

## Knowledge about obstetric danger signs among pregnant women attending antenatal clinic in a tertiary care hospital of Delhi: a cross sectional study

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### ABSTRACT

**Background:** According to UNICEF, globally 800 million women die due to preventable causes related to pregnancy and childbirth; 20% of which occur in India. It is therefore imperative to understand the level of knowledge about danger signs among pregnant women to augment timely redressal of preventive obstetric causes of mortality.

**Methods:** A hospital based, cross sectional study was conducted at the ANC Clinic in Safdarjung Hospital, New Delhi from 2<sup>nd</sup> July to 27<sup>th</sup> July 2018. Convenient sampling was used to identify and interview 354 pregnant women, using a semi structured questionnaire. Data was entered and analysed with SPSSv21. Results were presented as frequencies and proportions. Chi square was used to test for association between qualitative variables, and p-value less than 0.05 was considered significant.

**Results:** 48.3%, 35.6%, and 40.1% of pregnant women had knowledge about danger signs during pregnancy, labour and postpartum respectively. Majority of the women had knowledge about abdominal pain (58.4%) and severe fatigue (80.7%) as danger signs of pregnancy, while bleeding (82.5%) was the most common response as danger sign of labour. More than half had knowledge about heavy bleeding (59.9%) as danger sign of postpartum. The women lacked awareness about Convulsions (92.9%) as danger signs of pregnancy and labour, as well as smelly vaginal discharge (79.6%) in postpartum.

**Conclusions:** Knowledge of obstetric danger signs among pregnant women is still lower. It needs further awareness as it can help in early diagnosis and referral of patients thus reducing maternal mortality and morbidity.

**Keywords:** Awareness, Danger sign, Labour, Maternal mortality, Postpartum, Pregnancy

### INTRODUCTION

Maternal mortality, as defined by WHO, refers to “deaths of women while pregnant or within 42 days of termination of pregnancy, irrespective of duration and site of pregnancy from any cause related to or aggravated by the pregnancy or its management but not from accidental or incidental causes”.<sup>1</sup>

According to UNICEF, globally 800 million women die due to preventable causes related to pregnancy and childbirth; 20% of which occur in India. It was reported that in India around 44,000 women die due to pregnancy and childbirth related complications.<sup>2</sup> The high number of maternal deaths in some areas of the world reflects inequities in access to health services, rampant illiteracy, ignorance and gender inequality. The risk of maternal

mortality is highest for adolescent girls under 15 years of age.<sup>3</sup>

According to WHO, hemorrhage is the leading cause of maternal mortality worldwide (3), hypertensive disorders associated with pregnancy namely eclampsia, embolism also claim significant number of lives. In South East Asia the lifetime risk of maternal death is 1 in 200 among the pregnant females.<sup>3</sup>

Danger signs during pregnancy encompass all the conditions during pregnancy which can endanger the life of the fetus and the mother. Educational status, occupation and the number of ANC visits are some of the major factors affecting the level of knowledge about danger signs among the pregnant women.

Most maternal deaths are in resource poor countries. "Delay to make a decision to seek care, delay to reach place of care and delay in receiving appropriate and adequate care" are the main attributed to the three delays.<sup>4</sup>

Recognizing maternal mortality as a major indicator of health of a nation, studies were conducted in Indian hospitals as well to gauge the status of maternal health in India. India being a fairly diverse country also has wide disparities in the results of these studies. Studies show that the incidence of maternal mortality decreases significantly with education. With widespread use of education, information and communication, many more women are now aware about the pregnancy related complications during the antenatal period, however there appears a lag in the awareness regarding the complications during labor and the post-natal period.

The knowledge about obstetric danger signs and its relation with complications during pregnancy labor and post-partum period would help pregnant women and their families in seeking timely health care services when required and thus can decrease the maternal mortality.

