

Master of Science in Public Health



**Awareness Regarding Danger Signs and Barriers to
Health Seeking in Pregnant Women Attending BBH
Filter Clinic, Rawalpindi**

By

(Tayyaba Mudassar)

**Al-Shifa School of Public Health, PIO,
Al Shifa Trust Eye Hospital
Quaid-i-Azam University
Islamabad, Pakistan**

(2024)

***(Awareness Regarding Danger Signs and Barriers to
Health Seeking in Pregnant Women Attending BBH
Filter Clinic, Rawalpindi)***

(Tayyaba Mudassar)

(362920-PIO/MSPH-2022)

**Dissertation submitted in partial fulfilment of the requirement for the
degree of:**

MASTER OF SCIENCE IN PUBLIC HEALTH (2024)

to

**Al-Shifa School of Public Health, PIO, Al Shifa Trust Eye Hospital,
Faculty of Medicine
Quaid-i-Azam University,
Islamabad.**

Word Count: 9768

Declaration

In submitting this dissertation, I certify that I have read and understood the rules and regulations of DPH and QAU regarding assessment procedures and offences and formally declare that all work contained within this document is my own apart from properly referenced quotations.

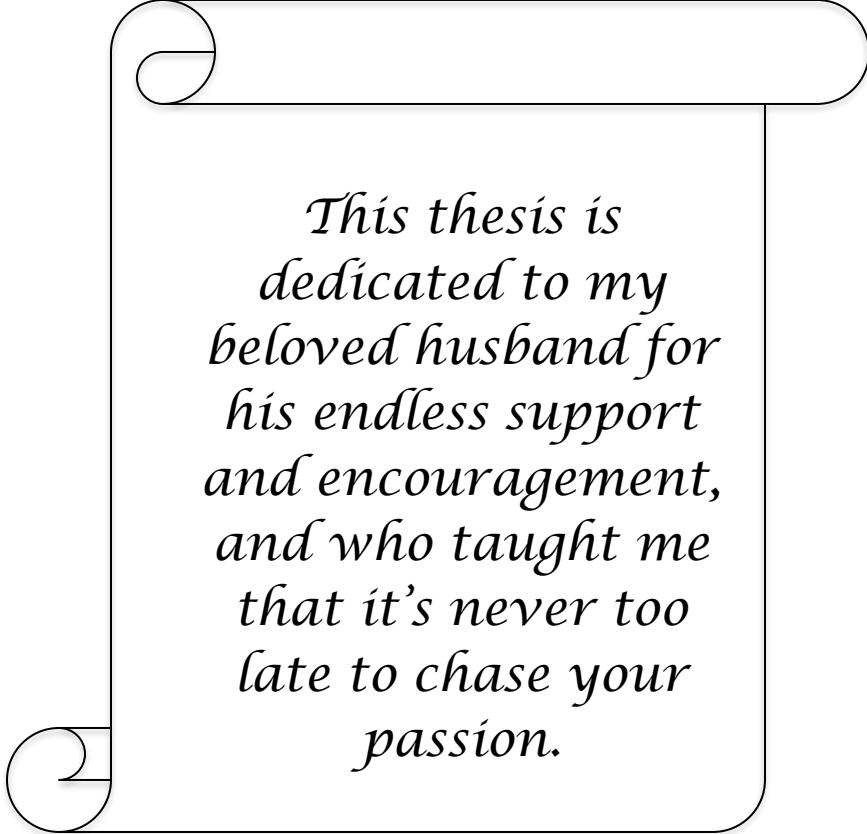
I understand that plagiarism is the use or presentation of any work by others, whether published or not, and can include the work of other candidates. I also understand that any quotation from the published or unpublished works of other persons, including other candidates, must be clearly identified as such by being placed inside quotation marks and a full reference to their source must be provided in proper form.

This dissertation is the result of an independent investigation. Where my work is indebted to others, I have made acknowledgments.

I declare that this work has not been accepted in substance for any other degree, nor is it currently being submitted in candidature for any other degree.

(Dr. Saman Waqar,
Assistant Professor,
Al-Shifa School of Public Health
PIO, Al Shifa Trust Eye Hospital
Date:

(Tayyaba Mudassar)
(362920-PIO/MSPH-2022)
MSPH (2024)
Date:



*This thesis is
dedicated to my
beloved husband for
his endless support
and encouragement,
and who taught me
that it's never too
late to chase your
passion.*

ABSTRACT

Background: Maternal health relates to the well-being of a woman during pregnancy, childbirth, and the postpartum period. The unfortunate death of these women, often occurring during their active working years, not only affects individuals and families but also has broader societal and economic impacts in their respective countries.

Objectives: This study was aimed to assess the level of awareness of danger signs and barriers to health seeking during pregnancy among the pregnant women attending Filter Clinic in BBH, Rawalpindi. It was also intended to determine the association of awareness and practices among pregnant women during pregnancy with sociodemographic factors like education, monthly income etc. and to find out the determinants of awareness of danger signs and practices during pregnancy.

Methodology: A cross-sectional study was carried out at BBH filter clinic Rawalpindi city. A total of 366 pregnant women were selected through non-probability consecutive sampling. Data were collected using validated tool Johns Hopkins Program for International Education in Gynecology and Obstetrics (JHPIEGO's) Maternal and Neonatal Program. Data were entered and analyzed using SPSS version 26.0. Pearson Chi Square test of Independence and binary logistic regression were applied to find out the association of awareness regarding danger signs and barriers to healthcare and association of practices with sociodemographic factors.

Results: Among the 366 respondents, majority of them were in age bracket of 31-40 years (n= 156). Results of present study showed that slightly more than half respondents reported poor awareness regarding danger signs during pregnancy (n= 190). Furthermore, it was

found that (51%, n= 185) of the women reported poor practices during pregnancy. It was also observed that women with higher education level (bachelors) were nearly 3 times more likely to have good practices as compared to those who were illiterate (p= 0.01). Number of children, religion, ethnicity did not show any significant association with awareness, knowledge and practices regarding danger signs and barriers during pregnancy.

Conclusion: The present study indicated that, on the whole, the population revealed somewhat insufficient practices and awareness regarding danger signs. The primary determinants of awareness regarding these danger signs were found to be the educational level of women (p-value=0.003) and their monthly income (p-value=0.002).

Key-words: Awareness, Barriers, BBH, Danger Signs, Filter Clinic, Health Seeking, Pregnant Women, Pakistan, Rawalpindi.

ACKNOWLEDGMENTS

In the name of Allah, the most Merciful and Beneficent

First of all, I am thankful to Allah Almighty, the most merciful and beneficent, for making the journey of my life till this point, including the completion of my thesis, which is a blessing indeed. My best gratitude to my thesis supervisor, **Dr. Saman Waqar**, without her expertise and guidance this would not have been possible. In spite of her busiest and tiring routine, she had always provided me with her skillful guidance and worthy suggestions throughout this time. I would like to thank all my teachers who advanced my early and professional development during my education life. I would also like to pay my gratitude to the hospital administration who permitted me to collect data. My deepest gratitude to the patients who had spared their precious time and provided me required information for the completion of my study. I owe my supreme gratitude towards my parents for their unconditional love and support for me. They had always supported me in each and every phase of life. I would also like to extend my gratitude to my dear family, who owe me a big time for their support throughout my research work. I humbly thanks to all the persons who have supported me in this regard.

