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# Assessment of Magnitude and Factors Associated with Birth Preparedness and Complication Readiness among Pregnant Women Attending Antenatal Care Services at Public Health Facilities in Debrebirhan Town, Amhara, Ethiopia, 2015

By Abreham Hailemariam, Honelgn Nahusenay, Dr. Ewnet G/Hana,  
Ayalkibet Abebe & Bisrat Getaneh

*University of Gondar*

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# Assessment of Magnitude and Factors Associated with Birth Preparedness and Complication Readiness among Pregnant Women Attending Antenatal Care Services at Public Health Facilities in Debrebirhan Town, Amhara, Ethiopia, 2015

Abreham Hailemariam <sup>1</sup>, Honelgn Nahusenay <sup>2</sup>, Dr. Ewnet G/Hana <sup>3</sup>, Ayalkibet Abebe <sup>4</sup>  
& Bisrat Getaneh <sup>5</sup>

## ABSTRACT

**Background:** Birth preparedness and complication readiness (BPCR) is a key component of globally accepted safe motherhood programs, which helps ensure women to reach professional delivery care when labor begins and to reduce delays that occur when mothers experience obstetric complications.

**Objective:** To assess the magnitude and factors associated with birth preparedness and complication readiness among pregnant women attending antenatal care services at public health facilities in Debrebirhan town, Amhara, Ethiopia, 2015.

**Methods:** Cross-sectional facility based study was used. The required sample size was 356. The collected data was coded and entered to Epi-Info version 3.5.1 and transferred to SPSS version 20 for analysis. Binary and multiple logistic regression analyses were conducted.

**Results:** Only 53.9% with 95% CI (48.9, 59.0) of the respondents were well prepared for birth and its complication. Variables having statistically significant association with BPCR of women were knowledge of BPCR (AOR = 2.08, 95% CI = 1.16, 3.73), PNC follow-up (AOR 2.79, 95% CI=1.73, 4.48) and early ANC visit (AOR = 2.06, 95% CI = 1.11, 3.83).

**Conclusions:** The finding of this study showed that it is not enough to bring positive change for preparedness of birth and its complication. Knowledge on BPCR planned PNC follow-up, and early ANC follow up were independent factors of birth preparedness and complication readiness.

**Keywords:** birth preparedness, complication readiness, debrebirhan, ethiopia.

## INTRODUCTION

Birth preparedness and complication readiness (BPCR) is the process of planning for normal birth and anticipating the actions needed in case of an emergency. Women and newborns need timely access to skilled care during pregnancy, childbirth, and the postpartum/newborn period. Too often, however, their

access to care is impeded by delays—delays in deciding to seek care, delays in reaching care, and delays in receiving care. These delays have many causes, including logistical and financial concerns, gaps in services, as well as inadequate community and family awareness and knowledge about maternal and newborn health issues. BPCR plan reduces delays in deciding to seek care in two ways. First, motivating pregnant women to plan to have a skilled provider at every birth. If women and families make the decision to seek care before the onset of labor, and they successfully follow through with this plan, the woman will reach care before developing any potential complications during childbirth, thus avoiding the first two delays completely. Second, complication readiness plan raises awareness of danger signs among women, families, and communities, thereby improving problem recognition and reducing the delay in deciding to seek care (1, 2, 3, 4, 5).

The principle of BPCR in a third world setting where there is prevailing illiteracy, inefficient infrastructure, poor transport system, and unpredictable access to skilled care provider have the potential of reducing the existing high maternal and neonatal morbidity and mortality rates. BPCR promotes skilled care for all births and encourages decision making before the onset of labor. It provides information on appropriate sources of care (promoters and facilities) making the care-seeking process more efficient. It also encourages households and communities to set aside money for transport and service fees, avoiding delays in reaching care caused by the search for funds. (6, 7).

Data generated by the World Health Organization (WHO) indicated that more than half a million women were dying each year from the complications of pregnancy and childbirth, with the vast majority of these deaths (99%) occurring in the developing world. BPCR raises awareness about the

Author 1 2 3 4 5: e-mails: abrsh21hm@gmail.com, h.nahu2000@gmail.com, gewenat@gmail.com, ayalkibet.abebe@yahoo.com, bisratlove@gmail.com



scope and consequences of poor maternal health, and to mobilize action to address high rates of death and disability from the complications of pregnancy and childbirth. The purpose of the BPCR is to encourage pregnant women, their families, and communities to plan for normal pregnancies, deliveries and to prepare to deal effectively with emergencies if they occur. Birth planning is important because of the unpredictability of obstetric complications (8, 9).

It has been acknowledged that receiving care from a skilled provider is the single most important intervention in safe motherhood but often women are confronted with delays in seeking care.

