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Assessment of Predictors of Birth Preparedness and Complication Readiness among Pregnant Women attending Oto-Awori/Ijanikin Primary Health Centre, Lagos State, South-West, Nigeria.

Ogundare, Temilade Tunrola[1], Ajao, Ezekiel O.[2], Bankole Titilade Oyenike[3], Akinwale, Oladayo Damilola[4]

[1](Nursing Department, Babcock University, Ilishan, Ogun State, Nigeria)
[2](Nursing Department, Babcock University, Ilishan, Ogun State, Nigeria)
[3](Nursing Department, Babcock University, Ilishan, Ogun State, Nigeria)
[4](Department of Nursing, Osun State University Teaching Hospital, Osun, State, Nigeria)
Corresponding Author: Ogundare, Temilade Tunrola
School of Nursing, Babcock University, Ilishan-Remo, Ogun State, Nigeria

Abstract
Background: *Maternal mortality is a global issue as lives of pregnant women are at risk of obstetric complications during pregnancy, childbirth and postpartum. Two out of ten pregnant women are at risk of unforeseen complications and many women do not prepare for these complications, thereby resulting in delay referral if occurs. In other words, birth preparedness and complication readiness is essential in improving maternal and child health. Therefore, this study assessed the predictors of birth preparedness and complication readiness among pregnant women attending Primary Health Centre, Lagos.*
Methods*: This study adopted quantitative research design. 216 respondents were selected using convenience sampling. A self-developed structured questionnaire was used for data collection. Data were analyzed electronically using Statistical Package for Social Sciences (SPSS) version 23. Descriptive statistics of frequencies and percentages were used for the objectives and hypotheses were tested using Pearson correlation coefficient at 0.05 level of significance.*
Result*: The finding shows that less than half of the respondent had knowledge about obstetric danger signs during pregnancy (45.8%), delivery (46.3%), and postpartum (47.2%) which indicates low level of maternal knowledge about obstetric danger signs. However, majority (46.3%) of the respondents had high level of antenatal care utilization. The hypotheses established no relationship between regular utilization of antenatal care and birth preparedness (r = .125, p = .068). A significant relationship between the maternal knowledge of obstetric danger signs and complication readiness (r = .213, p = .002) was observed.*
Conclusion*: High level of antenatal care utilization was observed but the knowledge of obstetric danger signs was moderate among the respondents. Community health nurses should continue to create awareness about the importance and benefit of birth preparedness and complication readiness and new strategies should be adapted to educate mothers on danger signs in a clearer language.*
Keywords*: predictors, birth preparedness, complication readiness, pregnant women.*

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I. Introduction

The period of pregnancy is very crucial and demanding in the life of a woman and the expectant family, not only for the joy it brings but also because it ensures continuation of the family and cultural values; especially if it is done at the right time with full support and acceptance from the spouse and the family. However, every pregnant woman faces the risk of sudden, unpredictable complications that could end in death or injury to herself or to her infant. Pregnancy and childbirth related complications lead to significant maternal morbidity and mortality in low-resource settings[1]. Although majority of these events are preventable, delays during an obstetric emergency can significantly worsen the outcome of a pregnancy which could occur while seeking and reaching for care by pregnant women or while treating patients by healthcare providers[2]. Poor preparation is a main contributor to delay in 'seeking' and 'reaching' for medical care by pregnant women and is a barrier to improving maternal and neonatal outcomes in a country[3].

Birth preparedness and complication readiness (BPCR) is a strategy that encourages pregnant women, their families, and communities to effectively plan for births and deal with emergencies, if they occur. It is a key component of globally accepted safe motherhood programmes[1]. It is the big pillar in the process of planning for

normal delivery and seeking interventions in case of an emergency. It enhances readiness and decision making for birth by pregnant women and relatives. This considers the fact that every pregnancy is a risk and leads to the maternal and fetal complications[4]. Globally, more than 40% of pregnant women may experience acute obstetric problems. The World Health Organization (WHO) estimates that 300 million women in the developing world suffer from short-term or long-term morbidities brought about by pregnancy and childbirth[1].

