiness and 53.30% of those practicing Traditional/Others religion had poor complication readiness. The chi-square test result indicates that, religion had a significant association with complication readiness ($\chi^2=8.907$, p-value<0.05).

On the assessment of association between marital status and complication readiness, 75.00% of those unmarried had poor birth preparedness while 36.90% of those married had poor complication readiness and 32.30% of those separated/widowed had poor complication readiness. The chi-square test result indicates that, marital status had a significant association with complication readiness ($\chi^2=35.635$, p-value<0.05).

Regarding the association between average monthly income and complication readiness, 64.90% of those earning below #50,000 had poor complication readiness, 28.80% of those earning between #50,000-#100,000 had poor complication readiness and 9.20% of those earning above #100,000 had poor complication readiness. The chi-square test result indicates that, average monthly income had a significant association with complication readiness ($\chi^2=85.336$, p-value<0.05).

Table 8: Socio-Economic and Demographics and Attitude

Variables	Attitude		χ^2	Df	P-value
	Unfavorable	Favorable			
Age					
Below 20 years	29	15	3.727	3	0.292
	65.90%	34.10%			
20-30 years	86	75			
	53.40%	46.60%			
31-40 years	73	74			
	49.70%	50.30%			
Above 40 years	16	16			
	50.00%	50.00%			
Educational qualification					

No formal education	50	0	88.540	3	0.000
	100.00%	0.00%			
Primary education	30	12			
	71.40%	28.60%			
Secondary education	95	79			
	54.60%	45.40%			
Tertiary education	29	89			
	24.60%	75.40%			
Husband educational qualification					
No formal education	22	3	29.037	3	0.000
	88.00%	12.00%			
Primary education	25	4			
	86.20%	13.80%			
Secondary education	72	79			
	47.70%	52.30%			
Tertiary education	85	94			
	47.50%	52.50%			
Employment status					
Unemployed	57	25	17.985	2	0.000
	69.50%	30.50%			
Civil servant	39	63			
	38.20%	61.80%			
Self-employed	108	92			
	54.00%	46.00%			
Religion					
Islam	83	70	0.141	2	0.932
	54.20%	45.80%			
Christianity	105	96			
	52.20%	47.80%			
Traditional/others	16	14			
	53.30%	46.70%			
Marital status					
Unmarried	62	14	30.867	2	0.000
	81.60%	18.40%			
Married	127	147			
	46.40%	53.60%			

Separated/widowed	15	19			
	44.10%	55.90%			
	62	14			
Average monthly income					
Below #50,000	126	79	22.692	2	0.000
	61.50%	38.50%			
#50,000-100,000	67	65			
	50.80%	49.20%			
Above #100,000	11	36			
	23.40%	76.60%			
	126	79			

Table 4.9 shows the contingency table and respective result of chi-square test of association between various socio-economic/demographic and attitude towards BP/CR. The table shows that there exist a significant association between socio-economic as well as demographic characteristics and attitude towards BP/CR ($p < 0.05$) except for age and religion. The results are further explained below.

As shown on the association between age and attitude towards BP/CR, 65.90% of respondents below 20 years had unfavorable attitude towards BP/CR, 53.40% of those age 20-30 years had unfavorable attitude towards BP/CR, 49.70% of those age 31-40 years had unfavorable attitude towards BP/CR and 50.00% of above 40 years had unfavorable attitude towards BP/CR. The chi-square test result indicates that, age had no significant association with attitude towards BP/CR ($\chi^2 = 3.727$, $p\text{-value} < 0.05$).

Regarding association between educational qualification and attitude towards BP/CR, 100.00% of the respondents with no formal education had unfavorable attitude towards BP/CR, 71.40% with primary education had unfavorable attitude towards BP/CR, 54.60% with secondary education had unfavorable attitude towards BP/CR and 24.60% with tertiary education had poor attitude towards BP/CR. The chi-square test result indicates that, educational qualification had a significant association with attitude towards BP/CR ($\chi^2 = 88.540$, $p\text{-value} < 0.05$).

