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Birth Preparedness and Complication Readiness among Women in Jugal Hospital, Harar, Ethiopia

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Abstract

Background: The majorities of maternal fatalities are avoidable and are generally blamed on patients delaying seeking care. Delays in deciding to seek treatment if a complication arises, delays in getting to care, and delays in obtaining care all have an impact on the availability and usage of obstetric services to avoid maternal mortality. So Birth preparedness and complication readiness is a crucial strategy for reducing maternal and newborn mortality. This study was aimed to assess the current status of birth preparedness and complication readiness in Harari regional state, Harar, Ethiopia from April 1st to 30th, 2023.

Methods: An institution-based cross-sectional research was conducted at Jugal Hospital in Harar, Pregnant women who can hear and communicate and who were voluntary to participate were included. Systematic random sampling technique was used to select 233 pregnant women. The survey tool (questionnaire) used was developed by Johns Hopkins Program for International Education in Gynecology and Obstetrics (JHIEGO). SPSS version 21 was used for analysis. Descriptive analysis was done and the results were presented in the form of narrative and table. Bivariable and multivariable logistic regression was done to identify factors associated with birth preparedness and complication readiness. All variables with p-value less than 0.25 in bivariable logistic regression model were entered to a multivariable logistic regression model for controlling possible confounding and odds ratios and their 95% CIs were computed.

Result: Eighty-seven (37.83%), of the respondents mentioned at least two key obstetric danger signs during pregnancy, 92 (40.00%), of the respondents mentioned at least three key obstetric danger signs during childbirth and 66 (28.70%) of the respondents mentioned at least two key obstetric danger signs during postpartum period , 178 (77.39%), 199 (86.52%), 43 (18.70%), 67 (29.13%) and 7 (3.04%) of respondents indicated that they saved money, identified the place of delivery, identified skilled providers, identify means of transport and blood donors, respectively.

Conclusion: This study revealed, age of the mother, Educational status, maternal occupation,. Residence, No. of pregnancy, Current ANC visit and History of stillbirth, were significantly associated with birth Preparedness and Complication readiness.

Keywords: Birth Preparedness and Complication Readiness; Ethiopia; Cross-Sectional Study

Introduction

Pregnant women who are "birth-prepared" or "complication-ready" are ready for both labor and delivery as well as any problems that might occur at any time [1].

The Johns Hopkins Program for International Education in Gynecology and Obstetrics (JHPIEGO) developed a birth

preparation and complication readiness matrix to prevent delays in seeking assistance, getting to a medical institution, and receiving care there [2].

Being ready for birth and for complications includes deciding on a delivery location, setting a budget, gathering baby supplies, selecting a provider, arranging for transportation, locating blood donors, communicating, making decisions, having emergency funds, and being aware of obstetric danger signs [3-5].

Unexpected and frequently fatal events can occur throughout the pregnancy's antepartum, intrapartum, and postpartum stages. 88% of maternal fatalities globally, 66% of which take place in Sub-Saharan Africa and 22% in Southern Asia, are reported by the World Health Organization [6]. Ethiopia has one of the highest newborn and maternal death rates in the world (412/100,000 and 29/1000, respectively) [7].

The majority of maternal fatalities are avoidable, and the patients who delay seeking assistance are usually to blame [8]. Delays in deciding to seek treatment if a problem arises, in traveling to care, and in actually receiving care all have an influence on the availability and usage of obstetric services to reduce maternal mortality [8]. BPCR is a crucial strategy for reducing maternal and newborn mortality as a result [9].

Age, parity, education, marital status, knowledge of pregnancy and delivery difficulties, prenatal care follow-up, hospital birth, and history of stillbirths are some of the variables that have an impact on birth preparation and complication readiness [10-15].

Despite the fact that birth preparation and complication readiness are simple, effective, and affordable ways to reduce maternal morbidity and mortality, women and their loved ones routinely overlook these techniques. Therefore, the goal of this study is to assess the readiness for problems and understanding of birth preparation of women who visit ANC at Jugal Hospital in Harar, Ethiopia.

Method and Material

Study Design, Area, Period and Population

An institution-based cross-sectional study was carried out at Jugal Hospital in Harar from April 1 through April 30, 2023. Jugal Hospital is situated in the Harari regional state and is about 525 kilometers from Addis Abeba, the capital of Ethiopia. Participants in the research were expectant mothers receiving prenatal care.