In many societies, cultural beliefs and lack of awareness inhibit preparation for delivery and seeking care. Due to this reason, complications which could occur in unprepared family could take lots of time in understanding the problem; to get organize, in getting money, in finding transport and reaching the appropriate referral facility[5]. Also, women with more education and those aware of obstetric complication are more prepared for birth and complications if emerged than illiterate women[6]. According to [3] in developing countries, birth preparedness can be influenced by the sociodemographic characteristics of women, the cultural context, and socioeconomic factors. Women and their families need to be able to recognize danger signs accurately and act appropriately. For example, bleeding requires immediate transport to a health facility because a woman, particularly with anaemia, can die in a matter of hours[7].

However, [8]in a study conducted among reproductive age women in Abakaliki, South-east, Nigeria stated that knowledge of birth preparedness and complication readiness was common among the respondents. During the antenatal period majority of the respondents acknowledged that they were taught birth preparedness, complications of pregnancy, how to get ready for the pregnancy complications, and exclusive breastfeeding, respectively.. Moreso, according to[9], women were more birth prepared than having knowledge on severe illness or emergency readiness. Majority of the women were not emergency ready and many mothers were not aware of the severe illness during pregnancy, child birth, and postnatal period[9,10]. This finding might be due to the fact that most pregnant women do not want to anticipate undesirable events in pregnancy and delivery; hence, they make no plans for emergencies, hoping, and believing that everything will be normal[10].

[11]Birth preparedness, readiness planning and associated factors among mothers in Ethiopia revealed that 21.4% of respondents delivered their last child at a health institution. About eight in every 10 women (79%) received at least once ANC follow-up visit in their last pregnancy. [4]Reported that the most common type of key danger sign during pregnancy, childbirth and the postpartum period known by the respondents was vaginal bleeding; swollen hands and feet, blurred vision, increased body temperature, convulsion among others[11,12]. Moreover, [12]reported that 90% of the participants stated that they were informed about danger signs related to pregnancy complications which include vaginal bleeding, swollen hands/face, and blurred vision as danger signs during pregnancy. It is upon this background that this study assesses the predictors of birth preparedness and complication readiness among pregnant women attending Oto-Awori/Ijanikin Primary Health Centre, Lagos State, South-West, Nigeria

II. Material and Methods

This study used quantitative descriptive research design. Convenience sampling technique was used to select pregnant women attending Oto-Awori/Ijanikin Primary Health Centre. A total number 216 pregnant women were selected for the study. ,

Study Design: Quantitative descriptive research design

Study Location: The study was conducted in Oto-awori/Ijanikin Primary Health Centre, Lagos State

Study Duration: December, 2020 to April 2021

Sample size: 216 pregnant women.

Sample size calculation: Sample size for this study was obtained through sample size calculation using Cochran Formula at 95% level of confidence (1.96) and 5% margin of error which was calculated as 196 and 10% attrition rate was added to make 216.

Subjects & selection method: Convenience Sampling Technique was used to select pregnant women attending antenatal clinic at Oto-awori/Ijanikin Primary Health Centre, Lagos State

Inclusion criteria:

1. Two or more antenatal clinic attendance during the period of data collection and
2. Willingness to participate in the study.

Exclusion criteria:

1. Pregnant women attending Oto-awori/Ijanikin for health care apart from antenatal
2. Sick pregnant women
3. Pregnant women who did not use the study location for antenatal care

Procedure methodology

Ethical approval was collected from Babcock University Health Research Ethics Committee with reference number BUHREC 156/21. The researcher had obligation to the subjects by getting their informed consent consistent with the principle of individual autonomy. Their voluntary participation, anonymity, privacy

and confidentiality when collecting the data was guaranteed. Their right to participate and not to participate was also respected. Data was collected over a period of 8 weeks.

