FACTORS ASSOCIATED WITH BIRTH PREPAREDNESS AND COMPLICATION READINESS PRACTICE AMONG WOMEN WHO ATTEND ANC IN CENTRAL HOSPITAL BENIN CITY EDO STATE

BY

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Abstract

Background: In Nigerian, a woman has 1 in 22 lifetime risk of dying during pregnancy, childbirth or postpartum/post-abortion; whereas in the most developed countries, the lifetime risk is 1 in 4,900.

Objective: The aim of this study was to determine the factors associated with the practice of birth preparedness and complication readiness among women who attend ANC in Central Hospital Benin City.

Methodology: A descriptive cross-sectional study design was used for this study among 427 pregnant women attending antenatal clinic in central hospital Benin City whom were selected using a simple random sampling technique. A pre-tested, structured, interviewer-administered questionnaire was used to collect information on socio-demographic characteristics and bivariate analysis was done to identify factors associated with birth preparedness practice and complication readiness among participants. Data was analyzed using IBSM SPSS version 20.0 and statistical significance was set at p < 0.05 at 95% confidence interval.

Results: There was statistical association between age (p=0.036), level of education (p=0.001), average monthly income (p=0.001), parity (p=0.015), place of residence (p=0.003) and birth preparedness and complication readiness practice among the study participants. Furthermore, the study showed that knowledge of danger signs and components of birth preparedness and complication readiness were associated with birth preparedness

Conclusion: Knowledge of obstetrics danger signs is key to detecting complications and taking appropriate steps to access emergency care.

Keywords: Pregnancy, Birth preparedness, Central Hospital, Nigeria

INTRODUCTION

Globally, 303,000 women die each year due to pregnancy-related causes. From these maternal deaths, high income countries have the lowest number which accounts approximately for less than 1%. Low and Middle Income Countries (LMIC) have about 99% of these deaths, with Sub-Saharan Africa (SSA) alone accounting for 66% of maternal deaths. Thus, maternal mortality remains the major public health challenge particularly in LMIC.[1] A woman from Sub-Saharan Africa has lifetime risk of death estimated at 1 in 36 contrasting sharply with 1 in 4,900 in high income countries.[1] In 2015, Nigeria's estimated maternal mortality ratio was over 800 maternal deaths per 100,000 live births, with approximately 58,000 maternal deaths during that year. By comparison, the total number of maternal deaths in 2015 in the 46 most developed countries was 1,700 resulting in a maternal mortality ratio of 12 maternal deaths per 100,000 live births.[2]

Reducing maternal mortality ratio is one of the United Nations Sustainable Development Goals. Most maternal deaths are preventable with appropriate management and care with the assistance of a skilled birth attendant.[3] Birth preparedness and complication readiness (BPCR) is an important strategy in accomplishing these goals and there is a clear evidence that BPCR interventions are effective in reducing maternal and neonatal mortality.[4] It has been shown that women having secondary and higher education were more likely to be prepared than illiterates. Women having a lifetime history of stillbirth, attending ANC for last child pregnancy, participating in community BPCR group discussion, and having their male partner involved in BPCR counselling during ANC follow-up were more likely to be prepared. Similarly, having a higher education, upper socio-economic status and being married were identified as factors associated with good birth preparedness and complication readiness among women receiving antenatal care in Benin City[5] and Ile-Ife,[6] Nigeria. The odds of being well prepared for birth and its complications were lower among women with parity of two to four than those with a parity of one.[7] Knowledge of obstetric danger signs was significantly associated with maternal age, with respondents aged <24 years and >35 years having better knowledge, than respondents in other age groups ($P < 0.001$).[5] Furthermore, it has been reported that residence, educational status, antenatal care, follow up history of stillbirth, knowledge of birth preparedness and complication readiness plans, knowledge of key danger signs during, child birth and postpartum period were significantly associated with practice of birth preparedness and complication readiness plan The assessment of the revenue of study participants was not precise.[8] With the dearth of knowledge of maternal birth preparedness in secondary health facility and poor maternal birth preparedness reported in previous studies, there is need for further study on maternal birth preparedness among pregnant women in this study location because once these factors are identified intervention will be easy.

The aim of this study was to assess factors associated with birth preparedness and its practice among pregnant women who visit central hospital Benin ANC for care.

