Knowledge of Birth Preparedness and Complication Readiness among Pregnant Women Seeking Care in a Tertiary Hospital in Ghana

ABSTRACT

Aims: This study explores the knowledge of pregnant women who are in their third trimester on danger signs associated with pregnancy and childbirth as well as their awareness of the concept of birth preparedness and complication readiness (BPACR).

Study Design: Qualitative exploratory design

Place and Duration of Study: Directorate of Obstetrics and Gynaecology, Komfo Anokye Teaching Hospital, Kumasi, Ghana, between April 2018 and May 2018.

Methodology: Participants were pregnant women between the ages of 18 and 49 years who were in their third trimester and had been referred to the hospital's outpatient clinic for further management. Using data saturation as the benchmark, eleven (11) pregnant women were recruited in the study. Data was collected through individual face-to-face interviews with a semi-structured interview guide. Interviews were audio recorded, transcribed verbatim, coded and subjected to thematic content analysis.

Results: Majority (10/11) of participants had a high level of knowledge about danger signs in pregnancy. Most (8/11) however had no knowledge about the danger signs of labour and the postpartum period. Participants had received education about good nutrition, exercise and personal hygiene but were unaware of all other elements of BPACR, though they had attended at least four antenatal clinics in the current facility.

Conclusion: The level of knowledge about the danger signs of labour and in the postpartum period as well as awareness of the concept of BPACR was very poor. Midwives must ensure these subjects are well discussed during antenatal clinics and steps are taken for all mothers to receive the required information irrespective of lateness to the clinic.

Keywords: 'Birth Preparedness and Complication Readiness', 'Pregnant Women', 'Dangers Signs', 'Labour', 'Postpartum'

1. INTRODUCTION

In most societies, when a woman becomes pregnant, it is well appreciated and a normal birth is usually anticipated to bring joy to the family [1]. However, the outcome of birth cannot be predicted. It may end up in morbidity or mortality and this has been a burden for low and middle-income countries like Ghana [2]. Therefore, there is a need to plan ahead to overcome any eventualities that may arise. In an attempt to reduce the complications associated with pregnancy and childbirth, an approach was initiated by the Maternal and Neonatal Health Programme of John Hopkins Program for International Education in Gynaecology and Obstetrics (JHPIEGO). This strategy, referred to as the Birth Preparedness and Complication Readiness Matrix, addresses the delays in obstetric care [3].

Birth preparedness and complication readiness (BPACR) is a strategy to make the pregnant woman, her family and community plan for normal birth. It also equips them to be aware of danger signs in pregnancy, labour and postpartum in order to make adequate preparation for potentially associated complications [4]. Midwives, therefore, educate mothers in their prenatal period to equip them with necessary information about the pregnancy and child birth to enable mothers plan appropriately. Prenatal education contributes to positive obstetric outcome, reduces the anxiety and stress that accompany pregnancy, prepares women and their families for a successful child birth and reduces complications [5].

More than 40% of women suffer from acute obstetric complications worldwide and this can be attributed to the four delays – delay in identifying complications, delay in deciding to seek health care, delay in identifying and reaching health facility, and delay in receiving adequate and appropriate treatment at the facility [3]. According to the World Health Organization (WHO) report 2015, 66% of the 303,000 maternal deaths recorded worldwide, were in Sub-Saharan Africa [6]. In Ghana, maternal mortality in 2017 was

308 per 100,000 live births [7]. The report further highlights that most of these deaths could have been prevented if prior preparations were made to ensure access to a skilled birth attendant or health facility for delivery [6].

At the Komfo Anokye Teaching Hospital, one of the major referral centres in Ghana, 102 maternal deaths were recorded at the Obstetrics and Gynaecology Department, according to the 2017 performance review report. Of these, 61.8% were referred from other facilities, 43% died within 24hours after delivery, and 4 were brought in dead.