Statistical analysis:

The data from the survey was checked for completeness. The data was then coded and analyzed electronically using Statistical Package for Social Sciences (SPSS) version 23. The data were analyzed, using descriptive statistics of frequencies, percentages, table, mean score and standard deviation and hypotheses were tested using Pearson correlation coefficient at 0.05 level of significance.

III. Result

Table no 1 shows that majority 86 (39.8%) of the respondents were between ages 28 - 37 years. More than half of the respondents 126 (58.3%) were married, 78 (36.1%) of the respondents had secondary education. The level of education among the respondents is below average. Majority of the respondents 101(46.8%) are employed and are from Yoruba tribe 111 (51.4%).

Table no 1: Socio-demographic characteristics of the respondents

Demographic Characteristics	Frequency	Percentage (%)
Age (Years)		
18-27	81	37.5
28-37	86	39.8
38-47	49	22.7
Total	**216**	**100**
Marital status		
Single	59	27.3
Married	126	58.3
Divorce	27	12.5
Widow	4	1.9
Total	**216**	**100**
Level of education		
No formal education	63	29.2
Primary education	43	19.9
Secondary education	78	36.1
Tertiary education	32	14.8
Total	**216**	**100**
Occupation		
Employed	101	46.8
Self-employed	80	37.0
House keeper	35	16.2
Total	**216**	**100**
Tribe		
Yoruba	111	51.4
Igbo	79	36.6
Hausa	26	12.0
Total	**216**	**100**

Table no 2 shows the level of regular utilization of antenatal care in birth preparedness. 100 (46.3%) participants had high or above average score, 57 (26.4%) and 59 (27.3%) had scores at average and below average level of regular utilization of antenatal care in birth preparedness respectively. The level of regular utilization of antenatal care in birth preparedness mean score was 5.41±1.66 (60.1%), which means regular utilization of antenatal care in birth preparedness was good.

Table no 2: level of regular utilization of antenatal care in birth preparedness

Items	Frequency	Percentage (%)
Antenatal education is not compulsory during pregnancy because they only sing in the clinic		
Yes	87	40.3
No	129	59.7
Total	**216**	**100**
Since I have been attending antenatal clinic, I have never gained any new thing		
Yes	67	31.0
No	149	69.0
Total	**216**	**100**
I prefer to book for antenatal when the pregnancy is not mature		
Yes	128	59.3
No	88	40.7
Total	**216**	**100**

Antenatal talk is too lengthy, so I rarely go for antenatal care		
Yes	90	41.7
No	126	58.3
Total	**216**	**100**
Midwives have never mentioned how to prepare for birth and complication since the time of my antenatal attendance		
Yes	95	44.0
No	121	56.0
Total	**216**	**100**
I learnt how to save money for delivery during antenatal clinic		
Yes	161	74.5
No	55	25.5
Total	**216**	**100**
Antenatal clinic attendance help me know what are expected of me during, before and after delivery		
Yes	162	75.0
No	54	25.0
Total	**216**	**100**
I have engaged the help of a family member who will stay with me during the time of labour and delivery		
Yes	168	77.8
No	48	22.2
Total	**216**	**100**
Antenatal education affords me to have a desired safe place of birth		
Yes	172	79.6
No	44	20.4
Total	**216**	**100**

Table no 3 reveals that 99(45.8%) of the respondents were able to identify at least key danger signs during pregnancy while 117(54.2%) could not identify the danger signs of pregnancy. 100(46.3%) out of 216 respondents identified the key danger signs during labour and childbirth while majority; 116 (53.7%) of the respondents were unable to identify the key danger signs during labour and childbirth. 102(47.2%) of the respondents identified danger signs of postpartum period while 114(52.8%) of the respondents could not identify postpartum danger signs.