Women should be made aware of danger signs of obstetric complications during pregnancy, delivery and the postpartum.<sup>5</sup> For the enhancing the utilization of skilled care during low-risk births and emergency obstetric care in complicated cases in low income countries, knowledge of obstetric danger signs and birth preparedness are the major strategies.<sup>6,7</sup> Maternal deaths due to obstetric complications can be reduced with the presence of skilled attendants at births and availability of emergency obstetric care.<sup>8-10</sup> And this depends on a functional referral system from rural communities to health facilities.<sup>11</sup>

Knowledge regarding danger signs will help a pregnant woman to take appropriate action needed. Thus, this study was conducted to assess knowledge of obstetric danger signs among women attending Antenatal Clinic in a tertiary care hospital of Delhi.

## METHODS

A hospital based descriptive cross sectional study was conducted in the month of July 2018 at Ante-natal clinic in Safdarjung hospital, New Delhi. Safdarjung hospital is a tertiary care hospital in Delhi which caters to population from Delhi as well as adjoining states.

The present study was conducted among pregnant women attending antenatal clinic. The minimum sample size came out to be 354 using the formula  $4pq/12$  and taking non response rate of 10%. For this prevalence was taken as 28% q (Sahithi K et al) as 72, absolute error as 5% at 95% confidence interval.<sup>12</sup>

The study was conducted by convenient sampling technique until required sample size was attained. As on an average around 300 pregnant women attend Antenatal Clinic every 3<sup>rd</sup> women visiting ANC was selected for the study. This procedure was repeated till the required sample size was achieved. Pregnant women who were having complications or seriously ill and had relatives in the hospital were excluded.

A semi structured, pretested, semi open-ended, interviewer administered, bilingual questionnaire was used to collect information regarding socio-demographic profile like age, sex, marital status, education, occupation etc., obstetric history and knowledge of danger obstetric signs during antenatal period, labour and post-partum.

### Statistical analysis

Statistical analysis was done using a licensed version of SPSS 21. Descriptive analysis was done by calculating proportions, means and standard deviation. Chi square/Fishers Exact test for qualitative and t test for quantitative variable were applied. The ethical clearance was obtained from Institutional Ethics Committee.

## RESULTS

A total of 354 pregnant women attending ANC at Vardhman Mahavir Medical College and Safdarjung Hospital were studied.

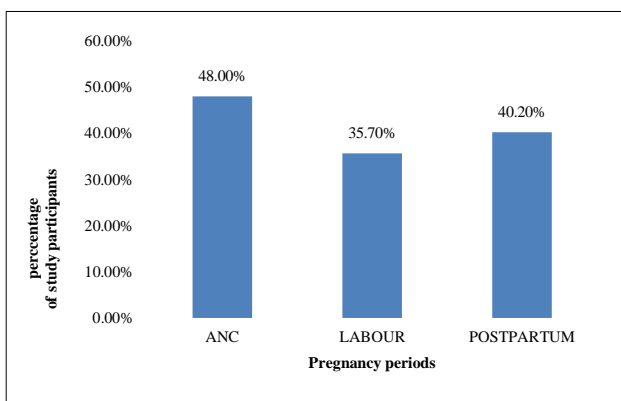
### Sociodemographic profile

Age of the study participants was normally distributed. Mean age was 25.76 years with standard deviation (SD) of 3.27 years. Minimum age was 18 years and the oldest participant was 33 years old. Maximum participants, 154 (43.5%) belonged to the age group of 25 to 28 years, followed by 89 (25.1%) in the age group of 21 to 24 years. Most of participants 308 (87%) belonged to Hindu religion. 271 (76.6%) participants were from urban area. Most of participants educated up to primary school i.e. 122 (34.5%) followed by secondary school i.e. 116 (32.8%). 127 (35.9%) participants were from class III (middle) followed by Class VI (Lower middle)

socioeconomic status i.e. 122 (34.5%). Most of participants belonged to Joint family i.e. 193 (54.5%) (Table 1).