TABLE OF CONTENTS

Declaration.....	iii
ABSTRACT.....	v
ACKNOWLEDGMENTS	vii
TABLE OF CONTENTS.....	viii
LIST OF TABLES	xi
LIST OF FIGURES	xii
LIST OF ABBREVIATIONS.....	xiii
CHAPTER I: INTRODUCTION.....	1
1.1. Rationale:	2
1.2. Objectives:	3
CHAPTER II: LITERATURE REVIEW	4
2.1 Studies done on Global, Regional and National level Regarding Awareness and Practices about Danger Signs during Pregnancy:	4
2.2 Prevalance of Danger Signs and Barriers to Health Seeking in Pregnant Women:.....	6
2.3 Awareness of Danger Signs and Health Seeking among Pregnant Women:.....	7
2.4 Practices Regarding Danger Signs and Health Seeking among Pregnant Women:.....	9
2.5 Conceptual Framework:.....	11
2.6 Operational Definitions:.....	12
2.6.1 Obstetric Danger Signs (ODS):	12
2.6.2 Healthcare-Seeking Behavior:	12
2.6.3 Pregnant Women:.....	12
2.6.4 Antenatal Care:	12
CHAPTER III: METHODOLOGY	13
3.1 Study design.....	13
3.2. Study Duration:	13
3.3. Study Setting:.....	13

3.4. Study Participants:	13
3.4.1. Inclusion Criteria:	13
3.4.2. Exclusion Criteria:	13
3.5. Sample Size Calculation:	14
3.6. Sampling Strategy:.....	15
3.7. Data Collection Tool:.....	16
3.7.1. Questionnaire Design:.....	16
3.7.2. Content of the Questionnaire:	16
3.8. Data Collection Process:	17
3.8.1. Pilot Testing:.....	17
3.8.2. Data Collection:	18
3.9. Data Analysis Procedure:.....	18
3.9.1. Data Cleaning:	18
3.9.2. Data Transformation:	18
3.9.3. Descriptive Analysis:	19
3.9.4. Inferential Analysis:.....	19
3.10. Ethical Considerations:	20
CHAPTER IV: RESULTS.....	21
4.1. Demographic characteristics:.....	21
4.2. Awareness of Danger Signs during Pregnancy:.....	26
4.2.1. Practices during Pregnancy:.....	27
4.3. Association of Sociodemographic characters with Awareness of Danger Signs during Pregnancy:	27
4.4. Association of Sociodemographic characters of Women with Practices during Pregnancy:.....	29
4.5. Logistic Regression Results:.....	31
CHAPTER V: DISCUSSION.....	34
5.1. Strengths:	37
5.2. Limitations:	37

5.3. Conclusion:	37
5.4. Recommendations:.....	38
References.....	39
Appendix A – Questionnaire	44
Appendix B – Consent Form	49
Appendix C – IRB Letter.....	50
Appendix D - Budget.....	51
Appendix E – Gantt Chart.....	52

LIST OF TABLES

Table 1: Sociodemographic variables of the women	21
Table 2: Association of Awareness regarding Danger Signs in Pregnancy with Sociodemographic characters	28
Table 3: Association of Sociodemographic characters of Women with their Practices during Pregnancy	30
Table 4: Determinants of Awareness of Danger Signs Pregnancy	31
Table 5: Determinants of Practices during Pregnancy	32

LIST OF FIGURES

Figure 1: Conceptual framework for assessing health care seeking behavior of obstetric danger signs	11
Figure 2: Sample size for the current study	14
Figure 3: Sampling strategy	15
Figure 5: Reliability of Questionnaire measuring awareness of danger signs during pregnancy	17
Figure 6: Reliability of Questionnaire measuring practices during pregnancy	18
Figure 7: Data Analysis Plan	19
Figure 8: Education of Husband	22
Figure 9: Monthly Income	23
Figure 10: Total number of children	24
Figure 11: Ethnicity	25
Figure 12: Awareness and Knowledge about Danger signs during pregnancy	26
Figure 13: Attitude and Practices of Women during Pregnancy	27

LIST OF ABBREVIATIONS

ANC	Antenatal Care
BBH	Benazir Bhutto Hospital
CI	Confidence Interval
DICMH	Data and Information Center Ministry of Health
IMR	Infant Mortality Rate
IRB	Institutional Review Board
MDG	Millennium Development Goals
MMR	Maternal Mortality Rate
NICHD	National Institute of Child Health and Human Development
ODS	Obstetric Danger Signs
SPSS	Statistical Package for Social Sciences
UNICEF	United Nations International Children's Emergency Fund
WHO	World Health Organization

CHAPTER I: INTRODUCTION

Warning signs of pregnancy encompass indicators that women may experience during pregnancy, childbirth, and the postpartum period. It is crucial for both women and healthcare providers to be aware of these warning signs to identify and address serious complications promptly. The primary danger signs during pregnancy, posing an elevated risk of maternal mortality, include: vaginal bleeding, convulsions or fits, high fever, abdominal pain, severe headaches, blurred vision, absence of fetal movements, a sudden gush of fluid from the vagina, and foul-smelling vaginal discharge (Kabakyenga et al., 2011). In the developing world, a lack of awareness regarding the dangerous signs of pregnancy among women, families, and birth attendants is a prominent factor contributing to maternal deaths (Wajid et al., 2010).

Signs indicating pregnancy risks encompass symptoms that could pose threats to both the pregnant woman and her fetus, warranting urgent medical care. During labor and childbirth, these danger signs may include severe vaginal bleeding, prolonged labor, and convulsions. In the postpartum phase, dangerous signs involve severe bleeding after childbirth, loss of consciousness post-delivery, and fever. In low income countries maternal mortality due to childbirth related complication could be prevented if pregnant women recognize dangerous signs and seek immediate obstetric care. In low-income countries, reducing maternal mortality from childbirth-related complications relies on pregnant women being able to identify warning signs and promptly seeking immediate obstetric care (Agboola A., 2008).

The recognition of obstetric danger signs by women and their families, coupled with timely healthcare-seeking behavior, has the potential to substantially decrease maternal morbidity and mortality. Enhanced knowledge about obstetric danger signs facilitates early problem detection and improves decision-making, leading to better access to appropriate healthcare (UNICEF, 2010). According to UNICEF, Pakistan exhibits a neonatal mortality rate of 8.6%. A recent study examining neonatal and maternal mortality in Pakistan, India, Guatemala, Argentina, Kenya, and Zambia indicated that Pakistan had the most alarming statistics regarding maternal and neonatal health mortality among these countries (Pasha et al., 2015). There is a lack of clear data indicating the level of awareness regarding pre-natal danger signs in Pakistan.

Empowering women and their families to identify obstetric dangerous signs and seek healthcare services promptly can prevent a substantial portion of maternal morbidity and mortality. Enhancing women's understanding of these signs would facilitate early problem detection, reducing delays in deciding to seek obstetric care. Consequently, a vital strategy for mitigating maternal mortality involves elevating awareness of obstetric danger signs among women, their families, and the broader community (UNICEF, 2010).

1.1. Rationale:

Maternal mortality is linked to insufficient awareness and a lack of education about danger signs during pregnancy. Poverty stands out as a predominant factor contributing to maternal mortality in low-income countries. Addressing this critical issue necessitates a concerted effort involving healthcare providers, public health officials, communities, policymakers, and religious groups.

Numerous studies worldwide have researched into health-seeking behaviors during pregnancy and also danger signs during pregnancy, aiming to uncover critical aspects of this matter. In Pakistan, existing literature predominantly focuses on dietary patterns, lifestyle changes during pregnancy, and their related risk factors. However, there's a noticeable shortage of literature spotlighting awareness of danger signs during pregnancy. As a response, the present study was undertaken to evaluate the awareness level in pregnant women attending BBH filter clinic in Rawalpindi regarding danger signs and barriers to health seeking in pregnant women during pregnancy.

