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# Knowledge, Attitude and Practice of Obstetric Danger Signs during Pregnancy in Debre Berhan, Ethiopia

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## Abstract

**Background:** Pregnancy danger signs are the major health problems and cause of mortality among women in developing countries. Majority (99%) of maternal death occurred in developing countries from the total of 529,000 mothers' death.

**Objective:** To assess knowledge, attitude and practice of mothers towards obstetric danger signs during pregnancy in Debre Birhan, Ethiopia.

**Methods and findings:** A community based cross-sectional quantitative study was conducted in April, 2014, on a sample of 634 mothers who were at least 4 months of gestational age for primi-gravid and any mother who had delivered in the past 24 months before the data collection time. The response rate was 99.7%. The response of participants was analysed using SPSS (Statistical Package for Social Science) window version 20.0. Odds ratio calculated within 95% of confidence interval has been used to test the associations between variables. Multiple logistic-regressions were also used to adjust for possible confounding variables. About three fourth (76.7%) of the participants were urban residents. Most (68.2%) of the study participants were found to have poor knowledge. Respondents who got obstetric danger signs information from media had 2.8 times good knowledge than those respondents who didn't get information from the same source [AOR=2.8, 95%CI (Confidence Interval) (1.7- 4.65)]. About 52.7% of the study participants had negative attitude. Participants who had formal education have 2.2 times positive attitude than participants who had informal education [AOR=2.2, 95% CI (1.1- 4.4)]. Of all 51(8.1%) who had experienced obstetric danger signs 44 of them had good practice of managing danger signs.

**Conclusion:** Despite this study have revealed majority of the participants who had obstetric danger signs had good practice, the overall participants' knowledge and attitude still needs intervention to maximize their knowledge and lean-to them with positive attitude.

**Keywords:** Danger signs; Pregnancy; Obstetric care; Knowledge

**List of Abbreviations:** ANC: Antenatal Care; AOR: Adjusted Odds Ratio; CI: Confidence Interval; JHPIEGO: Johns Hopkins Program for International Education in Gynecology and Obstetrics; SPSS: Statistical Package for Social Science; WHO: World Health Organization

## Introduction

The burden of pregnancy complications are higher in developing countries as 529,000 women are dying from pregnancy related causes annually all over the world, almost all (99%) of these maternal deaths are contributed from these economic area [1]. The average maternal mortality ratio in 2010 in developing countries was fifteen-fold (240 death in 100,000 live births) of the developed countries 16 maternal deaths of the same number of mothers reflecting inequities in access to health services in turn signifies the gap between rich and poor. Sub-Saharan Africa took the top rank of maternal mortality ratio with 500 maternal deaths per 100,000 live births. The figure in Ethiopia is not different from the other sub Saharan countries which puts it on the row of countries with highest MMR (Maternal Mortality Ratio) estimated as 676 per 100, 000 live births [2].

The capacity of women and their families to recognize obstetric danger signs and prompt seeking of health care play key role in preventing and minimizing maternal morbidity and mortality [3]. The top danger signs commonly manifested during pregnancy are severe vaginal bleeding, swollen hands/

face and blurred vision. Key danger signs during labor and childbirth include severe vaginal bleeding, prolonged labor, convulsions, and retained placenta. Danger signs during the postpartum period include severe bleeding following childbirth, loss of consciousness after childbirth, and fever. Haemorrhage remains the leading cause of maternal mortality, accounting for approximately one third of deaths [4]. Many of the complications that result in maternal deaths contributing to prenatal deaths are unpredictable, and their onset can be both sudden and severe. The complications leading to maternal death can occur without warning at any time during pregnancy and childbirth [5]. Low awareness of danger signs and symptoms during pregnancy, labor, delivery and postpartum contribute to delays in seeking and receiving skilled care. Awareness of the danger signs of obstetric complications is the essential first step in accepting appropriate and timely referral to obstetric and newborn care. Knowledge of obstetric danger signs and birth preparedness are strategies aimed at enhancing the utilization of skilled care during low risk births and emergency obstetric care in complicated cases in low income countries. Increased knowledge and awareness is essential for reducing delays in seeking health care and in reaching a health facility. Communities and individuals should be empowered not only to recognize pregnancy related risks, but they must also have the means to react quickly and effectively once such problems arise [6]. The national reproductive strategy of Ethiopia has given emphasis to maternal and newborn health so as to reduce the high maternal and neonatal mortality. The strategy focuses on the need to empower women, men, families and communities to recognize pregnancy related risks, and to take responsibility for developing and implementing appropriate response to them. One of the targets in the strategies is to ensure that 80% of all families recognize at least three danger signs associated with pregnancy related complications by 2010 in areas where health extension program is fully implemented [7].

