

Study on the Level of Knowledge and its Associated Factors among Pregnant Women about the Danger Signs of Pregnancy and Childbirth from a Tertiary Care Hospital

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ABSTRACT

Aim: To evaluate the degree of awareness and its associated factors regarding the danger signs of pregnancy and childbirth among antenatal women in a tertiary care hospital.

Introduction: A woman's pregnancy is a natural phase of life that is sometimes considered a significant risk that can lead to negative effects for both the fetus and the mother. There are several warning indicators during pregnancy and childbirth. Awareness regarding these warning signals is necessary in aiding the antenatal women in recognizing the signs and approaching a health care center to reduce the risk of maternal morbidity and mortality.

Methodology: The subjects provided written, informed permission. A cross-sectional questionnaire-based study was done on antenatal women visiting the tertiary care hospital. The data were analyzed statistically by SPSS IBM software and evaluated.

Results: From the study, nearly 76.8% of the total participants knew that there are danger signs present during pregnancy, and about 57.6% of the total participants knew that there are danger signs present during childbirth, among which they listed excessive vaginal bleeding as the most frequent warning sign. It was found that women who come from urban areas have higher education levels and an increased number of antenatal visits knew more regarding the alarming signs of pregnancy and childbirth.

Conclusion: This study shows that a moderately good proportion of women are aware of the risks associated with pregnancy and childbirth, but there is still a significant gap in understanding them. More focused formal antenatal education regarding the danger signs must be emphasized, and improved strategies must be practiced among all healthcare professionals to ensure increased awareness among the antenatal women. This can be done by applying a majority of focus on strengthening health education by mandating health awareness counseling for all the antenatal women and addressing the danger signs.

Keywords: Antenatal women, Childbirth, Danger signs, Knowledge, Pregnancy.

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INTRODUCTION

Many view pregnancy as a normal stage of a woman's life. High-risk pregnancies account for about 40% of pregnancies, and they can have negative effects on both the mother and the fetus.¹ The most common causes of fatalities and disability among women of reproductive age are problems during pregnancy, childbirth, and the postnatal period. The rate of maternal deaths worldwide in 2015 was determined to be 216 per 1,00,000 live births.² An essential component of prenatal primary health care is the risk approach, which is an essential component for screening for high-risk illnesses in pregnancies. To avoid obstetric difficulties, this risk management strategy entails early screening of high-risk pregnancies.³

The risk-based approach to pregnancy entails promptly identifying any warning indicators, such as vaginal bleeding, premature rupture of membranes, seizures, edema of the leg, headaches during pregnancy, and diminished movements of the fetus.⁴ Direct pregnancy-related problems, such as significant bleeding, obstructed labor, infections, pregnancy-related hypertension, and/or unsafe induced abortion, are thought to be the cause of about 80% of maternal fatalities globally. Anemia, diabetes, or malaria are examples of indirect causes of disease that might have a negative impact on a pregnant woman's health.⁵⁻⁷

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One key tactic to lower morbidity and death among antenatal women would be to increase pregnant women's and their families' awareness of the warning signs of pregnancy.⁸ Research indicates that providing health education on obstetric alarm signals can aid in the early identification of obstetric difficulties and assist individuals in making more informed judgments on the decision to seek

medical attention.⁹ Additionally, community health workers may benefit from it, as they are often able to recognize these warning signs. This could help address the shortage of emergency obstetric services and qualified delivery attendants in our nation.

Prior research has demonstrated a favorable correlation between the preference for an institutional delivery and awareness of the warning indicators prior to, during, and following childbirth.¹⁰⁻¹² This result is found to be consistent with WHO guidelines to raise women’s knowledge of risk indicators prior to, during, and following childbirth.¹³ Encouraging women to recognize warning indicators in their health can support primary care. This study aids in evaluating pregnant patients seeking obstetric treatment at a teaching hospital about their awareness of and factors influencing warning indicators.

METHODOLOGY

This is a cross-sectional study was done among 250 antenatal women who presented to the Obstetrics and Gynecology Department in Saveetha Medical College and Hospital. All the willing antenatal women participated in the study. Written informed consent was obtained from all the study participants. The objective of the study and all related Information explaining the study details were given to all the participants. The data for the study were obtained by the interview method in the participants’ local language using a pre-designed standardized, and structured questionnaire regarding the risk indicators. The basic demographic details regarding age, socioeconomic status, and education status were obtained. The present obstetric score and the number of antenatal visits were also obtained. Questions to assess the level of knowledge about the danger signs of pregnancy and its associated factors among antenatal women were obtained. Any doubts or questions about the study were clarified by the researcher. Confidentiality was ensured throughout the study.