Methodology

This study was carried out among 427 pregnant women attending antenatal care clinic in central hospital Benin city during the study period. The hospital is a secondary health facility located in Oredo local government area of Edo State. It has an annual delivery rate of 4,200 deliveries. The Obstetrics and gynecology unit in the hospital has Gynaecogical ward, labor ward, 60 obsterics beds. There are 31 doctors comprising of consultants, senior registrars, registrars and house officers. The ANC days are Tuesdays, Wednesdays, Thursdays and Fridays.

A descriptive cross-sectional study design was used and a simple random sampling technique was used to select study participants until the sample size was gotten.

Pregnant women in their second and third trimester who attend ANC clinic while women who are very ill and those not willing to take part in the study were excluded from the study. A structured interviewer-administered questionnaire adapted from JHIPEGO BPACR matrix[9] was used to collect information from the participants after undergoing pretesting for clarity in another secondary health facility. Good knowledge of danger signs in pregnancy and labour was assessed by the respondents' awareness of at least three of the six symptoms in the matrix, namely: bleeding, liquor drainage before term, foul smelling vaginal discharge, severe abdominal pain before term, headaches and fits. These symptoms signal potential complications of pregnancy. Women who met at least four of the eight BPACR criteria, which include: good knowledge of danger signs, saving money towards delivery, purchased items for the baby, identified a health facility for delivery, arranged for accompaniment in case of emergencies, made plans for transportation, identified a blood donor or blood bank, and identified the nearest facility for emergency obstetric care, were classified as being well prepared.

Data was analyzed using SPSS version 20.0 and statistical significance was set at $p < 0.05$ at 95% confidence interval. Univariate analysis was used to summarise data into frequencies and percentages. Bivariate analysis was also done. Ethical clearance for this study was obtained from the Central Hospital Ethics and Research committee and verbal informed consent was obtained from the participants before inclusion in the study.

Results

Table 1: Sociodemographic characteristics of respondents

Variables (n = 427)	Frequency	Percent
Age group		
16 – 20 years	14	3.3
21 – 30 years	228	53.4

31 – 40 years	176	41.2		Igbo	20	4.7
> 40 years	9	2.1		Urhobo	18	4.2
Range	**(44 – 16) = 28 years**			Yoruba	7	1.6
Mean ± SD	**30.1 ± 5.3 years**			Hausa	8	1.9
				Akoko Edo	3	0.7
Occupation				Owan	4	0.9
Housewife	107	25.1		Etsako	2	0.5
Trader	139	32.6		Others[b]	12	2.8
Civil servant	69	16.2		**Average monthly income (₦)**		
Farmer	8	1.9				
Fashion designer	23	5.4		< 18,000	72	16.9
Teacher	23	5.4		18,000 – 36,999	138	32.3
Hairdresser	16	3.7		37,000 – 54,999	63	14.8
Businesswoman	10	2.3		55,000 – 72,000	83	19.4
Student	10	2.3		> 72,000	71	16.6
Caterer	7	1.6		**Family type**		
Banker	4	0.9		Monogamy	405	94.8
Others[a]	11	2.6		Polygamy	21	5.0
Marital status				Divorced	1	0.2
Single	17	4.0		**Spouse Level of education**		
Married	408	95.5				
Separated	2	0.5		No formal education	14	3.3
Level of education				Primary	26	6.1
No formal education	5	1.2		Secondary	179	41.9
Primary	40	9.4		Tertiary	208	48.7
Secondary	197	46.1		**Spouse Occupation**		
Tertiary	185	43.3		Farmer	45	10.5
Religion				Civil Servant	126	29.5
Christian	406	95.1		Trader	96	22.5
Muslim	20	4.7		Daily labourer	32	7.5
African Traditional Religion	1	0.2		Businessman	27	6.3
				Driver	17	4.0
Ethnicity				Engineer	7	1.6
Bini	214	50.1		Electrician	4	0.9
Esan	102	23.9		Teacher	6	1.4
Afenmai	37	8.7		Security	4	0.9
				Contractor	3	0.7

Banker	4	0.9
Builder	4	0.9
Others[c]	52	12.2
Place of Residence		
Urban	358	83.8
Rural	69	16.2

Majority of the respondents [228(53.4%)] were in the age group 21-30 years with mean age of 30.1 ± 5.3 years. Majority of the respondents are traders [139(32.6%)] and house wife [107(25.1%)], with one third reporting secondary [197(46.1%)] and tertiary education [185(43.3%)]. One third of the respondents [138(32.3)] earn a monthly income of ₦18,000-₦36,999. More than half of study participants [358(83.8%)] live in urban areas.

