

Birth Preparedness Among Antenatal Clients in Rural Health Centers in Kucha Woreda, Gamo-Gofa Zone, Southern Ethiopia

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Abstract

Introduction: Birth preparedness is the way of planning for normal birth and anticipating the actions needed in case of an emergency. Use of a skilled birth attendant and particularly inadequate preparation for rapid action in the event of obstetric complications, are well documented factors contributing to delay in receiving skilled obstetric care. This study was to give basic data on the issue that may help health workers and policy makers to implement and scale up safe mother hood program in an attempt to decrease the highest maternal and neonatal mortality rate in Ethiopia. **Objective:** To assess birth preparedness and associated factors among antenatal clients in Kucha woreda health centers, Gamo Gofa zone, Southern Ethiopia, 2014. **Methods:** Institution based cross sectional study was conducted from December 2014 to April 2015. A total of 458 Antenatal care (ANC) clients from all rural health centers were randomly selected after proportionally allocated to average number of ANC clients from registration book and interviewed at every third interval. Pre-tested interviewer-administered structured questionnaire and six trained diploma graduate female nurses were used for data collection. Descriptive statistics was done to assess basic client characteristics. **Result:** This study indicated that the proportion of antenatal women prepared for birth was 44%. Variables having statistically significant association with birth preparedness were both pregnant women with their husbands education level of tertiary (AOR=4.10, 95%CI: 1.67- 10.06) and (AOR=2.86, 95%CI: 1.33- 6.18) respectively, total monthly income of >1000eth.birr (AOR 3.67, 95%CI=1.83-7.36), four and above ANC visit (AOR 2.12, 95%CI=1.12-3.99), knowledge of danger signs (AOR 1.96, 95%CI=1.21-3.17), and the presence of still birth (AOR 2.88, 95%CI=1.36-6.09). **Conclusion and recommendations:** The magnitude of birth preparedness was very low. Women's and husband's education should be promoted by Kucha woreda health office in collaboration with Kucha woreda education office. Education and counseling on birth preparedness plan for ANC clients must be given by health care providers.

Keywords: Birth preparedness, Kucha, Gamo Goffa

1. BACK GROUND

Maternal mortality remains a public health challenge in developing countries (1). The fifth Millennium Development Goal (MDG5) calls for the reduction of Maternal Mortality Ratio (MMR) by 75% between 1990 and 2015. However, only 47% decline had been achieved till 2011 globally (2). As a result, about 287,000 mothers die because of problems related to pregnancy and child birth each year. About 99% of maternal mortality occurs in developing countries.

The use of a skilled birth attendant for normal births, and particularly inadequate preparation for quick action in the event of obstetric complications, are well documented factors contributing to delay in receiving skilled obstetric care (7). Every pregnant woman faces the risk of sudden, unpredictable complications that could end in death or injury to herself or to her infant. Pregnancy related complications cannot be consistently predicted (3).

Study conducted in different part of the world pregnant women were not found to be well prepared for birth and its complication. For example only 47.8% women who have already given birth in Indore city in India (12), 35% of pregnant women in Uganda (13) and 27.5% of pregnant women in Northern Nigeria were prepared for birth and its complication (14).

BPCR is a strategy to encourage women to be informed of danger signs of obstetric complications and emergencies, choose a preferred birth place and attendant at birth, make advance arrangement with the attendant at birth, arrange for transport to skilled care site in case of emergency, saving or arranging alternative funds for costs of skilled and emergency care, and finding a companion to be with the woman at birth or to accompany her to emergency care source.

Despite, fact that birth preparedness and complication readiness is essential for further improvement of maternal and child health and prevention of maternal deaths, little was known about the status of birth preparedness and complication readiness in rural Ethiopia in general and in Southern Region in particular. The existing evidences show that the status of birth preparedness and complication readiness is low (18). Therefore, this study will provide basic data on the issue that may help health workers and policy makers to implement and scale up safe mother hood program in an attempt to reduce the highest maternal mortality rate and neonatal mortality rate of Ethiopia. Therefore, this paper was designed to assess birth preparedness and factors associated with their practices among antenatal care clients, in selected health centers, Kucha woreda.