Table no 3: Maternal knowledge of obstetric danger signs in birth preparedness

Items	**Yes**		**No**		**Total**
	F	**%**	**F**	**%**	**F (%)**
The key danger signs during pregnancy include					
Severe vaginal bleeding	112	51.9	104	48.1	**216 (100)**
Swollen and face	92	42.6	124	57.4	**216 (100)**
Blurred vision	93	43.1	123	56.9	**216 (100)**
The key danger signs during labour and childbirth include					
Severe vaginal bleeding	106	49.1	110	50.9	**216 (100)**
Prolong labour (> 12 hours)	100	46.3	116	53.7	**216 (100)**
Retained placenta	94	43.5	122	56.5	**216 (100)**
Convulsion	100	46.3	116	53.7	**216 (100)**
The key danger signs during the postpartum period include					
Severe vaginal bleeding	96	44.4	120	55.6	**216 (100)**
Foul smelling vaginal discharge	104	48.1	112	51.9	**216 (100)**
High fever	107	49.5	109	50.5	**216 (100)**

Table no 4 shows no significant relationship between utilization of antenatal care and birth preparedness (r = .125, P = .068). Therefore, the null hypothesis was accepted while the alternative hypothesis was rejected. It could be said that regular utilization of antenatal care was not related with the birth preparedness.

Table no 4: Pearson Correlation between regular utilization of antenatal care and birth preparedness

Correlations

		Birth Preparedness	Regular utilization Antenatal Care
Birth Preparedness	Pearson Correlation	1	.125
	Sig. (2-tailed)		.068
	N	216	216
Regular utilization of Antenatal Care	Pearson Correlation	.125	1
	Sig. (2-tailed)	.068	
	N	216	216

Correlation is significant at the 0.05 level (2-tailed).

Table no 5 shows a significant relationship between the maternal knowledge of obstetric danger signs and complication readiness(r = .213, P = .002). Therefore, the alternative hypothesis was accepted. It could be said that maternal knowledge of obstetric danger signs is positively and strongly related with their birth preparedness.

Table no 5: Pearson Correlation between the maternal knowledge of obstetric danger signs and complication readiness

Correlations

		Maternal Knowledge of ODS	Complication Readiness
Maternal Knowledge of ODS	Pearson Correlation	1	.213**
	Sig. (2-tailed)		.002
	N	216	216
Complication Readiness	Pearson Correlation	.213**	1
	Sig. (2-tailed)	.002	
	N	216	216

Correlation is significant at the 0.05 level (2-tailed).

IV. Discussion

Finding shows that 100 (46.3%) participants had high or above average score level of regular utilization of antenatal care, 57 (26.4%) and 59 (27.3%) had scores at average and below average level of regular utilization of antenatal care in birth preparedness respectively. The level of regular utilization of antenatal care in birth preparedness mean score was 5.41±1.66 (60.1%), which means utilization of antenatal care in birth preparedness was good. This finding reveals that majority of the respondents have antenatal education, desired for safe delivery, engagement of the help of a family member who will stay with them during the time of labour and delivery, were able to gain new things during antenatal visit, knowing what were expected of them during, before and after delivery, saving money for delivery during antenatal clinic and booking for antenatal when the pregnancy is not mature. This is in contradiction to the results by[13]. Eighty-four percent had ANC check-up. Among them, only sixty-two percent had four visits as per protocol. The major causes of not visiting for ANC were distance (31%) and lack of information (58%).It could be deduced that birth plans and emergency readiness of the pregnant women were very poor.