Table 2: Utilization of Antenatal clinics and previous obstetric complications

Variables (n = 427)	Frequency	Percent
Previous miscarriage/abortion	132	30.9
Previous still birth	34	8.0
Previous ANC	244	57.1
Number of ANC visits (n = 244)		
1 – 3	27	11.1
4 – 6	135	55.3
7 – 9	59	24.2
≥ 10	23	9.4
Advised on birth and complications	226	52.9
Place of last birth (n = 329)		
Home	54	16.4
Health institution	275	83.6
Past obstetric complication*	45	10.5
Obstetric Complications (n = 45)		
Vaginal bleeding	14	31.1
Breech presentation	4	8.9
Postpartum haemorrhage	4	8.9

Still birth	4	8.9
Hypertension	3	6.7
Prolonged labour	3	6.7
Uterine rupture	3	6.7
Obstructed labour	2	4.4
Placenta previa	2	4.4
Others[a]	6	13.3
Gravidity		
Primigravida	69	16.2
Multigravida	358	83.8
Parity		
Nullipara	98	23.0
Primipara	118	27.6
Multipara	207	48.5
Grand multipara	4	0.9

More than half [244(57.1%)] of study participants has had previous ANC visits, while 132(30.9%) and 34(8%) have had previous abortion/miscarriage and still birth. Majority of the respondents [226(52.6%)] have been advised on birth preparedness and complications. About 275 (83.6%) of respondents have health facility as their place of last birth while Fifty-four [54(16.4%)] had their last delivery at home. Vaginal bleeding [14(31.1%) was the most common obstetric complication followed by breech presentation [4(8.9%)], postpartum hemorrhage [4(8.9%)], still birth [4(8.9%)], and other complications [6(13.3%)]. Majority [358(83.8%)] are multigravida while 207(48.5%) are multiparous.

Table 3: Factors associated with the practice of BPCR

Variables	Practice of BPCR		χ^2	p - value
	Good Freq (%) n = 374	Poor Freq (%) n = 53		
Age group				
16 – 20 years	14 (100.0)	0 (0.0)		
21 – 30 years	207 (90.8)	21 (9.2)		
31 – 40 years	145 (82.4)	31 (17.6)		
> 40 years	8 (88.9)	1 (11.1)	**8.528**	**0.036***
Marital status				

Single	17 (100.0)	0 (0.0)		
Married	355 (87.0)	53 (13.0)		
Separated	2 (100)	0 (0.0)	2.818	0.244
Level of education				
No formal education	5 (100.0)	0 (0.0)		
Primary	20 (50.0)	20 (50.0)		
Secondary	178 (90.4)	19 (5.6)		
Tertiary	171 (92.4)	14 (7.6)	**58.073**	**<0.001***
Religion				
Christian	358 (88.2)	48 (11.8)		
Muslim	15 (75.0)	5 (25.0)		
African Traditional Religion	1 (100.0)	0 (0.0)	3.187	0.203
Average monthly income (₦)				
< 18,000	70 (97.2)	2 (2.8)		
18,000 – 36,999	127 (92.0)	11 (8.0)		
37,000 – 54,999	54 (85.7)	9 (14.3)		
55,000 – 72,000	60 (72.3)	23 (27.7)		
> 72,000	63 (88.7)	8 (11.3)	**26.809**	**<0.001***
Family type				
Monogamy	357 (88.1)	48 (11.9)		
Polygamy	16 (76.2)	5 (23.8)		
Divorced	1 (100.0)	0 (0.0)	2.768	0.251
Place of Residence				
Urban	321 (89.7)	37 (10.3)		
Rural	53 (12.4)	16 (23.2)	**8.791**	**0.003***
Parity				
Nullipara	87 (88.8)	11 (11.2)		
Primipara	110 (93.2)	8 (6.8)		
Multipara	175 (84.5)	32 (15.5)		
Grand multipara	2 (50.0)	2 (50.0)	**10.536**	**0.015***
Gravidity				
Primigravida	64 (92.8)	5 (7.2)		
Multigravida	310 (86.6)	48 (13.4)	2.020	0.155
Number of Previous antenatal visits				
None	155 (84.7)	28 (15.3)		
1 – 3	25 (92.6)	2 (7.4)		
4 – 6	119 (88.1)	16 (11.9)		
7 – 9	55 (93.2)	4 (6.8)		
10 and above	20 (87.0)	3 (13.0)	3.796	0.434
Knowledge of components of BPCR				
Good knowledge	280 (98.9)	3 (1.1)		
Poor knowledge	94 (65.3)	50 (34.7)	**99.475**	**< 0.001***
Knowledge of danger signs				
Good knowledge	243 (98.8)	3 (1.2)		
Poor knowledge	131 (72.4)	50 (27.6)	**66.874**	**< 0.001***