In regard to association between husband educational qualification and attitude towards BP/CR, 88.00% of respondents whose husband had no formal education had unfavorable attitude towards BP/CR, 86.20% of those whose husband had primary education had unfavorable attitude towards BP/CR, 47.70% of those whose husband had secondary education had unfavorable attitude towards BP/CR and 47.50% of those whose husband had tertiary education had unfavorable attitude towards BP/CR. The chi-square test result indicates that, husband education qualification had a significant association with attitude towards BP/CR ($\chi^2 = 29.037$, $p\text{-value} < 0.05$).

On the association between employment status and attitude towards BP/CR, 69.50% of the respondents that were unemployed had unfavorable attitude towards BP/CR. 38.20% of those who were civil servant had unfavorable attitude towards BP/CR. 54.00% of those who were self-employed had unfavorable attitude towards BP/CR. The chi-square test result indicates that, employment status had a significant association with attitude towards BP/CR ($\chi^2 = 17.985$, $p\text{-value} < 0.05$).

Regarding the association between religion and attitude towards BP/CR, 54.20% of those practicing Islam had unfavorable attitude towards BP/CR. 52.20% of those practicing Christianity had unfavorable attitude towards BP/CR and 53.30% of those practicing Traditional/Others religion had unfavorable attitude towards BP/CR. The chi-square test result indicates that, religion had no significant association with attitude towards BP/CR ($\chi^2 = 0.141$, $p\text{-value} < 0.05$).

On the assessment of association between marital status and attitude towards BP/CR, 81.60% of those unmarried had unfavorable attitude towards BP/CR while 46.40% of those married had unfavorable attitude towards BP/CR and 44.10% of those separated/widowed had unfavorable attitude towards BP/CR. The chi-square test result indicates that, marital status had a significant association with attitude towards BP/CR ($\chi^2 = 30.867$, $p\text{-value} < 0.05$).

Regarding the association between average monthly income and attitude towards BP/CR, 61.50% of those earning below #50,000 had unfavorable attitude towards BP/CR, 50.80% of those earning between #50,000-#100,000 had unfavorable attitude towards

BP/CR and 24.40% of those earning above #100,000 had unfavorable attitude towards BP/CR. The chi-square test result indicates that, average monthly income had a significant association attitude towards BP/CR ($\chi^2=22.692$, p-value<0.05).

Table 9: Intervening Variables and Birth Preparedness and Complication Readiness

Variable	BP/CR				
	Poor	Good	χ^2	df	P-value
Child birth history					
Haven't given birth before	92 59.40%	63 40.60%	25.718	1	0.000
Have given birth before	76 33.20%	153 66.80%			
Average monthly income					
Below #50,000	136 66.30%	69 33.70%	93.477	2	0.000
#50,000-100,000	28 21.20%	104 78.80%			
Above #100,000	4 8.50%	43 91.50%			
Closeness to healthcare center					
Near	53 43.10%	70 56.90%	0.918	2	0.632
Not too far	72 46.50%	83 53.50%			
Far	43 40.60%	63 59.40%			
Healthcare affordability					
No	100 76.90%	30 23.10%	87.884	1	0.000
Yes	68 26.80%	186 73.20%			
Media exposure					
Low	47 87.00%	7 13.00%	67.606	2	0.000
Average	110 43.30%	144 56.70%			
High	11 14.50%	65 85.50%			
Knowledge					
Inadequate	66 84.60%	12 15.40%	66.422	1	0.000
Adequate	102 33.30%	204 66.70%			
Attitude					
Unfavorable	128 62.70%	76 37.30%	63.807	1	0.000
Favorable	40 22.20%	140 77.80%			

Table 9 shows the contingency table and respective result of chi-square test of association between intervening variables and BP/CR. The table shows that there exist significant association between all the intervening variables and attitude towards BP/CR ($p < 0.05$) except for closeness to healthcare center. The results are further explained. On the assessment of association between child birth history and BP/CR, 59.40% of those that have not given birth before had poor BP/CR while 33.20% of those that have given birth before had poor BP/CR. The chi-square test result indicates that, child birth history had a significant association with BP/CR ($\chi^2 = 25.718$, $p\text{-value} < 0.05$).

