



Why is Perinatal Mortality Higher among Women Delivered at Health Facility in Rural Northwest Ethiopia? A Qualitative Study

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Authors' contributions

This work was carried out in collaboration between all authors GA, YB, AW and YK participated in all steps of the study from its inception to the write up. All authors read and approved the final manuscript for submission for Publication.

Original Research Article

Received 29th January 2014

Accepted 14th April 2014

Published 30th June 2014

ABSTRACT

This study investigated the reasons for high perinatal deaths among newborns delivered in health facilities in rural northwest Ethiopia. Qualitative in-depth interviews were conducted with 11 survivors of obstetric complications and 11 normal home deliveries. The interviews were audio recorded and transcribed verbatim. Open code qualitative 3.6 software was used for managing data and analysis. The primary reasons attributed to high mortality among health-facility-delivered babies were delay in recognizing danger signs of labor and delay in decision to seek care. Most women arrive to health institutions late with seriously complicated labor. Lack of transport, finance, and perceived poor quality of services are additional reasons to delayed seeking of health care during labor. Increasing public education on danger signs of labour, improving quality of emergency obstetric care in the nearby health facilities, and facilitating affordable referral mechanisms are critical to enhance prompt household decision-making and decreasing perinatal deaths in rural communities.

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Keywords: Qualitative study design; skilled birth attendance; in-depth interview; place of delivery.

1. INTRODUCTION

Each year, 4 million newborns die and another 3 million still births occur worldwide [1-3], of which the majority occur in developing countries [4]. Many of the deaths could have been avoided with appropriate maternal and neonatal health care [5] such as; early recognition of danger signs and access to appropriate maternal care including prompt referrals to emergency obstetric care services and skilled birth attendance could reduce perinatal mortality [6-8].

However, efforts in this front are hampered by poverty, gross shortage of skilled human resource for health, high staff attrition rate, inefficient referral mechanisms and inappropriate health seeking behavior in developing countries [9-11]. Although the percentage of population living within 10km radius of a primary health care facility has improved over the years, the availability, accessibility, and quality of emergence obstetric care (EmOC) services are below the required standards in many of the developing countries [7].

Improving access to a health facility does not necessarily imply access to high quality care services [12,13]. Quality of health care services could be compromised due to combination of factors such as low levels of provider competence, lack of necessary clinical inputs, and low levels of provider motivation [14-17]. Midwives in lower health facilities may not be skilled enough at managing complications [18] as learning the procedures theoretically does not guarantee that it could be performed correctly [16]. Therefore, the purpose of this study was exploring why perinatal deaths among institutional deliveries were high using the “3-delays” model, developed by Thaddeus and Maine to audit maternal deaths [19].

2. MATERIALS AND METHODS

2.1 Study Contexts

The study was done in Dabat Demographic and Surveillance Site located at Dabat district, northwest Ethiopia. Dabat health center is the oldest rural health center in the area providing basic health services for the district's population. The population in the district mainly depends on subsistence farming. The health center which was purposively selected for this study serves as an immediate referral center for the nearby health posts, which are the first contact point for health care in Ethiopia. Although delivery services are given in the health center, basic EmOC services are not fully available.

2.2 Study Design

The study was based on qualitative interviews. Individual in-depth interviews were done with women who sought obstetric care at the health facilities and those who had normal home delivery for the purpose of gaining wider perspectives on utilization of delivery services. Additional data were used from quantitative prospective follow up infant mortality study conducted by the principal investigators. A total of 22 women who delivered from November 2009 to August 2011 were purposively selected and included in the study. The study population included surviving women with the following diagnostic criteria: prolonged and/or

obstructed labour ($n=11$), a mother with institutional normal delivery ($n=1$), and mothers with normal home delivery ($n=10$).

A principal investigator assisted by three experienced Dabat Demographic and Surveillance Site supervisors, visited the selected participants in their homes and administered semi-structured interview guides using the local language. The interview items concentrated on the respondents' ability to recognize care seeking, processes of getting care from home to the health facilities and receiving adequate health care. The interviews were transcribed verbatim and translated into English for coding and analysis. After open coding of each transcript similar ideas were clustered together into categories using open code 3.6 software. Data analysis was done simultaneously with data collection to address emerging issues while still in the field.

