

# KNOWLEDGE REGARDING OBSTETRIC DANGER SIGNS AMONG PREGNANT WOMEN

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## ABSTRACT

Knowledge of obstetric danger signs is crucial to reduce maternal morbidity and mortality by identifying the problems earlier and avoiding the delay in seeking obstetric care. According to World Health Organization (WHO) more than 70% of maternal deaths occur due to obstetric complications and most of these deaths occur in developing countries. Most of these are preventable if pregnant women can identify these life-threatening danger signs on time and seek appropriate emergency obstetric care. This study was conducted to assess the knowledge of obstetric danger signs among pregnant women. A descriptive cross-sectional study was carried out from 15th July to 30th August 2021, 194 pregnant women who visited the Gynaecology Outpatient Department in Nepal Medical College Teaching Hospital, were enrolled for the study. Data were collected through face to face interviews using a structured questionnaire. The study findings revealed that overall knowledge on obstetric danger signs was suboptimal (3.1%). The median knowledge score of respondents on antenatal danger signs was 30.0% (Q1-Q3=17.5-40), intra-natal danger signs was 0.0% (Q1-Q3=0-20) and postnatal danger signs were 25% (Q1-Q3=0-25). Severe vaginal bleeding was the most frequently mentioned danger sign in each of the three gestational periods (antenatal: 78.9%, intra-natal; 29.9% and postnatal; 39.7%). In conclusion, service providers and health management teams should emphasize on information, education and communication for every pregnant woman focusing on obstetric danger signs to have better awareness and thereby reduce adverse maternal and neonatal outcomes.

## KEYWORDS

Obstetric danger signs, pregnant women, knowledge

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## INTRODUCTION

Every pregnancy is a high-risk period where numerous complications can occur and it is estimated that 15% of all pregnant women experience obstetric complications.<sup>1</sup> Maternal mortality is high globally, in 2017, about 295,000 women have lost their life due to direct obstetric complications; most of which could have been prevented. Almost all of these deaths (94%) occurred in low-resource settings.<sup>2</sup> It was noted that almost 80% of maternal deaths occur due to direct obstetric complications including severe haemorrhage, pregnancy-induced hypertension, infections, and obstructed and prolonged labour.<sup>3</sup> According to Nepal Demographic and Health Survey (NDHS) 2016, the maternal mortality ratio (MMR) for Nepal is 239 deaths per 100,000 live births.<sup>4</sup> The Sustainable Development Goals (SDG) also speak the interrelationship of maternal and neonatal health with other aspects of development. The third SDG for 2030 aims to reduce global maternal deaths from the preventable disease to <70 per 100,000 live births and reduce neonatal mortality rates to 12 per 1000 live births.<sup>5</sup> The third SDGs future projections for Nepal is to bring down the maternal mortality ratio to 116 per 100000 live births and neonatal mortality rate to 11.3 as a target for 2022.<sup>6</sup>

Danger signs during pregnancy are considered those symptoms and signs experienced by a pregnant woman which, when neglected, could endanger her pregnancy leading to adverse maternal and perinatal outcomes. Fortunately, most of these danger signs can be prevented or managed if the woman is aware of them and seek appropriate obstetric care timely.<sup>7,8</sup> On the other hand, lack of awareness regarding these danger signs leads to delays in seeking skilled obstetric care which is the second most important determinant of maternal mortality.<sup>8,9</sup> Hence better awareness of obstetric danger signs may lead to having timely access to appropriate care during obstetrical emergencies.<sup>8,10</sup> Therefore, this study was conducted to assess the knowledge regarding obstetric danger signs among pregnant women.