Health education sessions are an inherent component of antenatal care in Ghana, as it provides the opportunity for midwives to discuss with expectant mothers about possible danger signs during pregnancy, labour and postpartum, possible complications that may occur, and how to plan adequately to meet needs that may arise. How effective have these sessions been towards enabling pregnant women prepare adequately for childbirth? Several studies within the Ghanaian context have focused on investigating the effectiveness of counselling and education session carried out during ANC in helping pregnant women achieve birth preparedness and complication readiness [8–11]. These studies were carried out in primary or district level facilities or communities, and employed a quantitative methodology. The individual perspectives and challenges of pregnant women, especially those in their third trimester, remains unexplored. Secondly, the perspective of pregnant women referred to referral centres like teaching hospitals in Ghana remains unknown.

This study therefore seeks to explore the knowledge of danger signs associated with pregnancy, labour and delivery, as well as awareness on BPACR among pregnant women in their third trimester who had been referred to the Obstetrics and Gynaecology Directorate of the Komfo Anokye Teaching Hospital, Kumasi, for further management.

2. METHODOLOGY

2.1 Research Design, Setting and Population

A qualitative, exploratory study design was used in order to obtain specific information and opinions from pregnant women about how they prepared towards birth, and to understand the reasons some pregnant women do not make adequate preparation towards birth, leading to delays in obstetric care and preventable complication.

2.2 Study Setting and Population

The study was conducted at the Komfo Anokye Teaching Hospital (KATH), Kumasi, Ghana. The hospital acts as a referral centre for hospitals in the Ashanti, Eastern, Western, Bono, Ahafo, Volta and three Northern Regions. One of its 11 clinical directorates is the Obstetrics & Gynaecology Directorate which has a bed capacity of 154 and is comprised of 12 functional units. In 2017, the Directorate attended to 41,385 out-patients, 12,917 in-patients, and conducted 8,438 deliveries.

The target population in this study was pregnant women attending antennal clinic (ANC) at the Obstetrics & Gynaecology Department of the Hospital. Pregnant women in their third trimester who were referred there for further care towards delivery during the study period were recruited. However, pregnant women who were acutely ill and reporting to the facility for treatment were excluded as well as those who were below 18 years of age because they are considered minors according to the laws of Ghana [12].

2.3 Sampling Technique and Size

A purposive sampling technique was used to recruit pregnant women who fit into the inclusion criteria. A sample size of eleven (11) was used on the basis of data saturation, the point at which any further information obtained from participants is redundant [13].

2.4 Data Collection Method and Tool

Data was collected through individual face-to-face interviews using a semi-structured interview guide. The interview guide comprised of two sections: the first section enquired from pregnant mothers about demographic characteristics (age, level of education, marital status, parity, number of antenatal clinic visits, and current gestational age), and the second section had questions about the objectives of the study. Some questions from the second section were: kindly tell me about some of the danger signs of pregnancy, labour and after delivery; tell me about what you are taught during antenatal care clinics. Interview guide was piloted with one participant to check its effectiveness, and some modifications made to ensure clarity in the questions.

Interviews took place at the convenience of participants for an average of fifteen minutes. All interviews were audio-recorded and transcribed verbatim. Field notes were taken for the nonverbal signals of the participants and placed in square brackets. Interviews were conducted in arranged offices at the high

dependency obstetrics ward, the antenatal ward, and the antenatal clinic while the participants waited for their turn to see the Obstetrician or after they had been attended to. Study objectives were explained to participants individually and informed consent obtained. Data was collected over a period of three weeks.

2.5 Data Analysis and Management

Data was analyzed using thematic content analysis. Interviews were coded, and organized into subthemes and themes. Illustrative quotes under each subtheme are presented in the findings.

Audio-records of interviews, transcripts and field notes were numbered and cross-checked for completeness, clarity and consistency at the end of each interview. Audio record of interviews, transcripts and field notes have been kept under lock and key, available only to researchers.