3. RESULTS

A total of 88 perinatal deaths were identified from the prospective follow up study. The PNMR (perinatal Mortality Rate) in the study was 50.22 per 1000 total births (95% CI 39.99, 60.5). Only 11% of the women were assisted by health professionals (Doctors/Nurses or Midwives) during delivery, 42.91% received assistance from Health extension workers (HEW's) and Traditional Birth Attendants (TBAs). On the other hand, 45.33% were assisted by their neighbors and relatives/ friends. The critical issue was that women who delivered at health institutions had higher neonatal mortality rate (1.87%) as compared to those who delivered at home (1.46%) Table 1. This is the very point that gave us the reason to work on this qualitative research work in the study area.

3.1 Women's' Characteristics

In this qualitative study the mean age of the women interviewed was 27 years, with a range of 20–38 years. Of the 22 women, seven had stillbirths while five had an early neonatal death. The rest, 10 had alive babies in the early neonate period. The first delays occurred in 41.94% of the study participants, second delays in 22.58%, and the third delays in 35.48% of them.

3.2 Recognizing Danger Signs

Most women and families in the study area, particularly in rural settings, did not know the danger signs of childbirth. As a result, many did not seek health care because they were not aware of the problem. A 27-year-old woman who had a postpartum hemorrhage said that, *"This baby I'm carrying on my back is my sixth child. I delivered him at home ... because I thought the position of the fetus was good ... no one told me about the problem I might face because of bad position. Therefore, I didn't need to go to a health center for delivery. I had a lengthy labor, about three days. After delivery, I had a serious bleeding problem to the extent of making me even unconscious for about two days."*

Another 32 year old obstructed labour mother said, *"I was told by the health worker that my labor took too long a time, because I was in labor for 2 days at home before I arrived at the health facility. By the time I arrived at the Health Center; I had no feeling of any movement of the fetus. Finally, I was referred to Gondar Hospital after further laboring for one day at Dabat Health Center."*

Table 1. The distribution of infant mortality by socio-economic, bio-demographic, and maternal health care variables in northwest Ethiopia, Nov, 2009 to August, 2011

Descriptions	Frequency (%)	
	Deaths	Survived
Residential area		
Urban	11(0.79)	1,387(99.21)
Rural	119(1.79)	6,701(98.26)
Age of mothers		
≤19	19(1.95)	953(98.05)
20-34	82(1.42)	5,685(98.58)
≥35	29(1.96)	1,450(98.04)
Wealth index		
Lowest quintile	56(2.04)	2,684(97.96)
Medium quintile	41(1.50)	2,699(98.50)
Highest quintile	33(1.21)	2,705(98.79)
Maternal education		
Illiterate	112(1.87)	5,865(98.13)
Read and write/primary	12(1.05)	1,129(98.95)
Secondary and above	6(0.55)	1,094(99.45)
Maternal occupation		
Farmer	5(5.49)	86(94.51)
Own business	1(0.29)	349(99.71)
Housewives	117(1.60)	7,208(98.40)
Others	7(1.55)	445(98.45)
Maternal marital status		
Married	109(1.41)	7,600(98.59)
Single, widowed and separated	21(4.13)	488(95.87)
Place of delivery		
Institutions	47(1.87)	2,467(98.13)
Home	83(1.46)	5,621(98.54)
Delivery assistance		
Health professionals	13(1.34)	954(98.66)
HEW's/TBAs	56(1.59)	3,470(98.41)
Relatives/Families	61(1.64)	3,664(98.36)
Antenatal Care (ANC)follow up		
Yes	30(1.40)	2,116(98.60)
No	100(1.65)	5,972(98.35)

On the other hand, well informed mothers were seen to have a better understanding to make reasonable decisions on emergency situations. A 29-year-old woman who had a normal delivery said, *"I was well informed to deliver where I could get help by well-trained health professionals at health institution. But fortunately my labor pain was not so severe and the progress was fast, it took only 2 hours. Therefore, I didn't go to a health institution for delivery. However, had the case been different, I would have gone to a health institution for further support."*

A 20 year old woman who had obstructed labour emphasized the importance of institutional delivery in the future by saying, *"I had no previous experience of pregnancy ... I lost my baby*

this time; thus, I learned that I should deliver my future child at a health institution to safeguard the newborn and myself .”

