

Birth Preparedness and Complication Readiness among Antenatal Care Attendants at Butajira General Hospital, Southern Ethiopia

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Abstract

Introduction: Birth preparedness and complication readiness is a key component of focused antenatal care used to encourage uptake of maternal and neonatal care services. However, in Ethiopia there is scarcity of comprehensive evidences regarding to its practice and predictors. The aim of this study was to assess the magnitude and predictors of birth preparedness and complication readiness among antenatal care attendants at Butajira General Hospital, Gurage Zone, Southern Ethiopia.

Methods: A facility-based cross-sectional study was employed from April 1-30, 2019. Structured and pretested questionnaires were used to collect data. The study participants were selected by systematic random sampling technique. Epi-data version 3.1 was used to enter data and SPSS version 23.0 was used for analysis. Multivariable logistic regressions analyses were computed. Odds ratio at 95% confidence interval was calculated and statistical significance was considered when p-value was <0.05.

Result: The overall magnitude of birth preparedness and complication readiness was 41.6%. Having a minimum of four antenatal care visits [AOR=3.8, 95% CI (1.5, 9.6)], being aware for a minimum of two obstetrics danger signs during a time of pregnancy and childbirth respectively [AOR=4.37, 95% CI (2.2, 8.67)], [AOR=3, 95% CI (1.45, 6.42)] were independent predictors of birth preparedness and complication readiness.

Conclusion: The magnitude of birth preparedness and complication readiness in the study setting was low. To improve women's awareness towards birth preparedness and complication readiness stakeholders should give emphasis for antenatal education and counseling, particularly on danger signs of pregnancy and childbirth.

Keywords: Antenatal care; Birth preparedness; Complication readiness; Southern Ethiopia

Abbreviations: ANC: Antenatal Care; AOR: Adjusted Odd Ratio; CI: Confidence Interval; SPSS: Statistical Package for Social Science; BPCR: Birth Preparedness and Complication Readiness

Introduction

Globally 800 women die every day due to complications of pregnancy and childbirth. Almost all (99%) of maternal mortality happened in developing countries and exceeding half of this deaths occur in Sub-Saharan Africa [1]. According to the recent report of the Ethiopian Demographic Health Survey (EDHS, 2016), the maternal mortality rate of the country was 412/100,000 live births. However, the government of Ethiopia has made a substantial effort to avert this high rate of mortality by increasing the number of health facilities and better connect the communities with the facilities to improve access and utilization of maternity care services [2].

Birth Preparedness and Complication Readiness (BPCR) is a comprehensive strategy used to enhance utilization of maternal and neonatal skilled care timely since preparation for childbirth and its complications minimizes delays of obtaining such cares [3]. The principal elements of BPCR were: Distinguishing of obstetrics danger signs, knowing skilled birth provider, saving of money for emergency, identifying mode of transport, detecting where to go in case of complications and recognizing a blood donor were [4].

Absence of adequate planning for utilization of skilled birth provider for normal delivery and particularly inadequate arrangement for quick action during the time of obstetrics complication were identified risk factors to delay in maintain of skilled maternity care services [5-8].

Every pregnant woman may encounter random and unexpected

complications that could result in either mortality or morbidity [9]. Therefore expectant women, her family as well as the community should plan for the care needed during period of pregnancy, childbirth and after childbirth. This preparation helps to take immediate measures during a time of emergencies [10]. As studies revealed that in Ethiopia the magnitude of BPCR fluctuates from one area to the other. The magnitude of BPCR in Ethiopian towns varies between ranges of 17-72.6%. In general, all the above studies indicated that BPCR founds at a low level and it stays practically unutilized to advance the health of mothers and their newborns in developing countries [11-13].

Birth preparedness and complication readiness is very crucial in minimizing delays of maternal and neonatal cares. However, in Ethiopia its utilization is very low and there is regional variation. Furthermore, there is scarcity of comprehensive evidence on magnitude and predictors of birth preparedness and complication readiness as well as there is no a single study in the study area [14]. Therefore, this study was aimed to assess the current magnitude and predictors of birth preparedness and complication readiness at Butajira General Hospital, Gurage Zone, Southern Ethiopia.