2.6 Methodological Rigor

Lincoln and Guba (1985) have developed four criteria – credibility, dependability, confirmability and transferability – to ensure the trustworthiness of the findings of qualitative studies [14]. Credibility was ensured by pretesting the interview guide. Interviews and transcripts were audited by supervisors to ensure inferences drawn were a true reflection of data obtained to guarantee dependability of the findings. Thick description of the study setting was given to ensure transferability, and processes carried out in the study described in detail to enable confirmability of study findings.

3. Findings

Participants were pregnant women aged 26 and 39years, majority (10/11) had received formal education, were employed (10/11), married (10/11) and multiparous women (10/11). The current gestational age of participants ranged from 31 – 41weeks and they had attended 4 to 12antenatal clinics during the current pregnancy. Detailed demographic information of each of the participants is illustrated in table 1 below. Following thematic content analysis of the transcribed interviews, two (2) themes and five (5) sub-themes emerged and have been illustrated in table 2 below.

Table 1 Details of the participants

Code	Age (years)	Highest Education	Marital status	Parity	Number of Visits	Current Estimated Gestational Age
PW01	36	None	Married	G7P6AA	7	41 weeks
PW02	35	Tertiary	Married	G4P32A	8	40week+4D
PW03	39	Basic	Married	G7P4,2d+3	8	36weeks+3D
PW04	28	Basic	Married	G6 P4+1	4	31weeks+4D
PW05	27	Basic	Married	G2 P1A	5	33weeks+4D
PW06	31	Tertiary	Married	G1P0	11	38weeks+0
PW07	26	Secondary	Single	G3P0+2	7	35weeks+2D
PW08	36	Secondary	Married	G2P1A	5	35weeks+5D
PW09	31	Tertiary	Married	G2P0+1	11	38weeks+3D
PW10	29	Tertiary	Married	G2P0+1	12	33weeks+5D
PW11	33	Tertiary	Married	G2P1A	8	35weeks+0D

Table 2 Themes and sub-themes

THEME	SUB-THEME
Pregnancy, Labour and Postpartum Knowledge	Knowledge about pregnancy and labour
	Knowledge on danger signs in pregnancy
	Knowledge on danger signs during labour
	Knowledge on danger signs postpartum
Awareness of BPACR	Receiving prenatal education on BPACR

3.1 Pregnancy, Labour and Postpartum Knowledge

3.1.1 Knowledge about pregnancy and labour

Participants had adequate knowledge about pregnancy and labor. They easily explained the process of getting pregnant, the duration of pregnancy as nine months or 40 weeks, when to start antenatal care clinic, and which medications must be taken routinely to ensure healthy outcomes. This is illustrated in the following comments from participants:

> *What I know is that when a man and a woman meet, you can miss your period… You can do a pregnancy test. From there you visit the hospital for a confirmation. If the doctor confirms then you start antenatal visit. Initially you will be asked to take folic acid to make the baby strong. From there you continue with antenatal clinic every month. When you go the nurses will check your blood pressure and urine to find out if there is any disease or you are ok. From three months onwards the doctor may prescribe the appropriate drugs for you. You visit the clinic every month for seven months, from the seventh month you visit every two weeks for about one and a half months then the doctor will ask you to come every week till the fortieth week. It is said the normal period is 40 weeks but from 38 weeks one can give birth but if labour does not set in then you come for the doctor to take charge of that". (PW02)*
>
> *You get pregnant and it takes about 40 weeks before you deliver and if you notice that you are pregnant you have to go for a checkup. From the checkup you will do labs, some will request for scan and after three months you have to start clinic…. I don't know much about labour because the first one was c/s. When you are getting closer to your due date you will feel the contraction, but it does not last for long, it may be false labour and the water will break [laughs]" (PW11)*

Another participant, however, felt the most noteworthy aspect of pregnancy is praying for a safe delivery, taking good care of the child and planning one's family. She said:

