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Birth Preparedness and Obstetric Danger Signs: Perception and Predictors among Expectant Mothers in Southwest Nigeria

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A B S T R A C T

Planning for safe delivery and anticipating actions needed during obstetric emergencies are vital strategies towards reduction in maternal mortality and morbidity. Study explored perception about danger signs of pregnancy among expectant mothers, assessed level of knowledge about danger signs of pregnancy, examined birth preparedness and related factors among expectant mothers in Ogbomosho, southwest Nigeria. Study employed sequential explanatory mixed method design. Quantitative data was collected using questionnaire adapted from John Hopkins Program for International Education in Gynaecology and Obstetrics, JHPIEGO (2004) from 483 expectant mothers, selected through multistage sampling technique. Binary logistic regression examined relationship between dependent and independent variables, $p < 0.05$ was significant. Focus Group discussion was conducted among 32 participants selected purposively, qualitative responses were analyzed thematically. Quantitative findings revealed that 34.8% of the mothers had good knowledge about danger signs of pregnancy, 65.2% had poor knowledge, 36.9% had adequate preparation towards childbirth while 63.1% had inadequate preparations. Binary logistic regression analysis shows that good knowledge about danger signs of pregnancy ($p=0.03$, $OR=0.54$, $CI=0.31-0.94$) was the main predictor of birth preparedness among expectant mothers. Main themes from qualitative responses include knowledge about obstetric danger signs; recognition of obstetric danger signs; perceived severity of obstetric danger signs and perceived susceptibility to obstetric danger signs. Good knowledge about obstetric

danger signs was the main predictor of birth preparedness; effective maternal health services aiming at favourable pregnancy outcomes should focus on educating women on early identification of obstetric danger signs and prompt decision making capabilities..

I. INTRODUCTION

Safe motherhood ensures that a woman is safe, remain healthy and receives the needed care during pregnancy, labour and puerperium (World Health Organization (WHO), 1998). Pregnancy is a period of expected physiological changes and can also be a period of severe vulnerability to the woman and the unborn child. Global estimate showed that 94% maternal deaths in 2017 reported during pregnancy and after childbirth occurred in low and middle income countries and significant proportion of these death could have been prevented (World Health Organization (WHO), 2019). The report further indicated that Sub-sahara Africa and south Asia accounted for an approximated 86% of the estimated global maternal deaths with sub-sahara Africa alone responsible for nearly two-third of these deaths. Studies have also showed that the risk of maternal death is highest among adolescents girls who are below 15 years old while pregnancy related complications are higher among adolescents girls aged 10-19 years compared to older women (World Health Organization (WHO), 2019).

Nigeria is a leading African countries with the highest reported maternal Mortality rate of 814 per 100000 live births (Ope, 2020) whereas significant proportion of these maternal morbidity and mortality resulting from childbirth and related issues in developing countries could however be prevented if pregnant women recognize obstetric danger signs and seek prompt and appropriate obstetric interventions (Wassihun et al., 2020). In order words, early recognition of danger signs of pregnancy and prompt care by skilled professionals before, during and after childbirth could save the lives of both the mother and the child (World Health Organization (WHO), 2019). Obstetric danger signs are indicators of severe unhealthy or harmful occurrences to the pregnant woman and or her fetus requiring urgent skilled intervention. The danger signs could be life threatening and could result into decline in maternal and neonatal health outcomes if not detected early. The common danger signs during pregnancy include vaginal bleeding, high fever, abdominal pain, severe headaches, blurred vision, convulsion, difficulty in breathing, swelling of hands and feet and absence or reduction of fetal movements (Wassihun et al., 2020). The aim of effective antenatal care therefore is to anticipate, prevent and manage the three commonest causes of maternal mortality which include sepsis, hemorrhage and hypertensive disorders (Ngonzi et al., 2016).