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Methods

Study area and period

Facility-based cross-sectional study was employed at Butajira Hospital, southern Ethiopia from April 1-30, 2019. Butajira town is positioned at 135 km to south of Addis Ababa and 162 km from Hawassa. The borders of the town are: Sodo District in the north, Silti District in south, Mareko District in the east and Muhireakil District in the west. Butajira town has a total population of 49,121 from this, male accounts 24,069 and the rest (25,052) are females. The town has eight health facilities including private clinics from these four are public health facilities. All pregnant women who had Antenatal Care (ANC) follow-up at Butajira General Hospital during study period were source populations. Sampled pregnant women who had ANC follow-up at Butajira General Hospital during study period were the study populations. The eligibility criterion was pregnant women who had ANC follow-up at Butajira General Hospital during study period and critically ill women were excluded from the study.

Sample size determination and sampling technique

Single population proportion formula was used to determine the sample size and it was calculated by EPI INFO version 7 software with the following assumptions, the prevalence of BPCR in Bench Maji zone was 41.1%, confidence interval of 95%, 5% degree of precision and 10% non-response rate [15]. The final sample size was found to be 250 women. To select the study participant, systematic random sampling technique was used. The sample size were allocated proportionally by using the last one month average client flow and expected new ANC follow up. The sampling interval was determined by the formula $K=n/N$, total ANC client flows of last one month from March 1-30, 2019 was 587, so that $K=587/250=2.35$ was approximated and taken as two. Lottery method was used to select the first woman on the first day of data collection.

Data collection instrument and procedure

Interviewer administered, pretested and structured questionnaire was used to collect the data. The questionnaire was adapted from Johns Hopkins Program for International Education in Gynecology and Obstetrics (JHPIEGO) [3]. It includes variables on socio demographic characteristics including: Age, marital status, residence, ethnicity, religion, education, occupation and average monthly family income. Reliability test (coefficient alpha) was done for knowledge and practice items after pretest so the value of both was above 0.7, the items were appropriate for the study. Four diploma and two Bachelor degree midwives were recruited for data collection and supervision. Data quality was maintained by, data collectors and supervisors were trained on the study objectives, questionnaire and how to fill responses. The tool was pretested on 13 women before actual data collection period in butajira health center and corrections were made based on the result of the pretest. The questionnaire was prepared first in English language and translated back to amharic local language. Then the Amharic version was again translated to English to confirm its consistency. Its consistency was checked by translating it back to English by two different experts. Finally data was collected by amharic language which is the local language.

Data processing and analysis

Epi-data version 3.1 was used to enter data and Statistical Package for Social Sciences (SPSS) version 23.0 was used to analyze the data. Descriptive statistics such as proportions, frequency distributions,

mean and standard deviations were used to describe the data. Bivariate logistic regression was conducted to select candidate variables for multivariable logistic regression. Those variables with p-value <0.25 in bivariate logistic regression were entered in to multivariable logistic regression. Multivariable logistic regression was done to identify independent predictors of outcome variable and to control potential confounders. Odds Ratio (OR) at 95% Confidence Interval (CI) was calculated. Statistical significance was considered when p-value was <0.05. The model fitness was checked by Hosmer-Lemeshow statistic with a value of 0.75 which shows that model was a good fit.

Measurement

A woman was categorized as prepared for childbirth and complication readiness if she responds a minimum of two of the five components of BPCR practices otherwise she categorized in not prepared. A woman was categorized as knowledgeable to obstetrics danger signs of pregnancy, childbirth and postpartum if she could answers correctly a minimum of two of the questions she asked in each category.

Ethical consideration

Permission letter was secured from Wachemo University College of Medicine and Health Sciences. Then, permission was obtained from Town of Butajira Health office and Management Committee of the study Hospital. Informed written consent was assured from each study participants before starting data collection. Confidentiality was maintained at all levels of the study process.

Results

Sociodemographic characteristics

All the study participants (250 women) were completed the interview making the response rate of 100%. The mean age of study participants were 26.49 (SD \pm 4.53). The majority of respondent 221 (88.4%) were found between age group of 20 and 34. 249 (99.6%) were married, 211 (84.4%) were Gurage and 113 (45.2%) were Orthodox. Most of the respondents 218 (87.2%) were resided in urban. Educationally, majority of women had primary education 85(34.0) and 53 (21.2%) had no formal education. Regarding women's occupation, 194(77.6%) were housewives. Majority of respondents 153 (61.2%) earn a monthly income \leq 2000 Ethiopian birr (Table 1).

Obstetric characteristics of respondent

Majority respondents 142(56.8%) were multi gravida. Concerning to history of still birth 27(10.8%) of the respondent had history of stillbirth. Two hundred six (82.4%) of the respondents had less than 4 ANC visits. One hundred forty nine (59.6%) of respondents were attended their first ANC visit at second trimester (Table 2).