The findings of this study will contribute to the existing literature, highlighting areas that require interventions to enhance knowledge and awareness of danger signs during pregnancy in Filter Clinic BBH, Rawalpindi. These results will serve as a solid foundation for future research endeavors and evidence-based interventions, ultimately leading to improved maternal and neonatal health outcomes in the region.

1.2. Objectives:

1. To assess the level of awareness of danger signs and barriers to health seeking during pregnancy among the pregnant women attending Filter Clinic in BBH, Rawalpindi district, Pakistan.
2. To find out the determinants of awareness of danger signs and practices during pregnancy.
3. To determine association of awareness and practices among pregnant women during pregnancy with sociodemographic factors.

CHAPTER II: LITERATURE REVIEW

Maternal morbidity and mortality persist as a significant public health concern in low- and middle-income nations, despite notable advancements in maternal health since the adoption of the Millennium Development Goals (MDGs) in 2000. Approximately 303,000 women lost their lives due to pregnancy and childbirth complications in 2015, predominantly in rural areas with limited resources across developing countries (Bustreo et al., 2013). In 2015, Cambodia exhibited the third-highest rates of neonatal mortality (15 per 1,000 live births), under-five mortality (29 per 1,000 live births), and maternal mortality (161 per 100,000 live births) in Southeast Asia. These figures stood higher than the regional averages of 13 per 1,000, 27 per 1,000, and 110 per 100,000 live births, respectively. In 2010, 40% of women in Cambodia did not access all three crucial Maternal, Newborn, and Child Health (MNCH) services, which include Antenatal Care (ANC), delivery with skilled-birth attendance, and Postnatal Care (PNC) (Wang & Hong., 2015).

2.1 Studies done on Global, Regional and National level Regarding Awareness and Practices about Danger Signs during Pregnancy:

Oechsle et al. carried out research in 2020 in Germany. It was a cross-sectional study. This study aimed to investigate pregnant women's level of knowledge of lifestyle-related risk factors during pregnancy and their potential health impact on their offspring, and the factors affecting women's knowledge of lifestyle-related risk factors during pregnancy. Information derived from a study involving 209 pregnant women highlighted significant knowledge gaps regarding lifestyle-related risk factors during pregnancy and their potential health consequences. Socioeconomic factors, such as lower household net income, a middle level of education, and statutory health

insurance status, were found to influence women's awareness of lifestyle-related risk factors during pregnancy. Notably, those who received information from their gynecologist exhibited a higher level of knowledge concerning these risk factors during pregnancy (Anja et al., 2020).

Amrita et al. carried out a research in 2020 in India. It was a cross-sectional study. The primary goals of the study were to evaluate the awareness of pregnancy danger signs among pregnant women receiving antenatal care and to provide health education to enhance their understanding of both risk factors and danger signs associated with pregnancy. A total of 210 pregnant women were selected for data collection who were visiting antenatal care clinic. The findings of the study revealed that majority of participants demonstrated awareness of the significance of iron and folic acid, with 72% recognizing the importance of knowing their blood group during pregnancy. Additionally, a substantial 91% expressed a preference for hospital delivery over home delivery. However, it was observed that all 210 women were familiar with only three danger signs: bleeding per vagina, loss of consciousness, and convulsions (Amrita N. et al., 2020).

Afsha et al. conducted research in 2023 in Karachi, Pakistan. It was a cross-sectional study. The aim of the study was to assess Pakistani pregnant women's awareness regarding the danger signs of pregnancy. The total 114 pregnant women were selected for data collection who were visiting tertiary care hospital in Karachi. Results of the study showed that 18% of the participants had a low level of awareness, 62% had a moderate, and 20% had a high level of awareness regarding danger signs of pregnancy (Afsha et al., 2023).

2.2 Prevalance of Danger Signs and Barriers to Health Seeking in Pregnant Women:

Bijaya et al. carried out research in 2022 in Nepal. It was a cross-sectional study. The study was conducted to assess the knowledge of obstetric danger signs among pregnant women. The study enrolled 194 pregnant women who visited the Gynecology Outpatient Department. The study discovered that the general understanding of obstetric danger signs was below the desired level (3.1%). Respondents had a median knowledge score of 30.0% for antenatal danger signs and 25% for postnatal danger signs. Across all three gestational periods, severe vaginal bleeding was the most commonly cited danger sign (antenatal: 78.9%, intra-natal: 29.9%, postnatal: 39.7%) (Bijaya et al., 2022).

Junko et al. conducted a cross-sectional survey in 2018 in Cambodia. The study investigated the obstacles faced by pregnant women residing in rural, agricultural villages when accessing Antenatal Care (ANC). The total of 377 mothers were included for the study. Findings of the study revealed that several factors were found to correlate positively with attaining ANC4+ (four or more antenatal care visits). These included the mother having secondary or higher education, being aware of the recommended ANC, and having knowledge about the recommended frequency of ANC visits. However, actual travel distance had a negative association with achieving ANC. Specifically, mothers who had to travel between 10.0–14.9 km were 68% less likely, and those who had to travel 15.0 km or more were 79% less likely to have achieved ANC compared to those who traveled 5.0 km or less (Junko et al., 2018).

Rashidul et al. carried out cross-sectional study in 2023 in Bangladesh. The research evaluated the direct, indirect, and overall impact of predictive factors on the seeking of neonatal care. Results

of the study showed that among the surveyed mothers, half reported cases of neonatal illness. Surprisingly, only 36.5% of these mothers with sick neonates sought care from qualified providers. Maternal health utilization factors—specifically, having 4 or more antenatal care (ANC) visits from a qualified provider, opting for facility delivery, and postnatal care (PNC) from a qualified provider—demonstrated the most significant overall impact compared to other factors (Rashidul et al., 2023).

Nusrat et al. carried out a research in 2020 in Karachi, Pakistan. It was a cross-sectional study. The objectives of the study were twofold: first, to evaluate the knowledge of pregnant women concerning neonatal danger signs, and second, to assess their healthcare-seeking behavior. The total 468 women were selected for the study. Findings of the study revealed that 15% of the subjects exhibited a high level of knowledge, whereas 78% were able to identify at least one danger sign. Additionally, 82% of the participants expressed a preference for seeking healthcare at a hospital or clinic (Nusrat et al., 2020).

2.3 Awareness of Danger Signs and Health Seeking among Pregnant Women:

Ratna & Agung conducted a study in 2020 in Indonesia. The total 85,832 women of childbearing age (15–49 years old) were selected. The study aimed to examine the factors influencing the awareness and understanding of pregnancy danger signs. Findings of the study showed that urban women showed a 1.124 times higher likelihood of comprehending pregnancy danger signs compared to rural women. Moreover, older women displayed a better identification of pregnancy danger signs compared to those aged 15–19 years. Additionally, women who were presently

pregnant exhibited 1.229 times better understanding of pregnancy danger signs than women who were not currently expecting (Ratna & Agung., 2020).

Neil et al. carried out research in 2018 in Ethiopia. It was a cross-sectional study. The objective of the study was to assess the awareness level regarding pregnancy danger signs among mothers attending Antenatal Care (ANC) in both urban and rural health centers in Ethiopia, and to identify the factors associated with this awareness. The total 502 pregnant women were selected for the study. Results of the study showed that 24.1% of mothers exhibited a strong awareness of pregnancy danger signs. Factors such as maternal age, educational attainment, the location of the most recent delivery, residency, and understanding of the dangers signs causing problems or fatalities to the mother were independently linked to women's awareness regarding pregnancy danger signs (Neil et al., 2018).