Broadly speaking, major causes of maternal deaths can be categorized as direct and indirect causes: the direct obstetric causes of maternal death are obstetric complications resulting from omissions in the course of treatments or interventions, inappropriate diagnosis and treatment while indirect obstetric causes of maternal death are those causes resulting from existing medical conditions that are developed during pregnancy and which were not due to obstetric causes but may have been aggravated by physiologic effects of pregnancy (Wassihun et al., 2020).

Birth preparedness and complication readiness involve planning for safe delivery and anticipating actions needed during obstetric emergencies (Limenih et al., 2019). This phenomenon is an essential aspect of safe delivery designed to solve various stages of delays in accessing prompt health care during emergencies by empowering women, families and the community in general towards prompt informed decision making. The components of birth preparedness therefore include identification of a convenient place of delivery and skilled

health care provider, making adequate financial preparation and savings, making preparation for important items needed for childbirth, securing a reliable means of transportation, making proper arrangement for blood donation, securing a mode of communication, designating a next of kin whenever necessary, adequate knowledge about obstetric danger sign and preparation to take action when necessary (Johns Hopkins Program for International Education in Gynaecology and Obstetrics (JHPIEGO), 2004; Markos & Bogale, 2014).

Birth preparedness and complication readiness remain vital strategy towards reduction in maternal mortality and morbidity. Additionally, women's perception about danger signs of pregnancy has been linked to care seeking habits among expectant mothers worldwide (Bintabara et al., 2017). Pregnant women's ability to recognize danger signs during pregnancy, child birth and post-partum period are therefore essential towards prompt decision making and early medical care.

Birth preparedness can be measured by assessing mothers' knowledge about identification of obstetric danger signs, and level of preparation towards childbirth (Limenih et al., 2019). A typical African setting believes dangers during pregnancy could result from witchcraft activities and ancestral displeasure (Ayebare et al., 2021). Such misconceptions result in consultations with traditionalists, local birth attendants; contributing to delay in seeking skilled medical care (Ntoimo et al., 2022; Rianga et al., 2018). In addition, studies have further demonstrated that insufficient knowledge about obstetric danger signs among women, families and birth attendants in developing countries contribute to delay in seeking appropriate obstetric care which often result in high incidence of maternal and neonatal mortalities (Bintabara et al., 2017; Nigussie et al., 2019). Adequate and appropriate knowledge about obstetric danger signs remain essential because it help in ensuring adequate birth preparedness for the woman and her spouse. Tamang et al. (Tamang et al., 2021) similarly submitted that adequate knowledge about obstetric danger signs is the first essential step in accepting appropriate and timely referral while positive perception about obstetric danger signs by the pregnant woman will enhance her cognitive disposition towards pregnancy complications and reduce cultural and religious misconceptions typical of most African setting (Bakar et al., 2019). Perception and knowledge about obstetric danger signs has been linked to care seeking habits among expectant mothers (Bintabara et al., 2017). There are however dearth of information regarding perception, knowledge about obstetric danger signs and objective evaluation of level of birth preparedness in this study area; hence this study which aimed at exploring perception about danger signs of pregnancy among expectant mothers, assessed level of knowledge about danger signs of pregnancy, examined birth preparedness and related factors among expectant mothers in Ogbomosh, Southwest Nigeria.

II. METHODS

Variables defined

Outcome variable is birth preparedness categorized as 'adequate' or 'inadequate'. Main independent variables include selected socio-demographic characteristics of expectant mothers. These are variables observed in previous studies to influence birth preparedness among mothers. Other independent variables include mothers' knowledge about danger signs in pregnancy. An expectant mother is a woman whose pregnancy has been confirmed.

