

## ORIGINAL RESEARCH ARTICLE

# Exploring perceptions and attitudes towards pregnancy danger signs among childbearing age women in the Al-Baha Region, Saudi Arabia

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## Abstract

The World Health Organization (WHO) estimates that complications related to pregnancy and childbirth affect approximately 300 million women in developing countries, causing both acute and chronic illnesses. Direct obstetric complications such as hemorrhage, sepsis, hypertensive disorders during pregnancy, obstructed and prolonged labor, and unsafe abortion account for approximately 75% of maternal deaths. This study aimed to assess the perceptions and attitudes towards pregnancy danger signs among women of childbearing age in the Al-Baha Region, Saudi Arabia. A descriptive cross-sectional hospital-based study was conducted using simple random sampling to select 446 pregnant women. After outlining the study's goal and ensuring confidentiality, data were gathered through a pre-tested, well-designed questionnaire. Data were analyzed using Excel and SPSS version 28. The assessment of the study participants about perceptions of pregnancy danger signs revealed that many were aware of signs such as bleeding, abdominal pain, and lack of fetal movement, indicating a comprehensive understanding of potential pregnancy complications. The study participants exhibited good knowledge and relatively positive attitudes towards pregnancy danger signs. However, a significant fraction showed negative attitudes and insufficient knowledge, suggesting room for improvement in maternal health literacy. The study also found a significant relationship between sociodemographic characteristics and knowledge. Most participants had good knowledge and perceptions about pregnancy danger signs, and their attitudes were relatively positive. However, there is a need to increase awareness and improve attitudes towards pregnancy danger signs among women in the Al-Baha Region. (*Afr J Reprod Health* 2024; 28[9]: 25-31).

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**Keywords:** Perception, attitude, knowledge, pregnancy, danger signs. childbearing age women

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## Résumé

L'Organisation mondiale de la santé (OMS) estime que les complications liées à la grossesse et à l'accouchement touchent environ 300 millions de femmes dans les pays en développement, provoquant des maladies aiguës et chroniques. Les complications obstétricales directes telles que l'hémorragie, la septicémie, les troubles hypertensifs pendant la grossesse, le travail dystocique et prolongé et l'avortement à risque représentent environ 75 % des décès maternels. Cette étude visait à évaluer les perceptions et les attitudes à l'égard des signes de danger de grossesse chez les femmes en âge de procréer dans la région d'Al-Baha, en Arabie Saoudite. Une étude descriptive transversale en milieu hospitalier a été menée en utilisant un échantillonnage aléatoire simple pour sélectionner 446 femmes enceintes. Après avoir défini l'objectif de l'étude et assuré la confidentialité, les données ont été recueillies au moyen d'un questionnaire pré-testé et bien conçu. Les données ont été analysées à l'aide d'Excel et de SPSS version 28. L'évaluation des participantes à l'étude sur la perception des signes de danger de grossesse a révélé que beaucoup d'entre elles étaient conscientes de signes tels que des saignements, des douleurs abdominales et un manque de mouvement du fœtus, ce qui indique une compréhension globale des complications potentielles de la grossesse. Les participantes à l'étude ont fait preuve de bonnes connaissances et d'attitudes relativement positives à l'égard des signes de danger de grossesse. Cependant, une fraction significative a montré des attitudes négatives et des connaissances insuffisantes, ce qui suggère qu'il y a place à l'amélioration des connaissances en matière de santé maternelle. L'étude a également révélé une relation significative entre les caractéristiques sociodémographiques et les connaissances. La plupart des participantes avaient de bonnes connaissances et perceptions des signes de danger de la grossesse, et leurs attitudes étaient relativement positives. Cependant, il est nécessaire de sensibiliser davantage les femmes de la région d'Al-Baha à l'égard des signes de danger de grossesse et d'améliorer leurs attitudes à l'égard des signes de danger de grossesse. (*Afr J Reprod Health* 2024; 28 [9]: 25-31).