This study focuses on ANC attending woman's Birth Preparedness and Complication Readiness. There is a significant interrelationship between BPCR and ANC follow up. In this regard Ethiopia is among many African countries where home delivery is widely practiced. According to mini EDHS 2014, data shows in Amhara region only 17.1% of pregnant women were informed of signs of pregnancy complications and institutional delivery of only 10.3%. Despite the fact that emphasis is given by the national strategy to raise knowledge of obstetric danger signs little is known about the current level of practice and the influencing factors in Ethiopia. The associated problems and health risks of the knowledge are also dependent on the specific context. This study therefore aims to fill this gap by assessing the current status of birth and its complication of danger signs among pregnant women as it could provide another insight in the prevention maternal and child mortality and morbidity (4, 5, 9).

## METHODS

### Study Design

Institution cross sectional study design was conducted from Dec 15, 2014 to Feb, 2015 to assess the magnitude and factors associated with birth preparedness and complication readiness.

### Source Population

All pregnant women who have ANC follow-up in Debrebirhan public health facilities.

### Study Population

Pregnant women who were selected during data collections that fulfill the following inclusion and exclusion criteria were the study population.

### Ethical consideration

Ethical clearance and approval was obtained from Addis continental institute of public health/ University of Gonder. The necessary permission to undertake the study was also obtained from Amhara Regional health office and Debrebirhan town health office. The researcher was value the local culture and traditions, and dealt with every participant in the study with respect and dignity.

In every situation, the established rights of research participants were protected. People was not been coerced into participating in the research, which is the fundamental of the principle of voluntary participation in research ethics.

Prospective research participants were informed about the procedures involved and gave their consent to participate using a form attached in the annex. The respondents were at least asked for an oral consent in local language and the questions asked to them were in simplified language. This research also guaranteed the participants confidentiality; the participants were also assured that identifying information would not be made available to anyone who is not directly involved in the study. The stricter standard maintained by this study was the principle of anonymity which essentially means that the participant remained anonymous throughout the study and its' reporting. Clearly, the anonymity standard is a stronger guarantee of privacy.

## RESULTS

100% (356) responded to the interview. The mean age was  $25.56 \pm 4.58$  years. Majority of respondents, 41.6 %, were between the age group of 25 and 29 years. Most of the women 77.2% (275) were Orthodox. Majority 97.8% (348) of the women were married and most 52.3% (186) of the respondents were employed. 45.8% (One hundred sixty three had completed secondary school and above).

About 43.5% (One hundred fifty-five) of the women were primi gravida and only 15.2% of pregnant women had early ANC visit. Regarding place of delivery 92.1% (328) of decisions was made by pregnant women herself and only 6.7% (24) by husband. (**Table 1**)

**Table-1 :** Obstetric characteristics of pregnant women, attending ANC clinics in public health facilities of Debrebirhan town, Ethiopia, 2015.

|                                      | Variable  | Frequency (n=356) | Percent (%) |
|--------------------------------------|-----------|-------------------|-------------|
| Gravidity                            | 1         | 155               | 43.5        |
|                                      | 2-4       | 190               | 53.4        |
|                                      | >=5       | 11                | 3.1         |
| Parity                               | 0         | 158               | 44.4        |
|                                      | 1         | 107               | 30.1        |
|                                      | 2-4       | 87                | 24.4        |
| Still birth                          | >=5       | 4                 | 1.1         |
|                                      | Yes       | 15                | 4.2         |
|                                      | No        | 341               | 95.8        |
| Abortion                             | Yes       | 21                | 5.9         |
|                                      | No        | 335               | 94.1        |
| Time of first ANC visit              | <3 Month  | 54                | 15.2        |
| (in month)                           | >=3 Month | 302               | 84.8        |
| Knowledge on BPCR                    | Yes       | 176               | 49.4        |
|                                      | No        | 180               | 50.6        |
| Knowledge on BPCR during pregnancy   | Yes       | 117               | 32.9        |
|                                      | No        | 239               | 67.1        |
| Knowledge on BPCR during labor       | Yes       | 78                | 21.9        |
|                                      | No        | 278               | 78.1        |
| Knowledge on BPCR during post-partum | Yes       | 109               | 30.6        |
|                                      | No        | 247               | 69.4        |

A woman was considered as prepared for birth and its complication if she identified four and more components from birth preparedness complication readiness. Plan for place of delivery, saving money, plan for skilled health care provider, plan means of transportation and plan of blood donor during obstetric emergency. The score for birth preparedness and complication readiness was computed from key elements of birth preparedness and complication readiness.

Generally 53.9% with 95% CI (48.9, 59.0) of pregnant women on this study were prepared for birth and its complication. About (63.8%) of pregnant mothers were planned skilled health care provider and arrange means of transport. Majority, 93.5% identified health facility for delivery and/or for obstetric emergencies. About (68.5%) of pregnant women saved money for incurred costs of delivery and emergency if needed and only 45.5% of them plan of blood donor during obstetric emergency.