Regarding the association between average monthly income and BP/CR, 66.30% of those earning below #50,000 had poor BP/CR, 21.20% of those earning between #50,000–#100,000 had poor BP/CR and 8.50% of those earning above #100,000 had poor BP/CR. The chi-square test result indicates that, average monthly income had a significant association with BP/CR ($\chi^2 = 93.477$, $p\text{-value} < 0.05$). On the association between closeness to healthcare center and BP/CR, 43.10% of those near to healthcare had poor BP/CR, 46.50% of those not too far had poor BP/CR and 40.60% of those far had BP/CR. The chi-square test result indicates that, closeness to healthcare center had a significant association with BP/CR ($\chi^2 = 0.918$, $p\text{-value} > 0.05$).

In regard to healthcare service affordability, 76.90% of those that cannot afford healthcare service had poor BP/CR while 26.80% of those that can afford healthcare service had poor BP/CR. The chi-square test result indicates that, health affordability had a significant association with BP/CR ($\chi^2 = 87.884$, $p\text{-value} < 0.05$). On the association between media exposure and BP/CR, 870% of those with low media had BP/CR, 43.3% of those with average media exposure had poor BP/CR and 14.50% of those with high media exposure had BP/CR. The chi-square test result indicates that, media exposure had a significant association with BP/CR ($\chi^2 = 67.606$, $p\text{-value} < 0.05$).

Regarding the association between knowledge and BP/CR, 84.6% of those with inadequate knowledge had poor BP/CR and 33.3% of those with adequate knowledge had poor BP/CR. The chi-square test result indicates that, knowledge had a significant association with BP/CR ($\chi^2 = 66.422$, $p\text{-value} < 0.05$). On the association between attitude and BP/CR, 62.70% of those with unfavorable attitude had poor BP/CR while 22.20% of those with favorable attitude had poor BP/CR. The chi-square test result indicates that, attitude had a significant association with BP/CR ($\chi^2 = 63.807$, $p\text{-value} < 0.05$).

Multivariate Analysis

In this section, the binary logistic regression analysis is carried out to determine the major socio-economic, demographic and intervening variable predicting Birth Preparedness, Complication Readiness, and Birth Preparedness and Complication Readiness. For the dependent variable, *poor BP, CR and BP/CR* is used as the *reference category* while the *first group* in each of the predictor variable is used as the *reference category*. The predictor variables found to be significant are considered the major determinants of the dependent variable.

Table 10: Binary Logistic Regression Birth Preparedness

Variables	Odd Ratio (OR)	P-value	95% C.I. for EXP(B)	
			Lower	Upper
Age				
Below 20 years	RC			
20-30 years	0.726	0.546	0.258	2.049
31-40 years	0.191	0.009*	0.055	0.662
Above 40 years	0.128	0.003*	0.033	0.504
Educational qualification				
No formal education	RC			
Primary education	0.203	0.014*	0.057	0.721
Secondary	0.753	0.628	0.239	2.373

Tertiary	3.029	0.084	0.862	10.651
Husband's educational qualification				
No formal education	RC			
Primary education	1.335	0.705	0.300	5.945
Secondary	0.288	0.082	0.071	1.171
Tertiary	0.580	0.488	0.124	2.706
Employment status				
Unemployed	RC			
Civil servant	12.683	0.000*	3.532	45.545
Self-employed	7.481	0.000*	2.787	20.081
Religion				
Islam	RC			
Christianity	0.514	0.031*	0.281	0.941
Traditional/Others	0.305	0.031*	0.104	0.896
Marital status				
Unmarried	RC			
Married	0.518	0.167	0.204	1.316
Separated/widowed	0.683	0.551	0.195	2.389
Average monthly income				
Below ₦ 50,000	RC			
₦50,000- ₦ 100,000	1.324	0.447	0.643	2.726
Above ₦ 100,000	1.092	0.882	0.342	3.485

Table 10 presents the result of the binary logistic regression analysis on the major predictors of Birth Preparedness using (p-value<0.05). The results of the significant predictors are further explained below.