## MATERIALS AND METHODS

A quantitative cross-sectional study was conducted among 194 pregnant women attending the Gynaecology Outpatient Department (OPD) of Nepal Medical College Teaching Hospital (NMCTH), Attarkhel, Gokarneshwor-8, Kathmandu from July 15 to August 30, 2021. This study was done

after receiving ethical clearance from the Institutional Review Committee (IRC) of Nepal Medical College and formal permission was obtained from the concerned authority to collect the data. The procedure and purpose of the study were explained and respondents were selected based on the inclusion criteria. Informed verbal and written consent was taken from the respondents before collecting the data. Participation was voluntary and confidentiality was maintained. All the pregnant women attending Obstetrics and Gynecology OPD of NMCTH were included in this study. Pregnant women who were health workers e.g. Doctors, Nurses, Auxiliary Nurse Midwives (ANMs), Female Community Health Volunteers (FCHVs), pregnant women who were ill during data collection and were not willing to participate in the study were excluded. Asterisk (\*) sign was written at the top side of the OPD card to avoid sample repetition bias. The sample size was calculated by using the formula:  $n = Z^2pq/d^2$  with 7% allowable-error, 95% confidence level. Further, the sample was adjusted with 10% probable non-response error rate. The estimated prevalence was taken based on the prevalence of adequate knowledge on obstetric danger signs (66%) among pregnant women in Nepal.<sup>11</sup> Hence, the final sample size was 194.

A systematic random sampling technique was used to assess the knowledge of pregnant women regarding obstetric danger signs. At first, the sampling frame was identified by consulting with the OPD in-charge and it was found to be around 1500 per month. Considering the sample size of 194, the sampling interval was found to be  $7.73=8$ . To find out the starting point, the researchers made a chit by writing from 1 to 50. Then the researchers drew a chit by themselves randomly and followed up that number as written in the OPD registration book. In this way, the starting point was identified. After that, every 8<sup>th</sup> pregnant woman who met the inclusion criteria was included in the study. The structured interview schedule was developed by the researchers based on extensive literature search and guidelines provided by Johns Hopkins Program for International Education in Gynecology and Obstetrics (JHPIEGO) (Maternal and Neonatal Health Program). The questionnaire consisted of three parts. Part I was related to socio-demographic characteristics such as age, educational status, husband's educational status, occupational status of women, occupational status of the husband, monthly family income, source of information. Part II was related to obstetrics characteristics such as gravidity, parity, abortions, still-births, place

of delivery of last child-birth, number of ANC visits etc. Part III was related to knowledge of respondents regarding obstetric danger signs during antenatal, intranatal and postnatal periods respectively. All questionnaires in the tool were translated into Nepali language. There were altogether 19 multiple responses of obstetric danger signs from all three gestational period mentioned above; ten from antenatal, five from intranatal and four from postnatal period respectively. Respondents were given a score of 1 who spontaneously mentioned each of the danger signs as listed in the tool and a score of 0 was given for the don't know option hence, the highest score was 19. Based on the obtained score, the level of awareness was grouped into two levels as follows:

*Poor knowledge:* Respondents who obtained a score of less than fifty percent

*Good knowledge:* Respondents who obtained a score of more than fifty percent

Pretesting of the questionnaire tool was done among 10% of women (i.e. 20 women) in Gynaecology OPD, NMCTH. Those women included in the pretest were excluded in the main study. Based on pretesting, the instrument was revised and finalized for use in data collection. The collected data were checked for completeness of information, then obtained data were edited, classified, coded, entered, and analyzed by using SPSS-16. Descriptive statistics (mean, SD, frequency, percentage) was used for statistical analysis.

## RESULTS

Table 1 shows that more than one-third of the respondents (38.7%) belonged to the age group 25-29 years with the mean age  $26.8 \pm 4.27$  years. More than half (56.2%) of them belongs to Janajati. The majority of the respondents (68%) had education up-to secondary level. Likewise, more than 70% of the respondents' husband (72.2%) also had secondary level education.

Table 2 reveals that almost 80% of the respondents (79.9%) belonged to the home manager. Regarding respondents' husband occupations, 30.9% of them were involved in business whereas only 2.1% were involved in Government service. Most of the respondents (85.1%) had an income of fewer than 50,000 rupees per month.