> *When you are pregnant you pray for a safe delivery and after you have delivered you take good care of the child. I know after delivery I will do family planning to protect myself because when I took the scan, they said they are twins and for six children I have to prevent further pregnancy so that I will be able to take care of them. (PW04)*

A 28-year-old nulliparous woman at 31 weeks gestation highlighted not having enough experience and discussed what she had heard, as follows:

> *Pregnancy is difficult. As for labor it's just a day. For pregnancy, I have heard that the complications are many. It contains a lot and the number of times you have to urinate, sickness, you become weak and you can't even control yourself. As for labor what I know is the push. Only the push. I don't know much ooo. (PW06)*

3.1.2 Knowledge about danger signs in pregnancy

Majority (10/11) of the participants were able to mention spontaneously more than three major danger signs in pregnancy including vaginal bleeding, swollen feet, severe headache, lower abdominal pains, loss of fluid (liquor), reduced or absent fetal movement and severe headache. These are examples of the remarks of some participants:

> *Personally, I have not had any such experience but if you cannot feel the baby kicking, you have to come for checkup. During the clinic we are taught that if you have swollen feet, it could be sickness but not as people think is a sign that you are going to give birth to a baby boy. If you see this you have to report. Some people may also have vomiting, though it is normal to vomit during pregnancy but if yours is severe and continuous and the headache is severe after taking pain killer but it persists it could be a danger sign. (PW02)*

I know when you are pregnant and you are bleeding you have to go to the nearest hospital... Another thing is also lower abdominal pains, dizziness, vomiting, and swollen feet. In this pregnancy my feet have been swollen but when I complained to the midwives, they said it's normal with pregnancy so they gave me the same drug" (PW04)

When I can't feel the baby moving, I have to go to hospital and if I am not feeling well, I need not go to drug store to buy drugs but I have to go to hospital. (PW08)

One participant who could, however, not differentiate between normal pregnancy-related discomfort and danger signs of pregnancy, said:

A lot of people I have seen during pregnancy can't even eat. Some become restless. They can't do anything. Others too can stay at one place and can't go anywhere; they can be in bed till their time of delivery. And there are certain cases too immediately the lady eats she vomits and you see them very pale. These are some of the challenges. Yes err, when you see blood. When you are pregnant and you see blood from your private you need to report and at times you see your lips very swollen and when you have a pain in your abdomen. (PW09)

3.1.3 Knowledge about danger signs in labour

Majority (9/11) of the participants had no idea what signs denoted danger during labor. Most said, "*For labor I don't know anything oo, may be that day I was not around [during education at the antenatal clinic]*". (PW10)

Few (2/11) participants however knew some of the danger signs in labor to be heavy vaginal bleeding and dizziness. One participant said:

It is normal to experience the passing of fluid and small amount of blood. This is an indication that the womb is opening up. However, if the bleeding is continuous and heavy, it could be very dangerous. Aside that I do not know any other sign. (PW02)

Another participant also said, "*When you are having dizziness you don't need to stay at home"* (PW01).

3.1.4 Knowledge on danger signs after delivery

Most (8/11) participants had no knowledge of the danger signs after delivery, and mentioned straightforward that they "had not heard about that" (PW05) or "not learnt about it" (PW10). Three (3) participants were, however, able to identify some danger signs after delivery to be bleeding, dizziness and severe abdominal pains. This is illustrated in the following quotes:

After birth severe bleeding is also a sign. If you also have severe abdominal pains, you have to report for attention (PW02)

If you are bleeding, I know it's dangerous. Aside that I don't know any again (PW03)

After delivery there is something called after pains and sometimes you can have dizziness and can even fall. It is very serious and when that happens you have to go to any hospital near you. (PW04)

3.2 Awareness of BPACR

3.2.1 Receiving prenatal education on BPACR

Majority (7/11) of participants had not received any prenatal education because they either attended antenatal clinics late or health talks were not delivered at their antenatal clinics. One participant said:

