



# **Assessment of Birth Preparedness and Complication Readiness (BP/CR) among Pregnant Women in Orlu Local Government Area of Imo State, Nigeria**

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## **Authors' contributions**

*This work was carried out in collaboration between all the authors. Author JNE designed the study, did the statistical analysis and supervised the research. Authors MCO and GIE wrote the manuscript.*

*Authors EID, JNE and GIE administered instruments. Authors JNE, BCC and MCO did statistical analysis and literature search. The final manuscript was edited by author JNE. All authors read and approved the manuscript.*

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## **ABSTRACT**

Birth Preparedness and Complication Readiness (BP/CR) are very important tenets of Focused Ante-Natal Care (FANC) aimed at reducing maternal morbidity and mortality. This study assessed birth preparedness and complication readiness among pregnant women in three health facilities in Orlu Local Government Area of Imo State. A cross-sectional descriptive study was conducted among 210 pregnant women using a questionnaire that assessed socio-demographic characteristics, obstetric factors affecting delivery, and knowledge about birth preparedness and

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complication readiness. The results showed that out of 210 respondents, 179(85.24%) were aged 17-34 years while 84.3% (177) had post-primary education. Greater percentage (70%) of respondents earned twenty thousand naira or less monthly while 89.5% (188) fall within the 0-5 parity group. One hundred and seventy-seven (55.7%) had more than 4 ANC visits, 178 (84.8%) prepared items for birth, and 175(83%) identified a skilled provider. Awareness of danger signs of pregnancy was (80%), labour (77%), postpartum (76%) and neonatal danger signs (74.8%). Only 33.3% arranged for blood donor. Chi-square showed that age, monthly income, educational status, occupation, and other socio-demographic variables were statistically significant( $p \leq 0.05$ ) while multiple logistic regression showed that educational status(AOR 11.799, 95% CI 0.203-5.165), monthly income(AOR 3.19, 95% CI 0.001-0.324), family size(AOR 1.500, 95% CI 0.001-0.213), spouse occupation (AOR 6.140, 95% CI 0.145-0.145) and spouse annual income(AOR 8.760, 95% CI 0.002-1.105) are strong predictors of BPCR. One hundred and sixty two (77%) of the pregnant women studied were prepared for BP/CR. In conclusion, the respondents had high level of BP/CR, however, increased awareness on blood donor arrangement has to be intensified and women educated more in obstetric/neonatal danger signs.

**Keywords:** Birth preparedness; complication readiness; obstetric/neonatal danger signs; health education.

## ABBREVIATIONS

*BP/CR- Birth preparation and complication readiness*

*FANC- Focused Ante Natal Care*

*ANC- Ante Natal Care*

*LGA- Local Government Area*

*AOR- Adjusted odds ratio*

*CI- Confidence interval*

*FSLC- First School Leaving Certificate*

*SSCE- Senior Secondary Certificate Examination*

*OND- Ordinary National Diploma*

*NCE- National Certificate Examination*

*HND- Higher National Diploma*

## 1. INTRODUCTION

Pregnancy and child birth are normal physiological processes expected to be uneventful with a fruitful outcome of a healthy mother and baby(ies). Successful delivery heralds joy, happiness, fulfilment and celebration not only to the mother/father but also to the relations and the community. However, every pregnant woman faces the risk of sudden unpredictable complications that could lead to injury to herself, her infant or even death. Furthermore, no one can reliably predict pregnancy related complications and its outcome [1,2], hence the need to be birth prepared and complication ready.

