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KNOWLEDGE AND PRACTICES ON BIRTH PREPAREDNESS AMONG EXPECTANT MOTHERS SEEKING ANTENATAL CARE AT THE TAMALE TEACHING HOSPITAL, GHANA

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ABSTRACT

In developing countries, complications during pregnancy and childbirth are still a leading cause of maternal morbidity and mortality. The aim of this study was to assess the awareness and intention to use maternity services among pregnant women. A facility-based cross-sectional study was conducted from February 2016 to April, 2016 among mothers who attend antenatal care at the Tamale Teaching Hospital, Ghana. Using structured questionnaires, expectant mothers were assessed on knowledge regarding the risks associated with pregnancy as well as delivery and birth plan arrangements. Data quality was ensured via crosschecks and double entry into the Statistical Package for Social Sciences (SPSS) software version 20.01 for analysis. Demographics (age, ethnicity, education, marital status, occupation, etc) were summarized using frequency tables while the χ^2 test was used to determine associations between respective variables. Variables that displayed significant associations were entered into a multiple logistic regression model to ascertain the strength of association (Odds Ratios) between respective variables. At the 95% confidence interval, a p-value less than 0.05 were deemed statistically significant. Strong determinants of women's choice of facility delivery included: higher education (AOR=1.9, 95% C.I. 1.16-3.04, p=0.01), women with four or more (4+) ANC visits (AOR=5.4, 95% C.I. 2.54-11.29, p<0.01), women who disagreed to 'home birthing tradition' (AOR=2.4, 95% C.I. 1.18-4.85, p=0.02). Despite women having high level of knowledge on obstetric risk factors, preparedness for birth was shown to be low in this study. It is therefore critical for stakeholder to redefine strategies towards improving birth preparedness among women if the Sustainable Development Goals are to be attained.

Keywords; Facility delivery, birth, preparedness, obstetric risks.

INTRODUCTION

Birth-preparedness and pregnancy complication readiness is a comprehensive strategy aimed at promoting the timely utilization of skilled maternal and neonatal health care (Markos & Bogale, 2014). The key elements of birth preparedness include: knowledge of danger signs; and plans for where to give birth, use of birth attendant, transportation and saving money (Solnes Miltenburg et al., 2013). In addition, a potential blood donor and a decision maker need to be identified. The literature regarding the effectiveness of birth preparedness interventions to increase use of skilled professionals at delivery is very limited. For example, Solnes et al., (2013) review of more than 150 studies of the effectiveness of a broad range of behaviour change interventions to change specific community and household-level behaviours within Safe Motherhood programs identified only seven studies from projects that aimed to increase use of health services. The interventions evaluated in the seven studies varied, but all relied on various health education, communication, participatory, or social support strategies. In six of the studies that emphasized increasing knowledge of the danger signs of pregnancy, all reported an increase in participants' knowledge, although statistical testing was not reported in all cases. Three of the seven studies documented increases in use of skilled delivery care. None of the studies, however, could attribute these increases to behaviour change interventions due to limitations in study design, sample size, and the absence of reported data regarding exposure to the package of interventions. Birth preparedness lacks evidence regarding the effectiveness of its implementation nonetheless the concept has been used widely in Safe Motherhood programs. Kaso and Addisse, (2014) mentioned that birth preparedness

and complication readiness (BP/CR) is a safe motherhood strategy whose objective is to promote the timely use of skilled maternal and neonatal care during childbirth or obstetric emergencies by reducing delays at the first, second, and third stages of labour and delivery process. BP/CR is a broad and integrative strategy; evidence related to its comprehensive implementation is scarce. However, its components are included in the World Health Organization's (WHO) model for antenatal care as part of focus antenatal care education in clinic setting. Based on critical primary research in India, WHO and UNICEF, (2009) also recommend antenatal and postnatal home visits to counsel mothers, provide new-born care and facilitate referral. Emphasized by Ekabua, Ekabua, and Njoku, (2011) in a settings where there is prevailing illiteracy, lack of infrastructure and poor transport system, the principle and practice of (BP/CR) have the potential of reducing the existing high maternal and neonatal morbidity and mortality rates. In Ethiopia where BP/CR is barely applied where only 6% of the deliveries were conducted by health professionals. This situation well explains the maternal mortality ratio of 673 per 100,000 live births, which is one of the highest in the world (Ekabua et al., 2011).