Knowledge of women towards danger signs of pregnancy, childbirth and postpartum

One hundred forty (56%) of study participants, were responded correctly to a minimum of two of the obstetrics danger signs of pregnancy, 86(38.6%) of study participants were responded correctly to a minimum of two obstetrics danger signs of childbirth and 98(47.1%) of study participants were responded correctly to a minimum of two of the obstetrics danger signs of postpartum period (Table 3).

Knowledge and practice of women on birth preparedness and complication readiness

One hundred seventy four (69.6%) of study participants

Variables	Frequency (N=250)	Percent
Age group in years		
15-19	13	4.6
20-34	221	88.4
35 and above	16	6.4
Residence		
Urban	218	87.2
Rural	32	12.8
Religion		
Orthodox	113	45.2
Muslim	96	38.4
Protestant	41	16.5
Ethnicity		
Garage	211	84.4
Silte	24	9.6
Oromo	8	3.2
Others	7	2.8
Mothers educational status		
No formal education	53	24.6
Read and write	60	24
Primary	85	34
Secondary	36	14.4
College and above	16	6.4
Occupation of the mother		
Housewife	194	77.6
Gov't employee	18	7.2
Private employee	28	11.2
Others	8	4
Family monthly income in Ethiopian birr		
≤ 2000	153	61.2
>2000	97	38.8
Time to reach the hospital in hour		
<1	197	78.8
>1	53	21.2

Table 1: Sociodemographic characteristics among antenatal care attendants at Butajira General Hospital, Southern Ethiopia, April 2019.

Variables	Frequency (N=250)	Percent
Gravidity		
Primi-gravida	73	29.2
Multi-gravida	142	56.8
Grand multigravida	35	14
History of still birth		
Yes	27	10.8
No	223	89.2
No of ANC visit		
<4	206	82.4
≥ 4	44	17.6
Gestational age at first antenatal visit		
1 st trimester	4	1.6
2 nd trimester	149	59.6
3 rd trimester	97	38.8

Table 2: Obstetric characteristics among antenatal care attendants at Butajira General Hospital, southern Ethiopia, April 2019.

were heard about BPCR. Regarding to source of information, 131(52.4%) of study participants obtained information's from health extension workers and 108(43.2%) of study participants obtained information's from health care providers. Concerning to practice of

Variables	Frequency (N=250)	Percent
Knowledge of obstetric danger signs of pregnancy		
Severe vaginal bleeding	122	48.6
Blurred vision	81	32
Swollen of hand and face	57	22.8
Knowledge of obstetric danger signs of child birth		
Severe vaginal bleeding	125	50
Convulsions	44	17.6
Placenta not delivered after 30 min	49	19.6
Prolonged labor ≥ 12 h	97	38
Knowledge of obstetric danger signs of post-partum period		
Severe vaginal bleeding	102	40.8
High fever	27	10.8
Malodorous vaginal discharge	50	20
Knowledge of a minimum of two obstetric danger signs during		
Pregnancy	140	56
Labor/delivery	86	38.6
Postpartum	98	47.1

Table 3: Knowledge on obstetrics danger signs among antenatal care attendants at Butajira General Hospital, Southern Ethiopia, April 2019.

BPCR, 197(78.8%) of respondents were saved money for emergency, 147(58.8%) of respondents identified place of delivery, 45(18.0%) of respondents identified skill provider, 92(36.8%) of respondents had planned for transportation and only 41(16.4%) of respondents identified their potential blood donors (Table 4).

Variables	Frequency	Percent
Heard about BPCR		
Yes	174	69.6
No	76	30.4
Source of information		
Health professional	108	43.2
Trained Traditional birth attendants	13	5.2
Health extension worker	131	52.4
Relatives	88	35.2
Mass-media	49	19.6
Identified place of delivery		
Yes	147	63.6
No	84	36.4
Saved money		
Yes	197	85.3
No	34	14.7
Identified skilled provider		
Yes	45	19.5
No	186	80.5
Identified mode of transportation		
Yes	92	39.8
No	139	60.2
Identified blood donors for emergency		
Yes	41	16.4
No	209	83.6
Birth preparedness and complication readiness		
Prepared	104	41.6
Not prepared	146	58.4

Table 4: Knowledge and practices on birth preparedness and complications readiness among antenatal care attendants at Butajira General Hospital, Southern Ethiopia, April 2019.