2. METHODS AND MATERIALS

2.1. Study Setting and Source Population

Institution based cross-sectional study was conducted on all pregnant women who attended antenatal clinics in Kucha Woreda health centers, Southern parts of Ethiopia. Kucha Woreda is one of the administrative Woreda in Gamo Gofa Zone and located 440 kms away from Addis Ababa. From the total population 187,259 around 95,502(51%) were females. The estimated total number of pregnant women in the woreda was 6480 and the Health institution distribution in the Woreda is six health centers, thirty nine health posts, 15 privet clinics.

2.2. Inclusion and Exclusion Criteria

Pregnant mothers who were attended first and above ANC visits in all health centers in Woreda were included in the study and pregnant mother who cannot give response like critically ill mothers, and those unable to hear/communicate was excluded.

2.3. Sample Size Determination

By using the formula for single population proportion= $(z \alpha/2)^2 * p (1-p)/d^2$

The following assumptions were considered: where "n" is the required sample size, "Z" is a standard score corresponding to 95% confidence level;"p" was assumed to be proportion level,29.9% had been taken(15)."D" is the margin of error which is 5%. Thus, the required sample was calculated to be $n = (1.96)^2 \times 0.299(1-0.299) / (.05)^2 = 322$

With the above inputs the minimum sample required was 322. Taking 10% contingency the final sample size was 354 clients.

Sample size calculation using explanatory variables: According to studies done in Ethiopia, proportion for birth preparedness was 25.3% for educational status of mothers, 43.5% for history of still birth, 26.9% for parity (18) and 21.1% for knowledge on danger sign during pregnancy (17).

Assumed proportion in birth preparedness of educational status of mothers 25.3 % was the bigger sample size than the other independent variables. So the assume d total sample size was 458 clients. Epidemiological Information (Epi Info) Version 7 was applied to calculate the sample size.

2.4. Sampling Methods and Procedure

There are six rural public health centers in the woreda and all rural health centers were included. The sample size was allocated to each health center after average number of ANC clients had been identified from registration book in each health center. Individual study participants were selected by systematic sampling and the interval for all health centers was three. Individual study participants were selected by systematic sampling and the interval for all health centers was three. The first client in each health center was selected among the numbers from 1 to 3 by simple random sampling; lottery method. Then the next study subject was selected and interviewed at every third interval until the sample size was fulfilled. For non-responding clients the client who came next was taken as instead of it.

2.5. Data Collection Procedure and Quality Control

Pre-tested interviewer administered structured questionnaire were used, which was extruded from Maternal and Neonatal Program of JHPIEGO, an affiliate of John Hopkins University (7). Six diploma graduate female nurses and two male B.sc. graduate nurses, were used as data collectors and as supervisors respectively. Data collectors and supervisors were oriented and trained on their responsibilities for describing the purpose of the study, giving orientation, telling clients the importance of honest and sincere reply, on responding to questions.

The questionnaire was pre-tested in randomly selected 23 (5%) similar women in the woreda outside the study health centers and adjustment was done based on the gap identified during pre test to insure the questioner quality. Data collection was carried out by trained nurses who were not working in the antenatal clinic of each health center in the morning and clients was interviewed after they had got the ANC service. During the data collection process, the collected data were checked by the supervisors daily for completeness and finally the principal investigator monitored the overall quality of data collection.

2.6. Data analysis and Management

Data was coded and entered in to epi info version 3.5.1 and exported to SPSS Version 20 for analysis. Missing values checked by conducting simple frequency analysis. Descriptive Frequencies were calculated to assess basic client characteristics and the prevalence of birth preparedness.

Bivariate analysis using logistic regression technique was done to see the crude association between the independent variables and the dependent variable. Chi-square test was used to define statistical associations between variables.

2.7. Operational Definition and Definition of Terms

Birth preparedness practice: A woman was considered as prepared for birth and its complication if she identified place of delivery, saved money, identified skilled provider at birth and identified a means of transport to place of childbirth or for the time of obstetric emergencies ahead of childbirth (16). **Knowledge on danger signs during pregnancy:** A woman was considered as knowledgeable; if she spontaneously mentioned at least two out of three key danger signs for pregnancy (severe vaginal bleeding, swollen hands/face and blurred vision) (16).