Education is very important in analysing the decision of whether to seek care at health facility or not. Lack of knowledge of the recognition of danger signs and complications and less perceived severity of pregnancy related problems are among the factors that can extend the time to make decision in seeking health care. In developing countries, more than 60% of women have been given the knowledge on danger signs during ANC visits (Bintabara, Mohamed, Mghamba, Wasswa, & Mpembeni, 2015). In southern Tanzania, the more women have knowledge of at least four or more danger signs the more they utilize health facility than those who have no knowledge of any danger signs and are more likely to use TBAs or relatives. The danger signs are not the actual obstetric complications, but symptoms that are easily identified by non-clinical personnel. Danger signs of pregnancy are mainly classified into three categories: the most common key danger signs during pregnancy include severe vaginal bleeding, swollen hands/face and blurred vision. Major danger signs during labour and childbirth include severe vaginal bleeding, prolonged labour (>12 hours), convulsions and retained placenta. Major danger signs during the postpartum period include severe vaginal bleeding, foul-smelling vaginal discharge, and fever (Markos & Bogale, 2014).

Birth preparedness promotes maternal healthcare service utilization to ensure safe motherhood by reducing the delay in deciding to seek care, reaching the health facility and receiving timely care. This study specifically assessed knowledge and practice of birth preparedness among expectant mothers attending antenatal clinic at Tamale Teaching Hospital.

METHODS

This study was conducted at Tamale Teaching Hospital, a referral centre for cases from regional hospitals, districts hospitals, private hospitals, and several health centres within and outside the Northern Region. Institution based cross-sectional study was conducted from February 16, 2016 to April 16, 2016. Adopting a simplified formula from Yamane (1967) the sample size was used determined; 345 participants. For the purposes of the study, all pregnant women and mothers who were present during the period of exclusive breastfeeding (within 6 months after delivery) qualified to take part in the study. In contrast, pregnant women who migrated into the metropolis during data collection were excluded from the study. Ethical clearance letters were obtained from University of Cape Coast's Institutional Research Ethics Review Board with reference number UCC/IRB/3/40, Tamale Teaching Hospital with reference number TTH/R&D/SR/13/171, Northern Regional Health Directorate reference number GHS/NR/18-0/51 and Department of Nursing, UCC reference number SN/77/vol.2/ for permission to conduct the study. Data were collected using a self-administered pre-tested and structured questionnaire which were double entered into excel, validated for data entry errors and export onto SPSS version 20.01 for windows and analyzed. Variables having p value ≤ 0.05 in the multivariate analysis were taken as significant predictors for birth preparedness.

RESULTS

Table 1: Demographic and general information

Variable	Frequency	Percentage
Age		
11-20	68	19.7
21-30	188	54.5
31-40	77	22.3
41-50	12	3.5
Total	**345**	**100**
Ethnicity		
Dagomba	180	52.2
Gonja	45	13.0
Ewe	16	4.6
Akan	19	5.5
Konkomba	11	3.2
Bimoba	10	2.9
Gruni	14	4.1
Dagaaba	22	6.4
Others	28	8.1
Total	**345**	**100**
Religion		
Muslim	235	68.1
Christian	100	29.0
Traditionalist	10	2.9
Total	**345**	**100**

Table 1: Demographic and general information continues

Variable	Frequency	Percentage
Marital Status		
Single	73	21.2
Married	250	72.5
Widowed	8	2.3
Divorced	14	4.1
Total	**345**	**100**
Educational Status		
No formal education	110	31.9
JHS	75	21.7
SHS	56	16.2
Tertiary	104	30.1
Total	**345**	**100**
Occupation		
Unemployed/housewife	62	18.0
Trader	86	24.9
Student	22	6.4
Skilled worker	70	20.3
Farmer	20	5.8
Public/civil service	85	24.6
Total	**345**	**100**

Table 1: Demographic and general information continued

Variable	Frequency	Percentage

Income Status		
Low Income	243	70.4
Middle Income	90	26.1
High Income	12	3.5
Total	**345**	**100**

Table 2: Obstetric history

Variable	Frequency	Percentage
Place Of Delivery Of Previous Child		
Home	62	25.4
Shrine	4	1.6
Way to referral centre	5	2.0
Health post/CHPS compound	17	7.0
Hospital	156	63.9
Total	**244**	**100.0**
Birth Attendants At Delivery Of Previous Child		
TBA	39	16.0
Mother-In-Laws	34	13.9
Passers-By	2	0.8
Midwife	136	55.7
Doctor	33	13.5
Total	**244**	**100.0**
Mode of delivery of previous child		
Spontaneous Vaginal Delivery	206	84.4
Vacuum Extraction	1	0.4
Caesarean Section	37	15.2
Total	**244**	**100.0**