Inclusion and Exclusion Criteria

Pregnant women who can hear and talk and are willing to engage were included, but those who have mental health issues, are extremely unwell, are unable to hear or speak, or are unwilling to participate were omitted.

Sample Size Determination and Sampling Procedure

Under the following suppositions, the sample size was determined using a single population proportion formula. The sample size was determined using the formula n = (Z/2)2p (1-p)/d2, where n is the number of study participants, Z is the value of the standardized normal distribution curve for the 95% confidence interval (1.96), P is magnitude of birth preparedness and complication readiness in Robe district, Ethiopia, which was 0.165, and d is the desired precision of the estimate (the margin of error between the sample and population, 5%) = 0.05 = $(1.96)^2(0.165)(0.835)/ (0.05)^2$ = 212. The total sample size was 233 after adding 10% of the non-respondent rate and systematic random sampling technique was used to select 233 pregnant women. The first women was selected by simple random sampling; lottery method. Then the next women was selected through systematic sampling technique every 5th interval from the order of mothers who come for ANC; until the desired numbers of the sample were obtained.

Data Collection Procedure and Instrument

The Johns Hopkins Program for International Education in Gynecology and Obstetrics (JHIEGO) created the survey instrument (questionnaire) to gauge women' preparedness for childbirth and their readiness for complications. A standardized questionnaire that has been tested and delivered by an interviewer was used to gather the data. Four degree-holding nurses who gathered the data under the direction of a public health official. The questionnaire was translated into a local tongue for convenience of understanding. Each questionnaire was reviewed daily for completion, and any necessary feedback was given to the data collectors on the spot. Data was then entered by two separate data Clarks.

Operational Definition

Birth preparedness and complication readiness: Basic arrangements a woman make for birth and/or emergency conditions. Namely: (Identify place of delivery, saving money for childbirth, identify a mode of transport to place of childbirth or for time of emergency, identifying a potential blood donor, skilled provider at birth). A woman was considered prepared for birth and its complications if at least

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three of the five above mentioned items were identified by the women.

Knowledge on key danger signs of pregnancy: a woman was considered as knowledgeable if she spontaneously mentioned at least two key danger signs of pregnancy otherwise not knowledgeable. These signs include severe vaginal bleeding, swollen hands/face, and blurred vision.

Knowledge on key danger signs of labour: a woman was considered as knowledgeable if she spontaneously mentioned at least three key danger signs of labour otherwise not knowledgeable. These signs include severe vaginal bleeding, prolonged labour (> 12 h), convulsions, and retained placenta.

Knowledge on key danger signs of post-partum: A woman was considered knowledgeable if she spontaneously mentioned at least two out of the three key danger signs of post-partum period otherwise not knowledgeable. These signs include severe vaginal bleeding, foul smelling vaginal discharge, and high fever.

Data Processing and Analysis

Data were input into Epi Data version 3.1 after being verified as complete, and SPSS Window version 21 was utilized for analysis. The results of the descriptive analysis were provided as a narrative and a table. To determine the variables linked to birth preparation and complication readiness, bivariate and multivariate logistic regression was used. To account for potential confounding, all factors in the bivariable logistic regression model with p-values less than 0.25 were incorporated into the multivariable logistic regression model, and odds ratios and their 95% confidence intervals were calculated.

Ethics Statement

Ethical clearance was obtained from the Harar Health Science College Ethics and Research Committee, (Ref. Number HHSC-201/2023). Consent was obtained from administrative body of the hospital and the participants. Confidentiality of the data has been kept throughout the study.

Results

Socio Demographics Characteristics

A total of 230 pregnant women took part in the survey, with a response rate of 98.71%. The mothers' age ranged from 17 to 49 years, the mean age of the respondent was 29.61 with ± 6.3 SD. Almost all, 219(95.22%) of the respondents were married. Greater than half (59.57%) of the respondents were rural residents (Table 1).