3.3 Financial Issues and Cost

The respondents explained that lack of money influences laboring women's health care seeking behavior. When a woman attended antenatal care, if problems are observed they are advised to have a follow up and deliver at health institutions. However, families may not have enough money to pay for transport and for food while at institutions. This does contribute to the first delay in seeking health care services.

A 38-year old woman with obstructed labour said, *“It was my 5th pregnancy...I started having health problem on the 7th month, severe bleeding. When I first noticed the bleeding, I went to Gondar University Hospital and doctors told me the problem was very serious and advised me to stay around the hospital until delivery. However, I couldn't stay because of financial and family problems, so I went back home. On the 8th month of my pregnancy... the bleeding got worse, I went back to the Hospital...they did caesarian section... but the baby was lost by then.”* Another woman with obstructed labour had this to say: *“. . . when I was in labour what prevented me from seeking health care earlier was lack of money.”*

3.4 Distance and Transportation

Poor road conditions and often with no river crossings and lack of public transportation are practical problems that hinder access and utilization of delivery services in the study area; especially for those living in remote villages. Women need to be carried on a stretcher to the road side or nearest health facility; which is inconvenient for a laboring woman and requires many young people to carry her. A woman from a village said, *“When I had signs of labor my relatives took me to the health center on a stretcher... after spending the day in the health center labor did not progress well and I was told that I need to be referred to the nearest Hospital for surgical intervention. By the time I arrived the hospital, I was told that the child is dead because of prolonged labor.”*

Another woman who had a complicated labour said, *“...my labor started around at 8:00 pm local time in the evening, it was difficult to transport me to the nearby health center, I delivered in my neighbor's house while I was moving from house to house to ease my lengthy and painful labor. Immediately after birth, the child was so tired and breathing was difficult for some time.”*

Even when the difficult travel from rural villages to the nearest health centre is overcome, access to appropriate obstetric care is further hampered by inadequate emergency referral links between health centers and hospitals.

Results from the interviews pointed out that there were instances when no ambulances were available for the referral of laboring mother because the only available ambulance was away for maintenance. As a result, when a woman with an obstetric complication is referred to a second level, the family has to find alternative means of transportation which costs more time and money.

A Narrative of a 29-year-old woman with antepartum hemorrhage needing evacuation goes as: *“I live in a village with an hour's walking distance from the Health Center and I had a*

repaired fistula. My labor started at 7:00 pm in the evening and I was taken to the Health Center at around 8:00 pm the same evening. In the health center after immediate checkup, told us the case was so complicated and need to be referred to the nearest Hospital. My relative began to search for a vehicle to take me to the hospital but they were not successful, even though we tried hard the whole day. Hence, we went back to the Health Center and the child finally came out, it was in a normal position but dead... my baby could have been saved if we had an access to ambulance services.”

3.5 Delay in Receiving Appropriate Care Once a Facility is Reached

Health facilities lack qualified health workers, basic newborn care equipment, supplies, and effective referral system. Thus, health centers are not very useful when labor is complicated and surgical interventions are needed.

A woman said... “...during the most recent pregnancy I started experiencing a painful labour at around 9:00 am, I stayed home the whole day before decision is made to go to the nearest health center at around 8:00 pm the same day. At the health center I was told labour has not fully started and returned home. I went back home and stayed there for three days without any medical care. When I went back to the health center again after three days I was referred to the nearby hospital. Then I went to Gondar Hospital the same day. ... the doctors told me that labor should not be allowed to continue for so long time ... with the help of delivering equipment the child was alive but very weak...the baby was admitted to intensive care unit by the time but could not make it, died after some time.”

Another woman shared her disappointment with health care providers as follows...“I lost my first child after nine months of pregnancy. I had no serious labor pain when I arrived at the nearby health center and I was admitted to deliver there and unfortunately I lost my baby... the health worker later confirmed that the baby’s position was not normal, his leg came out first...I was informed about that...I could have gone to a better health institution, to one of the nearby hospitals...I was sad about it.”