Table 2: Obstetric history continued

Variable	Frequency	Percentage
Number of visit to ANC		
Once	23	9.4
Two	24	9.8
Three	32	13.1
Four Plus	165	67.6
Total	**244**	**100.0**
Gestational age of current pregnancy before start of ANC		
0-3months	131	38.0
4-6months	181	52.5
7-9months	33	9.6
Total	**345**	**100.0**
Source of Information About Birth Preparedness		
Doctor/Midwife	250	72.5
Radio/TV/News Paper	51	14.8
Internet	35	10.1
TBA	9	2.6
Total	**345**	**100.0**

Table 3: Knowledge on Obstetric Risk Factors

	Strongly disagreed n (%)	disagreed n (%)	Agreed n (%)	Strongly agreed n (%)
Danger signs pregnant women may experience during pregnancy and birth				
Severe vaginal bleeding	3(0.9)	49(14.2)	207(60)	86(24.9)
Hyperemisis gravidarium	6(1.7))	79(22.9)	189(54.8)	71(20.6)
Reduced/loss of faetal movement	2(0.6)	39(11.3)	210(60.9)	94(27.2)
Oedema	4(1.2)	86(24.9)	186(53.9)	58(16.8)
The main medically related conditions in pregnancy				
BP	4(1.2)	40(11.6)	215(62.3)	86(24.9)
Malaria	4(1.2)	34(9.9)	218(63.20	89(25.8)
Anaemia	4(1.2)	36(10.4)	207(60.0)	98(28.4)
Dangerous practices to both faetus and mother				
Locally prepared concoction.	6(1.7)	26(7.5)	210(60.9)	87(25.3)
Over the counter drugs	7(2)	14(4.1)	206(59.7)	102(29.6)
Fights	2(0.6)	2(0.6)	206(59.7)	123(35.7)
Infection prevention practices				
Sleeping under insecticide treated net	1(0.3)	59(17.1)	163(47.2)	122(35.4)

Variable	Frequency	Percentage
Inadequate knowledge	62	18.0
Adequate knowledge	283	82.0
Total	**345**	**100.0**

The findings from Table 1 revealed 54.5% were within the category of 21-30 years, 72.5% were married, 30.1% were without education, 68.1% belonged to Islam, 52.2% were Dagbamba and Gonjas were 13.0%. The rest of the identifiable ethnic groups encountered during the study included:

Ewe (4.6%), Akan (5.5%), Kpamkpamba (3.2%), Bimoba (2.9%), Gruni (4.1%), and Dagaaba (6.4%) respectively. With respect to occupation, the findings showed 24% worked in the civil/public sector, 20.3% were skilled workers, 24.9% traders and only 5.8% were farmers. However, 18% were unemployed and over 60% of respondents were not salaried workers and were engaged in businesses with irregular sources of income. Hence, overwhelmingly 70.4% of the participants were low-income earners, 26.1% represented middle-income earners and only 3.5% belonging to high-income category.

This study uncovered 101 participants, representing 31.3% were primids (pregnant for the first time), 28.7% had given birth for the first time, 26.4% had two children and 13.6% had three or more children. With regards to place of previous delivery, 63.9% of the study populace delivered in the hospital, 25.4% at home and 7.0% at a health centre/ CHPS compound. The results revealed also that 55.7% of expectant mothers gave birth with the midwife as birth attendant, 16.0% were delivered by the TBA, 13.9% by mothers-in-law and 13.5% by a doctor. For mode of delivery, findings showed that a majority (84.4%) delivered their previous children naturally. With regard to gestational age of participants' current pregnancies at the first visit to ANC, the findings indicated 38.0% reported for the first ANC visit from 0-3 months pregnant. About (62.1%) came for ANC services late and this could result in poor preparedness with it attendant problems. In relation to participants' source of information on obstetric risks 72.5% got their information from a doctor or a midwife.

The respondents were probed on danger signs pregnant women may experience during pregnancy and birth and 60% agreed to vaginal bleeding, 54.8% agreed to hyperemisis gravidarium, 60.9% to loss of faetal movement and 53.9% agreed to oedema as being obstetric risks. A majority (87.2%) agreed that high blood pressure was an obstetric emergency in pregnancy. About 63.2% agreed malaria is a medical condition in pregnancy while 60.0% agreed to anaemia. In the study, expectant mothers' knowledge was also evaluated on dangerous practices to both mother and foetus. About 60% agreed to locally prepared concoction *(kalgutim)*, 60.9% to over the counter drugs and 59.7% agreed to domestic violence as practices that could endanger both mother and foetus. In ensuring infection prevention practices during pregnancy, 82.6% agreed to sleep in insecticide treated net as a measure to prevent infection. Overall, the knowledge of participants on pregnancy related issues was very good as 82% exhibited adequate knowledge compared to 18% with inadequate knowledge.