Where I go for clinic, they don't teach us anything, they don't give any education, when you go it's like you are sick and going to see doctor. You go in and he examines you and asks whether you have drugs or it is finished, if you say yes then they tell you the date for the next visit. (PW7)

Another participant, a nulliparous woman, also said:

I don't even have any idea about the pains during the time of labour, at least there should be someone to educate you that it is painful and you have to endure, you have to do this or that, when you see this, it means you are closer to the time… It has been a problem to me because a lady who has never given birth and not having any idea about how to breastfeed my baby…, but I have been complaining to my doctor that we need a midwife to assist us, to talk to us. (PW09)

Another participant who had been reporting late to the antenatal clinic narrated:

Whenever I go, they would have finished with the talk so I never benefited from that. I did not know they were giving education early before the clinic so the last time I went the nurse told me I don't come early so I have been missing the education. (PW08)

Some (4/11) of the participating pregnant women who had been receiving prenatal education touched mostly on balanced diet, exercise and personal hygiene but less on issues related to birth preparedness and complication readiness. Those who recollected education on nutrition, exercise and hygiene said:

We are told to eat good and healthy food with 'ayoyo', fruits and others. We are to have exercise because it helps. They also give us books to read... We are also told to brush our teeth well and take care of our personal hygiene. (PW01)

They teach us to observe personal hygiene, keep your house clean and you the mother should maintain cleanliness because when you are dirty the baby can also be affected. We are also told how to take our drugs. When you see that you have a problem or feel unwell you have to report to your midwife. (PW05)

Other participants sharing the education they had received on need to plan for birth and anticipate complications said:

We are told… to eat a balanced diet so we will be healthy; …how to prepare yourself with the items you will need for delivery… bit by bit. If possible, by the end of the seventh month everything should be set. This is because delivery can occur between seven and nine months. If the items are ready and labor sets in at any time, it is just a matter of picking your things and off you go". (PW02)

When we come one midwife… talks to us on how we should prepare and that when labor starts you will lose fluid so we don't have to wait at home for a long time. We should take the items on the list they gave us and come to the hospital. They also told us to take enough fruits for the baby to be healthy; …to have some exercise and …not be lazy, so that the baby can be active…stand by a pole and bend down and up. They also teach us how to sleep especially on our side not straight (back) so that the baby will not suffer. (PW06)

4. DISCUSSION

Knowledge of obstetric danger signs and complications during pregnancy, labour and postnatal is crucial to appropriate and timely seeking of professional care. Most (10/11) participants of this study were knowledgeable about danger signs during pregnancy although majority of the participants said they did not receive education on BPACR from their caregivers. Almost all the participants were able to mention at least three danger signs in pregnancy. This finding is consistent with studies in Northern Ghana by Kuganab-lem et al. (2014) and Southwest Nigeria by Sabageh et al. (2017) respectively who also reported high level of knowledge of danger signs in pregnancy among their respondents [15,16].

Participants were more aware of vaginal bleeding, swollen feet, severe headache, lower abdominal pains and loss of fluid (liquor) as the danger signs in pregnancy. This study is supported by another study conducted in the Hohoe Municipality where Wurapa et al. (2016), also found that their respondents agreed that haemorrhage, swollen feet and loss of liquor were danger signs in pregnancy [17]. Bleeding during pregnancy has been known as one of the leading causes of maternal mortality in the developing world [18].

Knowledge about danger signs during labour was very low among participants in this study. Only three out of the eleven participants were able to mention at least two danger signs. This may be due to midwives placing less emphasis on the relevance of BPACR. This finding corroborates a previous study by Bitew et al. (2016) in North West Ethiopia in which only 22.6% knew danger signs in labour [19]. On the contrary, Henok (2015) recorded in a study in SouthWest Ethiopia that almost 70% mentioned at least two danger signs in labour [20].