*Statistically significant

Majority of the women in age group 21-30yrs [207(90.8%)] and women greater than 30yrs of age had good birth preparedness practice[31-40 (82.4%), >40yrs (88.9%)]. Majority [355(87%)] of the respondents are married and only seventeen are single. The association between marital status and birth preparedness practice was not statistically significant. Majority of respondents had secondary [178(90.4%] and tertiary education [171(92.4%)]. One third [127(92%)] earn ₦18,000-36,999 monthly, while sixty-three [63(88.7%)] earn more than ₦72,000 monthly. More than half of the respondents [321 (89.7%)] stay in urban areas and about Fifty-three [53 (12.4%)] respondents stay in the rural areas. About one hundred and seventy-five [175(84.5%)] respondents are multiparous, one hundred and ten [110(93.2%)] primiparous while eighty-seven [87(88.8%)] are nulliparous. There was statistical association between age (p=0.036), level of education (p=0.001), average monthly income (p=0.001), parity (p=0.015), place of residence (p=0.003) and birth preparedness and complication readiness

practice among the study participants. The null hypothesis will be rejected. Furthermore, the study showed that knowledge of danger signs and components of birth preparedness and complication readiness were factors associated with birth preparedness.

DISCUSSION

Majority of the respondents [228(53.4%)] were in the age group 21-30 years with mean age of 30.1 ± 5.3 years. This was similar to another study in Ethiopia with respondents in the same age group. This age group has been reported to have high fertility in Nigeria.[10] Fertility decreases with increasing age and fertility influences good pregnancy outcome. This study reported that majority of the respondents are urban dwellers and had secondary education. A similar study in Nigeria also reported that majority of respondents were urban dwellers and had secondary education.[11] This could be due to the location of the study site which is at the center of the state capital and its low cost. Majority of respondents were Christians and trader. This is in contrast to a study in Oshogbo which found majority of respondents to be muslims and had skilled work.[11] Edo State is a predominantly Christian state. This study revealed that majority of respondents had previous ANC attendance. This is similar to a study in Osogbo.[11] Respondents are educated and enlightened on the importance of antenatal care. Poor ANC attendance can predispose pregnant women to complications and other pregnancy risk.

This study showed that level of education (p=0.001) was statistically associated with birth preparedness practice. This is in line with a study in Ethiopia which found that women who attended secondary education and higher institution were more likely to be birth prepared than illiterates. This study revealed that there was statistical association between age (p=0.036), average monthly income (p=0.001), parity (p=0.015), place of residence (p=0.003) and birth preparedness and complication readiness practice among the study participants. This is similar to studies in Ethiopia which found residence, educational status, antenatal care follow up history of stillbirth, knowledge of birth preparedness and complication readiness plans, knowledge of key danger signs during pregnancy and postpartum to be significantly associated with practice of birth preparedness and complication readiness plan.[12,13] and similar to a study in Osogbo.[11] This might be due to the fact that urban dwellers have accessed to information and more educated than rural dwellers. This study found that knowledge of danger signs and components of birth preparedness and complication readiness were factors associated with birth preparedness. This is in line with similar studies in Ethiopia and Nigeria.[1,12,14] Knowledge of obstetrics danger signs is an essential step in recognizing complications and enables one to take appropriate action to access emergency care. Poor knowledge of danger signs can expose these women to risk of pregnancy complications thereby leading to maternal and perinatal death.

Conclusion

In conclusion, the study found that there was statistical association between age (p=0.036), level of education (p=0.001), average monthly income (p=0.001), parity (p=0.015), place of residence (p=0.003) and birth preparedness and complication readiness practice among the study participants. Furthermore, the study showed that knowledge of danger signs and components of birth preparedness and complication readiness were associated with birth preparedness. A robust health education session during ANC on birth preparedness and complication readiness plays a significant role in reducing the burden of maternal mortality.

Ethical Approval
Ethical approval was obtained from the Ethical of committee Delta State with the Code" **DELSU/23/22090**

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