

Knowledge About Danger Signs of Pregnancy and Associated Factors Among Pregnant Women in Debra Birhan Town, Central Ethiopia

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Abstract: Background: Globally, attention to maternal health and safe motherhood has grown significantly to reduce maternal deaths which estimated to 289,000 in 2013. The sub-Saharan Africa countries account for 62% (179,000) of maternal deaths including Ethiopia. Little is known about knowledge of danger signs during pregnancy and its associated factors. Objective: This study aimed to assess the knowledge about danger signs of pregnancy and associated factors among pregnant women in Debra Birhan town, public health institutions, central Ethiopia, 2014. Methods: Institutional based cross sectional study was conducted in 2014, on the 355 pregnant women. Pre-tested and structured questionnaire was used to collect data. Data were entered to EpiInfo version 3.5.1 statistical package and exported to SPSS version 20.0 for further analysis. Logistic regression analyses were used to see the association of different variables. Results: 355 pregnant women participated in the study making a response rate of 100%. In this study, 137(38.6%) of the respondents were knowledgeable about danger signs during pregnancy. Being urban residence (AOR= 4.94, 95% CI: 2.97-8.21), educational level of grade 9-10 (AOR= 8.53, 95% CI: 2.47-29.48) and having attended diploma and above (AOR= 15.40; 95% CI: 3.74-63.40), having previous antenatal care follow up (AOR= 2.03, 95% CI: 1.07-3.86) were factors found to be significantly associated with knowledge of danger signs during pregnancy. Conclusion: This study revealed that the knowledge level of pregnant women about danger signs of pregnancy was not adequate. Being urban resident, educational level of grade 9-10, having attended diploma and above and having previous antenatal care follow up were significantly associated with knowledge about danger signs during pregnancy. Ministry of health should be strengthening reproductive health services in rural areas to get quality antenatal care follow up by designing an appropriate strategies including provision of targeted information, education and communication.

Keywords: Danger Signs, Debra Birhan Town, Knowledge, Ethiopia

1. Introduction

Globally, attention to maternal health and safe motherhood has grown significantly to reduce maternal deaths which estimated to 289,000 in 2013. The sub-Saharan Africa countries account for 62% (179,000) of maternal deaths including Ethiopia [1]. Danger signs of pregnancies are a warning signs that women encounter during pregnancy, child birth and postpartum. It is important, to know this warning signs for women and

health care providers to rule out serious complications and initiate treatment immediately [2]. The most common danger signs during pregnancy that can increase the risk of maternal deaths are: vaginal bleeding, convulsions/fits, high fever, abdominal pain, severe headaches, blurred vision, absence of fetal movements, gush of fluid from vagina, foul smelling vaginal discharge [2,3]. Insufficient knowledge about danger signs of pregnancy among women, families,

and birth attendants in developing world is one of the major contributing factors for maternal deaths [4,5].

In Ethiopia, the levels of maternal mortality and morbidity are among the highest in the world and the current estimate of maternal mortality ratio is 676 per 100,000 live births. Ethiopian government has been trying to reduce maternal deaths by three quarters (267 maternal deaths per 100,000 live births) between 1990 and 2015 [6]. Little is known about danger signs of pregnancy and its associated factors. Hence, this study provides information on danger signs of pregnancy and its associated factors.

2. Methods

2.1. Study Design and Set Up

Institution based cross sectional study design was conducted from July 01 to August 30, 2014 in Debra Birhan town which is found in North Shoa zone, with total population of 115,000 in 9 kebeles and have one referral Hospital, one private general Hospital, two health centers. It has also one university, one governmental health science college and three private health science collages. Debra Birhan referral hospital (DBRH) is found at the center of Debra Birhan town and serve as teaching center for Debra Birhan University as well as for governmental and private health science collage students and also giving medical services for peoples living in Debra Birhan town and its surroundings.