On binary logistic regression, knowledge on BPCR, educational level, planned PNC follow up, time of first ANC follow up, knowledge of danger sign during pregnancy, labor and postnatal period, information from health professionals and final decision maker to give birth were found to have statistically significant association with birth preparedness and complication readiness.

Multiple logistic regression analysis was also computed to control the possible confounder, explores

the association between selected independent variables, and birth preparedness and complication readiness. The odds of birth preparedness and complication readiness were two times greater among knowledgeable when compared to not knowledgeable respondents (AOR = 2.08, 95% CI = 1.16, 3.73).

Additionally, PNC follow-up of mother was also found as a factor for birth preparedness and complication readiness. The odds of birth preparedness and complication readiness of woman who plan to follow PNC was 2.79 times higher compared with those who don't plan PNC follow-up (AOR=2.79, 95%CI=1.73, 4.48). Furthermore, the odds of birth preparedness and complication readiness were 2.06 times greater among women who have early first ANC visit when compared with women who with late ANC follow up (AOR = 2.06, 95% CI = 1.11,3.83). (**Table 2**).

**Table 2 :** Factors associated with birth preparedness and complication readiness attending ANC clinics in public health facilities of Debrebirhan town, Ethiopia, 2015.

|  | Variables birth Preparedness and Complication Readiness |            |                   |                    |
|--|---|------------|-------------------|--------------------|
|  | Yes N (%)   | No N (%)   | COR (95%)         | AOR (95%)          |
| <b>Knowledge on BPCR</b>                     |   |            |                   |                    |
| Yes  | 116 (65.9%)   | 60(34.1%)  | 1                 | 1                  |
| No   | 76(42.2%)   | 104(57.8%) | 2.64 (1.72,4.06)* | 2.08(1.16,3.73)**  |
| <b>Identify BPCR during pregnancy</b>        | Yes   | 143(60.3%) | 94(39.7%)         | 1                  |
| No   | 49(41.2%)   | 70(58.8%)  | 2.17 (1.39,3.40)* | 1.25 (0.64,2.46)   |
| <b>Identify BPCR during labor</b>            | Yes   | 141(62.9%) | 83(37.1%)         | 1                  |
| No   | 51(38.6%)   | 81(61.4%)  | 2.69(1.73,4.20)*  | 1.19 (0.57,2.49)   |
| <b>Identify BPCR during post-partum</b>      | Yes   | 123(63.7%) | 70(36.3%)         | 1                  |
| No   | 69(42.3%)   | 94(57.7%)  | 2.39 (1.56,3.67)* | 1.38(0.71,2.66)    |
| <b>Time of first ANC</b>                     | Early   | 37(68.5%)  | 17(31.5%)         | 1                  |
|  | Late  | 155(51.3%) | 147 (48.7%)       | 2.82 (1.24,6.42)*  |
| <b>Planned PNC follow-up</b>                 | Yes   | 81(70.4%)  | 34(29.6%)         | 1                  |
| No   | 111(46.1%)  | 130(53.9%) | 3.05(1.64,5.69)*  | 2.79 (1.73,4.48)** |
| <b>Information from health professionals</b> | Yes   | 157(59.9%) | 105(40.1%)        | 1                  |
| No   | 14(26.4%)   | 39(73.6%)  | 4.16 (2.15,8.05)* | 1.79 (0.81,4.01)   |
| <b>Education</b>                             | Yes   | 101(62.0%) | 62(38.0%)         | 1                  |
| No   | 66(48.9%)   | 69(51.1%)  | 1.70 (1.07,2.70)* | 0.99 (0.56,1.77)   |
| <b>Final decision maker</b>                  | Yes   | 187(57.0%) | 141(43.0%)        | 1                  |
| No   | 5(17.9%)  | 23(82.1%)  | 6.10(2.26,16.44)* | 2.53 (0.79,8.09)   |

\* P-value < 0.25 in the bivariate analysis \*\* P-value < 0.05 in the multivariate analysis

## DISCUSSION

The present study investigated magnitude and factors associated with birth preparedness and complication readiness among pregnant women attending antenatal care services at public health facilities in Debrebirhan town, Amhara, Ethiopia, 2015.

This study showed that, 53.9% of the respondents were prepared for birth and its complications, which is higher than study conducted in Goba woreda Ethiopia (29.9%), Adigrat (22%), Aleta Wondo(17%), Arsi Robe(16.5%).This might be due to the difference in study period, socioeconomic characteristics, health service delivery, study area and age difference. It may also be due to the increased awareness creation done by HEWs or they may be prepared for birth and its complication without having enough knowledge. (13, 22, 27).