Birth Preparedness and Complication Readiness (BPCR) are strategic methods advocated to forestall and overcome delays that may result to eventful outcome of a normal physiological

process that could lead to maternal death from obstetric causes [3]. BPCR was therefore developed to promote timely identification and utilization of a skilled provider for both maternal and neonatal care, and planning for normal birth while anticipating for emergencies [4]. BPCR includes identifying a skilled provider and birth location, identifying mode of transportation to place of delivery, making arrangements for a blood donor, and saving money. It further entails knowledge and recognition of danger signs of pregnancy, labour, post-partum and neonatal danger signs as well [4-7]. While birth preparedness is an integral part of Focused Antenatal Care (FANC), it also involves planning with the pregnant woman, her spouse or partner, family members, relatives, community, stakeholders, and healthcare providers. These people do have significant roles to play in decisions relating to mother and child(ren) health [3,5,8,9]. Birth preparedness and complication readiness basically addresses the “delays” that could result to maternal mortality, that is, delay in recognizing the problem, seeking care, and receiving care at the facility [8,10]. It is a key strategy for safe motherhood practices, that involves the use of a skilled provider at birth as well as tackling these delays that could lead to maternal morbidity and death [10-12].

However, evidences abound that every minute, a woman dies during labour or delivery, with the highest maternal deaths occurring in Africa [4,6,7]. This is probably due to the fact that there is inadequate birth preparedness and complication readiness among other factors that contribute to maternal morbidity and mortality.

“Every minute, the loss of a mother shatters a family and threatens the well-being of surviving children and for every woman who dies, 20 or more experience serious complications” [6,13]. This is because of inadequate birth preparedness and emergency/ complication readiness that results from poor planning and thus affecting the survival of the pregnant mother and the unborn child [8].

Worldwide, the death of a mother has remained a very significant public health issue especially in developing countries and Sub-Saharan Africa, where it has been stated that greater than 90% of these deaths occur [14]. The morbidity and burden of maternal death is on the increase as could be seen in 2013, when more than 289,000 deaths occurred worldwide, however, it is pertinent to note that Sub-Saharan Africa alone had the highest number of more than 60%, that is about 179,000 maternal death of the total global estimate [15,16]. Furthermore, the developing countries and Sub-Saharan Africa also has the highest Maternal Mortality Ratio (MMR) of 510/ 100,000 live births [14].

While Nigeria is a leading contributor to maternal death in Sub-Saharan Africa, as a result of her large population and high maternal mortality ratio of 840 per 100,000 live births, [10,13,17] is pertinent to reiterate that these deaths could be minimized by adequate and timely birth preparedness and complication readiness through the use of skilled maternal and neonatal care, as well as being ready for the above mentioned delays and overcoming them [18,19].

There is paucity of data from empirical studies on BP/CR in South -East Nigeria especially Imo State. This study therefore assessed the socio-demographics of respondents, knowledge and level of birth preparedness and complication readiness among pregnant women in Orlu Local Government Area (LGA) of Imo State, Nigeria.

## 2. MATERIALS AND METHODS

### 2.1 Study Area

The study was conducted in Orlu Local Government Area which houses the LGA headquarters and Imo State University Teaching Hospital (IMSUTH). There are also rural-urban settlements, satellite campuses of some universities, markets and churches with a central mosque.

### 2.2 Study Design

This was a cross-sectional descriptive facility-based study conducted among consenting pregnant women attending Ante-Natal Care (ANC) in three health facilities, one government (IMSUTH) and two private facilities (Feziechi Hospital and Mmesoma Clinic) in the LGA.

### 2.3 Sample Size Determination

The minimum sample size was calculated using the formular for finite population:

$$n = \frac{Z^2 p. q}{d^2}$$

Standard normal deviate (z) was 1.96 at 95% confidence interval. Prevalence of women who were birth prepared and complication ready from a study in Nigeria [10] was 87.4%, degree of accuracy was set 0.05 and (1-p) was 0.126. After correcting for a non-response rate of 10%, minimum sample size was 186. For this study, sample size was increased to 210 to increase the power of the study.