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**Mots-clés:** Perception, attitude, connaissance, grossesse, signes de danger, femmes en âge de procréer

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## Introduction

Pregnancy complications pose a significant health burden in developing countries<sup>1</sup>. Pregnancy danger signs (PDSs) encompass warning signs of obstetric complications experienced during pregnancy, including high blood pressure, high fever, vaginal bleeding, vision problems, and severe headaches<sup>2</sup>. High-risk pregnancies involve threats to the health or life of the mother, infant, or both due to pregnancy-related disorders<sup>3</sup>. Maternal mortality rates remain unacceptably high, with approximately 287,000 maternal deaths occurring during and after pregnancy in 2020, and the majority of these deaths, around 95%, transpired in low and lower-middle-income countries<sup>4</sup>. Recognizing and understanding PDSs is crucial for timely and appropriate referral to obstetric and newborn care, serving as the initial step in addressing obstetric complications<sup>5</sup>. Existing literature indicates a significant knowledge gap among pregnant women regarding the recognition of danger signs during pregnancy in several countries, including Jordan, the Democratic Republic of Congo, Saudi Arabia, Ethiopia, and Madagascar<sup>3,6-8</sup>. Studies conducted in these countries have consistently shown low levels of awareness among pregnant women. Alarming levels of inadequate knowledge were also reported among pregnant women attending antenatal clinics in Riyadh City, Saudi Arabia, and Debre Tabor Town, Ethiopia<sup>7,9</sup>. Moreover, a study among men residing in Debre Tabor Town, Ethiopia, revealed a low prevalence (44.8%) of knowledge regarding obstetric danger signs, emphasizing the importance of addressing the awareness gap among potential support systems<sup>10</sup>.

Insufficient awareness regarding obstetric danger signs contributes significantly to delays in accessing obstetric care, leading to elevated rates of maternal mortality and morbidity worldwide. According to the World Health Organization, improving maternal health is one of the Millennium Development Goals, aiming to reduce the maternal mortality ratio by 75% between 1990 and 2015. Despite progress, the goal remains unmet in many developing countries, highlighting the need for continued efforts and interventions<sup>11</sup>.

A comprehensive understanding of pregnancy danger signs and timely access to

obstetric care are pivotal in mitigating maternal mortality. Community-based education programs and antenatal care (ANC) visits play crucial roles in enhancing pregnant women's awareness and understanding of PDSs<sup>12</sup>. The involvement of healthcare providers, family members, and community leaders is essential in promoting positive health-seeking behaviors among pregnant women. Studies have shown that increased awareness and knowledge of PDSs among pregnant women are associated with improved health outcomes for both mothers and infants<sup>13</sup>.

Cultural beliefs and practices also influence pregnant women's perceptions and attitudes towards PDSs. In many developing countries, traditional beliefs and myths about pregnancy and childbirth can hinder women from seeking timely medical care. Addressing these cultural barriers through culturally sensitive educational interventions is vital for improving maternal health outcomes<sup>14</sup>.

This study aims to explore perceptions and attitudes toward pregnancy danger signs among women of childbearing age in the Al-Baha Region, Saudi Arabia. By identifying knowledge gaps and factors influencing attitudes, this research seeks to inform targeted interventions to enhance maternal health literacy and promote positive health-seeking behaviors in the region.

## Methods

### Study objectives

### Study design

This descriptive, cross-sectional, community-based study was conducted from September to December 2023 in the Al-Baha Region, Saudi Arabia. The study aimed to assess perceptions and attitudes towards pregnancy danger signs and identify factors influencing these perceptions and attitudes.

### Study area

The study was conducted in the Al-Baha region, located in the southwest of Saudi Arabia. The Al-Baha region is characterized by its mountainous terrain and is known for its moderate climate. According to the latest available data, the total population of the Al-Baha region is approximately 500,000.

### **Study population**

Women of reproductive age with previous pregnancy experience, residing in the Al-Baha Region, and willing to participate were included in the study. Exclusion criteria included women unwilling to participate, those not of reproductive age, those lacking previous pregnancy experience, and non-residents of the Al-Baha Region. These criteria ensured a representative and reliable sample for the study.