At the end of the study, all the data were collected to assess the level of knowledge regarding the danger signs of pregnancy and childbirth and their associated factors among the antenatal women attending the hospital and were tabulated in Excel sheets. These data were analyzed, and their percentage and proportion were calculated using the Chi-square analysis. The analysis was done using IBM SPSS version 23.

RESULTS

Socioeconomic and Obstetric Characteristics of the Antenatal Women

A total of 250 women were asked for consent and were interviewed for the study.

Table 1 provides the sociodemographic and obstetric characteristics of the participants in the study. Out of the 250 participants, the majority of women were between the age-groups of 24–27 (41.2%). Almost 14 (5.6%) women were above the age of 30. Most of the women belonged to nuclear families, which constituted about 65.5% of the total participants. The survey also showed that nearly 174 (69.6%) participants were from urban areas. Education levels among the participants were found to be higher, with 64 (25.6%) graduates and 84 (33.6%) women who have completed higher secondary school.

Among the antenatal women, 35 (14%) women belonged to the first trimester, 117 (46.8%) women belonged to the second trimester, and 98 (39.2%) women belonged to the third trimester. Out of the

Table 1: Socioeconomic and obstetric characteristics of the antenatal women

Category	Criteria	Frequency
Residence	Urban	69.6% (174)
	Rural	30.4% (76)
Age	20–23	16.8% (42)
	24–27	41.2% (103)
	28–30	36.4% (91)
	Above 30	5.6% (14)
Trimester distribution	0–12 weeks	14% (35)
	12–28 weeks	46.8% (117)
	28 weeks–Term	39.2% (98)
Number of antenatal visits	More than 4 visits	41.6% (104)
	At least 4 weeks	29.6% (74)
	1–2 weeks	22.8% (57)
	Never attended	6% (15)
Gravidity	Primi	16.8% (42)
	Second	50.8% (127)
	Third or more	32.4% (81)
Education	Primary school	7.6% (19)
	Secondary school	10.4% (26)
	Higher secondary school	25.6% (64)
	Graduate	33.6% (84)
	Postgraduate	22.8% (57)
Type of family	Joint	34.4% (86)
	Nuclear	65.6% (164)

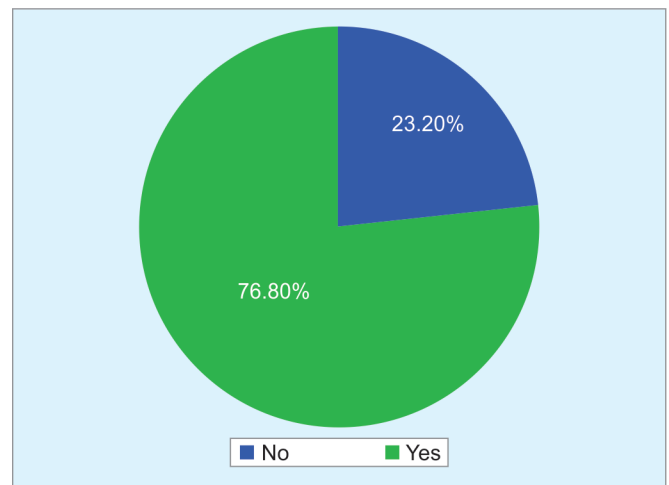


Fig. 1: Awareness of danger signs during pregnancy

participants, women who were on their second pregnancy were the highest to be recorded, accounting for nearly 50.8%, followed by women in their third pregnancy, which was around 32.4%.