Around 80% of maternal deaths worldwide are brought about by direct obstetric complications the five major global causes of maternal death are: severe bleeding (mostly bleeding postpartum), infections (also mostly soon after delivery), unsafe induced abortion, hypertensive disorders in pregnancy (eclampsia) and obstructed labour. Globally, about 80% of maternal deaths are due to these causes. Hemorrhage alone accounts for one third of all maternal deaths in Africa, yet many of these deaths are preventable. Severe bleeding after birth can kill a healthy woman within two hours if she is unattended. Obstetric fistula resulting from obstructed labor is a long term complication suffered by as many as two million women). Indirect causes such as malaria, diabetes, hepatitis, anemia and other cardiovascular disorders which are aggravated by pregnancy can also lead to maternal death [1].

## Objective

To assess knowledge, attitude and practice of obstetric danger signs during pregnancy among mothers in Debre

Berhan city administration, North Shoa, Amhara, Ethiopia, April, 2014.

## Methods

A community based cross sectional quantitative study was conducted in Debre Berhan town from April 1-20, 2014. Mothers with a gestational age of four or more months of primi-gravida and delivered mothers with in the past 24 months irrespective of the place and outcome of delivery were included in this study. Critically ill and health worker mothers were excluded from the study. Single population proportion formula was used to determine the final sample size which resulted 634 participants after using 1.5 design effect including the contingency for the none response rate of 10%.

Multistage sampling was used to select each study subjects. The number of participants was distributed into the proportion of the total number of mothers in each district. Therefore, four urban and two rural districts have been selected. Finally, simple random sampling was used to select each mother participated in the study. A structured questionnaire adapted from the survey tools developed by JHPIEGO (Johns Hopkins Program for International Education in Gynecology and Obstetrics) Maternal Neonatal Health Program (12) was used to assess the knowledge, attitude and practice of mothers towards pregnancy danger signs. The data collection tool was pre-tested on women with similar characteristics living out of the study area. Findings and experiences from the pre-test was utilized to modify the tool. The questionnaire consists of six parts with a total of 42 questions. The first part was about socio-demographic characteristics of the study participants consisted of eight questions. There were seven questions about past obstetric history. Questions about knowledge on obstetric danger signs consisted of seven questions. The attitude aspect included five questions. The last part included five questions related to health service.

After data collection, each questionnaire was checked for completeness and entered into Epi-Info version 3.5.4 statistical software package & exported to SPSS window version 20.0 for analysis. Logistic regression was used to determine the association between variables using a corresponding P value of <0.05 with in the confidence interval of 95%. Multiple regressions were also used to identify confounding variables associated with knowledge, attitude and practice towards danger signs of pregnancy. Ethical clearance was obtained from Addis Ababa University institutional review board.

## Results

### Socio-demographic characteristics of the participants

There were 634 mothers involved in the study which gave a response rate of 99.7%. The urban and rural representation of respondents was 76.7% and 23.3% respectively. The mean ages of the respondents were 28 years. Five hundred seventy

one (90.3%) of the participant were Orthodox in religion and 587 (92.9%) were Amhara in ethnicity. Majority 563 (89.1%) of the women were married and most 413(65.3%) of the respondents were housewives. 295(46.7%) had completed secondary school and above and 185 (29.3%) of the respondents had income between 501 to 1000 Ethiopian Birr per month during the survey. Regarding their husband's job, 170 (26.9%) had private source of income.

### Obstetric characteristics of the participants

From the total number of respondents 411(65%) had history of 2-4 pregnancies and 35(5.5%) mothers were pregnant for more than four times. Regarding first pregnancy age 382(60.4%) mothers got their first pregnancy at 20-29years. About 414(65.6%) respondents had 2 and above live children followed by 186(29.4%) who have 1 live children. Majority 591(93.5%) of the respondents had no history of still birth but only 5(0.8%) respondent had history of 2 and above still births. From the total number of mothers 576(91.1%) had 1-4 number of children and only 21(3.3%) mothers had 5 and more children. In the case of previous history of pregnancy, 532(86.6%) had ANC (Antenatal Care) follow up, among those who had ANC follow up 336(53.2%) had 4 and more visits. Majority 469(74.2%) of the mothers gave birth at health institutions and 359(56.8%) study respondents had final decision by themselves.