### **Sample size**

The sample size was determined using the Raosoft Sample size Calculator (<http://www.raosoft.com/samplesize.html>). With a 95% confidence level and a 5% margin of error, the estimated sample size was 385. This calculation considered the general population of reproductive-aged women in the Al-Baha Region.

### **Data collection and instrumentation**

Data were collected using a self-administered, electronically validated questionnaire divided into three sections:

**Socio-demographic characteristics:** Age, educational level, occupation, income, and obstetrical history (Gravida, Para, Abortion).

**Knowledge of pregnancy danger Signs:** Fifteen statements assessed women's knowledge of pregnancy danger signs, with responses of "yes," "no," or "I don't know."

**Attitudes towards pregnancy danger signs:** Ten questions assessed women's attitudes, with responses rated on a Likert scale from strongly agree (5) to strongly disagree (1).

The questionnaire was administered by the researchers involved in the study.

### **Ethical considerations**

Ethical approval was obtained from the Scientific Research and Ethics Committee of the Faculty of Medicine, Al-Baha University, Saudi Arabia (number REC/OBS/BU-FM/2024/16). Informed consent was obtained from all participants, and confidentiality was strictly maintained. The questionnaire did not collect personal information, and data were aggregated to ensure privacy.

### **Data analysis**

Descriptive statistics summarized the data, including counts, proportions (%), and mean values with standard deviations. The study used the Mann-Whitney U test, Kruskal-Wallis's test, and Pearson Chi-Square to analyze factors affecting perceptions and attitudes towards pregnancy danger signs. Non-parametric tests were chosen based on the nature of the variables and sample size, verified by the Shapiro-Wilk and Kolmogorov-Smirnov tests. A p-value of less than 0.05 was considered statistically significant. All statistical analyses were performed using SPSS version 28.

### **The scoring system**

Knowledge of pregnancy danger signs was assessed using 15 questions, each with three response options: Yes (1 point), No (0 points), and I'm not sure (0 points). Scores were summed, with a score of 10 or higher indicating adequate knowledge.

Attitudes were assessed using 10 questions rated on a Likert scale, with total scores summed. A score of 36 or higher indicated a good attitude, while scores below 36 indicated a poor attitude.

## **Results**

### **Sociodemographic characteristics of study participants**

The majority of participants were above 40 years old (40.4%), married (95.3%), and had high-level education (76.2%). Most were employed (56.7%) and had a monthly income between 5000 and 10000 S.R (31.2%) as shown in Table 1.

### **Obstetric history**

The majority (85.4%) had previous pregnancies, with a significant number having four or more pregnancies (60.6%). More than half had no previous abortions (54.9%) and no previous stillbirths (86.8%) as shown in Table 2.

### **Pregnancy follow-up and symptoms history**

Table 3 shows that most participants (95.1%) reported following up with their doctor during pregnancy. A significant proportion attended three or more visits (57.6%).

**Table 1:** Sociodemographic characteristics of study participants (n = 446)

Characteristic	N	%
Age		
18-25 years old	35	7.8
26-30 years old	58	13.0
31-35 years old	68	15.2
36-40 years old	105	23.5
More than 40 years old	180	40.4
Marital Status		
Married	425	95.3
Divorced	15	3.4
Widowed	6	1.3
Education		
Illiterate	2	0.4
Primary / Middle school	23	5.2
High school	58	13.0
Diploma	23	5.2
High-level education	340	76.2
Employment Status		
Housewife	159	35.7
Employed	253	56.7
Student	15	3.4
Retired	19	4.3
Monthly Income		
Less than 5000 S.R	108	24.2
5000 to 10000 S.R	139	31.2
10000 to 15000 S.R	119	26.7
More than 15000 S.R	80	17.9