Table 3 shows that more than half of the respondents (57.2%) belonged to a 30-40 weeks period of gestation and 52.1% of them were multigravida and about 12.4% had a history of

**Table 1: Socio-demographic characteristics of the respondents (n=194)**

Variables	n	%
<b>Age in years</b>	<b>Mean <math>\pm</math> SD= 26.8<math>\pm</math>4.277</b>	
Below 20	13	6.7
20-24	54	27.8
25-29	75	38.7
30-34	45	23.2
35 and above	7	3.6
<b>Ethnicity</b>		
Brahmin/Chhetri (Khas/Aryan)	75	38.7
Janjati	109	56.2
Dalit	8	4.1
Madhesi	2	1.0
<b>Level of Education (Wife)</b>		
Able to read and write	6	3.1
Primary	26	13.4
Secondary	132	68.0
Bachelor degree	27	13.9
University and above	3	1.5
<b>Level of Education (Husband)</b>		
Able to read and write	1	0.5
Primary	15	7.7
Secondary	140	72.2
Bachelor degree	35	18.0
University and above	3	1.5

**Table 2: Occupation (wife and husband) and monthly family income of the respondents (n=194)**

Variables	n	%
<b>Occupation (Wife)</b>		
Home manager	155	79.9
Business	16	8.2
Private service	19	9.8
Others	4	2.1
<b>Occupation (Husband)</b>		
Agriculture	15	7.7
Business	60	30.9
Government service	4	2.1
Private service	33	17.0
Abroad worker	21	10.8
Driving	32	16.5
Labor	24	12.4
Others	5	2.6
<b>Monthly Family Income (Rs.)</b>		
Less than 50,000	165	85.1
50,000-100,000	21	10.8
100,000-150,000	3	1.5
Above 150,000	5	2.6

**Table 3: Obstetric characteristics of the respondents (n=194)**

Variables	n	%
<b>Weeks of gestation</b>		
Below 10	1	0.5
10-20	16	8.2
20-30	64	33.0
30-40	111	57.2
Above 40	2	1.0
<b>Gravida</b>		
Primi	93	47.9
Multi	101	52.1
<b>History of abortion</b>		
No	170	87.6
Yes	24	12.4
<b>Number of alive children (n=89)</b>		
1	77	86.5
2-3	12	13.5
<b>Place of delivery during last childbirth (n=89)</b>		
Health facility	80	89.9
Home	9	10.1

**Table 4: Overall Knowledge regarding Obstetric Danger Signs**

Level of knowledge	n	%
Good	6	3.1
Poor	188	96.9
<b>Total</b>	<b>194</b>	<b>100</b>

**Table 5: Knowledge of respondents regarding antenatal, intranatal and postnatal danger signs (n=194)**

Characteristics	Knowledge score (%)	Q1	Q3
Antenatal danger signs	30.0	17.5	40
Intranatal danger signs	0.0	0	20
Postnatal danger signs	25.0	0	25

abortion. Most of the respondents (86.5%) had one child and most of them (89.9%) delivered their last child at a health facility.

Table 4 depicts the overall knowledge regarding obstetric danger signs where only 3.1% of the respondents had good knowledge about obstetric danger signs.

Table 5 shows the median knowledge of respondents on obstetric danger signs during each of the three period; antenatal, intranatal and postnatal period where almost one-third (30.0%) of them knew antenatal danger signs.

**Table 6: Knowledge of respondents regarding obstetric danger signs during antenatal, intranatal and postnatal period (n=194)**