Variables	BPCR		COR (95% CI)	AOR (95% CI)
	Yes	No		
Monthly family income in Ethiopian Birr				
>2000	46	51	1.47 (0.89, 2.47)	2.1 (0.05, 4.19)
≤ 2000ETB (ref.)	58	95	1	1
Number of ANC visit during last pregnancy				
≥ 4	90	116	1.67 (0.83, 3.32)*	3.8 (1.5, 9.6)**
<4 (ref.)	14	30	1	1
Knowledge of a minimum of two danger signs of pregnancy				
Yes	79	61	4.4 (2.52, 7.68)*	4.37 (2.2, 8.67)**
No (ref.)	25	85	1	1
Knowledge of a minimum of two danger signs of childbirth				
Yes	50	36	2.66 (1.52, 4.63)*	3 (1.45, 6.42)**
No (ref.)	47	90	1	1
Knowledge of a minimum of two danger signs postpartum				
Yes	54	44	2.23 (1.27, 1.39)*	0.68 (0.28, 1.65)
No (ref.)	39	71	1	1

** Significant at p-value <0.05

Table 5: Predictors associated with birth preparedness and complication readiness among antenatal care attendants at Butajira General, Hospital Southern Ethiopia, April 2019.

Predictors of birth preparedness and complication readiness

On multivariate logistic regression, having a minimum of four ANC visit, knowledge for a minimum of two danger signs of pregnancy and childbirth were independent predictors of BPCR. The odds of BPCR were 3.8 times greater among women who had minimum of four ANC visit when compared to their counter parts [AOR=3.8, 95% CI(1.5, 9.6)]. Women who had knowledge for a minimum of two danger signs of pregnancy were 4.37 times more likely to be prepared for childbirth and complications than to their counter parts [AOR=4.37, 95% CI (2.2, 8.67)]. Women who had knowledge for a minimum of two danger signs of childbirth were nearly three times more likely to be prepared for childbirth and complications as compared to their counter parts [AOR=3.0, 95% CI (1.45, 6.42)] (Table 5).

Discussion

The overall magnitude of birth preparedness and complication readiness in the Butajira general hospital was 41.6%. This result is relatively similar with previous studies done in Ethiopia in which the prevalence of BPCR was 41.3% and 41.1% [14, 15]. But this proportion is lower as compared to studies done in Addis Ababa, Ethiopia (68%) and India 62.4% [16,17]. This variation could be due to difference in socio-economic status and reproductive characteristics. In contrast, the current study found higher proportion of BPCR when compared to previous Ethiopian studies conducted at Robe district and Adigrat, were magnitude of BPCR were 22% and 16.5% respectively [18,19]. This discrepancy can be explained by difference in study setting, socio cultural status and implementation of maternal health programs.

Women who had a minimum of four ANC visit were 3.8 times more likely to be prepared for BPCR than their counterpart [AOR=3.8, 95% CI(1.5, 9.6)]. This result is in line with studies done in different parts of Ethiopia, Tanzania, India and Nepal [20-26]. The reason could be explained by increment in ANC visits gives chance to the woman to get more education and counseling which increases their service utilization.

Knowledge of women for a minimum of two danger signs of pregnancy [AOR=4.37, 95% CI (2.2, 8.67)] and childbirth [AOR=3, 95% CI (1.45, 6.42)] were predictors of BPCR. This finding is consistent with previous studies of Ethiopia [20,21]. This finding is also in agreement

with study conducted in Rwanda [27]. The reason could be explained by the fact that the more knowledge of women on danger signs they do have the more they practice components of BPCR.

Strength and Limitation

Strength of the study

Study participants were selected using probability sampling method to ensure its representatives and different approaches were used to maintain the quality of data.

Limitation of the study

This study obviously shares the limitations of cross-sectional studies. Also, the current study focused only on mothers, but it is better to incorporate health care providers and male partners to identify predictors of birth preparedness and complication readiness.

Conclusion

In the study setting the magnitude of birth preparedness and complication readiness was low. Having a minimum of four antenatal care visits, being aware for a minimum of two obstetrics danger signs during a time of pregnancy and childbirth were identified as predictors of birth preparedness and complication readiness. To improve women's awareness towards birth preparedness and complication readiness stakeholders should give emphasis for antenatal education and counseling, particularly on danger signs of pregnancy and childbirth.

Declarations

Authors' Contributions

HM, participated in conceptualization of the study design, data collection, analysis of data and interpretation and drafted the manuscript. GA, conceived, designed, wrote the study, participated in data collection and interpretations and revised draft of the paper. RA and BA participated in conceptualization of study design and data collection process. All authors read and approved the final manuscript.

Competing Interests

We declare that we have no competing interest.

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