Teng et al. conducted cross-sectionl study in 2015 in Malaysia. The major aim was to evaluate the degree of knowledge concerning pregnancy danger signs among women attending antenatal care and to identify the factors linked with this knowledge. Total 178 antenatal women were selected for data collection. Results showed that over half of the antenatal women exhibited a deficiency in understanding pregnancy danger signs. The study identified a significant correlation between the women's age, educational level, employment status, and monthly household income with their level of knowledge regarding these danger signs (Teng et al., 2015).

Anaam et al. carried out research in 2017 in Egypt. The goal of study was to evaluate the awareness and behaviors of pregnant women concerning the warning signs indicating obstetric complications. A total sample of 200 pregnant women were selected. Results of the study showed that the most commonly identified danger signs during pregnancy were vaginal bleeding, severe

abdominal pain, and a gush of water from the vagina, reported by more than two-thirds, over half, and nearly half of the women, respectively. During labor and the postpartum period, vaginal bleeding was the most recognized danger sign, mentioned by approximately one-third and slightly more than one-third of the women, respectively. Additionally, the majority of women sought consultation with a doctor when these danger signs appeared (Anaam et al., 2017).

2.4 Practices Regarding Danger Signs and Health Seeking among Pregnant Women:

Sufiyan et al. conducted research in 2016 in Nigeria. It was a cross-sectional study. The objective of the study was to investigate the understanding, attitude, and perceptions regarding pregnancy danger signs among women between 15 and 49 years of age, within the childbearing bracket. The study was conducted among 185 women of reproductive age group. Results of the study revealed that only 4.9% of the respondents demonstrated a strong understanding of pregnancy danger signs, while 3.8% exhibited a positive attitude toward these signs. Additionally, only one in ten respondents, approximately 10.3%, held a favorable perception of pregnancy danger signs (Sufiyan et al., 2016).

Daniel et al. conducted cross-sectional study in Ethiopia in 2021. The primary goal of this study was to evaluate the healthcare-seeking behavior concerning obstetric danger signs among both pregnant women and those who had recently given birth. Data were collected from 363 pregnant and delivered mothers. Results of the study disclosed that among the participants, 58.1% sought appropriate healthcare action for obstetric danger signs. The study highlighted significant associations between appropriate healthcare-seeking behavior and factors such as having ANC

follow-ups, possessing knowledge about danger signs, making independent decisions regarding healthcare seeking, and being unable to assess the seriousness of their condition (Daniel et al., 2021).

Hiba et al. carried out cross-sectional study in 2019 in Iraq. The primary aim of this study was to evaluate the comprehension levels and healthcare-seeking behaviors among mothers attending primary healthcare centers concerning the World Health Organization (WHO) recognized danger signs in newborns. Total 275 mothers of child-bearing age group were selected. Findings of the study showed that around 81% of mothers in the study sample could identify three or more WHO-recognized danger signs. Approximately 71.7% of these mothers preferred seeking advice or treatment outside their homes. Among those with better knowledge and health-seeking practices were educated, employed mothers who had a history of attending antenatal care with higher visit counts. Mothers with good knowledge of danger signs for their babies tended to seek care from health facilities more frequently (75%), a statistically significant correlation. However, 61.2% of mothers who noticed illness in newborns delayed seeking advice or treatment outside the home, and 66% refrained from taking their newborns to health facilities, expecting the illness to resolve by itself. Mothers exhibited strong knowledge and perception of certain danger signs like fever, poor feeding, and jaundice, but their understanding was more moderate regarding signs like cold body, chest indrawing, and local infections (Hiba et al., 2019).

2.5 Conceptual Framework:

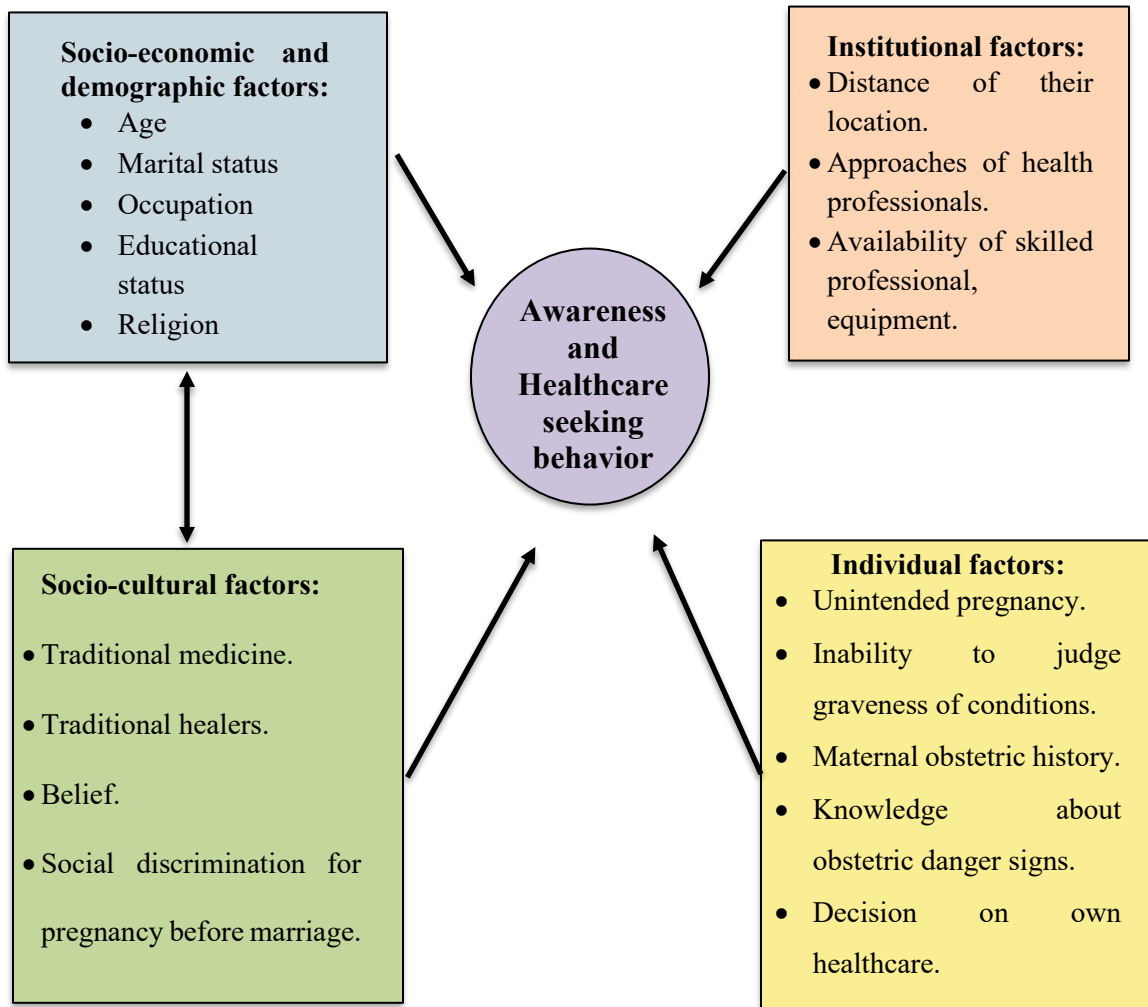


Figure 1: Conceptual framework for assessing health care seeking behavior of obstetric danger signs

2.6 Operational Definitions:

2.6.1 Obstetric Danger Signs (ODS):

Obstetric danger signs (ODS) refer to the loss of consciousness; persistent vomiting; severe persistent abdominal pain; vaginal bleeding; swelling of face, fingers and feet; blurring of vision; fits of pregnancy; severe recurrent frontal headache; and high-grade fever (Nega et al., 2020).

2.6.2 Healthcare-Seeking Behavior:

Healthcare-seeking behavior encompasses any actions or steps individuals take when they perceive themselves to have a health problem or illness, aiming to seek an appropriate remedy or solution (Zeyene et al., 2022).