### 2.4 Measurement of Variables

#### 2.4.1 Socio-demographic variables

The age of the respondents were grouped into “<20”, “20-29”, “30-39”, “≥40” and later on into two: “17-34” and “≥ 35”. Marital status were grouped into “married”, “single”, “separated”, “divorced”, “widowed” and later on into two: “living with partner” and “not living with partner”. Ethnicity was grouped into “Ibo”, “Yoruba”, “Hausa”, “others” and later on into two: “Ibo” and “others”. Religion was categorized into “Christianity”, “Muslim”, “others” and later on into “Christianity” and “others”. Educational status was grouped into “FSLC”, “SSCE”, “post-secondary” and later on into: “primary & below” and “post-primary and above”. Occupation was categorized into “Housewife”, “civil servant”, “self-employed”, “public servant” and later on into: “employed” and “not employed”. Monthly income was grouped into “< 10,000”, “10-20,000”, “21-50,000”, “51-99,000”, “>100,000 and later on into two: “≤20,000” and “> 20,000”. Family size was grouped into “1-3”, “4-6”, “>7” and later on into two: “1-3” and “>3”. Family type was categorized into “nuclear family”, “joint family”, “three generation family” and later on into two: “nuclear family” and “others”. Spouse level of education was grouped into “FSLC/SSCE”,

“OND/NCE”, “HND/Degree”, “professional certificate”, and later on into two: “Secondary and below” and “post-secondary”. Spouse occupation was categorized into “civil servant”, “public servant”, self-employed”, “none” and later on into two: “employed” and “unemployed”. Estimated spouse annual income was grouped into “< 200,000”, “200-500,000”, “600-900,000”, “> 900,000” and later on into two: “≤ 500,000” and “>500,000”.

#### **2.4.2 ANC and Reproductive health variables**

Registration status for ANC at the time of the survey was grouped into “yes” only since the study is facility based and all have registered before participating in the study. Number of ANC visit was categorized into “≤ 4 visits” and “> 4 visits”.

Awareness/knowledge of the key obstetric danger signs during pregnancy, childbirth and postpartum among the respondents: A pregnant mother was considered knowledgeable or aware if she reported a total of five danger signs in all the three phases with at least one in each phase. Phase 1: Danger signs during pregnancy (vaginal bleeding, swollen hands/face, blurred vision, severe abdominal pain, and convulsion). Phase 2: Danger signs during labour/childbirth (severe vaginal bleeding, prolonged labour (>12 hours), convulsion and retained placenta). Phase 3: Danger signs during postpartum (severe vaginal bleeding, foul smelling vaginal discharge, high fever, convulsion or fits). This method of scoring has been used previously in the assessment of women’s knowledge of the obstetric danger signs [20].

The respondents were assessed for the presence of the following five basic components of BPCR: i) Identified a skilled birth attendant, ii) identified a health facility for delivery/emergency, iii) identified mode of transport for delivery and obstetric emergency, iv) Saved money, v) identified two compatible blood donors. A pregnant mother was considered as “prepared” for birth and its complication if she reported at least three of five basic components of BPCR while the rest were considered as “not prepared”. This method of scoring has been used previously to assess women’s level of BPCR [19,21].

#### **2.5 Ethical Approval**

This was obtained from Imo state University Teaching Hospital, ethical committee. Also clients signed an informed consent form before responding to the questionnaire.

#### **2.6 Inclusion Criteria**

Pregnant women attending ANC in the health facilities used for the study, resident in Orlu for the past two years, physically stable and gave informed written consent were recruited and participated in the study.

#### **2.7 Exclusion Criteria**

Severely ill, and mentally unstable pregnant women because of low testamental ability.

#### **2.8 Data Collection, Management and Analysis**

Data was collected using a pretested, semi-structured questionnaire which was interviewer administered to pregnant women attending ANC clinic at the stated health facilities in Orlu LGA. The tool had 3 sections bordering on socio-demographic characteristics, knowledge about preparation for birth and it’s complications, as well as obstetric factors affecting birth and complications. Preceding these sections was an informed consent certificate signed by clients who responded to the questionnaire. Women who identified place of delivery, skilled provider, awareness of danger signs, means of transport, and arranged for blood among other parameters were said to be prepared and complication ready.

Data collected were cleaned, coded, and analysed using IBM-SPSS version 21 software. Descriptive statistics was used to generate means and frequency tables. Pearson’s chi-square test was used to determine level of significance and association. Phi test was used to assess the strength of association between the BPCR and the socio-demographic characteristics. Level of significance was set at  $p \leq 0.05$ .