Knowledge about the Danger Signs of Pregnancy

From our research, nearly 76.8% of the total participants knew that there are danger signs present during pregnancy, while 23.2% of the participants denied awareness of such risk indicators during pregnancy (Fig. 1). Among the women who were aware of danger signs, heavy vaginal bleeding was the leading common warning signal enumerated by them (25.91%), followed by convulsions (17.62%) and headache (15.54%). Other danger signs listed by the

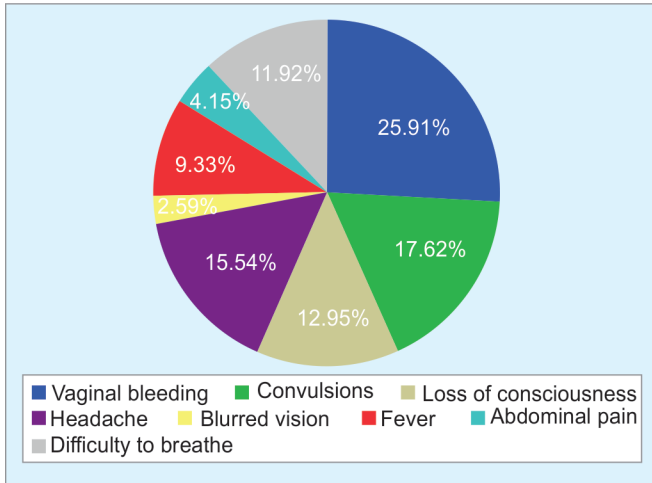


Fig. 2: Spectrum of danger signs during pregnancy

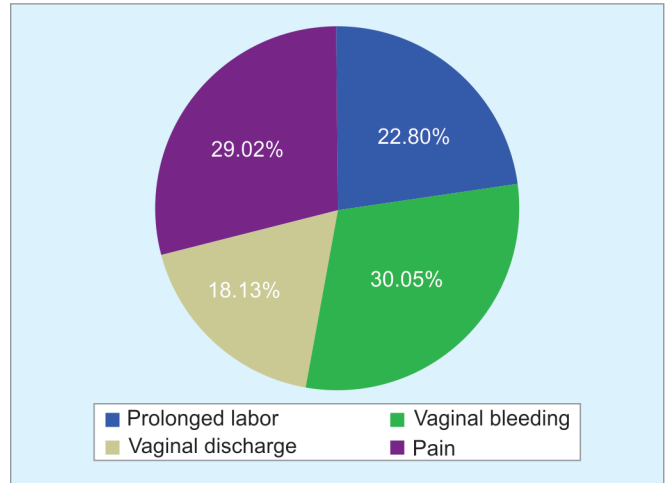


Fig. 4: Spectrum of danger signs during childbirth

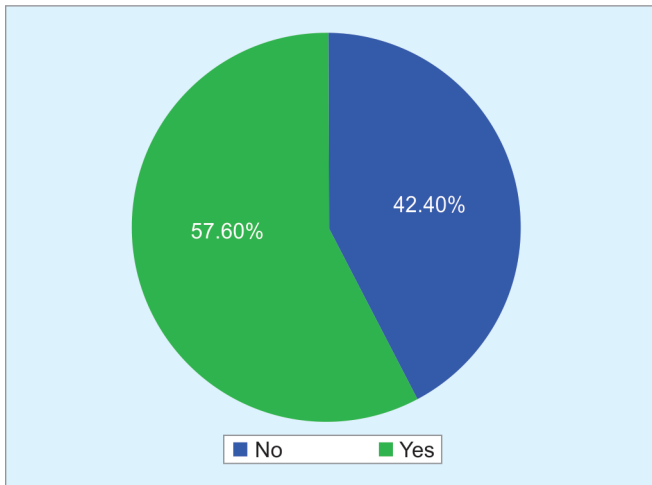


Fig. 3: Awareness of danger signs during childbirth

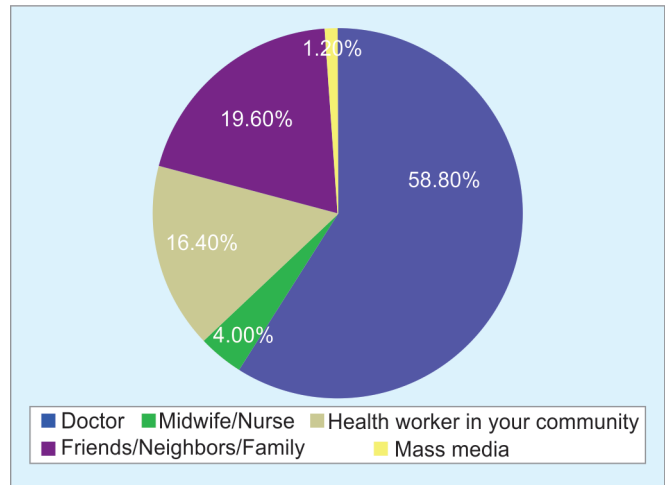


Fig. 5: Distribution of the source of the antenatal knowledge

participants were loss of consciousness (12.95%), difficulty breathing (11.92%), fever (9.33%), severe abdominal pain (4.15%), and blurring of vision (2.59%) (Fig. 2).