Study design

Study employed sequential explanatory mixed method design using quantitative and qualitative data collection methods. The 'Fixed Mixed Method design' was employed in which quantitative and qualitative data collection methods were pre-determined and planned at the beginning of the research process. Quantitative data were collected first using structured interviewer-administered questionnaire from 483 expectant mothers, selected through

multistage sampling technique. This was followed by qualitative data collection. Four sessions of Focus Group Discussion (FGD) were held for the qualitative study using a 12-item FGD guide, 8 discussants participated in each of 4 sessions of Focus Group Discussion giving a total of 32 participants. The FGD guide explored perception about danger signs in pregnancy and birth preparedness among the expectant mothers. Qualitative responses were used to validate quantitative findings

Study setting

The study was conducted in selected health facilities in Ogbomosho town, Oyo state, an area between the savannah and rain forest belts of the south-western Nigeria. Ogbomosho is a metropolitan town founded in the mid-17th century and one of the major towns in southwest Nigeria with an estimated 245,000 inhabitants according to 2006 population census (Federal Republic of Nigeria, 2006). Ogbomosho has five Local Government Areas (LGAs) namely: Ogbomosho south, Ogbomosho north, Oriire, Surulere, and Ogo Oluwa Local Government Areas for ease of political administration and majority of the inhabitants are of the Yoruba ethnic group, which constitute one of the major ethnic groups in Nigeria. The inhabitants are traditional farmers while other forms of skilled professional carrier are also obtainable within the Ogbomosho metropolis. There are however other ethnic groups residing in the metropolitan city including Ibos, Hausas, Fulanis, Ijaws, Igbiras, Urhobos who are engaging in different forms of trading and commercial activities. The town has over ten health institutions which are either privately owned or are owned by the state government.

Study population

Study was conducted among expectant mothers attending routine ante natal clinics in selected health facilities within Ogbomosho metropolis. An expectant mother in this study is a pregnant woman, whose pregnancy has been duly confirmed.

Inclusion criteria

Expectant mothers whose pregnancies have been booked in the selected health facilities were included in this study

Exclusion criteria

Expectant mothers who were critically ill, posing significant challenge to data collection were excluded from this study.

Sample size estimation for quantitative study

The Taro Yamane method for sample size estimation was used to estimate sample size for this study: Given $n = N / 1 + N (e)^2$, where n = estimated sample size, N = sample frame (estimated population under study), e = margin error (given as 0.05 in this study). With 10% attrition rate, an estimated 495 expectant mothers was recruited for this study.

Sampling technique for quantitative study

A total of 495 expectant mothers attending antenatal clinics in selected health facilities within Ogbomosho metropolis were selected through a multi-stage sampling technique: Stage one involved purposive selection of four health facilities namely: Bowen University Teaching Hospital, Ladoke Akintola Teaching Hospital, Ibrahim Taiwo Primary Healthcare centre and Adebayo Taiwo Primary Health care centre, all in Iwo, Oyo state, southwest Nigeria. These are health facilities within Ogbomosho metropolis with highest number of expectant mothers attending antenatal clinics observed during preliminary survey. In the second stage, the total estimated 495 expectant mothers were distributed proportionately among the four selected health facilities (sample proportionate to size). In stage three, eligible mothers in each health facilities were selected by convenience sampling technique. Selection of eligible mothers continued daily at the antenatal clinics in the selected health facilities until the sample size allotted to each facility was attained.

Sample size and sampling technique for qualitative study

Eight expectant mothers purposively selected participated in each of four sessions of the Focus Group Discussion giving a total of 32 participants. Two sessions of the FGD were held among mothers aged 20-29 years old and 40-49 years old respectively giving a total of 4 sessions (these are age groups observed to have higher risk of obstetric dangers in previous studies (Afolabi et al., 2020).

Research instruments

An adapted Johns Hopkins Program for International Education in Gynaecology and Obstetrics (JHPIEGO) Maternal and Neonatal Health Program Monitoring Tool (Johns Hopkins Program for International Education in Gynaecology and Obstetrics (JHPIEGO), 2004) was used for quantitative data collection. The questionnaire was interviewer-administered and consists of section A-D. Qualitative data were collected using a Focus Group Discussion (FGD) guide with 12-item open-ended questions.

Validity of research instruments

Face and content validity of the research instruments were ensured through submission of the instruments to review by experts in Nursing and Midwifery, Obstetrics and Gynaecology, Demography and Social Statistics. Each item of the instruments was reviewed to ensure its appropriateness and ability to meet stated objective. Necessary corrections were effected on the research instruments after review by experts.