**Table 2:** Obstetrical history of study group (n = 446)

Item	n	%
First pregnancy?		
No	381	85.4
Yes	65	14.6
Number of pregnancies		
1	19	5.0
2	60	15.7
3	71	18.6
4 or more	231	60.6
Previous abortions		
None	245	54.9
Yes, once or twice	163	36.5
Yes, three times or more	38	8.5
Previous stillborns		
None	387	86.8
Yes, once or twice	55	12.3
Yes, three times or more	4	0.9

**Table 3:** Pregnancy follow-up and symptom history (n = 446)

Item	n	%
Doctor follow-up during pregnancy?		
No	22	4.9
Yes	424	95.1
Number of follow-up visits		
One time	49	11.0
Two times	45	10.1
Three times or more	257	57.6
If needed	73	16.4
Never visit	22	4.9
Experienced signs during pregnancy?		
No	211	47.3
1-2 times	207	46.4
3 or more times	28	6.3

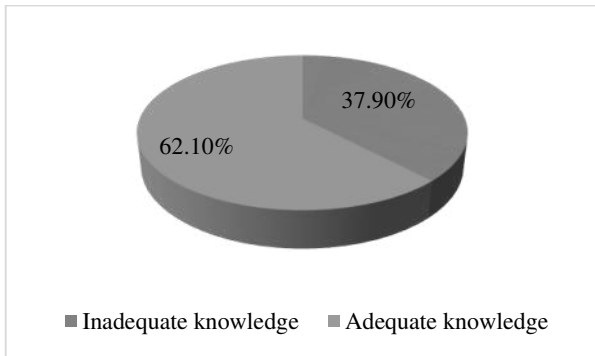
**Table 4:** Perceptions and attitudes towards pregnancy danger signs (n = 446)

Item	n	%
<b>Knowledge about hazards</b>		
Poor	57	12.8
Acceptable	3	0.7
Good	14	3.1
Very good	178	46.2
Excellent	119	26.7
<b>Source of information</b>		
Doctor	314	70.4
Social media	223	50.0
Friends and family	184	41.3

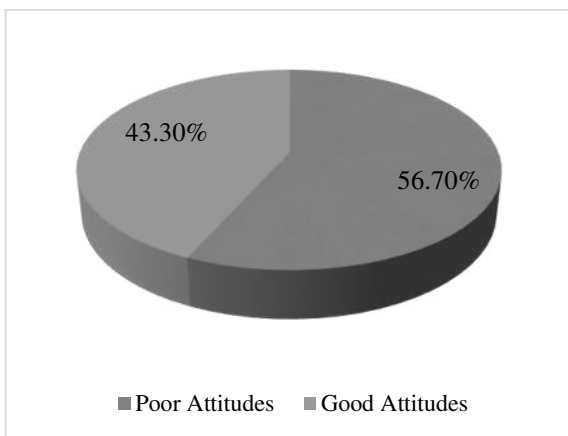
Almost half of the participants (47.3%) reported not experiencing listed pregnancy danger signs, while 46.4% experienced them 1-2 times.

### *Perceptions and attitudes towards pregnancy danger signs*

Most participants recognized bleeding (93.0%) and edema (63.2%) as dangerous signs. A significant portion reported having very good (46.2%) or excellent knowledge (26.7%) about pregnancy danger signs. Doctors were the most common information source (70.4%) as shown in Table 4. The participants had an average knowledge score of 10.1502 out of 15, indicating good knowledge. However, 37.9% were categorized as having inadequate knowledge.



**Figure 1:** The level of perceptions towards pregnancy danger signs among study participants (n = 446)



**Figure 2:** The Level of Attitudes Towards Pregnancy Danger Signs Among Study Participants (n = 446)

The participants had a relatively positive overall attitude, with an average score of 36.2937 out of 50. However, 56.7% had poor attitudes, indicating a need for improvement.

## Discussion

The sociodemographic characteristics of the study participants provide a comprehensive understanding of the profile of women of childbearing age in the Al-Baha region of Saudi Arabia. The findings indicate that most participants were over 40 years old, married, and had a high level of education, which aligns with previous research conducted in Riyadh City, Saudi Arabia, where a significant portion of participants were also older women with higher education levels<sup>7,9</sup>. The correlation between high education levels and increased knowledge about pregnancy danger signs

suggests that education plays a critical role in maternal health literacy<sup>15</sup>.