The common danger signs cited by participants were severe bleeding and dizziness as they are familiar with these ones and is consistent with several studies reviewed [16,17,21,22]. It was observed during the interview that some of the participants could not differentiate normal signs of labour from the danger signs as losing liquor during labour, which is a normal process, was mentioned as a danger sign.

Recognizing danger signs after delivery is vital to the woman's quality of care after delivery since ignoring this can be critical for the woman. However, the findings of this current study observed knowledge was very low. Only four participants (36.3%) were able to mention two signs each – severe vaginal bleeing and dizziness. This is higher than that of Bitew (2016) in North West Ethiopia which recorded 9.6% of their respondents as knowledgeable about danger signs in postpartum [19].

Awareness of birth preparedness and complication readiness (BPACR) concept is the key to prevention of complication and improvement in maternal health [3]. Participants had poor level of awareness of the concept of BPACR. The few (4) who had received prenatal education mentioned intake of balanced diet, exercise and personal hygiene as the focus of all education received during the clinics, though they had attended at least 4 visits as recommended by the WHO [23]. This finding contrasts with findings in Nigeria where Nkwocha et al. (2017) stated that almost 80% of their respondents received information on birth

preparedness and complication readiness and were more knowledgeable about the concept [24]. Again Kabakyenga et al. (2011) in Uganda also stated that majority (98%) of their respondents received education on BPACR which resulted in increase in their knowledge [22].

Though some participants attributed their lack of awareness of the concept of BPACR to starting antenatal clinic at a private facility, they had reported to the present facility on at least 4 occasions which was enough time to have been educated on birth preparedness and complication readiness. Some participants also felt their late attendance was the reason for their unawareness. It is important for midwives to develop a strategy of noting which mothers are unavailable during general antenatal clinic education so that different opportunities are given them to receive the required information for safe delivery. Thus, midwives must explore all opportunities to ensure every pregnant woman attending their clinic is adequately informed about BPACR.

5. CONCLUSION AND RECOMMENDATION

Participants had a high level of knowledge of the danger signs in pregnancy but low knowledge of the danger signs of labour and the postpartum phase. Though participants had attended the minimum expected number of antenatal visits, they were unaware of the concept of BPACR, and had been educated only about good nutrition, personal hygiene and exercise during antenatal clinic educational sessions. Aggressive education on the concept and importance of BPACR during antenatal care should be advocated and special reenforcement done during the third trimester; no pregnant women attending antenatal clinic should be left out.

Ethics Statement and consent :

Ethical clearance was obtained from the Research and Ethics Committee of the Ghana College of Nurses and Midwives, the Research and Development Unit of KATH and the Committee on Human Research Publication and Ethics of the Kwame Nkrumah University of Science and Technology, Kumasi.

A written informed consent was obtained from the participants after study objectives had been clearly explained. Confidentiality was guaranteed by ensuring anonymity of participants during interviews, transcription and presentation of study findings. Participants were identified by the researcher using numbers. It was explained to the participants that participation was voluntary and that they could withdraw at any point in time without any explanation and that it would not affect the care they receive at the hospital.

STUDY LIMITATION

A test for association such as Chi square or logistic regression would have been helpful to determine the factors related to the knowledge of pregnant women in the study. However, the sample size used in this study was inadequate to make an inference which is a true representation of the population. A quantitative or mixed study design will be needed for the test of association.

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CONSENT

All authors declare that written informed consent was obtained from all participants of the study prior to data collection and for the publication of study findings. Copies of the written consent is available for review by the Editorial office of this journal.

ETHICAL APPROVAL

All authors hereby declare that, the protocol for this study was reviewed and approved by the Committee for Human Research, Publication and Ethics of the Kwame Nkrumah University of Science and Technology, Kumasi, and ethical approval given with reference number CHRPE/AP/334/18.

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