Reliability of the instrument

Reliability of the instruments was assessed through test-retest to ensure stability of the research instruments. This involved administering the questionnaire to expectant mothers in a health facility within the study area. This was repeated two weeks apart while internal consistency of questionnaire was examined by calculating Cronbach's alpha value for the questionnaire. A value of 0.78 was estimated.

Procedure for data collection

The aim and objectives of this study were explained to the expectant mothers and informed consent to participate was obtained. Mothers' socio-demographic characteristics such as age, marital status, occupation, highest education status, employment status, average monthly income were obtained using section A of the questionnaire. Section B obtained birth history, Section C assessed knowledge about danger signs of pregnancy, Section D examined birth preparedness among expectant mothers. FGD guide for qualitative data was translated into the local language (Yoruba) and recorded responses were transcribed into English by a language editor. Each session of FGD lasted approximately 60–90 minutes. Handwritten notes were also taken during the discussion and were used to supplement the audio recordings.

Data analysis and scoring

Quantitative data was processed using the Statistical Package for Social Sciences version 25. Analysis was carried out at univariate, bivariate and multivariate levels. Univariate analysis was conducted using the frequency and percentage distribution of mothers' socio-demographic characteristics. Knowledge about obstetric danger signs was assessed using 16 items in section C of the questionnaire. Each correct response was scored '1' point while incorrect option was scored '0'. Scores were summed up to a maximum of 16 points and minimum of '0'. Expectant mothers with total score of 8-16 points were categorized as 'good knowledge' while mothers with total score below 8 points were categorized as 'poor knowledge'.

Birth preparedness was assessed as a composite variable using the 10 items in section D of the questionnaire. Each of the 10 items were scored '1' point. Scores were summed up to a maximum of 10 points and minimum of '0'. Expectant mothers with total score of 5-10 points were categorized as having 'adequate preparation' while mothers with total score below 5 points were categorized as having 'inadequate preparation'.

Predictors of birth preparedness among expectant mothers were examined at the bivariate level with Chi-square statistic to examine association between dependent variable and independent

variables while binary logistic regression analysis was done to examine the simultaneous influence of independent variables on the dependent variables.

Analysis of qualitative data

The qualitative study explored similarities and differences in views regarding mothers' perception about obstetric danger signs. Responses were analyzed and presented thematically.

Trustworthiness of qualitative data

Trustworthiness of qualitative data was evaluated in respect of credibility; dependability; confirmability and transferability.

Credibility of data: The aim and objectives of the study were explained to FGD participants prior data collection. Handwritten notes were also taken during the discussion and were used to supplement the audio recordings. FGD participants were given sufficient time to give their thoughts, clarify issues and contribute to discussion. Each session of FGD lasted approximately 60–90 minutes while total duration for qualitative data collection lasted 4 weeks.

Dependability: Qualitative responses were transcribed into English language by the researchers, codes were generated from FGD responses and were compared. A harmonized version was adopted.

Confirmability: Both audio recordings and field notes were compared and evaluated by researchers during transcription and coding of qualitative responses

Transferability: FGD sessions were held among expectant mothers aged 20-29 years old and 40-49 years old respectively. These are age groups observed to have higher risk of obstetric dangers in previous studies (Afolabi et al., 2020)(Afolabi et al., 2020)(Afolabi *et al.*, 2020)(Afolabi et al., 2020). FGD sessions were held independently among these groups of expectant mothers to ensure homogeneity of responses and to ensure generalizability of our study findings.

Ethical consideration

Ethical permissions for this study were obtained from the Ethics and Research Committee of Bowen University, Iwo, Osun state, Southwest Nigeria and Ladoke Akintola Teaching Hospital, Ogbomosho, Oyo state, south-west Nigeria. Informed consent was also obtained from selected expectant mothers prior data collection.

III. RESULT

Quantitative findings shows that 30.4% of the expectant mothers were aged 20-29 years old, 61.7% were aged 30-39 years old, 7.9% were aged 40-49 years old, the mean age of the expectant mothers was 31 years ± 6SD while 33.1% were nullipara, 58.8% were primipara, 8.1% were multipara (Table1).