Variable	Category	Frequency	Percent
Age in years	Less than18	7	3.04
	18-24	62	26.96
	25–31	91	39.57
	32–38	44	19.13
	39+	26	11.3
Marital status	Married	219	95.22
	Un married	11	4.78
Educational status	Can't read and write	44	19.13
	Read and write	97	42.17
	elementary	54	23.48
	Secondary	21	9.13
	College and above	14	6.09
Occupation	House Wife	85	36.96
	Private	99	43.04
	Government	43	18.7
	Non-government	3	1.3
Residence	Urban	93	40.43
	Rural	137	59.57
Monthly Income (in ETB)	Less than 5000	134	58.26
	Greater khan 5000	96	41.74

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Husband's educational Status(n = 219)	Can't read and write	11	5.02
	Read and write	25	11.42
	elementary	80	36.53
	Secondary	41	18.72
	College and above	62	28.31
Husband's Occupation(n = 219)	Private	91	41.55
	Government	101	46.12
	Non-government	27	12.33
Husband's monthly income in ETB (n = 219)	Less than 5000	75	34.25
	Greater khan 5000	144	65.75
Family Size(n	1–2	32	13.91
	3–4	166	72.17
	5 and above	32	13.91

Table 1: Socio-demographic characteristics of the respondents.

Obstetric Characteristics of the Respondents

Among the study participants, 98 (42.64%) reported this was their first pregnancy. Almost all participants 224(97.39%) reported that this pregnancy was planned and wanted. The majority of the respondents (86.52%) reported they started their ANC follow up at Gestational age between 12-24 weeks.

From the participants who had previous pregnancy (child birth experiences), 8.09% and 5.3% of them reported that they had a history of still birth and abortion respectively. Among the multiparous respondents, greater than quarter 47(35.63%) complained that they had pregnancy related complications in the past. Almost all of the study participants129 (97.73%) delivered their child in the health facility, assisted by a health professional, while 101 (76.1%) gave birth through spontaneous vaginal delivery (Table 2).

Variable	Category	Frequency	Percent
No of pregnancy	1	98	42.61%
	2	95	41.30%
	≥3	37	16.09%
Women's desire on recent pregnancy	planned	224	97.39%
	Not Planned	6	2.61%
Current ANC visit	Yes	230	100.00%
	No	0	0.00%
Gestational age at 1st ANC visit	<12 weeks	15	6.52%
	12–24 weeks	199	86.52%
	>24 weeks	16	6.96%
Frequency of ANC Visit	1	48	20.87%
	2	84	36.52%
	3	87	37.83%
	≥4	11	4.78%
Health professional contacted	Nurse	99	43.04%
	Midwife	70	30.43%
	Others	61	26.52%
Previous ANC visit other than this pregnancy(n=132)	Yes	132	100.00%
	No	0	0.00%
Previous History of stillbirth (n=132)	Yes	12	9.09%
	No	120	90.91%

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Previous History of abortion (n=132)	Yes	7	5.30%
	No	125	94.70%
Previous History of obstetric complication(n=132)	Yes	47	35.61%
	No	115	64.39%
If yes, what	Vaginal bleeding	41	31.06%
	A severe headache	19	14.39%
	Blurred vision	17	12.88%
	Swollen hands/face	36	27.27%
	Loss of consciousness	3	2.27%
	Prolonged labor (>12 hours)	10	7.58%
	Retained placenta	2	1.52%
	Other complications	6	4.55%
Place of delivery(n=132)	Health facility	129	97.73%
	Home	3	2.27%
Delivery attendant(n=132)	Health professional	129	97.73%
	TBA	3	2.27%
Mode of delivery(n=132)	CS	28	21.21%
	Spontaneous vaginal delivery	101	76.52%
	Instrumental delivery	3	2.27%

Table 2: Obstetrics and service utilization characteristics of study participants in Jugal Hospital, Harar, Ethiopia 2023.

Knowledge of Key Danger Signs During Pregnancy, Labour and Post- Partum Period

Regarding to obstetrics danger signs, 87 (37.83%), of the respondents mentioned at least two key obstetric danger signs during pregnancy, 92 (40.00%), of the respondents mentioned at least three key obstetric danger signs during childbirth and 66 (28.70%) of the respondents mentioned at least two key obstetric danger signs during postpartum period. Besides, 197 (85.65%), 177 (76.96%), and 171 (74.35%) of the respondents spontaneously mentioned severe vaginal bleeding as a danger sign during pregnancy, labor/ childbirth and postpartum, respectively (Table 3).