2.6.3 Pregnant Women:

Pregnancy is the term used to describe the period in which a fetus develops inside a woman's womb or uterus. Pregnancy usually lasts about 40 weeks, or just over 9 months, as measured from the last menstrual period to delivery (National Institute of Child Health and Human Development (NICHD), 2017).

2.6.4 Antenatal Care:

Antenatal healthcare is defined by the WHO as the “care a pregnant mother receives before birth”, and involves education, screening, counseling, treatment of minor ailment, and immunization services (Akowuah et al., 2018).

CHAPTER III: METHODOLOGY

3.1 Study design

A quantitative research approach using cross-sectional study design was used for the current study.

3.2. Study Duration:

Study period for the current research was six months from September 2023-February 2024.

3.3. Study Setting:

The study was carried out at BBH (Benazir Bhutto Hospital) Filter Clinic Rawalpindi, Pakistan.

3.4. Study Participants:

Pregnant women visiting BBH Filter Clinic were included in the study.

3.4.1. Inclusion Criteria:

- Pregnant women attending Filter Clinic BBH, Rawalpindi district, Pakistan.
- Women of all ages who are currently pregnant or within six weeks after giving birth.
- Women with more than 18 years age.
- Women who are resident of Rawalpindi city.

3.4.2. Exclusion Criteria:

- Pregnant women who are unable or unwilling to provide information.

- Women who are experiencing severe health conditions or complications that hinder their ability to participate in the study.
- Women who do not meet the eligibility criteria of being pregnant or having recently given birth.
- Women who are unable to communicate effectively in the study's language of data collection (e.g., language barriers).

3.5. Sample Size Calculation:

Sample size was calculated using proportion formula for sample size calculation in Open-Epi menu, Version 3.01 software. Previous prevalence of knowledge regarding adverse pregnancy outcomes in India, was taken as 61% (Chaitra et al., 2018). Calculated sample size was 366 with 95% confidence interval (C.I) and 5% margin of error.

Sample Size for Frequency in a Population

Population size(for finite population correction factor or fpc)(*N*): 1000000
 Hypothesized % frequency of outcome factor in the population (*p*): 61%+/-5
 Confidence limits as % of 100(absolute +/- %)(*d*): 5%
 Design effect (for cluster surveys-*DEFF*): 1

Sample Size(*n*) for Various Confidence Levels

ConfidenceLevel(%)	Sample Size
95%	366
80%	157
90%	258
97%	448
99%	631
99.9%	1030
99.99%	1439

Equation

$$\text{Sample size } n = [\text{DEFF} * Np(1-p)] / [(d^2 / Z^2_{1-\alpha/2} * (N-1) + p*(1-p)]$$

Figure 2: Sample size for the current study

3.6. Sampling Strategy:

Desired sample was collected using non-probability consecutive sampling.

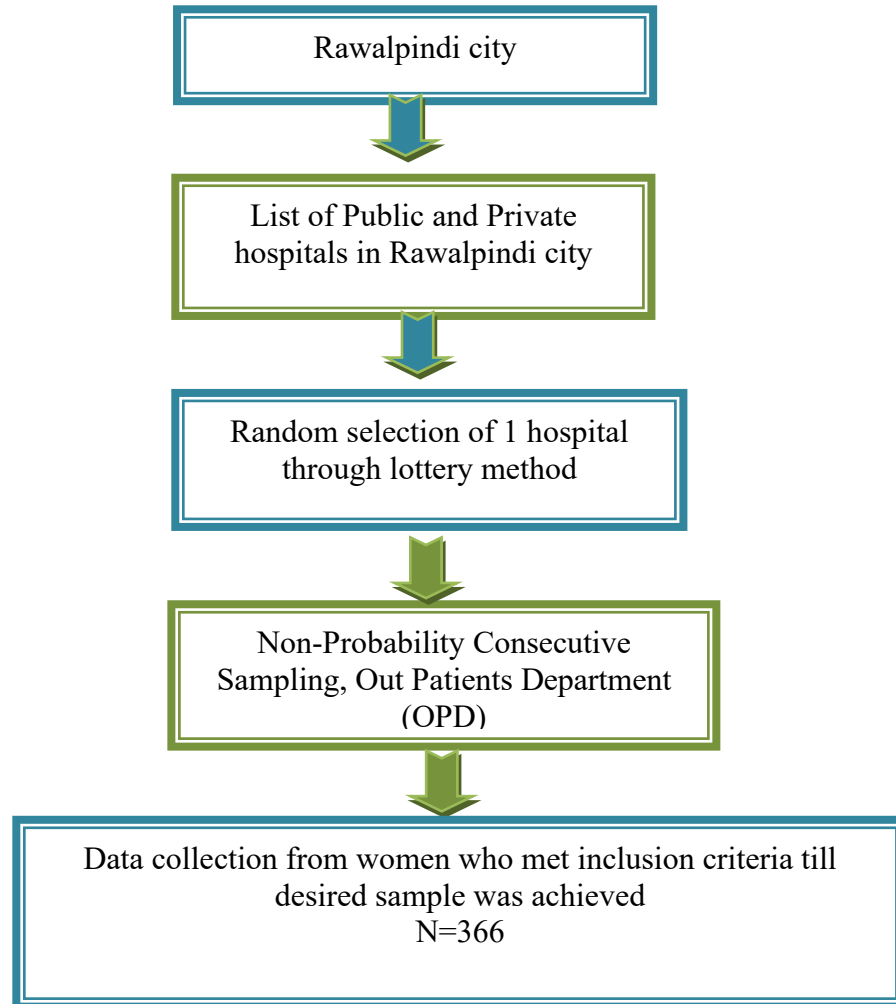


Figure 3: Sampling strategy

3.7. Data Collection Tool:

3.7.1. Questionnaire Design:

Data was collected using an interview-based questionnaire. A Performa was developed to collect data regarding sociodemographic characters of pregnant women, along with questions regarding dangerous signs during pregnancy. Awareness regarding dangerous signs during pregnancy was assessed using an adapted questionnaire from JHPIEGO's Maternal and Neonatal Program (Tewodros et al., 2021).

3.7.2. Content of the Questionnaire:

The questionnaire consisted of three sections:

1. **Section one** included questions related to sociodemographic characteristics of the pregnant women such as age, education, husband occupation etc. This section contained a total of nine questions.
2. **Section two** included awareness of dangerous signs during pregnancy, comprising a set of seventeen questions. A score below eight indicated poor awareness, while a score above eight denoted good awareness.
3. **Section three** included questions about practices during pregnancy. It contained a total of fourteen questions. A score below seven signified poor practices, whereas a score above seven indicated good practices.

3.7.3. Study Variables:

3.7.3.1. Outcome Variable:

Outcome variables of the current study were awareness regarding dangerous of pregnancy and practices during pregnancy. Data on these variables was collected through structured questionnaire.

3.7.3.2. Independent Variable:

Data on independent variables was collected through a structured Performa that is constructed after international and national literature review. The Performa included sociodemographic variables of pregnant women.

3.8. Data Collection Process:

3.8.1. Pilot Testing:

Pilot testing was performed before starting the formal data collection procedure by including 10% of the actual sample size ($n = 36$). Questionnaire was tested for any future changes; no major changes were done after pilot testing. Reliability of the scale was checked through the value of Cronbach's alpha using SPSS version 26. The value of alpha for awareness level was 0.77.

Reliability Statistics	
Cronbachs Alpha	N of Items
.779	17

Figure 4: Reliability of Questionnaire measuring awareness of danger signs during pregnancy

Similarly, value of alpha for practices part came out to be 0.72.