A woman shared her bad experience at the health center..., “I had a smooth labor and baby was born normal and alive. During delivery, because there was no electric power, the delivery room was not lighting up properly at the time of the child birth; the umbilical cord was not cut properly and was not tied carefully. After I breast fed my baby when I tried to sleep him I noticed he was soaked with blood ...I called the nurse who tied and asked her to do something, but by then the baby was extremely weak and passed away after some time.” This also shows that emergency blood transfusion is not available at health center level.

The incompetence of health workers at health facility level was incriminated for poor care for this, a woman said ... “ after laboring for an hour at home, I was taken to the health center at around 8 pm at night...after a while the health worker noticed that the baby is coming in abnormal position and asked me to walk around the health center, although my condition was good the labor did not made any progress...the health worker tried to pull the baby out, holding the leg, it took time and my condition deteriorated and I was not able to push down... mean while the baby was lost in the uterus. Then, a senior health professional was called ... he inserted his hand and pulled out the dead child. I was very disappointed that in this occasion I was mistreated ... I even believe that the baby could have been born alive had they not interfered with my labour.”

4. DISCUSSION

This study applies the classic “three delay” model to explore reasons why perinatal deaths are high among institutional births. In general, majority of the perinatal deaths observed occurring in this study were due to delay in recognizing danger signs (delay1). However, all delays add up to cause the damage to the mother and her baby. We also found the quality of health care, lack of efficient transportation, and financial constraints were important reasons of perinatal deaths. The majority of the births in rural Ethiopia still occur at home and in addition access to appropriate and quality health care is a major challenge to saving life during child birth [8]. Our findings delayed care are similar with studies conducted in Tanzania [8,9] and Uganda [7], where most newborn deaths were found to be associated with the first and third delays.

Pregnant women must have easy access to good quality of obstetric care services at all times as child birth complications are virtually hard to anticipate. Medical care for women with obstetric complications begins with the recognition of danger signs [11,19]. Delays in recognizing danger signs, in seeking, reaching, and obtaining appropriate maternity care are potential causes to perinatal deaths [20]. Failure in recognizing the type and severity of obstetric complications delays care and costs life. Timely referral for obstetric emergencies is a critical element for improving the survival of newborns. Once complications are identified access to a facility with EmOC capabilities need to be facilitated. Although health workers in rural health centers are not expected to have surgical skills capacity, they are expected to recognize danger signs and facilitate referral timely, which is not always the case. An additional challenge is that health facilities with appropriate obstetric surgical capacity could be at considerable distance from women residing in remote rural areas and access to services is highly hampered by lack of transport [21]. At the time of an obstetric emergency, every moment of delay significantly increases the risk of perinatal deaths. The transportation problem is severe in rural areas particularly during the rainy seasons. Similarly, a study done in other developing countries demonstrated that distance from health facilities and lack of transport services for a laboring mother were among the major barriers to accessing emergency obstetric care [22-24]. Accessing emergency obstetric services is a serious challenge, especially for the poor rural community as was reported previously in Gambia and Burkina Faso [9,22]. In many developing countries the direct costs of transport constitute a significant proportion of the total health care expenditure [23]. The current study highlighted lack of money could be an obstacle in making prompt decisions during emergency obstetric circumstances. This is confirmed by findings from previous studies in rural Gambia [9] and Bangladesh [25].

5. CONCLUSION

Early recognition of danger signs, quality of health care services, and lack of appropriate means of transportation are still major problems in accessing appropriate emergency obstetric complications. Thus, more need to be done to improve emergency obstetric care services at health center level, and improve referral links and transportation facilities at all levels. More importantly, all stakeholders need to work together to increase the awareness of families and communities about importance of early recognition of delivery danger signs and seeking health care timely.

CONSENT

All authors declare that Informed consent was obtained from all respondents before the commencement of the interview for publication of this study and accompanying images. The Interviewing process was conducted in a secured place to ensure privacy and confidentiality was also assured by removing all personal identifiers from the data label.

ETHICAL APPROVAL

All authors hereby declare that the Ethics Review Board of the University of Gondar has approved the study. Therefore the study has been performed in accordance with the ethical standards laid down in the 1964 Declaration of Helsinki.

ACKNOWLEDGMENTS

This project was funded by WHO and the University of Gondar. The authors' sincere thanks go to the women and their families for their participation in this study. The authors would also like to thank the staff and management of Dabat and Woken health centers.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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Peer-review history:

The peer review history for this paper can be accessed here:
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