DISCUSSION

The findings showed that 54.5% of the respondents were within 21-30 years of age. This was predictable because most women marry at this age and would like to have babies during this period in life to continue their generation. This notwithstanding the study also revealed 19.7% were below the age of 20. Despite the fact that risk of maternal death for mothers within 11-20 years in low-and middle-income countries doubles that of older females 21-40, nevertheless, this group of very young adolescents is often beyond the reach of national health, education and maternal health services (Markos and Bogale, 2014; Cooke & Tahir, 2013). Markos and Bogale, (2014) stated, older women were more likely to seek maternal healthcare than younger women. Similarly, in Nigeria, women in the middle child bearing ages were more likely to use maternal health services than women in early and late child bearing. And so being of older age at marriage is positively associated with the use of healthcare services (Cooke & Tahir, 2013). One study in rural India also reported that utilization of antenatal care was higher among women married at 19 or older compared to those married at less than 19 years (Nawal & Goli, 2013). Early marriage or child marriage is practiced more often in Africa and Southern Asia. The western world is no exception where teenagers marry and/or just live together against the parents' wishes. However laws have been passed against older men having sex with underage girls (Campbell et al., 2013). Under such circumstance these girls may be restricted from seeking healthcare services because of fear or need for permission from a spouse or in-laws.

Women who had at least primary education were more likely to be prepared for birth and its complications compared to those who did not. These findings have also been observed in the study conducted in Mpwapwa district Tanzania, rural Uganda, North Ethiopia and Indore City India (Agarwal et al., 2010). This might be due to the fact that educated women know the importance of planning for birth, adhere to counseling provided at ANC, and also have the capability of making decisions on issues related to their health. Hence, the

findings indicated, as educational level of these expectant mothers increased there was a corresponding increase in the likelihood of facility delivery. The study further revealed that respondents who were poorly prepared for birth were those with no formal education and the well prepared ones were respondents with high education. Education was found in this study to be integral and directly proportional to birth preparedness, therefore there was an association between expectant mothers' education and preparedness for birth. Another study by Urassa et al., (2012) showed that women with formal primary education and above were two times more likely to be prepared for birth and complications compared to those who lacked formal education. The high level of birth preparedness of the educated women might be related to the fact that women who are educated are more likely to be financially sound and also have better negotiating power and are able to make their own decisions in matters concerning their health than women who are uneducated. Another reason why better-educated women were more prepared for birth is their ability to better understand health messages and search for more information regarding health issues. According to Kabakyenga et al., (2011) similar studies conducted in Tanzania and in Ethiopia have shown separately clear relationship between high education and awareness of danger signs of pregnancy. Hence, better-educated women are more aware of health problems, know more about the availability of health care services and use this information more effectively to maintain or achieve good health status. Mbalinda et al., (2014) also reported that women's education is a key determinant of maternal healthcare utilization. Similarly, Indian women with high school education and above were found to be 11 times more likely to use antenatal care compared to illiterate women (Agarwal et al., 2010). Education of women is therefore likely to enhanced autonomy so that women could develop confidence and capabilities to make decisions regarding their own health.

In terms of religion, the study revealed that more Christian women were likely to deliver in a health facility than traditional and Islamic women. This could be as a result of certain beliefs and practices by Muslims and Traditionalists that encourage home delivery. Many communities in the north, it is customary for a woman with her first pregnancy to deliver at home and undergo some rituals deemed necessary for survival of both mother and her new born. Religion also played a key role in this study concerning birth preparedness. In a study conducted in Nigeria, the level of preparedness for birth was significantly higher among the Igbos (in the south) and the minority tribe compared to the Hausas (in the north) (Iliyasu et al., 2010b). The Islamic religion may have had a strong influence on the cultural beliefs and traditions on childbirth in the north. Also, some women in this study chose to turn to their deities when it comes to having babies similar to Ancient Egyptian women who incorporated rituals and ceremonies as an integral part of the pregnancy and birth experience by tuning to Meskhenet, a Goddess associated with the place of birth, and respect for her was essential for a normal birth (Crowther & Hall, 2015). The new brand of Pentecostalism also interferes with timely health care utilization as women see pastors, prophets and general overseers for special anointing when it comes to pregnancy and birth. For Catholics, believe in the Virgin Mary cannot be overemphasized. Women who had a salaried job were more likely to be prepared for birth and its complications compared to women who were not employed at the time of the survey. This finding was comparable with the studies conducted in Southern Ethiopia and Uganda (Asp et al., 2014). This might be due to the fact that paid employment meant a greater likelihood of having cash that can be used to prepare for birth and its complications.