### **3. RESULTS**

#### **3.1 Socio-demographic Features of Study Population**

A total of 210 pregnant women were recruited, gave consent and participated in the study, thus making a response rate of 100%. The mean age of the respondents was  $27.96 \pm 0.414$  years (17-44). Majority of the respondents (179,85.2%) fell within the 17-34 age group. In relation to marital status, 82%(173) live with their partners while 38%(37) don’t live with their partners. Eighty nine percent(187) of the pregnant women were of lbo extraction and most of them were

Christians 91.4%(192). Eighty four percent (177) had secondary school education and above while 148(71%) were gainfully employed. Most of the respondents 147(70%) got monthly income of less than twenty thousand Naira. Nuclear family type was predominant 168(80%) among the participants and greater number had family size of 1-3(53%). Fifty two percent(108) of the respondents' spouses had secondary school education while 48% had post-secondary school education. Most of the respondents' spouses were gainfully employed 204(97%) and 153(73%) had estimated annual income of five hundred thousand Naira or below. In terms of parity, majority 136(65%) were multiparous while 52(25%) were pregnant for the first time. The socio-demographic characteristics of the respondents are summarized in Table 1.

### 3.2 Utilization of ANC Services

Eighty one percent (171) of the respondents have been pregnant 1-4 times while 19% (39) had been pregnant more than four times. All the participants registered for antenatal services in the above selected health facilities. The decision on when and where to attend ANC was taken by respondents (27%), spouse (34%), jointly by respondent and spouse (33%) and relation(6%). Most of the respondents 117(56%) attended ANC more than four times while only 44% (93) had four visits or less. The spouses of the participants funded most of them(44%) while respondent and spouse jointly(38%), respondent alone(12%) and 4% were funded by their relations.

**Table 1. Socio-demographic characteristics of pregnant women in Orlu, Nigeria (N=210)**

S/No	Variable	Frequency	Percentage
1	<b>Age</b>		
	< 20	16	7.62
	20-29	115	54.76
	30-39	70	33.33
	≥ 40	9	3.33
2	<b>Marital status</b>		
	Married	173	82.4
	Single	12	5.7
	Separated	11	5.2
	Divorced	8	3.8
	Widowed	6	2.9
3	<b>Ethnicity</b>		
	Ibo	187	89.0
	Yoruba	14	6.7
	Hausa	5	2.4
	Others	4	1.9
4	<b>Religion</b>		
	Christianity	192	91.4
	Muslim	16	7.6
	Others	2	1.0
5	<b>Educational status</b>		
	FSLC	33	15.7
	SSCE	119	56.7
	Post-secondary	58	27.6
6	<b>Occupation</b>		
	Housewife	62	29.5
	Civil servant	37	17.6
	Self-employed	93	44.3
	Public servant	18	8.6
7	<b>Monthly income</b>		
	< 10,000	83	39.5
	10,000-20,000	64	30.5
	21-50,000.00	47	22.4
	51-99,000	10	4.8
	≥ 100,000	6	2.9
8	<b>Family size</b>		
	1-3	111	52.9

S/No	Variable	Frequency	Percentage
	4-6	76	36.2
	≥ 7	23	10.9
9	<b>Family type</b>		
	Nuclear family	168	80.0
	Joint family	33	15.7
	Three generation family	9	4.3
10	<b>Spouse educational level</b>		
	FSLC/SSCE	108	52.0
	OND/NCE	27	12.9
	HND/Degree	49	23.3
	Professional certificate	25	11.9
	None	0	0
11	<b>Spouse occupation</b>		
	Civil servant	43	20.5
	Public servant	50	23.8
	Self-employed	111	52.9
	None	6	2.9
12	<b>Estimated spouse annual income</b>		
	< 200,000.00	91	43.3
	200-500,000.00	62	29.5
	600-900,000.00	44	21.0
	>900,000.00	13	6.2
13	<b>Parity</b>		
	0	52	24.8
	1-5	136	64.8
	>5	22	10.5