Danger signs	Knowledge of respondents regarding obstetric danger signs		
	Ante-natal (n %)	Intra-natal (n %)	Post-natal (n %)
Excessive vaginal bleeding	153 (78.9)	58 (29.9)	77 (39.7)
Severe abdominal pain	126 (64.9)	NA	NA
Swelling of hands, face and feet	30 (15.5)	NA	NA
Blurred vision	11 (5.7)	NA	NA
Severe headache	47 (24.2)	NA	NA
Chest Pain	2 (1)	NA	NA
Fits	1 (0.5)	1 (0.5)	NA
Unconscious	11 (5.7)	2 (1.0)	NA
Pre-labour rupture of membrane	93 (47.9)	NA	NA
Preterm labour	10 (5.2)	NA	NA
Prolonged labour	NA	37 (19.1)	NA
Retained placenta	NA	8 (4.1)	NA
Foul-smelling vaginal discharge	NA	NA	37 (19.1)
Fever	NA	NA	25 (12.9)
Breathing difficulty	NA	NA	1 (0.5)

\*NA=Not assessed

None of the respondents knew danger signs during intranatal period where-as one fourth (25%) of them knew postnatal danger signs.

Table 6 shows the respondents' knowledge of various danger signs during the antenatal, intranatal and postnatal periods. Excessive vaginal bleeding was the most frequently mentioned danger sign in all of the three periods (antenatal: 78.9%; intranatal: 29.9%; postnatal: 39.7%). Regarding the danger signs during the antenatal period, severe abdominal pain (64.9%) and pre-labour rupture of membrane (47.9%) were the second and third most commonly mentioned danger signs respectively. Similarly, regarding the danger signs during the intra-natal period, prolonged labour (19.1) and retained placenta (4.1%) were the second and third most commonly identified danger signs after severe vaginal bleeding. Likewise, regarding the postnatal



danger signs, foul-smelling vaginal discharge (19.1%) and fever (12.9%) were identified by the respondents' after severe vaginal bleeding.

## DISCUSSION

Our study findings revealed that only 3.1% of the respondents had good knowledge regarding obstetric danger signs which is suboptimal. This finding is consistent with study findings of Bhutan where only 4.7% of women had good knowledge of obstetric danger signs.<sup>12</sup> Another study conducted in Nigeria also had nearly consistent findings to our study where only 6% of the respondents had good knowledge about obstetric danger signs.<sup>13</sup> Similarly, in a study conducted in Rwanda, very few respondents (6.6%) knew three or more key danger signs during the three periods; antenatal, intranatal and postnatal.<sup>14</sup> Contrast findings were observed in Karnataka, India; Adama city, Ethiopia and Angolela Tera district, Northern Ethiopia where 54.70%, 44.4% and 37.5% of the respondents respectively had adequate knowledge about obstetric danger signs.<sup>15-17</sup> The differences in the knowledge level could be due to the differences in the study setting, methodology, health service coverage and education level of respondents.

Our study findings revealed that the median knowledge on obstetric danger signs during the antenatal, intranatal and postnatal periods was 30.0%, 0.0% and 25.0% respectively. Various study findings showed the differences in knowledge level during these three periods. In line with our study finding, the study conducted by Belay and Limenih<sup>18</sup> observed 28.6% knowledge during the antenatal period and 23% during the postnatal period, but contrast finding was noted in the same study during the intranatal period (34.7%). The study conducted in Eastern Ethiopia also has similar findings as ours, with regards to good knowledge on the antenatal period (28.6%) but contrast findings in intra-natal (28.6%) and the postnatal period (40.9%).<sup>19</sup> Likewise, the study conducted by Bililign and Mulatu<sup>20</sup> shows consistent findings as ours, regarding the knowledge of obstetric danger signs in the postnatal period (26.4%) but contrast findings were observed in the same study regarding the knowledge of obstetric danger signs in antenatal (46.7%) and intranatal period (27.8%) respectively. The reason behind the suboptimal knowledge during the intra-natal period might be due to the low emphasis given to these danger signs by health care providers during ANC follow up, increased hospital delivery rate as all the possible complications are managed by health care

personnel, so women might not get concerned about her condition during this period.