Knowledge about the Danger Signs of Childbirth

Around 57.6% of the total participants knew that there are danger signs present during childbirth, while 42.4% of the participants dismissed the presence of any danger signs during childbirth (Fig. 3). Based on the study, bleeding per vaginam was the leading cause of risk during childbirth according to the participants (30.05%), followed by abdominal pain (29.02%), prolonged labor (22.8%), and vaginal discharge (18.13%) (Fig. 4).

Source of the Knowledge Regarding Danger Signs

The major source of antenatal knowledge regarding the danger signs was received mainly from doctors and other health personnel (58.8%), followed by information from family members (19.8%), followed by mass media (16.5%) (Fig. 5).

FACTORS AFFECTING THE KNOWLEDGE OF DANGER SIGNS

The danger signs of pregnancy and childbirth were compared with a few factors that tend to influence the level of knowledge among the antenatal women. Important factors such as residence, education status, gravidity, and the number of antenatal visits of the participant were taken into consideration.

Association between the Knowledge about the Alarming Signs of Pregnancy and the Participant's Residence

On analysis, it was determined that women living in urban areas are more aware of the danger signs of pregnancy and childbirth (41.6%) than women living in rural areas (19.2%). Similarly, it is seen that the majority of women living in rural areas are unaware of danger signs (29.2%) when compared to women living in urban areas (10%) (Fig. 6).