Reliability Statistics	
Cronbachs Alpha	N of Items
.720	14

Figure 5: Reliability of Questionnaire measuring practices during pregnancy

3.8.2. Data Collection:

All the pregnant women visiting BBH filter clinic were approached. Consent was taken from the women and they were informed about the purpose of the research. Only those women were selected who agreed to take part in the research process and fulfill the inclusion criteria. After taking the consent, the respondents were interviewed and their responses were recorded by the researcher. Data collection was completed in approximately one month.

3.9. Data Analysis Procedure:

Code book was developed and data was entered in Statistical Package for Social Sciences (SPSS) version 26. After careful data entry, data was checked for any error before proceeding to the further analysis.

3.9.1. Data Cleaning:

After careful data entry, data was checked for any missing values and any error that could possibly affect the further analysis. Double entries were eliminated before continuing the further analysis.

3.9.2. Data Transformation:

Computed response of both outcome variables was calculated for each respondent by adding the individual responses in SPSS. Continuous variables were categorized in order to proceed the

analysis. Computed score of both variables was further categorized into poor and good levels taking median as cutoff point.

3.9.3. Descriptive Analysis:

Descriptive statistics were generated for sociodemographic characteristics and outcome variable. Data was summarized in the form of frequencies and percentages and presented in table form, Bar chart and Pie chart.

3.9.4. Inferential Analysis:

Pearson Chi Square test of Independence was used to determine the association between outcome variables and socio-demographic characteristics of the respondents. P value less than 0.05 was considered statistically significant. Furthermore, binary logistic regression was used to identify main predictors of awareness of danger signs and practices in pregnancy.

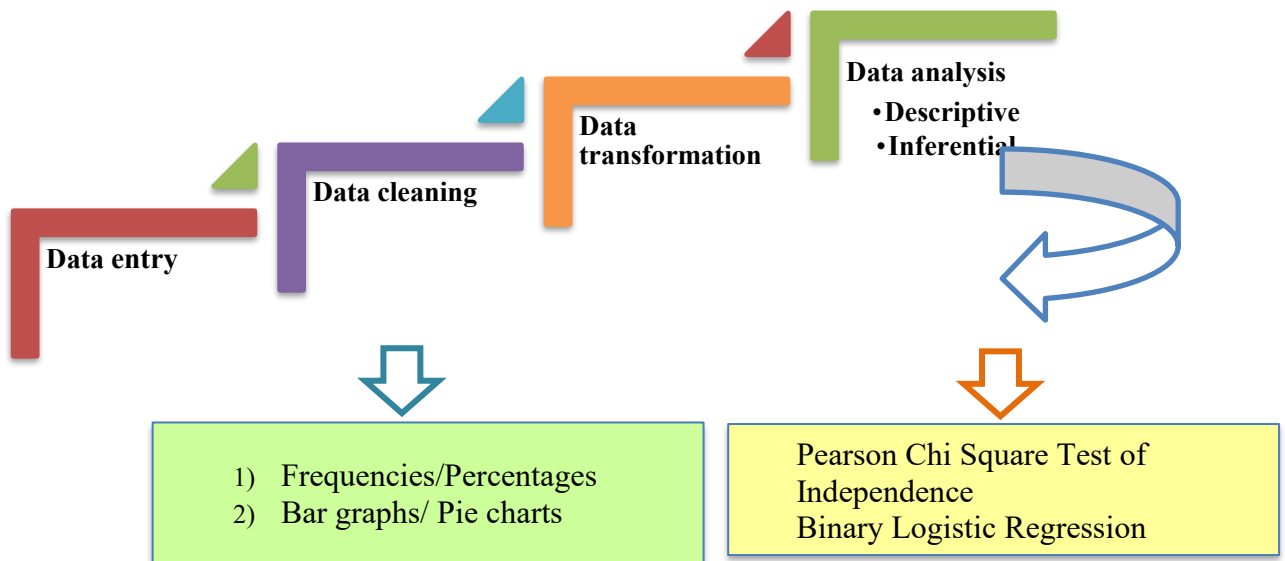


Figure 6: Data Analysis Plan

3.10. Ethical Considerations:

Before starting formal data collection, approval from Institutional Review Board (IRB) of Al-Shifa School of Public Health Rawalpindi, Pakistan has been taken. Permission letter from the Head of Department of Al-Shifa School of Public Health was obtained regarding access to the tertiary health facilities. Permission was taken from hospital for conducting research. Respondents were explained the purpose of the research and oral consent was taken from each participant before collecting the data. Data was collected from only those respondents who had agreed to participate in the research process voluntarily. Participants were assured for the confidentiality of their data. Data collected from the respondents was kept anonymous and was not shared with anyone. Data was entered in SPSS anonymously. After data entry, hard copies of collected were kept at a safe place.

CHAPTER IV: RESULTS

4.1. Demographic characteristics:

A total of 366 respondents were included in the study. It was noted that 43% of the women were in age bracket of 31-40 years (n= 156). Similarly, 42% women (n= 153) were matric pass while only 41% women (n= 150) were employed. A summary of sociodemographic variables of women is given in table1.

Table 1: Sociodemographic variables of the women

S. No	Variable	Frequency (n)	Percentage (%)
1.	Age		
	20-30 years	146	40
	31-40 years	156	43
	41-50 years	64	18
2.	Women's Education		
	Illiterate	87	24
	Matric	153	42
	Intermediate	78	21
	Bachelors	48	13
3.	Women's Occupation		
	Non-working	216	59
	Working	150	41
4.	Husband's Occupation		
	Labor	91	25
	White collar	132	36
	Business	143	39

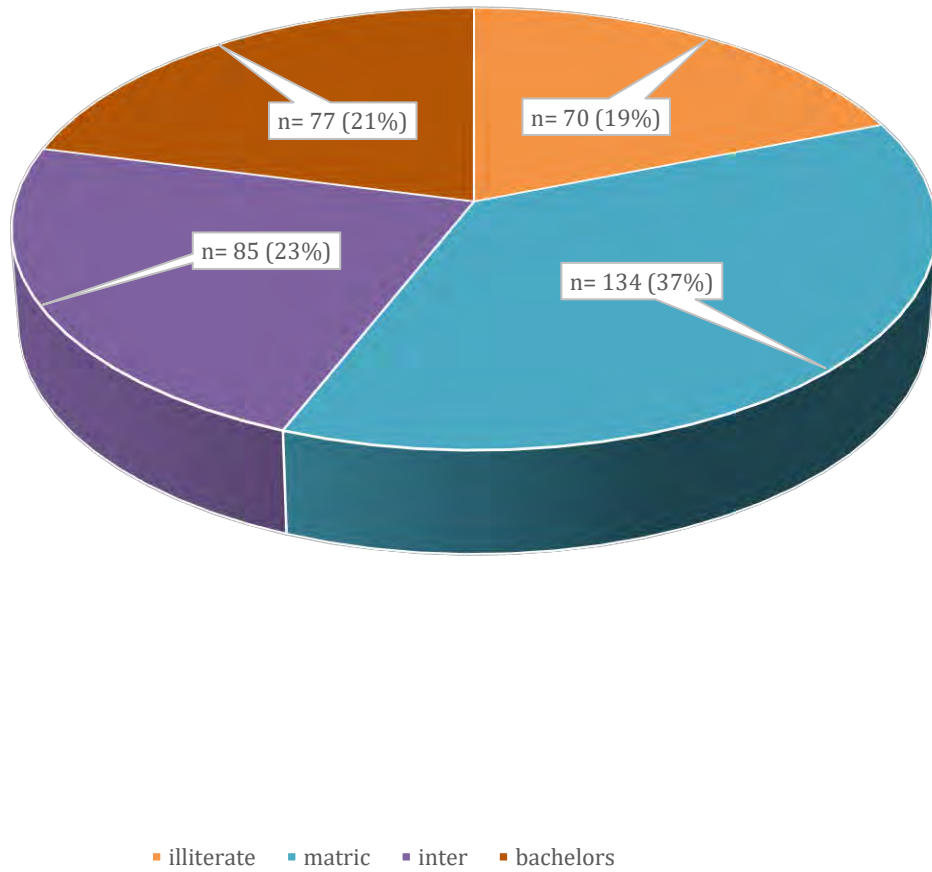


Figure 7: Education of Husband

Findings of the study revealed that only 21% (n= 77) of the women’s husbands had completed their graduation while majority had only passed their matriculation (n= 134, 37%) as shown in figure 7.