2.2. Sample Size and Sampling Procedure

The sample size was calculated using single population proportion formula, by considering the following assumptions. The proportion (p) of knowledge on danger sign of pregnancy from the previous study = 30%[7], 95% confidence level of $(Z\alpha/2)^2 = 1.96$, 5% of absolute precision, and 10% non-response rate. Hence, the total sample size was 355. The data was collected by using systematic random sampling techniques after proportional allocation of the sample size to the three health institutions (one hospital and two health centers). The average number of new pregnant women coming to the three health institution was identified by conducting a preliminary survey. The total sample size was distributed to the three health institution accordingly. Finally, the study participants were selected by using systematic random sampling method (by dividing number of pregnant women coming to the health institution to sample size (by calculating 'k' value)) and the first pregnant woman included in the study was selected by lottery method.

2.3. Data Collection Tools and Procedure

Pre-tested and structured interviewer administered questionnaire was used to collect data. To ensure the quality of data, the questionnaire were first developed in English, then translated into local language (Amharic), and finally retranslated back into English to check its consistency.

Three diploma midwives and two BSc midwives supervisors were recruited and trained for three days on ways of data collection. After training, questionnaire was pretested on 5% of samples before the actual data collection. Supervisors and principal investigator were closely monitored the day-to-day data collection process. Finally data were sorted, checked, entered into the computer and cleaned for analysis.

2.4. Measurements

Knowledge about danger signs of pregnancy was measured by using 11 knowledge questions. Accordingly, a pregnant women who spontaneously mentioned at least two danger signs during pregnancy, child birth and postpartum were considered as knowledgeable [7].

3. Data Processing and Analysis

The collected questionnaire was checked manually for its completeness, coded and entered into EpiInfo version 3.5.1 statistical package, then exported to SPSS version 20.0 for further analysis. Descriptive and summary statistics were done. Both bivariate and multivariate logistic regression analysis was used to determine the association of each independent variable with the dependent variable. Variables significant in bi-variate analysis were entered into a multivariate logistic regression model to adjust the effects of cofounders on the outcome variable. Odds ratio with their 95% confidence intervals were computed to identify the presence and strength of association, and statistical significance was declared if $p < 0.05$.

4. Ethical Consideration

Ethical approval was obtained from the Institutional Review Board of the University of Gondar and submitted to Zonal health department. Permission letter was granted from Zonal health department to respective health institutions. Written consent was obtained from each study subject prior to data collection process preceded. Those respondents who were not willing to participate in the study were not forced to involve. They were also informed that all data obtained from them would be kept confidential by using codes instead of any personal identifiers and is meant only for the purpose of the study.

5. Results

5.1. Socio-Demographic Characteristics of Respondents

A total of 355 women were included in the study (response rate=100%). The mean age of the respondents was 26.7 years (Standard deviation (SD) =6). Most of the respondents, 323 (91%) were Amhara in Ethnicity and 306 (86.2%) were orthodox in religion. Majority of the respondents 324(91.3%) were married and 265 (74.6%) of them were housewife. Regarding their education 117(33%)

of the respondents were can't read and write (Table 1).

Table 1. Socio-demographic characteristics of respondents in Debra Birhan town, Public health institutions, 2014

Variables	Frequency	percentage
Age		
<20 years	30	8.5
20-25 years	138	38
26-30 years	112	31.5
>30 years	75	22
Ethnicity		
Amhara	323	91
Oromo	32	9
Religion		
Orthodox	306	86.2
Muslim	39	11
Protestant	10	2.8
Marital status		
Married	324	91.3
Unmarried	25	7
Divorced	4	1.1
Widowed	2	0.6
Occupation		
House wife	265	74.7
House maid	12	3.4
Employee	64	18
Others	14	3.9
Residence		
Urban	219	61.7
Rural	136	38.3
Monthly income (Ethiopian birr)		
100-300	58	16.3
301-500	66	18.6
501-1000	103	29
>1000	128	36.1
Educational level		
Can't read and write	11	3.3
Grade 1-4	82	23.1
Grade 5-8	42	11.8
Grade 9-10	47	13.2
Diploma and above	67	18.9

5.2. Obstetric Characteristics of Respondents

In regarding to respondents obstetric characteristics 111(31.3%) were primigravida, 154 (43.3%) multigravida, 90(25.4%) grand multipara and 145(40.8%) of the respondents had antenatal care follow up in their previous pregnancy.