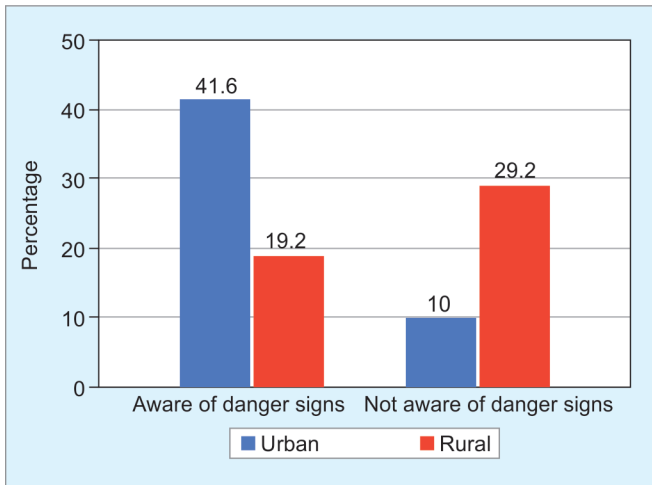


Fig. 6: Association between awareness of danger signs and residence

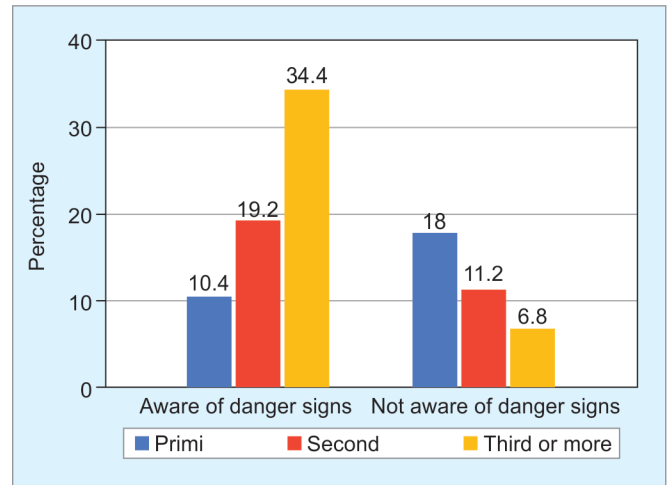


Fig. 8: Association between awareness of danger signs and gravidity

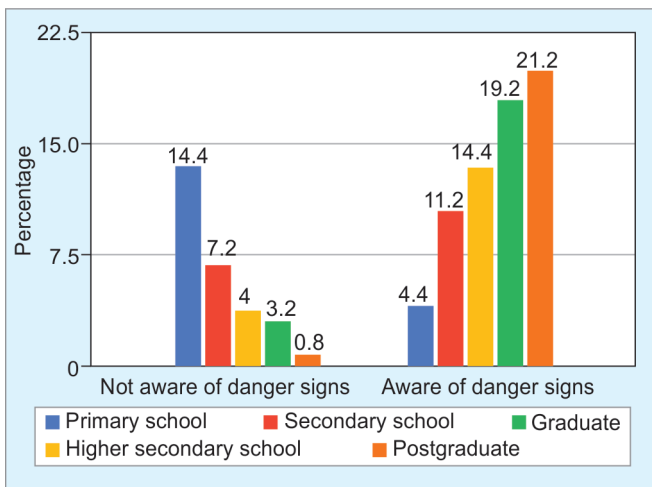


Fig. 7: Association between awareness of danger signs and education level

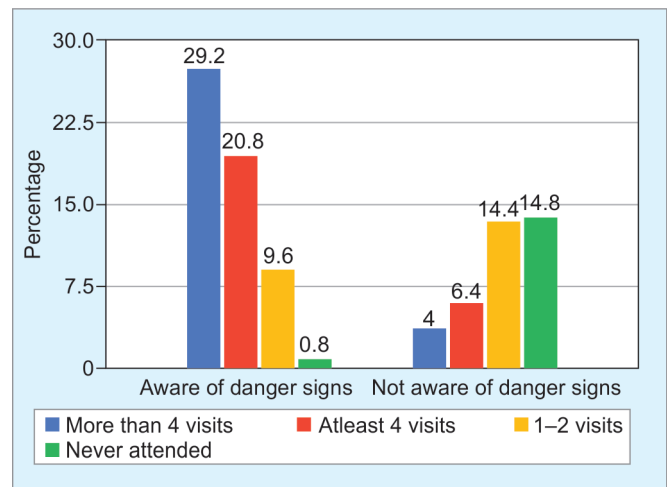


Fig. 9: Association between awareness of danger signs and the number of antenatal visits

Association between the Knowledge about the Danger Signs of Pregnancy and Childbirth and the Education Level of the Participant

From the analysis, there is a stronger association between women with higher levels of education and increased knowledge regarding the danger signs during pregnancy and childbirth. The highest level of association is seen in postgraduates, followed by graduates, higher secondary passouts, and lastly secondary and primary school passouts, which is 21.2, 19.2, 14.4, 11.2, and 4.4%, respectively. The graph shows the vice versa in the case where the women are unaware of danger signs, where primary school passouts are the most unaware (14.4%) and only a minority of the graduates (3.2%) and postgraduates (0.8%) are unaware of the danger signs (Fig. 7).

Association between the Knowledge of Risk Factors for Pregnancy and the Gravidity of the Participant

From the study, there is a positive association seen between women on their second or third pregnancy and having more awareness

regarding the risk signs of pregnancy and childbirth, accounting for 19.2 and 34.4%, respectively. On the other hand, it is seen that a majority of primigravida (18%) that participated in the study were not as aware of the danger signs (Fig. 8).

Association between the Knowledge Regarding the Danger Signs of Pregnancy and Childbirth and the Number of Antenatal Visits of the Participant

Women who have had more than four antenatal visits were found to have more knowledge regarding the danger signs of pregnancy and childbirth, nearly 29.2%, followed by women who have visited at least four times (20.8%). A greater percentage of women who have never attended the hospital for any check-up were found to be completely unaware of any danger signs (14.8%). Out of the total participants, it was found that among the women who had visited the hospital at least 1–2 times, a majority of them were unaware of the danger signs (14.4%), while a few of them (9.6%) were aware of the danger signs (Fig. 9).

DISCUSSION

Our study conducted in the tertiary healthcare setting has shown that a majority of the antenatal women have good knowledge regarding the danger signs of pregnancy and childbirth.

The study shows that knowledge among antenatal women regarding pregnancy and labor was 76.8 and 57.6%, respectively. These levels are quite high when compared to the other studies conducted in various settings. This might be because our study was carried out in a tertiary healthcare hospital where the patients were more from an urban background and belonged to higher levels of education, where most of them were graduates (33.6%) and postgraduates (22.8%). In a study by Nithya et al.,¹⁴ it was discovered that, in comparison to our study, the level of knowledge of danger signs throughout pregnancy and labor was 49.2 and 21.2%, respectively. This might be due to lower levels of education, i.e., women whose education status below primary school was nearly 21.7% of the total population, which can be the reason resulting in reduced exposure to the danger signs.