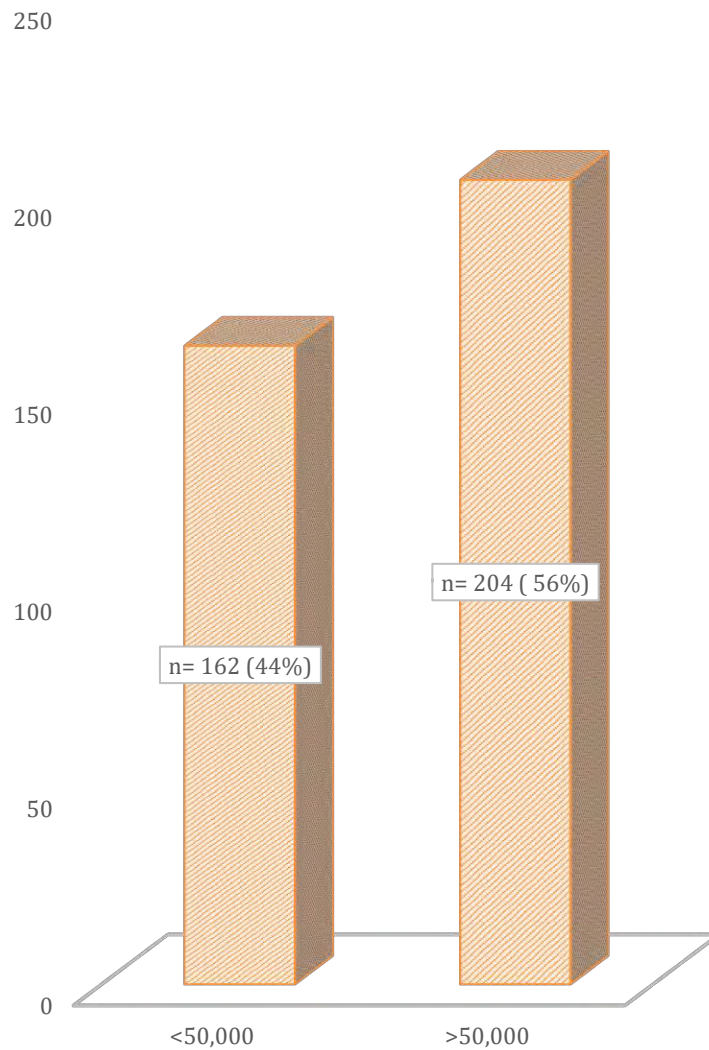


Figure 8: Monthly Income

Monthly income of the respondents was determined and it was found that 44% of the respondents (n= 162) reported that their monthly income is less than 50,000 rupees as shown in figure 8.

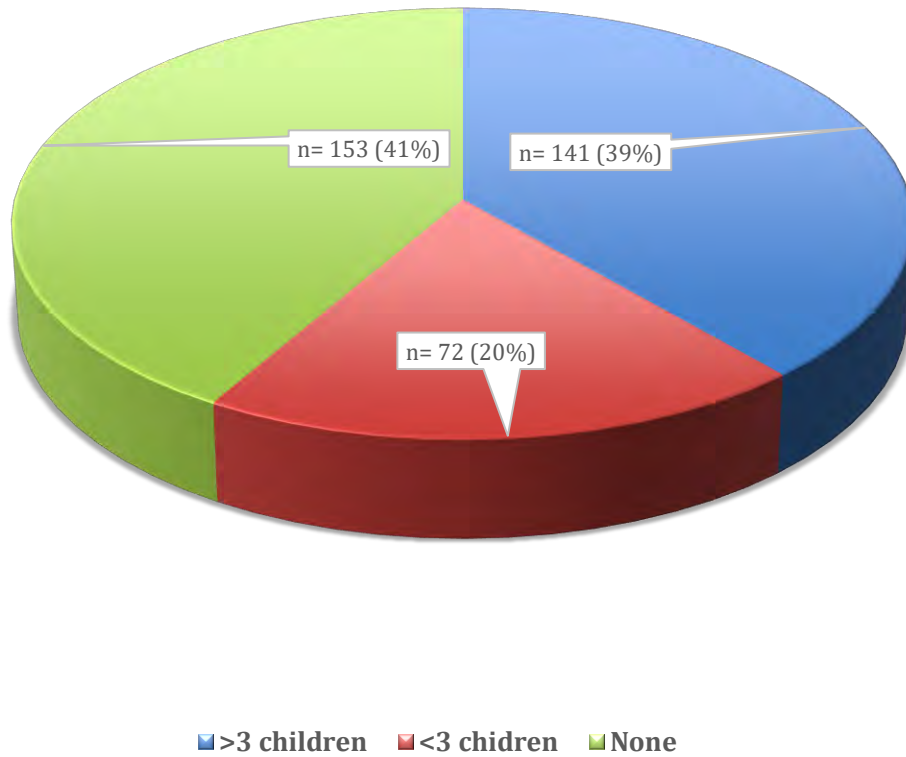


Figure 9: Total number of children

Results of the current study also revealed that 41% of the women (n= 153) had no children while 39% (n= 141) women had more than 3 children (figure 9).

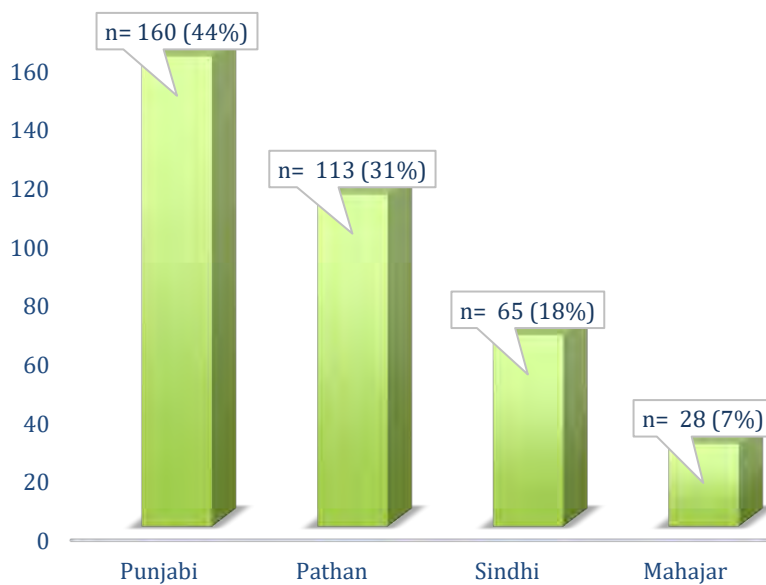


Figure 10: Ethnicity

In current study, respondents from different ethnicity were included and it was noted that nearly 44% (n= 160) Punjabis participated in the study while other ethnicities included were Pathans, Sindhis and Mahajars as given in figure 10.