The respondents who fall in the age group “31-40” years are less (OR=0.191) likely to prepared for birth while the respondents who fall in the age group “Above 40” years are also less (OR=0.128) likely to prepared for birth. As regard educational qualification, those in the primary educational qualification are less (OR=0.203) likely to prepared for birth. With respect to employment status, those who were civil servant are more (OR=12.683) likely to prepared for birth while those who were self-employed are also more (OR=7.481) likely to prepared for birth. Information regarding religion, those who practiced Christianity are less (OR=0.514) likely to prepared for birth while those who practiced traditional/others are also less (OR=0.305) likely to prepared for birth.

Table 11: Binary Logistic Regression Complication Readiness

Variables	Odd Ratio	P-value	95% C.I. for EXP(B)
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	(OR)		Lower	Upper
Age				
Below 20 years	RC			
20-30 years	3.520	0.064	0.930	13.323
31-40 years	3.506	0.091	0.817	15.044
Above 40 years	2.665	0.207	0.581	12.234
Educational qualification				
No formal education	RC			
Primary education	6.435	0.057	0.944	43.882
Secondary	46.479	0.000*	7.231	298.763
Tertiary	91.222	0.000*	13.383	621.807
Husband's educational qualification				
No formal education	RC			
Primary education	0.074	0.014*	0.009	0.597
Secondary	0.053	0.001*	0.009	0.313
Tertiary	0.084	0.011*	0.012	0.569
Employment status				
Unemployed	RC			
Civil servant	4.186	0.038*	1.084	16.175
Self-employed	1.267	0.632	0.481	3.338
Religion				
Islam	RC			
Christianity	1.407	0.296	0.742	2.668
Traditional/Others	1.330	0.677	0.347	5.095
Marital status				
Unmarried	RC			
Married	2.056	0.132	0.804	5.254
Separated/widowed	1.582	0.484	0.437	5.725
Average monthly income				
Below ₦ 50,000	RC			

₦50,000- ₦ 100,000	0.996	0.991	0.467	2.123
Above ₦ 100,000	2.76E+08	0.997	0.000	.

Table 11 presents the result of the binary logistic regression analysis on the major predictors of Complication Readiness using (p-value<0.05). The results of the significant predictors are further explained below.

Regarding educational qualification, those who had secondary educational qualification are more (OR=46.479) likely to have complication readiness while those who had tertiary educational qualification are also more (OR=91.222) likely to have complication readiness. Information regarding husband's educational qualification, those who had primary educational qualification are less (OR=0.074) likely to have complication readiness while those who had secondary educational qualification are also less (OR=0.053) likely to have complication readiness and those who had tertiary educational qualification are also less (OR=0.083) likely to have complication readiness. With respect to employment status, those who were civil servant are more (OR=4.186) likely to have complication readiness.

Table 12: Binary Logistic Regression Birth Preparedness and Complication Readiness

Variables	Odd Ratio (OR)	P-value	95% C.I. for EXP(B)	
			Lower	Upper
Age				
Below 20 years	RC			
20-30 years	1.013	0.986	0.242	4.244
31-40 years	0.207	0.055	0.041	1.031
Above 40 years	0.332	0.211	0.059	1.870
Educational qualification				
No formal education	RC			
Primary education	1.52E+08	0.997	0.000	.
Secondary	1.60E+09	0.997	0.000	.
Tertiary	7.02E+09	0.996	0.000	.
Husband's educational qualification				
No formal education	RC			
Primary education	0.193	0.300	0.009	4.350
Secondary	0.204	0.112	0.029	1.450
Tertiary	0.580	0.613	0.070	4.797
Employment status				
Unemployed	RC			
Civil servant	14.671	0.001*	2.948	73.002

Self-employed	6.370	0.002*	1.932	21.005
Religion				
Islam	RC			
Christianity	0.762	0.488	0.353	1.644
Traditional/Others	0.951	0.950	0.200	4.526
Marital status				
Unmarried	RC			
Married	6.077	0.001*	2.098	17.606
Separated/widowed	6.506	0.011*	1.524	27.772
Average monthly income				
Below ₦50,000	RC			
₦50,000- ₦ 100,000	2.370	0.072	0.925	6.074
Above ₦100,000	1.060	0.939	0.239	4.712

Table 12 presents the result of the binary logistic regression analysis on the major predictors of Birth Preparedness and Complication Readiness using (p-value<0.05). The results of the significant predictors are further explained below.