### Source of information regarding obstetric danger signs during pregnancy

Four hundred eighty (75.9%) of respondents had heard obstetric danger signs during pregnancy and from those mothers 374(59.2%) got information from clinics. From those who heard obstetric danger signs majority 76.3% of the study participants answered the signs that indicate the pregnant or/and the pregnancy has illness. 430(68%) of the study participants had got danger signs information from health personnel followed by media, friends and relatives with respective frequencies of 21%, 18.4% and 7% respectively.

### Knowledge on danger signs during pregnancy

Out of the 632 respondents, 374(75.9%) reported that they had got information about obstetric danger sign during pregnancy. From those who had the information 386(61.1%) identified severe vaginal bleeding at any time during pregnancy as danger sign while Persistent vomiting especially from 4th month of pregnancy onwards was indicated by 117(18.5%). Swelling of the body 116(18.4%), persistent headache and blurred vision 104(16.5%), leaking of fluid from birth canal 89(14.1%) were also indicated by the study subjects as danger sign. Foul smelling vaginal discharge was mentioned by the least 19(3.0%) of the respondents (**Table 1**).

Most 431(68.2%) of the study participants were found to have poor knowledge scoring median and below the median value. The multivariate analysis showed that (**Table 2**), residence of the study participants was significantly associated with their obstetric danger signs knowledge: respondents from

urban kebeles had 2.24 times good knowledge than those respondents from rural kebeles.

**Table 1** Knowledge of obstetric danger signs during pregnancy among mothers Debre Berhan, April, 2014.

Variables	Category	Frequenc y	Percentage (%)
Mentioned severe bleeding as danger sign during pregnancy	Yes	386	61.1
	No	246	38.9
	Total	632	100
Mentioned severe headache or blurred vision as danger sign during pregnancy	Yes	104	16.5
	No	528	83.5
	Total	632	100
Mentioned leaking of fluid from birth canal as danger signs during pregnancy	Yes	89	14.1
	No	543	85.9
	Total	632	100
Mentioned swelling of the body as danger sign during pregnancy	Yes	116	18.4
	No	516	81.6
	Total	632	100
Mentioned high fever as danger sign during pregnancy	Yes	89	14.1
	No	543	85.9
	Total	632	100
Mentioned unusual abdominal pain as danger sign during pregnancy	Yes	62	9.8
	No	570	90.2
	Total	632	100
Mentioned feeling very tired as danger sign during pregnancy	Yes	87	13.8
	No	545	86.2
	Total	632	100
Mentioned absent or decreased fetal movement as danger sign during pregnancy	Yes	80	12.7
	No	552	87.3
	Total	632	100
Mentioned persistent back pain as danger sign during pregnancy	Yes	52	8.2
	No	580	91.8
	Total	632	100
Mentioned persistent vomiting especially from 4th month onward as danger sign during pregnancy	Yes	117	18.5
	No	515	81.5
	Total	632	100
Mentioned foul smelling vaginal discharge as danger sign during pregnancy	Yes	19	3
	No	613	97
	Total	632	100

Regarding the source of obstetric danger signs; respondents' who got obstetric danger signs information from media had 2.8 times good knowledge than those respondents who didn't

get information from the same source [AOR (Adjusted Odds Ratio)=2.8, 95%CI (1.7-4.65)]. Additionally, obstetric danger signs information from health personnel and friend were significantly associated with obstetric danger signs knowledge of the study participants: the study participants who got

information from health personnel had 2.9 times and 2.1 times good knowledge than those who did not get information from health personnel and from friend [AOR=2.9, 95CI (1.32-6.43)], [AOR=2.1, 95CI (1.21-3.569)] respectively (**Table 2**).

**Table 2** Factors associated with knowledge of obstetric danger signs during pregnancy among mothers Debre Berhan, April, 2014.