The most commonly mentioned elements of birth preparedness and its complication in the study were identifying place of delivery, arranging transportation, saving money which may be explained by the fact that both women and their partners may knew that money is required to facilitate referral in case of complications, planning skilled assistant and identifying institution with 24 hour emergency obstetric care. Lack of money and transportation is a barrier for seeking care as well as identifying and reaching medical facilities (8, 11). Money saved by woman or her family can pay for health services and supplies, vital for transport, or other costs. Likewise, if a woman can afford to pay for these costs, she is more likely to seek care (8). In the present study, majority of the

respondents saved money for childbirth which is in line compared to a study in Adigrat (68.9%) (22).This could be due to the cultural value of the community in the study area. It is nearly comparable with study in rural Uganda, Mbarara district where majority of the respondents identified skilled providers, saved money, identified means of transport, and identify health facility (20).

Arranging transport ahead of time reduces the delay in seeking and reaching services. In this study, majority of the respondents had identified transportation ahead of childbirth which is higher compared to a study in Adigrat (24.7%) and India(21, 22).This could be due to difference in transport type and increased awareness of mothers by HEWs towards identifying transportation ahead of childbirth to health facilities.

Furthermore about 63.8% and majority of pregnant women in this study planned to deliver by assistance of skilled provider which is higher compared to study done in Aleta wondo and lower than study done in India (13, 21). This may be due to the reason that awareness is done by HEWs or the number of skilled delivery attendance is increasing.

In contrary to the practice of BPCR, in this study, the overall knowledge of pregnant women on birth preparedness and complication readiness was 49.4%. The proportion of pregnant women who were considered knowledgeable on danger signs during pregnancy, labor/child birth and post-partum period were 32.9%, 21.9% and 30.6% respectively. The implication of this finding could be women could prepare some of those BPCR components without having the knowledge of its rationale. Therefore, their

continuous practice for their preparation of birth in the future is under question because of their knowledge gap. Another explanation for this could be knowledge of BPCR is the first step in the appropriate and time referral for essential obstetric care .The more knowledge they have about the importance of BPCR the more likely they practice elements of BPCR (8,10).

Regarding some of the factors affecting birth preparedness and complication readiness, the study found knowledge, PNC follow-up, and time of first ANC visit has significant statistical association with birth preparedness and complication readiness.

There was statistically significant association between knowledge and birth preparedness and complication readiness. Those pregnant women who were knowledgeable were two times more to prepare for birth and its complication as compared with those who were not knowledgeable ( $AOR=2.08$ , 95%CI= 1.16,3.73). This is in line with Goba ( $AOR = 2.08$ , 95% CI = 1.20, 3.60). This might be related to the fact that the more knowledge on BPCR they do have the more they practice it (27).

There was also statistically significant association between birth preparedness and complication readiness of woman who plan to follow PNC and it was 2.79 times higher compared with those who don't plan PNC follow-up ( $AOR=2.79$ , 95% CI= 1.73, 4.48). This may be due to the reason that most of the complication like Severe vaginal bleeding, high grade fever, and foul smelling vaginal smelling can occur during the first 42 days after birth (9, 17).

Furthermore, first trimester ANC visit was also statistically significant and it was 2.06 times greater among women who have early first ANC visit to prepare for birth and its complications. When compared with women who had late ANC ( $AOR = 2.06$ , 95% CI = 1.13, 3.83). Time of first trimester ANC visit attendance was low (15.5%) and this figure is lower than the study conducted in Arsi robe and India (21), the reason for this disparity may be due the reason that it may be due to knowledge gap how much important early initiation of visiting ANC clinic or they may not supported by their husband.

The early they come to visit ANC clinic the more they know the importance of BPCR and the more they will practice it. This can be best explained by the fact that ANC is more effective when received earlier in the pregnancy and for the case of ANC follow up, if the women have ANC follow up, they could accept advise and health information from health professionals.

So that helps them be prepared for birth and its complication. ANC until the end of second trimester were more likely to attend home delivery than those came earlier. This can be best explained by the fact that ANC is more effective when received earlier in the pregnancy (7, 8, 9)

## CONCLUSIONS

- The finding if this study showed that it is not enough to bring positive change for Preparedness for birth and its complication.
- Knowledge on BPCR, planned PNC follow-up, as well as early ANC follow up were independent factors of birth preparedness and complication readiness.

## RECOMMENDATIONS

Knowledge was found to be one of the factors of BPCR. Therefore, Debrebirhan health office in collaboration with other stake holders such as Debrebirhan education office should further strengthen their effort to empower women with education.

Early ANC follow up and those pregnant women who planned PNC were found to have statistically significant association with birth preparedness and complication readiness. Therefore, health professionals during antenatal care and delivery should give due emphasis on birth preparedness and complication readiness plan to improve access to skilled and emergency obstetric care.

Finally, if other studies to be conducted that is triangulated and improve the gaps that fill this study.

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