The obstetric history of the participants revealed that the majority had multiple pregnancies, with a significant proportion having experienced previous abortions and stillbirths. This underscores the importance of continuous education and support for women throughout their reproductive years, as previous pregnancy experiences can influence their awareness and attitudes towards pregnancy danger signs<sup>5,16</sup>.

The high percentage of women who reported following up with their doctor during pregnancy reflects a proactive approach to maternal health. This is consistent with other studies that emphasize the importance of regular antenatal care visits in improving maternal and neonatal outcomes<sup>12,13</sup>. However, despite frequent follow-ups, a notable proportion of women still reported experiencing pregnancy danger signs, highlighting the need for enhanced education and intervention strategies even among those who regularly attend antenatal care services. Perceptions and attitudes towards pregnancy danger signs were generally positive, with many participants recognizing critical symptoms such as bleeding and edema as dangerous. This awareness is crucial for timely medical intervention and aligns with the goals of global maternal health initiatives aimed at reducing maternal mortality<sup>1,13</sup>. However, the existence of a significant minority with inadequate knowledge and negative attitudes indicates persistent gaps that need to be addressed through targeted educational programs.

The study also found that doctors were the primary source of information about pregnancy danger signs, followed by social media, friends, and family. This reliance on healthcare professionals for accurate information is beneficial but also highlights the potential for misinformation through informal channels. Ensuring that healthcare providers are well-equipped to educate their patients and leveraging social media for disseminating accurate health information could bridge these gaps<sup>17,18</sup>. The relationship between sociodemographic factors and knowledge levels underscores the importance of tailored health education.

Women with higher parity and those who had experienced pregnancy complications had better knowledge about pregnancy danger signs, suggesting that personal experience enhances awareness. However, there was no significant association between sociodemographic factors and attitudes towards pregnancy danger signs, indicating that other factors might influence attitudes, which warrants further investigation<sup>6,19</sup>.

While the majority of women in the Al-Baha region demonstrate good knowledge and positive attitudes towards pregnancy danger signs, there remains a critical need for targeted educational interventions to address the gaps identified. Improving maternal health literacy through continuous education, leveraging both healthcare providers and social media, and focusing on at-risk subgroups can significantly enhance maternal and neonatal outcomes in the region<sup>20,21</sup>.

## Conclusion

The study concluded that most women of childbearing age in the Al-Baha Region have good knowledge and positive attitudes towards pregnancy danger signs. However, there remains a notable minority with inadequate knowledge and negative attitudes, indicating room for improvement in maternal health literacy.

## Limitations

The study's limitations include the reliance on self-reported data, which may be subject to recall bias, and the cross-sectional design, which limits the ability to establish causality. Future research should consider longitudinal studies to better understand the dynamics of knowledge and attitudes over time and explore the impact of targeted interventions.

## Contribution of authors

Amira Elnour Eltayeb Elbashir designed the study and supervised the project. Ghadi S. Alghamdi and Ghayda A. Alghamdi contributed to data collection and analysis. Shatha Ahmed J Alzahrani, Hanin Jamaan H. Alghamdi, Shaima Khalid Al Zahrani, Ghaidaa S. Alowaid, and Nada Ali M. Alghamdi participated in manuscript writing and editing.

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Hammad Ali Fadlalmola supervisor and manuscript writing and editing and data analysis. All authors read and approved the final manuscript.

## Availability of data and material

All data and materials related to this study are available upon request from the corresponding author.

## Funding

The author declares that there were no grants or funding received for this study

## Ethics approval and consent to participate

Ethical approval for this study was granted by the Scientific Research and Ethics Committee of the Faculty of Medicine, Al-Baha University, Saudi Arabia (number REC/OBS/BU-FM/2024/16). Participants provided informed consent, and confidentiality was strictly maintained.

## Competing interest

The author declares no conflicts of interest related to the publication of this article.

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