Regarding employment status, those who were civil servant are more (OR=14.671) likely to have birth preparedness and complication readiness while those who were self-employed are also more (OR=6.370) likely to have birth preparedness and complication readiness. Information regarding marital status, those who were married are more (OR=6.077) likely to have birth preparedness and complication readiness while those who were separated/widowed are also more (OR=6.506) likely to have birth preparedness and complication readiness.

Table 13: Binary Logistic Regression of the Intervening Variable and BP/CR

Variables	Odd Ratio (OR)	P-value	95% C.I. for EXP(B)	
			Lower	Upper
Child birth history				
Haven't given birth before	RC			
Have given birth before	1.725	0.065	0.966	3.082
Closeness				
Near	RC			
Not too far	1.209	0.565	0.633	2.310
Far	2.291	0.029*	1.089	4.820
Affordability				
No	RC			

Yes	7.952	0.000*	4.303	14.697
Media exposure				
Low	RC			
Average	10.693	0.000*	4.039	28.311
High	16.803	0.000*	5.242	53.860
Knowledge				
Inadequate	RC			
Adequate	4.897	0.000*	2.229	10.759
Attitude				
Unfavorable	RC			
Favorable	3.546	0.000*	1.962	6.409

Table 13 presents the result of the binary logistic regression analysis on the intervening variable role in predicting Birth Preparedness and Complication Readiness using (p-value<0.05). The results of the significant predictors are further explained below.

Regarding child birth history, those who had given birth before are more (OR=1.725) likely to have birth preparedness and complication readiness. Information regarding, those who were far to health center are more (OR=2.291) likely to have birth preparedness and complication readiness. In terms of affordability, those who could afford health center are more (OR=7.952) likely to have birth preparedness and complication readiness. Regarding media exposure, those who had average media exposure are more (OR=10.693) likely to have birth preparedness and complication readiness while those who had high media exposure are also more (OR=16.803) likely to have birth preparedness and complication readiness. As regard to knowledge on BP/CR, those had adequate knowledge are more (OR=4.879) likely to have birth preparedness and complication readiness. As regard to attitude towards BP/CR, those who had favorable are more (OR=3.546) likely to have birth preparedness and complication readiness.

Discussion of Findings

To begin with, it was found that majority have knowledge of BP/CR. Despite high level of adequate knowledge on BP/CR among the respondents, finding further shows that majority had unfavorable attitude towards it. This is contrary to findings by Okello and Akatuhurira (2019) which found that majority of the prime gravid mothers attending Bwindi hospital had inadequate knowledge of BP/CR but most having positive attitude towards it. The dissimilarity of this findings may be due to disparity in study location.

It was found that, socio-economic and demographic characteristics were significantly associated with Birth Preparedness and Complication Readiness. From the result of association between age and Birth Preparedness and Complication Readiness, it was observed that, the percentage of respondents below 20 years who had poor BP/CR is very high. The higher percentage observed among the group may be attributed to the fact that, most of the teenagers had an unplanned pregnancy; thus, negatively affecting their BP/CR. However, this contradict the finding by Mbonu (2018) which found insignificant association between age and BP/CR. Findings revealed that educational qualification of the respondents and that of their husband have a significant association with BP/CR. Regarding complication readiness results, it can be observed that, those with no formal education with poor complication readiness is very high, also the percentage was lower based on the level of education. This indicates that level of education is playing a role in Complication Readiness i.e. the higher the educational qualification the lower the percentage of poor complication readiness. This is similar to finding in the study by Mbonu (2018).

Employment status also was found to be significantly associated with BP/CR. The results revealed that higher percentage of unemployed had a poor BP/CR. Civil servant had a very low percentage of poor BP/CR. This may be because majority of civil servant are literate and previously, educational qualification had been found to be associated with BP/CR. For religion, it was found to be insignificantly associated with Birth Preparedness but significantly associated with complication readiness. This may be attributed to difference in religious belief on pregnancy and child birth. There is a common saying and belief in the area and many

part of the Yorubaland that “*Akole tigbe*” meaning that what is destined will surely come to pass. Thus, this may influence some people in a way that whether or not they plan for their child birth what God has destined to happen to them and their unborn child will surely happen. However, this finding is against finding by Mbonu (2018) which found insignificant association between religion and BP/CR.