Respondents knowledge of key Danger Signs		Frequency	Percent
During pregnancy (multiple responses)	Vaginal bleeding	197	85.65%
	Blurred vision	26	11.30%
	Swollen hand/face	111	48.26%
Answered at least two		87	37.83%
During labour and delivery (multiple responses)	Vaginal bleeding (severe/excessive)	177	76.96%
	Retained placenta	95	41.30%
	Prolonged labour >12 hours	122	53.04%
	Convulsions	102	44.35%
Answered at least three		92	40.00%
During the postpartum period (multiple responses)	Vaginal bleeding (severe/excessive)	171	74.35%
	Vaginal discharge (foul smelling)	58	25.22%
	High-grade fever	79	34.35%
Answered at least two		66	28.70%

Table 3: Participants knowledge of key danger sign in Jugal Hospital, Harar, Ethiopia 2023.

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Knowledge of Respondents about Prepared for Birth and its Complication

With respect to BPCR knowledge, 178 (77.39%), 199 (86.52%), 43 (18.70%), 67 (29.13%) and 7 (3.04%) of respondents indicated that they saved money, identified the place of delivery, identified skilled providers, identify means of transport and blood donors, respectively. In this study only 87(37.83% 0f the participants practiced three and more than three of the components.

Factors Associated with Birth Preparedness and Complication Readiness Practice

Variables considered for multivariate logistic regression analysis were those with a p-value<0.5 in bi-variate analysis and those significantly associated with bi-variable analysis were; Age of the mother, Educational status of the mother, maternal occupation, income of the mother. Residence, No. of pregnancy, Current ANC visit, History of stillbirth, Previous History of obstetric complication. After controlling confounding variables using multiple logistic regressions; age of the mother, Educational status, maternal occupation, Residence, No. of pregnancy, Current ANC visit and History of stillbirth, were significantly associated with birth Preparedness and Complication readiness.

The multivariate logistic analyses showed that older age groups (; age groups 32+) were five times more likely to be prepared for birth and its complications than younger age groups, (AOR = 4.85; 95%CI: 1.04-7.99). Mothers with formal education were more than seven times (AOR = 7.2; 95% C.I: 7.2(3.32, 9.72)) than without a formal education. Pregnant women who were employees were two times ((AOR=2.22 95% CI ((1.49 to 7.93)) than those who were housewives. Mothers living in urban were two times more likely to prepare themselves than their counterparts (AOR=2.14; 95% CI: 1.91-6.16). Multi gravida women were two times more likely to be prepare themselves than Primigravida (AOR=2.19; 95% CI: 1.10, 9.37). women who had attended antenatal care during pregnancy of the recent delivery were three times more likely to prepare themselves than those who did not attend (AOR=3.14, 95% CI (1.37-9.66). and Mothers who had a history of stillbirth were four times (AOR=4.24, 95% CI: 1.22, 11.53) more likely to be well prepared than mothers who had no history of stillbirth.

Variables	Category	COR (95% CI)	AOR (95% CI)
Age in years	≤31	1	1
	32+	2.54(1.05, 5.95)*	4.85(1.04,7.99)**
Educational status	without a formal education	1	1
	with a formal education	2.35(2.18, 8.65)*	7.2(3.32, 9.72)**
maternal occupation	House wife(not employed)	1	
	employee	2(1.12, 4.47)*	3(0.12, 7.47)
Residence	Rural	1	
	Urban	2.61(1.56,4.37)*	2.14(1.91-6.16)**
No. of pregnancy		1	
		0.41 (0.23, 0.75)*	2.19 (0.10, 9.37)
Current ANC visit	No	1	
	Yes	2.31(1.71,6.44)*	3.14(1.37,9.66)**
History of stillbirth	No	1	
	Yes	2.86(1.57,5.20)*	4.24(1.22–11.53)**
Previous History of obstetric complication	N0	1	
	Yes	3.21(1.55,6.66) *	2.2(0.01, 4.89)

COR, crude odds ratio; CI, confidence interval; AOR, adjusted odds ratio,*Variables that are significant at p-value ≤ 0.05.in bivariate analysis, ** Variables that are significant at p-value ≤ 0.05. in multivariate analysis.