Variables	Knowledge of obstetric danger signs		Odds ratios (95% CI)	
	Poor knowledge N (%)	Good knowledge N (%)	Crude	Adjusted
<b>Residence</b>				
Rural	131(30.4)	16 (8)	1	1
Urban	300(69.6)	185 (92)	5.05(2.91-8.8)*	2.24(1.11-4.52)*
<b>Age</b>				
15-24	95 (22)	28 (13.1)	1	1
25-30	176 (40.8)	94 (46.8)	1.81(1.11-2.96)*	0.55(0.28-1.1)
≥ 30	160 (37.1)	79 (39.3)	1.7(1.02-2.81)*	1.27(0.77-2.1)
<b>Educational status</b>				
Informal	161(37.4)	31(15.4)	1	1
Formal	204 (47.3)	90(44.8)	2.3(1.45-3.62)*	0.62(0.27-1.46)
High level	66 (15.3)	80(39.8)	6.3(3.8-10.42)*	0.78(0.40-1.51)
<b>Mothers occupation</b>				
Housewife	312(72.4)	101(50.2)	1	1
Government employee	38(8.8)	42(20.9)	3.41(2.1-5.6)*	0.85(0.49-1.49)
Private employee	81(18.8)	58(28.9)	2.21(1.5-3.32)*	0.92(0.41-2.1)
<b>Household income (ETB)</b>				
<1000	79(64.7)	72(35.8)	1	1
≥ 1000	152(35.3)	129(64.2)	3.3(2.32-4.7)*	0.8(0.48-1.47)
<b>Husband occupation</b>				
Private employee	311(81.4)	108(60.3)	1	1
Government employee	71(18.6)	71(39.7)	2.9(1.94-4.3)*	0.81(0.48-1.4)
<b>First pregnancy age</b>				
<20	195(45.2)	46(22.9)	1	1
20-29	228(52.9)	154 (76.6)	2.9(1.96-4.2)*	3.5(0.34-35.6)
≥ 30	8(1.9)	1(0.5)	0.53(0.07-4.34)	4.92(0.5-48.4)
<b>ANC follow up</b>				
No	78(18.1)	7(3.5)	1	1
Yes	353(81.9)	194(96.5)	6.12(2.8-13.5)*	1.52(0.42-5.54)
<b>Time to nearest health facility</b>				
<1 hr	349(81.0)	189(94.0)	1	1
≥ 1hr	82(19.0)	15(6.0)	0.3(0.14-0.51)*	0.56(0.24-1.3)
<b>Information from health personnel</b>				

No	241(86.4)	189(94)	1	1
Yes	38(13.6)	12(6.0)	0.4(0.21-0.8)*	2.9(1.32-6.43)*
<b>Information from friends</b>				
No	49(17.6)	67(33.3)	1	1
Yes	230(82.4)	134(66.7)	0.5(0.28,0.65)*	2.1(1.21-3.6)*
<b>Information from media</b>				
No	44(15.8)	89(44.3)	1	1
Yes	235(84.2)	112(55.7)	0.24(0.2-0.36)*	2.8(1.7-4.52)*
*Reminded the significance of the variables (P value <0.05)				

## Attitude towards obstetric danger signs

Majority 89.2% of the study respondents were agreed with importance of knowing obstetric danger signs. 88% the study participants agreed that knowing obstetric danger signs is important because women will seek medical care on time. Regarding the prevention of obstetric danger signs 57% of the respondents were agreed. Most 71.2% disagree on the idea that mothers who develop obstetric danger signs should seek help from traditional birth attendants. Majority 85.3% of the study participants agreed on the idea that mothers who develop obstetric danger signs should seek help from other older women. About half 333(52.7%) of the study participants had negative attitude by scoring the median value and below the median value.

Multivariate from logistic regression has revealed the educational status of the study participants was found to be significantly associated with participants obstetric danger signs attitude; participants who had formal education have 2.2 times positive attitude than a participants who had informal education [AOR=2.2,95% CI (1.1,4.4)]. On the other hand, the study participants who had high level education have had 1.9 times positive attitude than those participants with informal education [AOR=1.9, 95% CI (1.02,3.4)]. Additionally, the study respondents ANC follow up was found to be significantly associated with obstetric danger signs attitude: respondents who had ANC follow up have had 3.1 times positive attitude than respondents who did not have ANC follow up [AOR=3.1,95% CI (1.7-5.8)]. The last delivery place of the study participants was significantly associated with respondents obstetric danger signs attitude: that participants whose last delivery place was in health institution were found to have had 2.71 times positive attitude than participants whose last delivery had taken place at home [AOR=2.71,95%CI(1.3-5.51)].

## Practice of obstetric danger signs

Majority of 581(91.1%) of the study participants have claimed that they did not experience any obstetric danger signs during pregnancy. From 51(8.1%) of the respondents who experienced obstetric danger signs 44 of them had good practice seeking medical care when they faced problem. About 7(1.1%) of the study subjects had Poor practice. No

significantly associated factor with the practice of mothers has been identified.

## Discussion

About 431(68.2%) of the study participants were found to have poor knowledge scoring median and below the median value. About half 333(52.7%) of the study participants had negative attitude by scoring the median value and below the median value. From 51(8.1%) of the respondents who experienced obstetric danger signs 44 of them had good practice seeking medical care when they faced problem.