Findings from this study also shows that 45.8% (99) of the respondents were able to identify at least 2 key danger signs during pregnancy while 54.2% (117) could not identify the danger signs of pregnancy. 46.3% (100) out of 216 respondents identified the key danger signs during labour and childbirth while 53.7% (116) of the respondents were unable to identify the key danger signs during labour and childbirth. 47.2% (102) of the respondents identified danger signs of postpartum period while 52.8% (114) of the respondents could not identify postpartum danger signs. Results also shows that majority 51.9% (112), 49.1% (106) of the respondents identified severe vaginal bleeding as key danger sign during pregnancy and labour/childbirth respectively while minority of the respondents 44.4% (96) identified severe vaginal bleeding as the key danger sign during postpartum period. This is contradicted by a study conducted by[12]in Ethiopia that 90% of the participants reported that they were informed about danger signs related to pregnancy complications. Among these, 328 (73.1%), 139 (31.0%), and 97 (21.6%) women spontaneously mentioned vaginal bleeding, swollen hands/face, and blurred vision as danger signs during pregnancy. Besides this, one-third (34.9%) of the respondents spontaneously mentioned at least two danger signs of pregnancy complications. This finding is supported by[9] in a study conducted in Tehulederie district, Northeast Ethiopia and stated that regarding knowledge of key danger signs during pregnancy, childbirth, and the postpartum period within two days, About 25.6%, 66.6%, and 64.2% of the pregnant women were not knowledgeable about danger signs during pregnancy, childbirth, and the postpartum period within two days of the postpartum period respectively. This is in support with[8] who said women were more birth prepared than having knowledge on severe illness or emergency readiness. Majority (>90%) of the women were not emergency ready and many mothers were not aware of the severe illness during pregnancy, child birth, and postnatal period.

Hypotheses

Findings from the study reveals no significant relationship between utilization of antenatal care and birth preparedness. This shows that regular antenatal care utilization may not translate to birth preparedness among pregnant women. This contradicts the finding of a study carried out by[10] on birth preparedness, readiness planning and associated factors among mothers in Ethiopia; the study revealed that 21.4% of respondents delivered their last child at a health institution. About eight in every 10 women (79%) received at least once ANC follow-up visit in their last pregnancy. This is also supported by[14] stated in a study conducted among

reproductive age women in Abakaliki, South-east, Nigeria stated that knowledge of birth preparedness and complication readiness was common among the respondents.

Finding from the study further shows that there is a strong relationship between maternal knowledge of obstetric danger signs and complication readiness. This finding is congruent with the study carried out by[15] with result that the most common type of key danger sign during pregnancy, childbirth and the postpartum period known by the respondents was vaginal bleeding; 86 (72.9 %) of the cases and 117 (49.2 %) of the controls knew vaginal bleeding is a key danger sign during pregnancy, 93 (78.8 %) of the case and 89 (37.4 %) knew excessive vaginal bleeding is a key danger sign during labour and delivery, and 71 (60.2 %) of the cases and 76 (31.9 %) of the controls knew excessive vaginal bleeding is a key danger sign during the postpartum period. Only 26 (22 %) of the case and 26 (10.9 %) of the controls spontaneously reported difficulty of seeing or blurred vision is a key danger sign during pregnancy. Only 13 (11.0 %) of the case and 2 (0.8 %) of the controls spontaneously reported convulsion is a key danger sign during labour and delivery. And only 8 (6.8 %) of the case and 11 (4.6 %) of the controls knew increased body temperature (fever) is a key danger sign during the postpartum period.

V. Conclusion

The finding from the study suggested that antenatal utilization and maternal knowledge of obstetric danger signs are predictors of birth preparedness and complication readiness among pregnant women. Vaginal bleeding was the most common type of key danger sign spontaneously identified by the pregnant women during pregnancy, childbirth and the postpartum period which suggest low knowledge of obstetric danger signs among the respondents.

VI. Recommendations

Based on the result from this study, it is therefore recommend that:

- Community health nurses should continue to create awareness about the importance and benefit of birth preparedness and complication readiness and new strategies should be adapted to educate mothers on danger signs in a clearer language.
- There should be training for nurses on how to teach the pregnant women other obstetric danger signs in addition to already known severe vaginal bleeding.
- Community Health Nurses should continue to create awareness about the importance and benefit of birth preparedness and complication readiness.
- Government should make fund available for training of all health workers in Primary Health Centres to sensitize more pregnant women on birth preparedness and complication readiness during their antenatal care education in healthcare**.**

Compliance with ethical standard

Conflict of interest: (Nil)

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