Table 4: Bi variate and Multi variate analysis.

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Discussion

This study reveals that the practice of birth preparedness and complication readiness plan was found to be 37.83%. It is higher than studies done in Arsi zone (16.5%) [16], Dale District, southern Ethiopia (22.5%) [17], Adigrat town, North Ethiopia (22%) [5], Goba, East Ethiopia (29.9%) [18]. Gambia (14%) [19]. Duguna Fango district (18.3%) [20], Uganda (35%) [21]. Whereas it is less than studies done in Wolaita Sodo, Ethiopia, which found 48.5% [14], Dire-Dawa, 54.7% [22], southern Nigeria 48.4% [23]. Osun State, Nigeria (61%) [24]. Nigeria, 64.4% [25], Dehli, India (41%) [26] West Bengal, India (57%) [27], Karnataka, India (79.3%) [28]. This difference could be due to study methodology, socio-cultural issues like use of traditional birth attendant, women's educational, economical status and quality of antenatal care services in countries.

In this study, birth preparedness and complication readiness were more common in the older age groups than the younger age groups; age groups 32+ were five times more likely to be prepared for birth and its complications than younger age groups, (AOR = 4.85; 95%CI: 1.04-7.99). The finding is consistent with research conducted in Dakshina district of Karnataka, India [28]. Whereas This findings contrast with those of a study conducted in Wolaita Zone, Sodo town, which found that younger age groups are more likely to practice birth readiness and complication readiness [14]. The differences might be youngsters are slightly careless compared to elders but sometimes youngsters are more eager to child than elders because it might be their first time to be pregnant.

Mothers with formal education were more than seven times more likely to be prepared for birth and its complication (AOR = 7.2; 95% C.I: 7.2(3.32, 9.72)) than without a formal education The finding of this study is in line with the studies done in Wolaita zone, Sodo town, Southern Ethiopia and Robe Woreda, Arisi zone, Central Ethiopia [14,16]. This is due to in fact education increases women's health care seeking habits and develops their self-confidence and capacity for decision-making, which improves their readiness for complications and birth preparation.

Mothers living in urban were two times more likely to prepare themselves than their counterparts (AOR=2.14; 95% CI: 1.91-6.16). This is consistent with the study done in Goba district [4]. This may vary depending on the likelihood that urban residents will have access to information, education, accessibility, and maternal health services.

women who had attended antenatal care during pregnancy of the recent delivery were three times more likely to prepare themselves than those who did not attend (AOR=3.14, 95% CI (1.37-9.66).This finding is in line with the studies done in Goba district, Ethiopia ; Adigrat town, northern Ethiopia and Robe woreda, ethiopia and Wolaita Zone, Ethiopia [4,5,14]. The reason for this could be that during ANC, the health professional provides birth preparedness and complication readiness education, and the women's previous exposure will strengthen their knowledge and practice. The explanation for this might be that the women's prior exposure to ANC will increase their knowledge and practice since throughout ANC, the health professional delivers birth preparedness and complication readiness instruction.

Mothers who had a history of stillbirth were four times (AOR=4.24, 95% CI: 1.22, 11.53) more likely to be well prepared than mothers who had no history of still birth. This is similarly reported in Adigrat town, northern Ethiopia and Northwest Ethiopia [5,29]. This may be due to the fact that mothers who have previously had a complicated delivery are more likely to attend ANC follow-up appointments, which encourages them to prepare for labor and avoid difficulties.

Limitation of the Study

Since this study is cross-sectional, no cause and effect relationship was reported. In addition, social desirability bias could be another limitation.

Conclusion

The level of birth preparedness and complication readiness among pregnant women in Ethiopia is very low as every pregnant woman should be expected to prepare for birth and complication. The proportion of women who prepared for birth and its complication in the study is 37.83%. Age of the mother, Educational status, maternal occupation,. Residence, No. of pregnancy, Current ANC visit and History of stillbirth, were significantly associated with birth Preparedness and Complication readiness.

Recommendation

We recommended further systematic review and meta-analysis on factors that affect birth preparedness and complication readiness plan of pregnant women.

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Declaration of Conflicting Interests

The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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