This study has found 75.9% of the participants had heard about obstetric danger signs and from those mothers 374(59.2%) got information from clinic and it is less than the study done in Mekele that is 79.6%(9).This difference might be due to socio-economic and geographical location. Per this study 68% of the study participants had got danger signs information from health personnel followed by media, friends and relatives with respective percentage of 21%, 18.4% and 7% was higher than the study done in Nigeria, about a quarter of respondents in BirninGwari cluster and 13% in Kunchi cluster indicated that danger sign songs in the media were the sources of information about safe motherhood. Over 10% of women in BirninGwari cluster and almost 30% in Kunchi cluster indicated that friends and neighbors were their sources of information of safe motherhood. The differences might be due to cultural and geographic location variations.

Based on this study from those who had the information of obstetric danger signs 61.1% identified severe vaginal bleeding at any time during pregnancy which is higher than the findings in Ethiopia, Wondo district (45.9%) [8], Faso (39.4%) and Guatemala (31.0%). This difference might be due to socio-cultural difference and difference of sample size used. According to this study 27.8% of the study respondents were unable to mention an obstetric danger sign which is less than the study done in Wondo district 39.1% [8]. The differences might be due to socio economic and health education provided. This study revealed that the respondents occupation, educational level, monthly income, husband occupation, first pregnancy age, having ANC follow up, time to nearest health facility, source of information and place of

residence were significantly associated with knowledge of obstetric danger signs during pregnancy.

It was found that residence had significant association with knowledge of obstetric danger signs during pregnancy that urban residents had 2.24 times good knowledge than rural respondents [2.24, 95% CI(1.11-4.52)]. This is congruent to the study done in Wondo [8]. Based on this study it was found that the study respondents occupation was significantly associated with obstetric danger signs knowledge of the respondents: those respondents who were government employee had 3.41 times good knowledge than housewives [3.41, 95% CI (2.15.6)]. It is congruent with study done in Egypt [5] found that occupation appeared to influence women's awareness of danger signs of obstetric complications. However, this finding is contrasted with study done in rural Tanzania [9,10]. In this study, the respondents educational level seems to play a role in having knowledge of obstetric danger signs that respondents who have had formal education had 2.1 times good knowledge than who have informal education [2.3-95CI (1.45-3.62)] and respondents who have had high level education had 6.3 times good knowledge than those respondents with informal education [6.3, 95% CI (3.8-10.42)]. This study is similar with the study done in Egypt [5] and rural Tanzania [10] which found that women with higher levels of education were more aware of danger signs of obstetric complications than women with lower or no formal education.

Majority (88%) of the study participants agreed that knowing obstetric danger signs is important because women will seek medical care on time. Regarding the prevention of obstetric danger signs 57% of the respondents were agreed. Most 71.2% disagree on the idea that mothers who develop obstetric danger signs should seek help from traditional birth attendants.

Multivariate analysis regression indicated that the educational status of the study participants was found to be significantly associated with participants obstetric danger signs attitude; participants who had formal education have 2.2 times positive attitude than a participants who had informal education [AOR=2.2, 95% CI (1.1-4.4)]. On the other hand, the study participants who have high level education had 1.9 times positive attitude than those participants with informal education [AOR=1.9, 95% CI (1.02-3.4)]. Additionally, the study respondents ANC follow up was found to be significantly associated with obstetric danger signs attitude: respondents who had ANC follow up have had 3.1 times positive attitude than respondents who did not have ANC follow up.

According to this study only 51(8.1%) of the study participants experienced obstetric danger signs and 7.1% had good practice. The study done in Mekele indicate that majority of the pregnant mothers had not faced danger signs of pregnancy. From those who had danger signs of pregnancy bleeding was reported by 43.2% respondents [9].

This study revealed that 51(8.1%) who experienced obstetric danger signs 44(7.0%) had Good practice seek medical care when they faced problem. A study done in Indonesia, revealed that among the pregnant women who attended ANC, 36.6% of

the respondents gave correct answers to a question on common practice such as, it is necessary to go to the hospital when severe headache or vision problems happen in pregnancy [11-14]. The difference might be due to small sample size.

## Conclusion

The knowledge and attitude of mothers about danger signs of pregnancy is below the expected standard that mothers need to have for healthier pregnancy and delivery. Despite of their knowledge and attitude, the practice of mothers in response to danger signs was encouraging. Health department of the town is recommended to work on the knowledge and attitude of mothers.

## Limitation

Lack of literature for attitude and practice part and failure to measure statistical significance of practice with independent variables due to small size were limitations of the study.

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