**Table 1: Sociodemographic profile of study participants (N=354).**

Age group	Numbers	Percent
Up to 20 years	26	7.3
21-24 years	89	25.1
25-28 years	154	43.5
29-33 years	85	24
<b>Religion</b>		
Hindu	308	87
Muslim	34	9.6
Christian	6	1.7
Others	6	1.7
Total	354	100
<b>Education</b>		
Illiterate	7	2
Up to primary school	53	15
Up to upper primary	122	34.5
Up to secondary	116	32.8
Up to higher secondary	48	13.6
Graduate and above	8	2.3
<b>Socioeconomic status: (Modified BG Prasad scale 2018) (Based on income in Rs. per capita per month)</b>		
Class I (Upper)	22	6.2
Class II (Upper middle)	65	18.5
Class III (Middle)	127	35.9
Class IV (Lower middle)	122	34.5
Class V (Lower)	18	5.1
<b>Type of family</b>		
Nuclear	161	45.5
Joint	193	54.5



**Figure 1: Knowledge of obstetric danger sign.**

**Knowledge of danger signs during pregnancy, labour and postpartum period**

Out of 354 women, 170 (48%), 126 (35.6%) and 142 (40.2%) had the knowledge of atleast one danger sign

during the antenatal period, during labour and during post-partum period respectively (Figure 1).

**Table 2: Knowledge of danger signs during antenatal period among study participants (n=170).**

Danger sign	n (%)
Abdominal pain	147 (85.9%)
Severe fatigue	141 (82.4%)
Vaginal bleeding	112 (65.9%)
Fever	94 (55%)
Difficulty breathing	66 (38.5%)
Headache	65 (38.0%)
Blurred vision	67 (38%)
Swelling/Edema	39 (22.8%)
Foul smelling vaginal discharge	25 (14.6%)
Unconsciousness	16 (9.3%)
Convulsions	10 (5.8%)

\*multiple response

Out of 170 study participants, most of i.e. 147 (85.7%) participants had knowledge about abdominal pain followed by severe fatigue i.e. 141 (82.4%) as a danger sign during antenatal period while only 10 (5.8%) participants had the knowledge about convulsion as a danger sign during this period (Table 2).

**Table 3: Knowledge of danger signs during labour among study participants (n=126).**

Danger sign	n (%)
Heavy bleeding	105 (83.3%)
Vaginal tearing	72 (57.1%)
Water break, labour not induced	60 (47.6%)
Green/brown vaginal discharge	47 (37.3%)
Retained placenta	46 (36.5%)
Prolonged labour	34 (26.9%)
Fever	22 (17.5%)
Convulsions	6 (4.8%)

\*multiple responses

**Table 4: Knowledge of danger signs during postpartum period among study participants (n=142).**

Danger sign	n (%)
Heavy bleeding	92 (64.8%)
Painful urination	59 (41.5%)
High fever	58 (40.8%)
Hot, swollen, painful breasts	48 (33.8%)
Smelly vaginal discharge	33 (23.2%)

\*multiple responses

Out of 126 study participants, most of i.e. 105 (83.3%) participants had knowledge about heavy bleeding followed by vaginal tearing i.e. 72 (57.1%) as a danger sign during labour while only 6 (4.8%) participants had the knowledge about convulsion as a danger sign during this period (Table 3).

**Table 5: Association of knowledge of obstetric danger signs and age among study participants.**

Age (years)	Antepartum			Labour			Post partum		
	Yes	No	P-value	Yes	No	P-value	Yes	No	P-value
< 20 (n-26)	11 (42.3%)	15(57.7%)	0.211	5(19.2%)	21(80.8%)	0.115	9(34.6%)	17(65.4%)	0.829
21-24 (n-89)	39(43.8%)	50(56.2%)		34(38.2%)	55(61.8%)		34(38.2%)	55(61.8%)	
25-28 (n-154)	76(49.3%)	78(50.9%)		55(35.7%)	99(64.3%)		63(40.9%)	91(59.1%)	
29-33 (n-85)	44(51.8%)	41(48.2%)		33(38.8%)	52(51.2%)		37(43.5%)	48(56.5%)	

\*Trend chi square test.