Table 1. Socio-demographic characteristics of Expectant mothers

Variables	Frequency	%
N=483		
Age at last birthday (years)		
Mean=31±6SD		
20-29	147	30.4
30-39	298	61.7
40-49	38	7.9
Marital status		
Single	38	7.9
Married	445	92.1
Gravidity		
Primigravida	16	3.3
Multigravida	428	88.6

Grandmultigravida	39	8.1
Parity		
Nullipara	160	33.1
Primipara	284	58.8
Multipara	39	8.1
Ethnicity		
Yoruba	345	71.4
Igbo	131	27.2
Hausa	07	1.4
Religion		
Christianity	341	70.6
Islam	138	28.6
Traditionalist	04	0.8
Highest level of education		
Primary	74	15.3
Secondary	216	44.7
Tertiary	193	40.0
Employment status		
Not employed	70	14.5
Self employed	72	14.9
Employed by Government	150	31.1
Employed by private sector	191	39.5

Study also observed that 34.8% of the expectant mothers had good knowledge about obstetric danger signs, 65.2% had poor knowledge (Figure1), 36.9% had adequate preparation towards childbirth while 63.1% had inadequate preparations (Figure2).



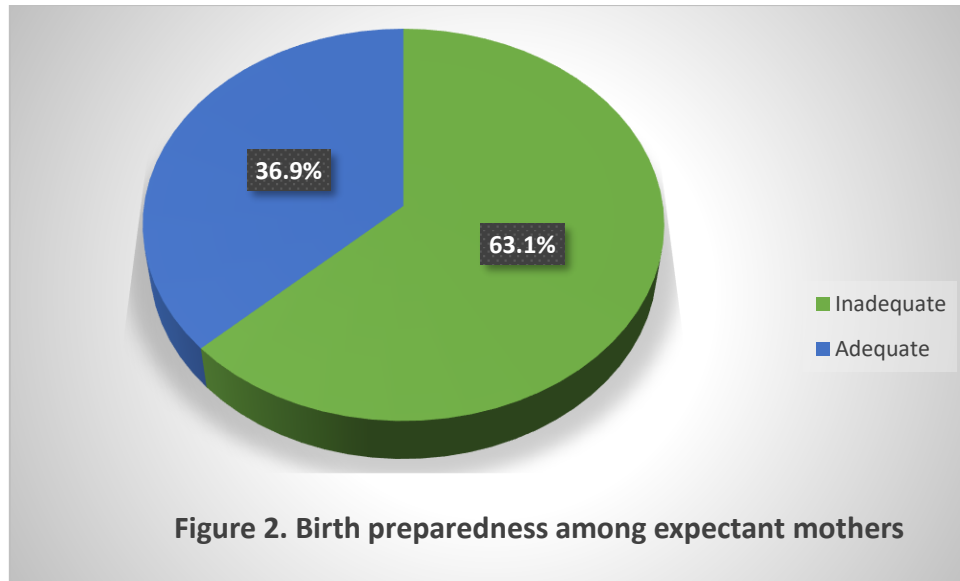


Figure 2. Birth preparedness among expectant mothers

Bivariate analysis of factors influencing birth preparedness among expectant mothers revealed significant relationship between birth preparedness and mother’s employment status ($p=0.01$) (Table2) while regression analysis shows that good knowledge about obstetric danger signs ($p=0.03$, $OR=0.54$, $CI=0.31-0.94$) was the main predictor of birth preparedness among expectant mothers. The odd that birth preparedness will be influenced by good knowledge about danger signs of pregnancy ($OR=0.54$) is less than that of poor knowledge. (Table3).