**Table 2. Obstetric factors affecting birth and complications**

	Variables	Frequencies	Percentages
1	<b>Parity:</b>		
	0-5	188	89.5
	>5	22	10.5
2	<b>Gravidity:</b>		
	1-4	171	81.4
	≥5	39	18.6
3	<b>Birth order:</b>	123	58.6
	1-2		
	≥3	87	41.4
4	<b>Registered for ANC: Yes</b>	210	100
5	<b>No. of ANC visits:</b>	93	44.3
	<4		
	≥4	117	55.7
6	<b>Decision on when and where to attend ANC</b>		
	Self	57	27
	Husband	71	34
	Self/husband jointly	69	33
	Relation	13	6
7	<b>Funding ANC</b>		
	Self	26	12.4
	Husband	96	45.7
	Self & husband	79	37.6
	Relation	9	4.3

Table 2 shows that 89.5% of the respondent's parity was 5 and below while those who had 4 children and below were 81.4% and only 55.7% had 4 or more ANC visits. Also their husbands funded more of the ANC visits 45.7% while self and husband jointly funded about 37.6%.

### 3.3 Knowledge of Key Danger Signs during Pregnancy, Childbirth, Postpartum and Neonatal Period

The respondents' knowledge about birth preparation and complication readiness are summarized in Table 3. The proportion of pregnant women who know at least three danger signs during pregnancy, childbirth, postpartum and neonatal period were 168(80%), 162(77%), 161(76.7%) and 157(75%) respectively.

Generally, the proportion of the respondents who are aware of the danger signs of pregnancy, labour and postpartum were 187(89%), 175(85%) and 173(82%) respectively. Our findings also revealed that 178(85%) had prepared essential items required for clean and safe delivery, 175(83%) had identified skilled birth attendant, 151(72%) had arranged mode of transportation to chosen health facility, 183(87%) had saved money and only 70(33%) had identified two compatible blood donors. From the foregoing, about 162(77%) of the respondents were prepared for BPCR.

Table 4 shows statistically significant socio-demographic features associated with BPCR,  $p \leq 0.05$ .

**Table 3. Knowledge about birth preparation/ complication readiness**

	<b>Variables</b>	<b>Frequencies</b>	<b>Percentages</b>
1	<b>Prepared essential items:</b>		
	Yes	178	84.8
	No	32	15.2
2	<b>Identified Skilled provider:</b>		
	Yes	175	83.3
	No	35	16.7
3.	<b>Saving money</b>		
	Yes	183	87.1
	No	27	12.9
4	<b>Awareness of Pregnancy signs:</b>		
	Yes	187	89.0
	No	23	11.0
5	<b>Awareness of labour signs:</b>		
	Yes	179	85.2
	No	31	14.8
6	<b>Awareness of post-partum signs:</b>		
	Yes	173	82.4
	No	37	17.6
7	<b>Mode of transportation:</b>		
	Yes	151	71.9
	No	59	28.1
8	<b>Arranged blood donor:</b>		
	Yes	70	33.3
	No	140	66.7
9	<b>3 danger signs of pregnancy:</b>		
	Yes	168	80.0
	No	42	20.0
10	<b>3 danger signs of labour:</b>		
	Yes	162	77.1
	No	48	22.9
11	<b>3 danger signs in post-partum:</b>		
	Yes	161	76.7
	No	49	23.3
12	<b>3 danger signs in the neonate:</b>		
	Yes	157	74.8
	No	53	25.2