In a study conducted in JIPMER, Puducherry,¹⁴ it was shown that women with lower parity were more aware of the warning indications associated with getting pregnant and giving birth. This result could be explained by the fact that more educated primigravida are likely to be more fearful about pregnancy-related issues and are more likely to learn about them through questioning doctors or relatives. This contradicts our research, which demonstrates that women with higher gravida—that is, second or third gravida—were more cognizant of the warning indications (19.2 and 34.4%, respectively). This is most likely because multigravidas are more likely to recognize the warning signs on their own because they have greater firsthand knowledge of the pregnancy and labor process.

A study by Hailu and Berhe¹⁵ found that urban residence and higher education were independently associated with mentioning at least two danger signs of pregnancy, which is quite similar to our study.

In a study done in Bhutan by Tamang et al.,¹⁶ over three-quarters of women (335, 79.4%) had heard and received education about the obstetric danger signs, among which nearly 77% (258 out of 442 women) cited “Nurse/midwife” as their source of information on danger signs. In comparison, our study shows that 88% of the participants were given antenatal education regarding the danger signs, and the major source of information regarding antenatal education was primarily from doctors, which accounted for around 58.8%. This variation in the result might be due to the different study settings. In Bhutan, healthcare is not as advanced as in India, and hence their primary source of antenatal information was from midwives rather than trained healthcare professionals, i.e., doctors.

In another study conducted in Tanzania,¹⁶ among the 374 participants who have visited the ANC at least once, 271 (70.6%) had visited an antenatal clinic more than four times. In our study, only 41.6% (104) of the participants had attended the antenatal clinic more than four times, which is quite low when compared to the above study. Lack of formal education regarding the importance of antenatal check-ups is the major reason for the lack of antenatal attendance.

In a study by Mwilike et al.,¹⁷ the most observed pregnancy danger indicators were vaginal bleeding (81%), swelling of the fingers, face, and legs (46%), and severe headache (44%), most likely because it was the most obvious finding as compared to other findings such as decreased fetal activity. This finding is consistent

with our study, which indicated that vaginal bleeding was the most widely known danger indication among prenatal women during both pregnancy and labor, with 25.91 and 30.05%, respectively. On the other hand, in another study conducted in Papua New Guinea,¹⁸ among the 183 women who were aware of danger signs, 47.5% (87) reported fever, followed by 39.3% (72) who reported vaginal bleeding, and 36.6% (67) who reported swelling of the face, legs, and arms. The discrepancy can be due to the varied study period and different types of education implemented for antenatal women in various healthcare settings across the world. Another study by a few researchers in Ethiopia¹⁹ showed that retained placenta and prolonged labor were known to 58.7 and 28.4% of the study participants during delivery, respectively.

CONCLUSION

This study shows a moderately good proportion of antenatal women being aware of the risk factors, but there is still much lack of knowledge of the danger signs. Only if the women are aware of the danger signs can they seek healthcare and be prepared for labor without any complications. More focused formal antenatal education regarding the danger signs must be emphasized and practiced among all the healthcare professionals to ensure increased awareness among the antenatal women. This education can also be extended to family members for better results. Better and more improved strategies must be developed to inform pregnant women regarding the signals so that they can improve their decision-making in pregnancy and labor. Irrespective of the factors that affect antenatal knowledge, such as the levels of education or lower parity, steps must be taken to improve awareness among women. This can be done by applying a majority of focus on strengthening health education by mandating health awareness counseling for all the antenatal women and addressing the danger signs.