Table 2. Bivariate analysis of factors influencing Birth Preparedness among Expectant mothers

N=483

Variables	Birth Preparedness			Statistic		
	Inadequate n (%)	Adequate n (%)	Total n (%)	χ^2	df	p
Age at last birthday(years)				1.45	2	0.49
20-29	98 (66.7)	49 (33.3)	147 (100.0)			
30-39	182 (61.1)	116 (38.9)	298 (100.0)			
40-49	25 (65.8)	13 (34.2)	38 (100.0)			
Marital status				0.13	1	0.94
Single	23 (60.5)	15 (39.5)	38 (100.0)			
Married	282 (63.4)	163 (36.6)	445 (100.0)			
Gravidity				3.01	2	0.22
Primigravida	13 (81.3)	3 (18.8)	16 (100.0)			
Multigravida	270 (63.1)	158 (36.9)	428 (100.0)			
Grand multigravida	22 (56.4)	17 (43.6)	39 (100.0)			
Parity						
Nullipara	104 (65.0)	56 (35.0)	160 (100.0)	1.00	2	0.61
Primipara	179 (63.0)	105 (37.0)	284 (100.0)			
Multipara	22 (56.4)	17 (43.6)	39 (100.0)			
Ethnicity						
Yoruba	215 (62.3)	130 (37.7)	345 (100.0)	1.94	2	0.38
Igbo	87 (66.4)	44 (33.6)	131 (100.0)			
Hausa	3 (42.9)	4 (57.1)	7 (100.0)			
Religion				2.78	2	0.25

Christianity	214 (62.8)	127 (37.2)	341 (100.0)			
Islam	90 (65.2)	48 (34.8)	138 (100.0)			
Traditionalist	1 (25.0)	3 (75.0)	4 (100.0)			
Highest level of education				5.35	2	0.07
Primary	47 (63.5)	27 (36.5)	74 (100.0)			
Secondary	125 (57.9)	91 (42.1)	216 (100.0)			
Tertiary	133 (68.9)	60 (31.1)	193 (100.0)			
Employment status				14.77	3	0.01
Not employed	43 (61.4)	27 (38.6)	70 (100.0)			
Self employed	42 (58.3)	30 (41.7)	72 (100.0)			
Employed by Government	112 (74.7)	38 (25.3)	150 (100.0)			
Employed by private sector	108 (56.5)	83 (43.5)	191 (100.0)			
Knowledge about danger signs of pregnancy				1.45	1	0.23
Poor	205 (65.1)	110 (34.9)	315 (100.0)			
Good	100 (59.5)	68 (40.5)	168 (100.0)			

Table 3. Binary Logistic Regression Analysis of Factors Influencing Birth Preparedness among Expectant Mothers

Variables	P value	Odd ratio (OR)	Confidence interval (CI)
Age at last birthday (years)			
20-29	RC		
30-39	0.53	1.38	0.51-3.76
40-49	0.11	2.38	0.83-6.80
Marital status			
Single	RC		
Married	0.42	0.61	0.18-2.05
Gravidity			
Primigravida	RC		
Multigravida	0.87	1.16	0.20-6.65
Grandmultigravida	0.45	1.36	0.61-3.03
Parity			
Nullipara	RC		
Primipara	0.97	0.99	0.60-1.64
Multipara			
Ethnicity			
Yoruba	RC		
Igbo	0.18	0.34	0.07-1.67
Hausa	0.22	0.35	0.07-1.67
Religion			
Christianity	RC		
Islam	0.21	0.22	0.02-2.32
Traditionalist	0.24	0.25	0.02-2.60
Highest level of education			
Primary	RC		
Secondary	0.89	1.05	0.51-2.16
Tertiary	0.92	0.97	0.56-1.68
Employment status			
Not employed	RC		
Self employed	0.83	1.11	0.43-2.89

Employed by Government	0.06	2.56	0.96-6.84
Employed by private sector	0.11	2.51	0.80-7.82
Knowledge about danger signs of pregnancy			
Poor	RC		
Good	0.03	0.54	0.31-0.94
Model statistics: N=483, $\chi^2= 25.78$, P= 0.11.			

FGD were held among mothers aged 20-29 years old and 40-49 years old respectively. Main themes from qualitative responses regarding perception about danger signs of pregnancy include Knowledge about obstetric danger signs; Recognition of obstetric danger signs; Perceived severity of obstetric danger signs and Perceived susceptibility to obstetric danger signs (Table4).