5.3. Knowledge of Respondents About Danger Signs of Pregnancy

Out of the 355 respondents, 202(56.9%) reported that they had the information about danger signs during pregnancy. From those who had the information about danger signs during pregnancy the most common mentioned one were vaginal bleeding 161(45.4%)(Table 2).

Table 2. Distribution of respondent's knowledge on danger sign of pregnancy in Debra Birhan town, public health institutions, 2014

Variables	Frequency	percentage
Vaginal bleeding		
Yes	161	45.5
No	41	11.5
Swollen hand and face		
Yes	120	33.9
No	82	23.1
Loss of fetal movement		
Yes	77	21.7
No	125	35.2
Severe abdominal pain		
Yes	67	18.9
No	135	38
High grade fever		
Yes	66	18.6
No	136	38.3
Difficulty of breathing		
Yes	54	15.2
No	148	41.7
Blurred vision		
Yes	35	9.9
No	167	47
Abnormal vaginal discharge		
Yes	32	9
No	170	47.9
Water break before labor		
Yes	28	7.9
No	174	49
Convulsion		
Yes	27	7.6
No	175	49.3
Loss of consciousness		
Yes	25	7
No	177	49.9

In this study among respondents of knowing danger signs during pregnancy 137(38.6%) were knowledgeable. From those who were knowledgeable 128(36.1%) stated that they were get information from health institutions, 116(32.7%) from friends, 91(25.6%) from health extension workers, 59(16.6%) from schools, 51(14.4%) from medical journals and 44(12.4%) from their neighbors.

Among study subjects of knowing danger signs during pregnancy 166(46.8%) stated that women might die from danger signs or its complications, and 36(10.1%) said may not die. 159(44.8%) of respondents knew the time to go health institution if they face danger sign of pregnancy and 43(12.1%) of the respondents have no idea. And if they face this problem 144(40.6%) stated that they will go to health institution, 48(13.5%) tell for health extension workers and 10(2.8%) tell for their neighbors. When we asked the respondents if they face danger signs their idea was 97(27.3%) to go health institution immediately, 45(12.7%) wait until the conditions sever and 20(5.6%) said wait until the time of appointment. From those respondents not knowing danger signs of pregnancy majority of them 92(60.1%) the reason for not knowing stated that health education about the problem not given by health extension workers and 61(39.9%) said health institution too far.

5.4. Factors Associated with Knowledge of Respondents About Danger Signs of Pregnancy

Bivariate analysis showed that there was statically significant association between Knowledge about danger signs of pregnancy and occupation, income, residence, educational level and ANC follow up. However, in the multivariate logistic regression analysis, residence, educational level and ANC follow up remained to be significant.

The odds of those living in urban areas were 4.94 times more likely to have knowledge of danger signs during pregnancy than those living in rural area (AOR=4.94, 95% CI: 2.97-8.21). The study also showed that those who were from grade 9-10 (AOR= 8.53, 95% CI: 2.47-29.48) and those who have diploma and above (AOR= 15.40, 95% CI: 3.74-63.40) were 8.53 and 15.40 times more likely to have knowledge of danger signs during pregnancy than those who were can't read and write respectively. In addition, those who had previous pregnancy ANC follow up were 2.03 times more likely to have knowledge of danger signs during pregnancy than those who didn't have previous pregnancy ANC follow up (AOR= 2.03, 95% CI: 1.07-3.86) (Table 3).