2.8. Ethical Consideration

The proposal was submitted to the IRC (Institutional Review board) of Arba Minch University Ethical clearance was obtained from Arba Minch University Permission letter was obtained from Zonal health department to Kucha woreda. Verbal informed consent from each study participant was obtained after clear explanation about the purpose of the study.

At the end of the interview health information regarding birth preparedness and how to respond to them was provided.

3. Result

3.1 Socio-demographic character:

458 participants (100%) responded to the interview. The majority 242 (52.8%) of the participants were between ages 20 up to 29 years and the mean age was 27.3(±5.1). And almost all 451(98.5%) of the respondents were married. Three hundred forty four (75.1%) of the participants were protestant in religion and four hundred (87.3%) of the respondents were Gamo in ethnicity. Majority 303 (66.2%) of the respondents were housewives. Two hundred twenty six (49.3%) of the respondents were illiterate.

In regard to their husbands, two hundred ninety eight (66%) were farmers and 175(38.8%) were illiterate (Table2).

Table 1: Socio -demographic character of respondents in Kucha woreda health centers, Gamo Gofa Zone, Southern Ethiopia, April 2015.

Variables		Frequency	Percentage(%)
Age of respondents	< 20	53	11.6%
	20-29	242	52.8%
	≥30	163	35.6%
Marital status	Single	5	1.1
	Married	451	98.5
	Divorced	2	0.4
Religion	Orthodox	104	22.7%
	protestant	344	75.1%
	Muslim	10	2.2%
Ethnicity	Gamo	400	87.3%
	Gofa	39	8.5%
	Wolayita	7	1.6%
	Amahara	12	2.6%
Occupation	Housewife	303	66.2%
	Employee (Gov. &Pvt.)	27	5.9%
	Others*	128	27.9%
Educational level	No formal education	226	49.3%
	Primary(1-8)	111	24.3%
	Secondary(9-12)	67	14.6%
	Tertiary(>12)	54	11.8%
Husband occupation	Farmer	298	6%
	Merchant	73	16.2%
	Employed (Gov't &Private)	45	10.0%
	Daily laborer	35	7.8%
Husband educational status	No formal education	175	38.8%
	Primary(1-8)	134	29.7%
	Secondary(9-12)	58	12.9%
	Tertiary(>12)	84	18.6%
Family monthly income	<300	173	37.8%
	301-500	111	24.2%
	501-1000	78	17.0%
	>1000	96	21.0%
Family size	1-3	177	38.6%
	4-6	225	49.2%
	>6	56	12.2%

*Merchant and student.

3.2 Obstetric characteristics of the respondents:

Two hundred eighty one (61.4%) of the respondents had 2 to 3 visits and one hundred seventeen (25.5%) of the respondents had their first ANC visit. Two hundred forty of the respondents (52.4%) had pregnancies between two and four and one hundred four (22.7%) of the women were

Primigravida (pregnant for the first time). Forty one (8.9%) of the respondents had history of stillbirth. Regarding to the gestational age majority of the respondents, 289 (63.1%) were greater than 6 months and one hundred sixty five (36%) of pregnant were between 4-6 months.

3.3. Awareness on danger signs during pregnancy:

Out of the 458 respondents relatively low proportion, 225 (49.1%), 95(20.7%) and 164 (35.8%) of the respondents suddenly mentioned vaginal bleeding, swollen hands/face and blurred vision are key danger signs during pregnancy, respectively. One hundred eighty two (39.7%) of the respondents were spontaneously mentioned at least one key danger sign, one hundred eleven (24.2%) of the respondents mentioned at least two key danger signs and only thirty four (7.4%) of the respondents mentioned all three key danger signs. Overall considering the three key danger signs, only 145(31.7%) of the respondents were informed on danger signs during pregnancy, for detail see table 4.