Regarding the danger signs during the antenatal period, in the present study, vaginal bleeding was mentioned by most of the respondents (78.9%). This finding is in line with the study conducted in different region of Ethiopia<sup>27,21-23</sup> and India.<sup>15</sup> However contrast findings were observed in the study of Madagascar (26.9%),<sup>24</sup> Saudi Arabia (15.3%),<sup>25</sup> Eastern Ethiopia (23.5%)<sup>26</sup> and Tanzania (25.5%).<sup>27</sup> There is a higher level of knowledge on vaginal bleeding in the current study as obstetric haemorrhage is the leading cause of maternal death in Nepal.<sup>28</sup> This could be due to various programmes on safe motherhood being implemented in different levels of health care system by the government.

In this study, severe abdominal pain was mentioned as a dangerous sign during the antenatal period by almost two-thirds (64.9%) of the respondents which are similar to the study finding of Jewaro *et al.*,<sup>29</sup> and Zaki *et al.*<sup>30</sup> However, study conducted in Ethiopia shows that 32.3% of the respondents knew severe abdominal pain as the danger sign.<sup>16</sup> Another study conducted in Ethiopia showed that 21% of the respondents mentioned severe abdominal pain as a danger signs during pregnancy.<sup>19</sup> Both of these studies findings were lower than our study's finding. Various other studies also showed contrast findings were also seen in many other studies.<sup>21-23,31,32</sup> The differences could be related to socio-cultural, geographical and methodological variation in the study, perception of women that some degree of abdominal pain is normal during pregnancy.

Our study findings showed that nearly half (47.9%) of the respondents spontaneously mentioned pre-labour rupture of the membrane as a danger sign during pregnancy which is nearly consistent with the study findings of Egypt (53.3%).<sup>30</sup> Study conducted in Ethiopia<sup>19</sup> showed 38.3% of the respondents mentioned the same which is less than our study's finding. However, study conducted in different regions of Ethiopia and South west Cameroon showed contrast findings ranging from 15.3% to 75.1%.<sup>23,29,33,34</sup> The reason for the low level of knowledge regarding pre-labour rupture of the membrane as a danger sign during pregnancy might be linked to the belief of many women thinking that this is normal especially when the condition is observed during late pregnancy.

Regarding another danger sign, swelling of the hand, face and feet, in the present study, only 15% of the respondents spontaneously

mentioned it as a danger sign during pregnancy. This finding is in line with various other studies findings.<sup>33,29</sup> Our study finding is lesser than the study findings of Saudi Arabia<sup>25</sup> and India<sup>15</sup> but higher than the study findings of Uganda<sup>37</sup> and different regions of Ethiopia.<sup>16,23,26,32</sup>

In the present study, almost one fourth (24.2%) of the respondents mentioned severe headache as a danger signs during pregnancy which is similar to the study findings of Ethiopia<sup>34</sup> and India.<sup>15</sup> Contrast findings were found in many other studies conducted worldwide.<sup>16,22,23,26,30,32</sup> These variations might be linked to differences in the perception of women regarding headache during pregnancy, exposure to media, health delivery system of different health care facilities.

In the present study very few of the respondents (5.7%) could spontaneously mention blurred vision as a danger sign during pregnancy. The same trend was observed in the study conducted in Cameroon<sup>33</sup> and Tsegedie district of Ethiopia<sup>34</sup> where 5.75% and 5.4% of the respondents respectively could mention blurred vision as a danger sign during pregnancy. Also, in the study of Southern Ethiopia<sup>32</sup> only 6.7% of the respondents could mention the same which is similar to our study finding. Contrast findings were seen in various other studies conducted.<sup>21-23,25,37</sup> These differences in the knowledge level could probably be related to the cultural, methodological, socio-demographic and health intervention differences.

In our study, more than one-fourth of the respondents (29.9%) could spontaneously mention severe vaginal bleeding as the danger sign during the intra-natal period. Similar findings were observed in the study of Yadeta and Kumsa<sup>26</sup> where 29.8% of the respondents could mention severe vaginal bleeding as an intra-natal danger sign. Many other study findings showed a higher proportion of respondents who could mention severe vaginal bleeding as the danger sign in the intra-natal period.<sup>16,32,34,36</sup> However, a study conducted in Saudi Arabia,<sup>25</sup> Tanzania<sup>27</sup> and Uganda<sup>37</sup> showed the respondent's knowledge to be lesser than our study findings. The reason could be the perception of women that some amount of bleeding is normal during delivery.