**Table 6: Association of knowledge of obstetric danger signs and education among study participants.**

Variable	Antepartum		P-value	Labour		p-value	Post partum		P-value
Illiterate (7)	3 (42.9%)	4 (57.1%)	0.012	0 (0%)	7 (100%)	0.001	2 (28.6%)	5 (71.4%)	0.019
Up to high school (339)	159 (46.9%)	180 (53.1%)		119 (35.1%)	220 (64.9%)		133 (39.2%)	206 (60.8%)	
Graduate and above (8)	8 (100%)	0 (0%)		7 (87.5%)	1 (12.5%)		7 (87.5%)	1 (12.5%)	

\*chi square test

**Table 7: Association of knowledge of obstetric danger signs and socioeconomic status among study participants.**

Variable	Antepartum		p-value	Labour		p-value	Postpartum		P-value
Lower class (140)	53 (37.9%)	87 (62.1%)	0.001	44(31.4%)	96 (68.6%)	0.107	45 (32.1%)	95 (67.9%)	0.043
Middle class (127)	61 (48%)	66 (52%)		43 (33.9%)	84 (66.1%)		59 (46.5%)	68 (53.5%)	
Upper class (87)	56 (64.4%)	31 (35.6%)		39 (44.8%)	48 (55.2%)		38 (43.7%)	49 (56.3%)	

\*chi square test

**Table 8: Association of knowledge of obstetric danger signs and antenatal visits among study participants.**

ANC visits	Antepartum		P-value	Labour		P-value	Postpartum		P-value
1	17 (20%)	68 (80%)	0.001	15 (17.6%)	70 (82.4%)	0.001	27 (31.8%)	58 (68.2%)	0.072
2 and more	153 (56.9%)	116 (43.1%)		111 (41.3%)	158 (58.7%)		115 (42.8%)	154 (57.2%)	

\*chi square test

**Table 9: Association of Knowledge of obstetric danger signs and husband's education status among study participants.**

Variable	Antepartum		P-value	Labour		p-value	Post partum		P-value
Illiterate (4)	2 (50%)	2 (50%)	0.830	0 (0%)	4 (100%)	0.010	0 (0%)	4 (100%)	0.171
Up to high school (312)	148 (47.4%)	164 (52.6%)		105 (33.7%)	207 (66.3%)		124 (39.7%)	188 (60.3%)	
Graduate and above (38)	20 (52.6%)	18 (47.4%)		21 (55.3%)	17 (44.7%)		18 (47.4%)	20 (52.6%)	

\*chi square test

Out of 142 study participants, 92 (64.8%) participants had knowledge about heavy bleeding and 59 (41.5%) had knowledge about painful urination as a danger sign during postpartum period while 33 (23.2%) participants had the knowledge about smelly vaginal discharge as a danger sign during this period (Table 4).

Knowledge of obstetric danger signs increases with the age during all three periods and age group 29-33 years had more knowledge compare to other age groups but this trend was not statistically significant (Table 5).

Hundred percent, 87.5% and 87.5% of participants who were graduate and above had the knowledge of at least

one danger sign during antenatal period, labour and postpartum period respectively. These associations were found statistically significant among all three periods (Table 6).

Participants who belongs to upper class (class I and class II), among them 56 (64.4%), 39 (44.8%) and 38 (43.7%) had the knowledge of at least one danger sign during antenatal period, labour and postpartum period respectively most, compare to other socioeconomic class. This association was significant during antenatal period and postpartum period (Table 7).

**Table 10: Association of knowledge of obstetric danger signs and antenatal parity among study participants.**

Parity	Antepartum		P-value	Labour		p-value	Post partum		P-value
Primipara (111)	52 (46.8%)	59 (53.2%)	0.765	39 (35.1%)	72 (64.9%)	0.903	34 (30.6%)	77 (69.4%)	0.014
Multipara (243)	118 (48.6%)	125 (51.4%)		87 (35.9)	156 (64.2%)		108 (44.4%)	135 (55.6%)	

Participants who had 2 and more antenatal visits had more knowledge of obstetric danger signs compare to who had one and less visit and this association was statistically significant during antenatal period and labour (Table 8).