REFERENCES

1. Salhan S. Textbook of Obstetrics. 1st ed. New Delhi: Jaypee Brothers Medical Publishers (P) Ltd; 2007. p. 27. ISBN: 81-8061-911-7.
2. WHO, UNICEF, UNFPA and the World Bank. Trends in Maternal Mortality: 1990-2013. Geneva: WHO; 2014. Available from: <http://www.data.unicef.org/maternalhealth/maternalmortality#sthash.iGwMy79g.dpuf>. [Last accessed on 2017 Apr 07].
3. Obionu CN. Primary Health Care for Developing Countries. 2nd ed. Enugu: Enugu Institute for Development Studies UNEC; 2007. pp. 219–223. DOI: 10.4103/jfmpc.jfmpc_149_19.
4. Hoque M, Hoque ME. Knowledge of danger signs for major obstetric complications among pregnant KwaZulu-Natal women implications for health education Asia-Pacific. *J Publ Health* 2011;23:946–956. DOI: 10.1177/1010539511428698.
5. Alkema L, Chou D, United Nations Maternal Mortality Estimation Inter-Agency Group collaborators and technical advisory group, et al. Global, regional, and national levels and trends in maternal mortality between 1990 and 2015, with scenario-based projections to 2030: A systematic analysis by the UN maternal mortality estimation inter-agency group. *Lancet* 2016;387(10017):462–474. DOI: 10.1016/S0140-6736(15)00838-7.
6. Say L, Chou D, Gemmill A, et al. Global causes of maternal death: A WHO systematic analysis. *Lancet Glob Health* 2014;2(6):e323–e333. DOI: 10.1016/S2214-109X(14)70227-X.
7. The World Health Report 2005. Make every mother and child count. World Health Organization 2005. Available from: http://www.who.int/whr/2005/whr2005_en.pdf. Accessed on: 09 Jan 2017.

8. Mubeena H, Pracheth R, Kiran, R, et al. Assessment of knowledge of obstetric danger signs among pregnant women attending a teaching hospital. *J Family Med Primary Care* 2009;8(4):1422–1426. DOI: 10.4103/jfmpc.jfmpc_149_19.
9. UNICEF; Levels and trends in child mortality, report of 2018.
10. Benski AC, Stancanelli G, Scaringella S, et al. Usability and feasibility of a mobile health system to provide comprehensive antenatal care in low-income countries: PANDA mHealth pilot study in Madagascar. *J Telemed Telecare* 2017;23(5):536–534. DOI: 10.1177/1357633X1665354.
11. Karkee R, Baral OB, Khanal V, et al. The role of obstetric knowledge in utilization of delivery service in Nepal. *Health Educ Res* 2014; 29(69):1041–1048. DOI: 10.1093/her/cyu059.
12. Hailu M, Gebremariam A, Alemseged F. Knowledge about obstetric danger signs among pregnant women in Aleta Wondo district, Sidama zone, southern Ethiopia. *Ethiop J Health Sci* 2010;20(1):25–32. DOI: 10.4314/ejhs.v20i1.69428.
13. WHO recommendations on antenatal care for a positive pregnancy experience. WHO 2016. Available from: <http://apps.who.int/iris/bits/tream/10665/250796/1/9789241549912-eng.pdf?ua=1>. Accessed on: 19 Jan 2017.
14. Nithya R, Dorairajan G, Chinnakali P. Do pregnant women know about danger signs of pregnancy and childbirth? – A study of the level of knowledge and its associated factors from a tertiary care hospital in Southern India. *Int J Adv Med Health Res* 2017;4:11–17. DOI: 10.4103/IJAMR.IJAMR_68_16.
15. Hailu D, Berhe H. Knowledge about obstetric danger signs and associated factors among mothers in Tsegedie district, Tigray Region, Ethiopia 2013: Community based crosssectional study. *PLoS One* 2014; 9:e83459. DOI: 10.1371/journal.pone.0083459.
16. Tamang ST, Dorji T, Yoezer S, et al. Knowledge and understanding of obstetric danger signs among pregnant women attending the antenatal clinic at the National Referral Hospital in Thimphu, Bhutan: A cross-sectional study. *BMC Pregnancy Childbirth* 2021;21(1):104. DOI: 10.1186/s12884-021-03580-4.
17. Mwilike B, Nalwadda G, Kagawa M, et al. Knowledge of danger signs during pregnancy and subsequent healthcare seeking actions among women in Urban Tanzania: A cross-sectional study. *BMC Pregnancy Childbirth* 2018;18(1):4. DOI: 10.1186/s12884-017-1628-6.
18. Valley LM, Emori R, Gouda H, et al. Women’s knowledge of maternal danger signs during pregnancy: Findings from a cross-sectional survey in Papua New Guinea. *Midwifery* 2019;72:7–13. DOI: 10.1016/j.midw.2019.02.001.
19. Bililign N, Mulatu T. Knowledge of obstetric danger signs and associated factors among reproductive age women in Raya Kobo district of Ethiopia: A community based cross-sectional study. *BMC Pregnancy Childbirth* 2017;17:70. DOI: 10.1186/s12884-017-1253-4.