Table 3. Bivariate and multivariate logistic regression analysis of variables with knowledge of respondents about danger signs of pregnancy in Debra Birhan town public health institutions, 2014

Variables	COR(95% CI)	AOR (95% CI)	P-value
Occupation			
House wife	1.00		
House maid	0.27(0.04-1.70)	0.40(0.04-3.76)	0.42
Employed	7.20(2.02-25.26)	1.41(0.23-8.58)	0.71
Residence			
Urban	4.85(3.06-0.33)	4.94(2.97-8.21)*	0.001
Rural	1.00		
Income			
100-300	1.00		
301-500	1.28(0.63-2.63)	0.53(0.18-1.56)	0.25
501-1000	1.54(0.80-2.98)	0.58(0.22-1.52)	0.27
>1000	6.12(3.10-12.08)	0.99(0.34-2.87)	0.98
Educational level			
Can't read and write	1.00		
Grade 1-4	2.56(1.43-4.57)	2.00(0.88-4.58)	0.10
Grade 5-8	1.82(0.89-3.73)	1.67(0.62-4.51)	0.31
Grade 9-10	5.23(2.48-11.03)	8.53(2.47-29.48)*	0.001
Diploma & above	31.50(10.68-92.87)	15.40(3.74-63.40)*	0.001
Gravidity			
Primigravida	1.00		
Multigravida	1.59(0.96-2.62)	0.83(0.29-2.39)	0.72
Grand multigravida	0.63(0.37-1.07)	0.82(0.24-2.84)	0.76
Previous pregnancy ANC			
Yes	2.13(1.27-3.63)	2.03(1.07-3.86)*	0.03
No	1.00		

6. Discussion

This study attempted to identify knowledge of pregnant women about danger signs of pregnancy and associated factors in Debra Birhan town, public health institutions. One hundred thirty seven (38.6%) of the respondents were knowledgeable about danger signs of pregnancy (95% CI: 34.6, 43.6). This finding is higher than the studies done in Arba Minch, Ethiopia [8], and Jordan (15.2%) [9], Uganda (19%) [3]; However, it was lower than the findings of KwaZulu-Natal, South Africa (52%) [10]. This difference might be due to the fact that socio-cultural difference and difference in implementation of relevant health intervention programs.

In the present study, being urban resident was significantly associated with knowledge about danger signs during pregnancy. This agrees with a study conducted in Aleta Wondo, Southern Ethiopia [7]. This could be due to the fact that urban residents have better access to health information and maternal health services as compared with the rural one. Furthermore, in rural areas source of information are limited unlike urban areas in addition to the prevalence of illiteracy which may contribute to this result.

The educational level of the respondent is one of the factors for knowledge about danger signs of pregnancy. Those who were grade 9-10 and having diploma and above were more likely to be knowledgeable about danger signs during pregnancy than those who can't read and write. Education seems to play a positive role in increasing the knowledge of women about danger signs during pregnancy and its complications. This is in agreement with the study done in rural Tanzania [11], Jordan [9], Uganda [3] and Arba Minch, Ethiopia [8]. This might be due to the fact that educated women have better access to reproductive health related information than those non educated women.

7. Strength and Limitations of the Study

7.1. Strength

This study tried to address the knowledge about danger signs during pregnancy and its associated factors.

7.2. Limitations

The limitations of this study could include the following: Firstly, as this study is confined to women visiting public health institution of Debra Birhan town, Ethiopia, the findings may not be generalizable to the women who did not visit health institution. Secondly, the other limitations of the study could be the small sample size which may make estimates unstable and associations between dependent and independent variables undetectable.

8. Conclusion and Recommendation

This study indicates that the knowledge level of pregnant women on danger signs of pregnancy was not adequate and

affected by residential area, educational level and ANC follows up. Efforts need focus on availing antenatal care services with appropriate information based on the standard about danger signs of pregnancy to increase the knowledge of pregnant women about danger signs. Ministry of health should be strengthening reproductive health services in rural areas to get quality antenatal care follow up by designing an appropriate strategies including provision of targeted information, education and communication. Further study needs to be conducted at community level for better generalization.

Authors' Contribution

AAS wrote the proposal, participated in data collection, analyzed the data and drafted the paper. NWA, EAC and MBB approved the proposal with great revisions and revised subsequent drafts of the paper. All authors read and approved the final manuscript.

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