Table 4. Thematic analysis of responses from focus group discussions

Main Themes	Sub-themes
Knowledge about obstetric danger signs	-Obstetric danger signs are warning signs -Obstetric danger signs point to severe consequences -Obstetric danger signs could appear during any stage of pregnancy
Recognition of obstetric danger signs	-Obstetric danger signs could occur during pregnancy, labour and puerperium -Obstetric dangers could be averted or consequences reduced
Perceived severity of obstetric danger signs.	-Obstetric danger signs could be life threatening -Obstetric danger signs require prompt medical attention
Perceived susceptibility to obstetric danger signs	-Recognizing obstetric danger signs is important towards seeking treatment -Cultural and social misconception are responsible for severity and poor help seeking behaviour

Knowledge about obstetric danger signs: FGD participants generally described obstetric danger signs as those warning signs that point to severe consequences during any stage of pregnancy. Majority of the FGD participants had good knowledge about obstetric danger signs while significant proportion also had inadequate birth preparations. Participants opined that these dangers could be averted or their consequences reduced if reported early. FGD participants opined that vaginal bleeding, drainage of fluids, severe pain, headache are among danger signs of pregnancy and these signs could appear at any stage during pregnancy. Recognition of obstetric danger signs: Participants at the FGD generally opined that danger signs could occur during pregnancy, labour and puerperium and these signs could include but not limited to headache, blurring of vision, body weakness, loss of appetite, body swelling and reduced fetal activities. Below are excerpts from FGD responses:

'...If a pregnant woman experiences headache, body pain, or leg swelling, she must immediately visit the hospital because these may be signs of danger or complications. I do not

know of any danger signs during labour but I have experienced tiredness after delivery before and the nurses said it a sign of danger’ (a 25 year old discussant)

‘...I know of headache and abdominal pain as danger signs during pregnancy. I have experienced severe abdominal pain and dizziness during pregnancy when I am close to giving birth before, I report at the hospital and I was admitted and given medications’ (41 year old discussant)

Perceived severity of obstetric danger signs: FGD participants believed that pregnancy and labour are life threatening processes and any discomfort or danger signs should be considered life threatening requiring prompt attention.

A 32 year old discussant retorted that *‘...Pregnancy and labour could be life threatening to the mother and child. The discomfort and pain during labour is very high. Sometimes one feels like dying or fainting. Any signs of abnormality during this period could be life threatening especially if not recognized or properly managed’*.

Perceived susceptibility to obstetric danger signs: Responses from the FGD revealed that ability of a pregnant woman to recognize danger signs during pregnancy remain an important step towards seeking solution or treatment. Participants opined that most fatalities during pregnancy are as a result of failure to recognize these danger signs, belief or misconception that such danger signs are not severe enough to cause harm, or when such danger signs occur, they could be managed in a traditional way such as use of herbs are responsible for poor health seeking behaviour among pregnant women. Below are excerpts from participants:

‘...When danger signs such as headache, abdominal pains or bleeding during pregnancy are not reported to the hospital early enough, the pregnancy might be at risk for the woman and her baby. A pregnant woman must book early so that nurses or doctors can recognize the danger signs and treat before complications happen’ (a 27 year old discussant).

‘...Some danger signs may not be as severe as others. Some danger signs in pregnancy such as headache can resolve on its own if the woman rest properly at home especially if the clinic is too far from the woman’s house’ (a 43 year old discussant).

Qualitative responses also observed that various forms of cultural and social misconceptions were responsible for poor health seeking behaviours including birth preparedness among expectant mothers and most fatalities during pregnancy.

‘...There are traditional herbs or cultural practices that can stop or prevent pregnant women from having complications, but for me, I only take herbs after delivery only’ (25 year old discussant).