Participants whose husband had education up to graduation and above had better knowledge of obstetric danger sign compare to others and it was statistically significant during labour (Table 9).

Participants who were multipara, had more knowledge of danger signs during all three periods compare to primipara and during postpartum period, it was found to be statistically significant (Table 10).

## DISCUSSION

The present study was a descriptive, cross-sectional, hospital-based study conducted amongst pregnant female. The study aimed to find out the knowledge of obstetric danger signs along with the factors associated with it.

In present study 48% participants knew about atleast one danger sign during pregnancy and results are comparable to that reported by Haleema M et al, in Mangalore, Karnataka where it was found to be 54.7%.<sup>13</sup> Its lower when compared to study conducted by Sahithi KJ et al in Hyderabad Telangana and Agarwal S et al in Indore city, in which they found that 73.5% and 79.2% of the respondents knew at least one danger sign during pregnancy respectively.<sup>12,14</sup> This difference in results can be attributed to the different criteria used for assessing knowledge. A study conducted by Acharya et al, also found that only 27.8% women knew any one danger sign

during pregnancy, and Mukhopadhyaya et al, study also observed that proportion of women knowing at least one danger sign ranged from 12.1% to 37.2% and this difference can be due to different methods and settings.<sup>15,16</sup>

In present study 85.9% participants knew about abdominal pain as a major danger sign during pregnancy and similar results were found in the study conducted by Nithya et al, in which Severe abdominal pain (n=232; 60.7%) was the most commonly known danger sign of pregnancy followed by heavy bleeding (n=216; 56.5%) and contrary to this study, study conducted by Sahithi KJ et al in which about 39% of the study subjects mentioned vaginal bleeding as the key danger sign during pregnancy.<sup>12,17</sup>

In present study 35.6% participants had the knowledge of at least one danger sign during labour, which is lower compared to study conducted by Sahithi KJ et al and Agarwal S et al, Indore city, in which they found 67.5% and 78.5% participants had the knowledge of at least one danger sign during labour respectively.<sup>12,14</sup> In present study 83.3% participants knew about heavy vaginal bleeding as a key danger sign during labour, others were vaginal tearing (57.1%), and water break (47.6%). Similar finding was found by Bhumi MA et al in which severe bleeding (71.5%), retained placenta (68.6%), edema hands/feet/face (64.5%) and convulsions (57.6%) were most commonly known.<sup>18</sup> Current study revealed that 42.2% participants had the knowledge of at least one danger sign during postpartum period and 64.8% participants had knowledge about heavy bleeding, 41.5% and 23.2% participants had the knowledge about painful urination and smelly vaginal discharge respectively as a

danger sign during this period. Study conducted by Bhumi MA et al revealed that severe bleeding per vagina (74.0%), foul smelling discharge (72.6%), and high fever (68.6%) were key danger sign during post-natal period known by study participants.<sup>18</sup> Present study revealed that educational status of mother, socioeconomic status of participants and ANC visits were showing statistically significant association with knowledge of obstetric danger signs. Similarly, Vijay et al, found in their study that educational status had significant association with level of knowledge on danger signs during pregnancy and study conducted by Bhumi MA et al, showed that there is a significant association between knowledge scores about danger signs with mother's age and education.<sup>17,19</sup> In present study there was no significant association was found between religion, locality, age, parity and knowledge of obstetric danger signs.

## CONCLUSION

The present study revealed that a significant number of mothers (less than 50%) are still not knowledgeable about obstetric danger signs. Maternal educational level, husband educational level, ANC visits, family monthly income, and being multiparous, were factors found to be significantly associated with mothers' knowledge of obstetric danger signs.

Awareness of key obstetric danger signs need to be given focus as it makes women and their families ready for prompt and appropriate decisions and measures in case of obstetric danger signs among pregnant women. Health education dissemination strategies on obstetric danger signs need to be continuously done at the health facility and community levels.

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