**Table 4. Association between some socio-demographic features of the respondents and BPCR**

	<b>Variables</b>	<b>Frequencies (%)</b>	<b>X<sup>2</sup></b>	<b>p-value</b>	<b>Phi</b>
1	<b>Age:</b> 17-34	179(85.24)	202.301	0.040	0.98
	35+	31(14.76)			
2	<b>Marital status:</b>		176.50	0.001	.917
	Living with partner	173(82.4)			
	Not living with partner	37(17.6)			
3	<b>Educational status:</b>		7.04	0.008	.183
	Primary school & below	33(15.7)			
	Post –primary school	177(84.3)			
4	<b>Occupation:</b>		15.85	0.050	.274
	Employed	148(70.5)			
	Not employed	62(29.5)			
5	<b>Monthly Income:</b>		88.090	0.040	.648
	<#20,000:00	147(70.0)			
	>#20,000:00	63(30.0)			
6	<b>Family size:</b>		42.329	0.010	.449
	1-3	111(52.9)			
	≥4	99(47.1)			
7	<b>Family type:</b>		151.011	0.001	.848
	Nuclear	168(80)			
	Others	42(20)			
8	<b>Religion:</b>		109.512	0.070	.722
	Christianity	192(91.4)			
	others	18(8.6)			
9	<b>Ethnicity:</b>		143.673	0.130	0.98
	Ibo	187(89.0)			
	others	23(11.0)			
10	<b>Spouse education:</b>		39.219	0.008	.432
	Secondary school or below	107(51.0)			
	103(49.0)				
	Post-secondary				
11	<b>Spouse occupation:</b>		34.357	0.004	.404
	Employed	204(97%)			
	Others	6(3%)			
12	<b>Spouse annual income:</b>		28.870	0.050	.371
	≤#500,000	153(72.8)			
	>#500,000	57(27.2)			

**Table 5. Determinants of BP/CR among pregnant women in Orlu LGA**

<b>Variable</b>	<b>β</b>	<b>S.E.</b>	<b>Sig.</b>	<b>Exp (B)</b>
1. Ethnicity	6.120	3.094	0.048	0.002(0.000, 0.946)
2. Educational status	2.482	1.227	0.043	11.799(1.203, 5.165)
3. Monthly income	5.457	2.209	0.013	3.19(0.001, 0.324)
4. Family size	4.173	1.367	0.002	1.5(0.001, 0.213)
5. Spouse occupation	17.877	1.467	0.050	6.14(0.145, 1.25)
6. Spouse annual income	0.133	1.873	0.004	8.76(0.001, 1.105)

Table 5 shows that ethnicity was statistically significant. Also educational status was significant and implied that educated women are 12 times more likely to be birth prepared and complication ready. Family size was also seen to be significant as it is about 2 times a predictor of

BP/CR. It was further found that women who earned money monthly were 3 times likely to be birth prepared, while spouse occupation and spouse annual income were six and nine times likely to influence BP and CR among women in Orlu LGA.



#### **4. DISCUSSION**

This study was done to assess the level of birth preparedness and complication readiness among pregnant women in Orlu local government area of Imo state. The result showed that the prevalence of BPCR among the respondents was 77%. The result also showed that 85.24% of the women were aged 17-34years with a mean age of  $27.96 \pm 0.414$  years in keeping with Emma-Ukaegbu et al. [4], that most women attending ANC were younger and aged 25-34 years.

Age, Marital status and maternal education were statistically significant in this study and these were found to be strongly associated with BP/CR among the respondents. This corroborates the work done by Kaso et al. [11] that younger mothers who are educated and married are more likely to be birth prepared and complication ready for pregnancy outcomes. A high percentage of women (84.8%) prepared items for delivery; this could also be due to the high literate level of both the mothers and their spouses. This study also showed that both mother and spouse education were statistically significant and strongly associated with BPCR and this corroborated the findings of Illyasu et al. [12] and Kaso et al. [11], that educated mothers and their spouses were likely to be better prepared for birth and made aware of the danger signs of pregnancy. It was further stated that educated mothers were also able to make decisions concerning their health and be prepared for birth outcome [12,16,17]. Another study done in Edo state Nigeria [10], also buttressed that educated women are likely to be prepared for birth and register for ANC, hence awareness of these obstetric/ neonatal danger signs. These corroborated with findings in Northern Nigeria, that women whose spouses had formal education were more likely to be birth prepared while attending ANC services. It was further reiterated in another Kenyan study that women whose husband were educated are also more likely to deliver in a health facility with skilled birth attendants. They are also better informed about possible birth outcomes and complications, as they may accompany their wives to ANC clinics, encourage and support them for better birth outcomes [22,23,24,25].