Prolonged labour is identified by almost one-fifth of the respondents (19.1%) in the present study. Similar findings were observed in the study of Uganda,<sup>36</sup> South West Ethiopia<sup>22</sup> and Nigeria<sup>13</sup> Contrast findings were observed in many other studies conducted.<sup>25,32,34</sup> The low level of knowledge found in our study might

reflect the health worker's behaviour that they do not focus it as a danger sign during ANC visit.

In this study, very few of the respondents (4.15%) could spontaneously mention retained placenta as a danger sign during the intra-natal period. A similar finding was observed in a study of Tanzania where 8% of the respondents could mention retained placenta as a danger sign.<sup>27</sup> Although higher than our study finding, the study findings of eastern Ethiopia<sup>26</sup> also showed only a few respondents (12.8%) could mention retained placenta as a danger sign during the intra-natal period. Contrast findings were observed in various other studies ranging from as low as 0.7% to as high as 70%.<sup>22,25,29,34,36,37</sup> The reason behind very low knowledge of respondents on the retained placenta in our study might be due to the increased access to hospital delivery where active management of the third stage of labour reduces this complication so women might have neither experienced nor heard about this complication.

Regarding the danger signs during the postnatal period, in our study, severe vaginal bleeding was mentioned by almost two-fifth (39.7%) of the respondents. A study conducted in Eastern Ethiopia<sup>26</sup> showed that 32.7% of the respondents could mention severe vaginal bleeding as the postnatal danger sign which is nearly consistent with our study finding. However, study conducted in Saudi Arabia<sup>25</sup> and Dale district, Southern Ethiopia<sup>38</sup> showed only 12.2% and 16% of the respondents respectively knew the same which is lower than our study finding. The possible reason behind the relatively low proportion of women knowing severe vaginal bleeding as a danger sign during the postnatal period might be due to the ignorance of some bleeding perceiving it as lochia which flows for 2-3 weeks normally.

Regarding another danger sign during the postnatal period, in our study, nearly one-fifth (19.1%) of the respondents could spontaneously mention foul-smelling vaginal discharge which is very close to the study finding of Mbalinda *et al.*<sup>37</sup> Study conducted by Belay *et al.*<sup>18</sup> showed that 24.4% of the respondents knew about foul-smelling vaginal discharge which is also nearly similar to our study finding. However, contrast findings were observed in various other studies conducted.<sup>22,25,26</sup>

In the present study, fever during the postnatal period was identified as a danger sign by the significantly low proportion of the respondents (12.9%). Similar findings were observed in the study of Tsegaye *et al* (12.4%)<sup>39</sup> and Mekonnen

*et al* (14.3%).<sup>22</sup> Several other studies found the respondent's knowledge on fever as a danger sign during the postnatal period to be higher than our study finding.<sup>16,18,25,26</sup> Whereas the study of Dangura<sup>38</sup> found very low knowledge (6.8%) which is lesser than our study finding. A possible explanation for this might be many women may not take fever as serious as other complications during this period, may perceive it as just a symptom seen in a flu-like illness.

In conclusion, our study findings reported that the overall knowledge of pregnant women regarding obstetric danger signs was very low. The median knowledge score on antenatal and postnatal period was nearly one-third and one-fourth respectively while zero scores were found during the intra-natal period. Vaginal bleeding was the most frequently mentioned danger sign in all of the three gestational periods; antenatal, intranatal and postnatal among many others. So, there is an urgent need to increase the knowledge of all reproductive

age group women regarding obstetric danger signs with the provision of an information, education and communication centre in each health facility targeting these groups. Also, an awareness campaign conducted at regular intervals in the community could help to increase knowledge about the danger signs in obstetrics.

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