The study uncovered 101(31.3%) of the participants were primids (pregnant for the first time) but the rest of the participants had ever given birth to at least one child in the past. Being pregnant for the first time could pose significant risk on the novices preparing for birth and birth experiences but literature indicated because of perceived risk associated with first pregnancy, a woman is more likely to seek maternal health care services for first order than high-order births (Kabakyenga et al., 2012). Having more children may also cause resource constraints, which have a negative effect on health care utilization. One of the important predisposing factors for utilization of health care is family size. Women from large families underutilize various health care services because of too many demands not only on their time but also on their resources if any. Findings from this study showed that very few women booked for ANC during the first trimester and those who did so were more likely to be prepared for birth and its complications compared to those who booked after first trimester. In contrast, a study done in Nigeria found that those who booked late were more likely to be prepared for birth and its complications (Ekabua et

al., 2011). The difference in these findings may be due to the fact that at the Tamale Teaching Hospital counseling on birth preparedness is done on each ANC visit and repeated counseling among those who book early for ANC may lead to adherence to counseling. Also the study in Nigeria was done at health centres where preparedness may not be effective compared to that of a teaching hospital. Also, it was found that women who attended to ANC for at least four times were more likely to be prepared for birth and its complications compared to those who attended less than that. This suggested that attending many antenatal care services visits was an opportunity to inform pregnant women and help to plan for the important components of birth preparedness. At the Tamale Teaching Hospital antenatal care guidelines and counseling on birth preparedness are required in all visits and so it is expected that women who attended four or more ANC visits received repeated counseling on how to prepare for birth.

On account of mode of delivery, it was evident in this study that an overwhelming 84.4% of respondents delivered their previous children spontaneously (naturally), 15.2% by caesarean section and 0.4% by vacuum extraction. Even though most of those deliveries were conducted by skilled birth attendants (SBA) a significant number of pregnant women still patronize the services of unskilled birth attendant including: mother-in-laws, TBAs, herbalists, etcetera. These findings were consistent with that of Adu-Gyamfi, (2012) who reported, 52% of childbirths were assisted by skilled personnel in a Ghanaian study.

As the occurrences of complications during the process of childbirth are unpredictable, every woman needs to be aware of the key danger signs of obstetric complications during pregnancy, delivery and the postpartum period. This knowledge will ultimately empower them and their families to make prompt decisions to seek care from skilled birth attendants. In this study, women who had knowledge on obstetrics danger signs were more likely to be prepared for birth and its complication compared to those who did not have. This can be explained by the fact that knowing obstetrics danger signs may encourage women to be prepared for birth because they know that when any danger sign occurs, they are likely to be attended if they are in hospital.

It was also observed that women who prepared for birth and its complications were more likely to deliver at health facility compared to those who did not. The findings were in agreement with that of Moran et al., (2006). Women who prepared for birth are more likely to know where to go for childbirth and tend to know the importance of having safe delivery which is usually available at health facility. Empowering pregnant women with knowledge will go a long way to improve on facility delivery. Studies in southern Tanzania showed that the more women have knowledge of at least four or more danger signs the more they utilize health facility than those who have no knowledge of any danger signs (Bintabara et al., 2015). Maternal morbidity and mortality could be prevented significantly if women and their families recognize obstetric danger signs and promptly seek health care services during labour, delivery and early postpartum period under the supervision of a skilled birth attendant (SBA). Evidence suggests that raising awareness in women about obstetric danger signs would improve early detection of problems and reduces the delay in deciding to seek obstetric care (Hailu et al., 2011). It is the essential first step in the appropriate and timely referral to essential obstetric care. Similarly, because most babies are born at home or are discharged from the hospital in the first 24 hours, increasing community awareness of the danger signs of new-born complications is of critical importance for improving new-born survival. Thus, this has been identified as one of the key strategies for improving maternal and child health (Tura et al., 2014).

Conclusion

The knowledge of participants on pregnancy related issues was very good as 82% exhibited adequate knowledge. Women who had knowledge on obstetric danger signs were more likely to be prepared for birth and its complication compared to those who did not have. It was also observed that women who prepared for birth and its complications were more likely to deliver at health facility compared to those who did not. Empowering pregnant women with knowledge will go a long way to improve on facility delivery.

Limitation

It is possible that there may have been different degrees of recall bias between women.

There is likelihood that the birthing experience of some women could have modified their responses to questions on knowledge of danger signs or birth preparedness but this could not have adversely affected the findings observed in this study.

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