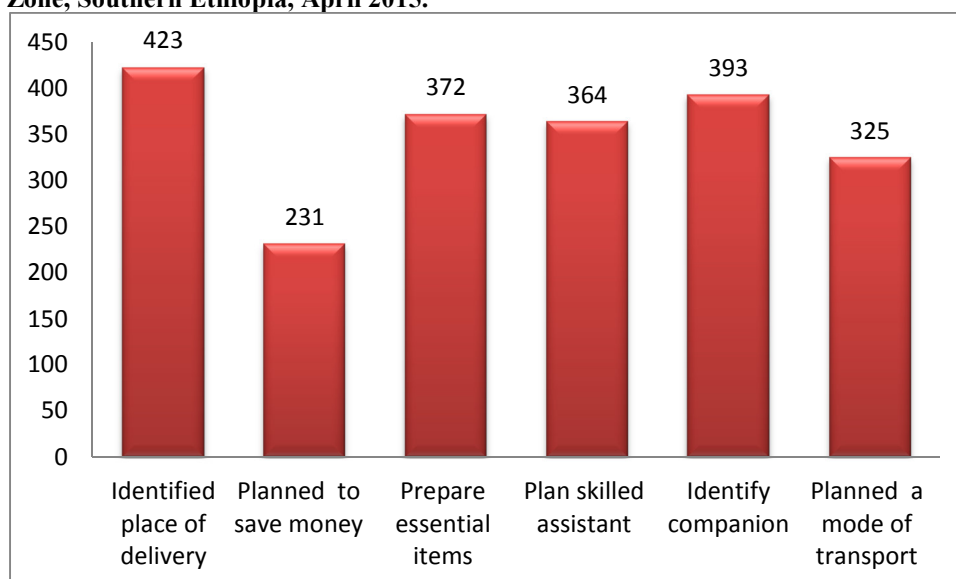
Table 2: Knowledge of respondents on danger signs during pregnancy, in rural health centers of kucha woreda, Gamo Gofa Zone, Southern Ethiopia, April 2015.

Danger signs of pregnancy	Number	Percent
Swollen hand /face	95	20.7%
Bleeding	225	49.1%
Severe headache	91	19.9%
Severe abdominal pain	67	14.6%
Difficulty of breathing	20	4.4%
High fever	62	13.5%
Blurred vision	164	35.8%
Don't know	100	21.8%

3.4 Practice on birth preparedness:

Majority of the respondents, 453(98.9%) identified facility which works 24 hours, 423(92.4%) identified place of delivery, 372(81.2%) prepared material for safe delivery, 364(79.5%) identified skilled provider and 325(70.9%) arranged means of transportation and 231(50.4%) planned to save money. Generally, taking into account place of delivery, plan to save money, identified skilled provider and plan a means of transport, only two hundred three(44.3%) study participants were prepared for birth where as the majority two hundred fifty five(55.7%) of the study participants did not prepare herself for birth (Table 5).

Table 3: Practices of respondents on preparation for birth, in rural health centers of kucha woreda, Gamo Gofa Zone, Southern Ethiopia, April 2015.



3.5 Factors associated with preparation for birth and complication:

Socio demographic variables on binary logistic showed that age of pregnant women, occupation of both pregnant

women and husbands, educational status of both pregnant women and husbands, total family income and family size were significantly associated with preparedness for birth at $P < 0.25$. Among the obstetric variables, frequency ANC visit, (gravidity) number of pregnancy, gestational age (in month) and history of stillbirth were significantly associated with birth preparedness.

Pregnant women whose husbands were employee in government and private organization was significantly associated with preparedness for birth than those whose husbands were farmers (COR= 13.29, 95%CI=5.49-32.14). Among the obstetric variables, pregnant women who attended four and more visit were significantly associated with preparedness for birth than those with less than four visit (COR =2.90, 95%CI= 1.70-4.93). However, pregnant women with presence of still birth was not significantly associated with preparedness for birth than those with absence of still birth (COR =1.68, 95%CI= 0.88-3.21).

Several associations were found to be significant in the bivariate analysis. Therefore, a multiple logistic regression was applied to determine which factors best explained and predict preparedness for birth. Consequently from socio demographic variables: only educational status of pregnant women, educational status of the husbands, total family income and from obstetric factors; frequency of ANC visit, history of still birth and awareness of danger signs of pregnancy were significantly associated with birth preparedness.