Marital status was also found to be insignificantly associated with Birth Preparedness but significantly associated with Complication Readiness with majority of those unmarried having poor Complication Readiness. This can be connected to teenage pregnancy and unplanned pregnancy because majority of the unmarried got pregnant without initial plan for it and this may affect having proper Complication Readiness. This is in agreement with finding by Mbonu (2018). Average monthly income was found have significant association with BP/CR and from the result it can be observed that the those with average income below #50,000 have higher percentage of poor BP/CR. Most of these findings are in consonance with study by August et al. (2015) which found that, poverty, some traditional belief and stigma towards unmarried women hinder BP/CR. Those with income higher than #50,000 have lower percentage of poor BP/CR. This indicates that, those earning high income tends to have good BP/CR than their counterpart with lower income. This finding is similar to Gurmesa et al. (2014) which found significant association between lack of money and reasons for not using skilled care and preparing for birth.

Regarding the intervening variables, child birth history was found to be significantly associated with BP/CR. Majority of those that haven't given birth before was found to have poor BP/CR. This simply may be because they have no prior experience of child birth. This is also in consonance with finding by Mbonu (2018). Closeness to healthcare center, this is the only intervening variable found not to have significant association with BP/CR. This implies that regardless the distance of hospital, it has no association with whether or not one have good BP/CR. Healthcare affordability found to have significant association with BP/CR. It can be observed that higher percentage of those that cannot afford healthcare service had poor BP/CR. This can be attributed to the fact that, they barely have the financial capacity to visit healthcare center more often in which can make them aware of various aspect of BP/CR. Also, media exposure was found to have significant association with BP/CR. It can be observed that, majority of those with low exposure had poor BP/CR. However, those with high media exposure had very low percentage of poor BP/CR. This result may be due to the fact that, the higher one is exposed to media the more they become aware and expose to trends and uncommon knowledge.

Knowledge and attitude were also found to be significantly associated with BP/CR. For knowledge it is observed that those with inadequate knowledge had poor BP/CR. This is simply because it is difficult or almost impossible to adopt what one has inadequate knowledge about and for attitude it is observed that those with unfavorable had poor BP/CR. This is also simply because with rare to adopt what one has negative attitude towards.

Generally, findings from the logistic model indicates that there are few variables which a major determinant of Birth Preparedness and Complication Readiness. For Birth Preparedness, age, educational qualification, employment status and religion were the major determinant. For complication readiness, employment status, pregnant woman and their husband's educational qualification were the major determinants. For BP/CR, employment status, marital status, child birth history, closeness to healthcare center, media exposure, knowledge and attitude were the major determinants.

5.3 Conclusion

In conclusion, this study has found that, most of the pregnant women in the study area had adequate knowledge on Birth Preparedness and Complication Readiness (BP/CR). However, despite the prevalence of knowledge on BP/CR majority have unfavorable/negative attitude towards it. The practice of BP/CR is associated with many socioeconomic and demographic characteristics of the pregnant women as well as some other characteristics such as child birth history, media exposure, knowledge and attitude. However, the major determinants of Birth Preparedness among the pregnant women in the area are: age, education qualification, employment status and religion. The major determinants of complication readiness are: employment status and marital status. Others major determinants of BP/CR are child birth history, healthcare affordability, media exposure, knowledge and attitude.

5.4 Recommendations

Based on the study findings, it is recommended that:

- i. Government and all concern agencies should create various means possible to educate people about the importance of BP/CR. One of the important means is the incorporation of religious leaders which have significant influence on their followers' belief.
- ii. Healthcare centers should endeavor to re-orientate and positively influence pregnant women on their attitude towards BP/CR.

- iii. Government should ensure healthcare services is easily accessible and affordable for every economic-class of citizens in the society.
- iv. Everyone in the society with adequate knowledge and positive attitude towards BP/CR should endeavor to educate and encourage their close associates and neighbors that are pregnant on the practice of BP/CR.

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