There was also greater number of respondents 117(55.7) who had more than 4 ANC visits. Also this decision on ANC visits and funding for ANC were mostly made by spouses 71(34%) and 96(45.7%) respectively. This study showed that both maternal and spouse occupations were

statistically significant and greatly associated with BPCR and these supports the finding in Tanzania, that women whose spouses are employed and they are earning reasonable income are likely to be birth prepared and attend ANC clinics [18]. Another significant finding was that women who decide to register for regular ANC visits were more likely to be aware of danger signs of pregnancy. These women will benefit from health education concerning birth and delivery. The decision for regular ANC visits also corroborates the findings of Gabrysc et al. [26] and Botha et al. [27] that access to health education given at regular ANC clinics made women aware and knowledgeable of delivery risks and measures to handle them.

One Hundred and seventy-eight (84.8%) prepared items for birth while 175 (83.3%) identified skilled provider. Those who identified a skilled provider as part of preparations identified mode of transport 151(71.9%) and also had knowledge of at least 3 key Obstetric danger signs were considered birth prepared and complication ready. This observed level of preparedness was higher than that reported by Ibadin et al. [28], and Bintabara et al. [18]. Ibadin [28] and co-workers noted birth preparedness rate of 48.4% in their study among pregnant women in Edo state Nigeria while Bintabara [18] and colleagues reported birth preparedness rate of 58.2% among pregnant women in Tanzania.

This study also found out that only 70(33.3%) of the respondents arranged for blood donor. While Blood transfusion is recognized as one of the eight essential components of comprehensive emergency obstetric care [29,30], the knowledge of identifying a blood donor was very low in this study. This non- arrangement of blood donor was also reported by Tobin et al. [10] in Edo state Nigeria where such gap may also be due to non-identification of skilled provider and not being aware of Obstetric danger signs. Urassa et al. [31] further buttressed that there was also low identification of a blood donor among women in rural districts of Tanzania and similar reasons could be adduced.

There was also greater awareness of danger signs of pregnancy 80%, labour 77.1%, post-partum 76.7%, and neonatal danger signs 74.8% in this study. Women who registered for ANC early and had more than 4 visits are likely to be prepared early and made aware of these obstetric danger signs. However, these contrasted with studies done in Adigrat Ethiopia,

Tanzania, and Aleto Wondo district where very few respondents 10.9%, 14.8%, and 30.4% respectively knew about danger signs of pregnancy [21,19,32]. Also a large number of our respondents 87.1% saved money as a form of preparation for birth and it's outcome. This lends credence to Idowu et al. [14], that wealth index regarding those who saved money and could register for ANC early will conversely be made aware of obstetric danger signs. Gurmesa et al. [33] also opined that saving money as part of wealth index could also lead to preparation of items and being complication ready for birth outcome.

Spouse occupation and spouse annual income were statistically significant and also strong predictors of BP/CR. Spouses' occupation and income have been found to be strong predictors of BPCR [34,35]. Women whose spouses are working and earning an income have been seen to also encourage and accompany their wives to ANC, fund the ANC visits, and take informed decisions that would avert delays that could lead to complications, hence are said to be birth prepared and complication ready [36,24,25,37].

## 5. CONCLUSION

The level of birth preparedness and complication readiness was high among the pregnant women in Orlu L.G.A, although, arrangement for a blood donor was very low. The determinants of BPCR among the respondents include: educational status, monthly income, family size, spouses' occupation and annual income. We therefore call for more enlightenment on blood donation, saving money for emergencies, and intensifying women education on obstetrics and neonatal danger signs.

## CONSENT

As per international standard or university standard, patient's written consent has been collected and preserved by the authors.

## ETHICAL APPROVAL

As per international standard or university standard, written approval of Ethics committee has been collected and preserved by the authors.

## COMPETING INTERESTS

Authors have declared that no competing interests exist.

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