Pregnant woman with educational status of tertiary was significantly associated with birth preparedness than no formal education (AOR=4.1, 95%CI=1.67-10.06). Pregnant woman with presence of stillbirth was significantly associated with birth preparedness than those with absence of stillbirth (AOR=2.88, 95%CI=1.36-6.09), however, it did not show significant association in bivariate analysis. For detail on both bivariate and multivariate analysis see table 6.

4. DISCUSSION

The proportion of antenatal mothers prepared for birth was 44% in the woreda, and the majority of antenatal women (56%) were not prepared for birth. The finding of this study is lower than what was reported from Kenya in 2006 which was 89.1% (30), since this is may be due to the difference in knowledge and educational level of that community. On the other hand the result was similar with that of a study conducted on antenatal women in Northern Nigeria in 2014 (27).

One of important part of assessing birth preparedness and its complication readiness is to identify place of delivery. Majority of the respondents (92.4%) had designed to give birth at health facility and only (7.6%) respondents had designed to give birth at home, which may be explained by the fact that identification of place of delivery is very essential means to get a skilled provider. This was similar with other study conducted in Tanzania (26).

Shortage of money and transportation is a barrier for seeking care as well as identifying and reaching medical facilities. Money saved by woman or her family can afford to pay for health services and supplies, she is more likely to seek care (31, 32). This study showed that half of the respondents saved money for child birth is lower than compared to a study conducted in Kenya 62.9% (30). The reason may be due to lack of consideration of unpredicted event during the process of labor and delivery.

Still while money is offered, it can be difficult to secure transport at the last minute after a complication has occurred. Arranging transport ahead of time reduces the delay in seeking and reaching services (33).

70.9% of the respondents have identified transportation ahead of childbirth which is higher than compared to study conducted on Northern Nigeria (54%) (27). The reason may be due to disparity in transport type and increased awareness of mothers by health professionals towards identifying transportation ahead of childbirth to health facilities.

In this study, women education is a strong predictor of birth preparedness. Pregnant women with tertiary education level were four times more likely to be prepared for birth than illiterates. The finding was consistent with different studies (13, 26, 27, 30). This might be related to the fact that education is likely to increase female autonomy in order that mothers develop greater confidence and capabilities to make decision regarding their own health, as well as their children. Also, educated women are more likely to be aware of difficulties during pregnancy and as a result, they are expected to be preparing themselves to give birth at health facilities (25).

Similarly, pregnant women with husband education of tertiary level were significantly associated with birth preparedness than the illiterates. This study was similar with studies done in Ethiopia and other places (27, 28). The possible reason for this could be educated husbands might be more likely to enhance health awareness and great confidence for their own health & sensitize the family to decide & utilize health care provision at various facility (34, 35). In contrary women of husband with no formal education might be less likely to be prepared for birth.

Among the obstetric variables, frequency of ANC visit was found to be predictor for birth preparedness like similar studies (13, 28, 30). Pregnant women who attended four and more visit were two times more liable to be prepared for birth than those attended fewer than four visit. The reason was that pregnant women who

attended four and more visit could have more chance to get information relating to birth preparedness packages.

Pregnant women with presence of still birth were three times more likely to be prepared for birth than those with absence of still birth. This was consistent with other studies (18). The strong association could be due to those women who anticipate serious complications based on their previous experiences were more likely to be prepared for birth.

Pregnant woman having awareness of danger signs during pregnancy was two times more likely to be equipped for birth than their counterparts within this study and other studies (15, 16, 26, 28). This might be mother who is able to recognize danger signs could have greater fear of the possible outcomes of the signs so that they would be encouraged to deliver at health facilities which is one of the packages of birth preparedness.

5. CONCLUSION

The following conclusion was made from the study: Birth preparedness in this study is very low. Women education, husband's educational status and total family income are major socio-economic factors identified in this study. And also Frequency of ANC visit, history of stillbirth and awareness of danger signs during pregnancy was also major obstetric factors identified in this study.

Conflict of interests

The authors have no conflict of interests.

Authors' contributions

Zelege G initiated and conducted the research, analyzed and interpreted the data, and prepared the draft manuscript. MK, MG and MT advised on data collection, data interpretation and helped to write the manuscript.

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