IV. DISCUSSION

Study observed that 34.8% of the expectant mothers had good knowledge about obstetric danger signs while 65.2% had poor knowledge. A similar study undertaken by Salem et al.(Salem et al., 2018) in Madagascar observed that the proportion of pregnant women who has knowledge about obstetric danger signs was at least 51.9% while Nigussie et al.(Nigussie et al., 2019) in their study involving pregnant women in northwestern Ethiopia found that 37.9% of the women had good knowledge about danger signs of pregnancy. The above finding however contrast the result of similar study in southern Ethiopia which observed that 16.8% of the pregnant women studied were knowledgeable about obstetric danger signs(Bolanko et al., 2021). Adequate knowledge about obstetric danger signs is essential towards early recognition and prompt intervention or timely referral (Tamang et al., 2021).

This study also found that 36.9% of the expectant mothers had adequate preparation towards childbirth while 63.1% had inadequate preparations. This finding corroborate the

observation made by a study conducted in Abakaliki, eastern Nigeria found that 36.9% of women studied had birth preparedness while 44.9% had adequate knowledge about birth preparedness (Anikwe et al., 2020). This however contrast the observation by Kamineni et al.(Kamineni et al., 2017) who observed that 71.5% of studied women in an Indian study were birth prepared. Teekhasaenee & Kaewkiattikun similarly found that 78.4% of pregnant adolescents in a study in Thailand had good birth preparedness and complication readiness (Teekhasaenee & Kaewkiattikun, 2020). A study conducted in Ethiopia however revealed that 34% of the women studied implemented complication readiness and birth preparedness(Markos & Bogale, 2014). Similarly, another cross-sectional study conducted in western Ethiopia women revealed that 27.5% of the women had adequate preparation for childbirth (Asrat et al., 2019). The above findings however contrast the report of a study conducted in Cameroon which found that 18.8% of the women studied were considered to have adequate birth preparation (Ijang et al., 2019).

Regarding factors that are associated with birth preparedness, regression analysis shows that good knowledge about danger signs of pregnancy was the main predictor of birth preparedness among expectant mothers. Similarly Markos & Bogale (Markos & Bogale, 2014) in their study among pregnant women in Ethiopian observed that place of residence, educational status, antenatal care follow up, previous history of still births, knowledge about birth preparedness, knowledge about danger signs of pregnancy, were significantly associated with birth preparedness. Similarly, Kamineni et al.(Kamineni et al., 2017) in their study among pregnant women in India observed that maternal education attainment and early booking were significantly associated with birth preparedness while Asrat et al. (Asrat et al., 2019) found that urban residency, primigravidity, previous history of obstetric complication and attendance of antenatal care were associated with birth preparedness. Teekhasaenee & Kaewkiattikun (Teekhasaenee & Kaewkiattikun, 2020) in Thaliand however found that frequency of antenatal care visits was associated with birth preparedness. Birth preparedness and complication readiness remain vital strategy towards reduction in maternal mortality and morbidity (Markos & Bogale, 2014).

Regarding perception about danger signs of pregnancy, participants at the FGD generally opined that danger signs could occur during pregnancy, labour and puerperium and that undesirable events during pregnancy and labour should be considered life threatening requiring prompt attention. A section of FGD participants however believed that culture and traditions have some role to play in managing danger signs in pregnancy. This assertion corroborate finding made by Bakar et al.(Bakar et al., 2019) from a qualitative study involving women of reproductive age in Unguja Island, Zanzibar where it was observed that study participants believed that danger signs during pregnancy and puerperium are as a result of witchcraft activities resulting in some consultations with traditionalists thereby contributing to delay in seeking skilled medical care. Positive perception and adequate knowledge about obstetric danger signs by the pregnant woman enhances her cognitive disposition towards pregnancy complications and appropriate decision making ability, thereby reducing cultural and religious misconceptions typical of most African setting (Bakar et al., 2019).

V. CONCLUSION

Good knowledge about obstetric danger signs was the main predictor of birth preparedness among expectant mothers; effective maternal health services aiming at favourable pregnancy outcomes should focus on educating women on early identification of obstetric danger signs and prompt decision making capabilities.

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