4.2. Awareness of Danger Signs during Pregnancy:

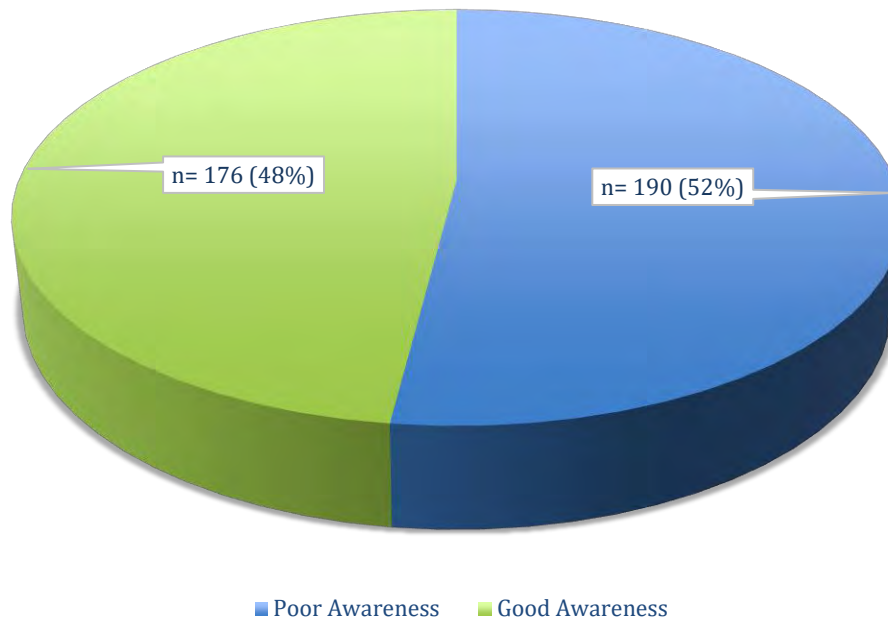


Figure 11: Awareness about Danger signs during pregnancy

In present study, awareness of women regarding danger signs in pregnancy was determined and it was observed that slightly more than half respondents reported poor awareness (n= 190, 52%) as shown in figure 11.

4.2.1. Practices during Pregnancy:

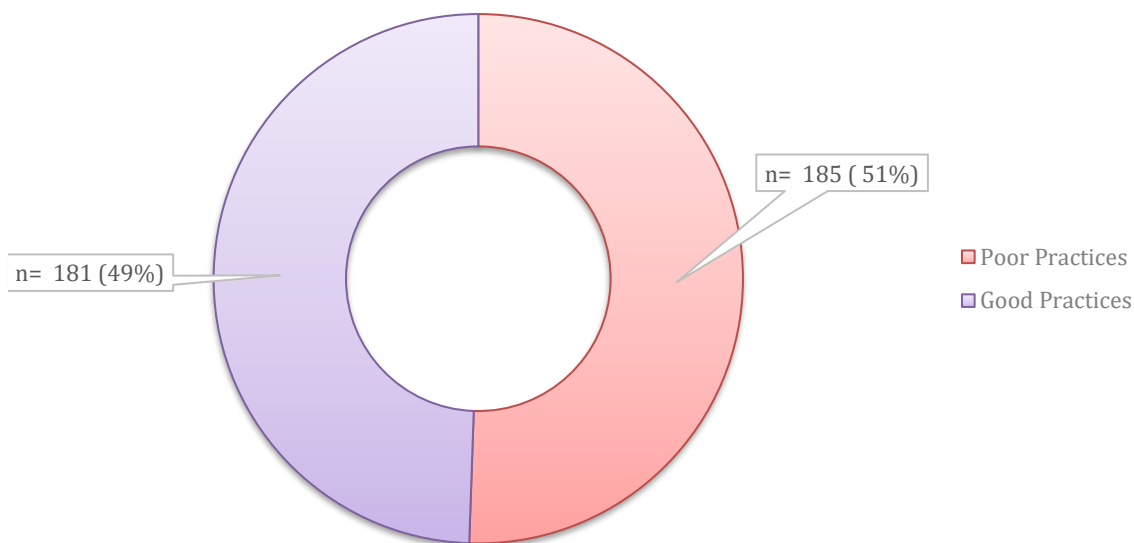


Figure 12: Attitude and Practices of Women during Pregnancy

Current findings also suggest that 51% of the women (n= 185) reported poor practices during pregnancy as given in figure 12.

4.3. Association of Sociodemographic characters with Awareness of Danger Signs during Pregnancy:

Association of awareness of women regarding danger signs in pregnancy with their socio-demographic characteristics was determined using Pearson Chi Square Test of Independence after confirming the assumptions of the test. All p-values below 0.05 were considered statistically significant. Results of the Chi square test revealed that awareness of women was significantly

associated with education and occupation of the women along with the monthly income level. It was observed that illiterate women reported poor awareness as compared to literate women with an ascending trend with education level ($p= 0.003$). Similarly, working women reported relatively good awareness as compared to non-working women ($p= 0.044$). In the same manner, women with greater than 50,000 monthly income reported good awareness score as compared to others ($p= 0.002$). Detail of the results is given in table 2.

Table 2: Association of Awareness regarding Danger Signs in Pregnancy with Sociodemographic characters

Sr. No.	Sociodemographic characters	Awareness		X ² (df)	P value
		Poor n (%)	Good n (%)		
1	Age			0.099 (2)	0.753
	20-30 years	74 (40)	72 (41)		
	31-40 years	74 (42)	82 (42)		
	41-50 years	34 (18)	30 (17)		
2	Women's Education			4.33 (3)	0.003
	Illiterate	46 (26)	41 (22)		
	Matric	70 (39)	83 (43)		
	Intermediate	37 (23)	41 (22)		
	Bachelors	23 (12)	25 (13)		
3	Women's Occupation			1.44 (1)	0.044
	Working	117 (62)	97 (56)		
	Non-working	73 (38)	77 (44)		
4	Husband's Education			4.33 (3)	0.050
	Illiterate	42 (22)	28 (16)		
	Matric	68 (36)	66 (38)		
	Intermediate	45 (24)	40 (23)		
	Bachelors	35 (18)	42 (23)		
5	Husband's Occupation			1.30 (2)	0.728
	Labor	43 (23)	48 (27)		
	White Collar Job	71 (37)	61 (35)		
	Business	76 (40)	67 (38)		
6	Monthly Income			8.98 (1)	0.002
	Less than 50,000	84 (44)	78 (39)		
	More than 50,000	98 (56)	105 (61)		
7	Number of Children			2.035 (2)	0.361
	Less than 3	75 (40)	66 (38)		
	More than 3	32 (17)	40 (22)		

	None	83 (43)	70 (40)		
8	Ethnicity			3.01 (3)	0.390
	Punjabi	85 (45)	75 (28)		
	Pathan	63 (33)	50 (43)		
	Sindhi	31 (16)	34 (19)		
	Mahajar	11 (6)	17 (10)		
9	Religion			2.36 (1)	0.124
	Muslim	159 (84)	157 (89)		
	Non-Muslim	31 (16)	19 (11)		

4.4. Association of Sociodemographic characters of Women with Practices during Pregnancy:

Association of practices of women during pregnancy with their socio-demographic characteristics was determined using Pearson Chi Square Test of Independence after confirming the assumptions of the test. All p-values below 0.05 were considered statistically significant. Results of the Chi square test revealed that attitudes and practices of women were significantly associated with education and occupation of the women, education of their husbands and their monthly income level. It was observed that illiterate women reported poor practices as compared to literate women with an ascending trend with education level ($p= 0.0001$). Similarly, working women reported good practices as compared to non-working ($p= 0.003$). In the same manner, women with greater than 50,000 monthly income reported good practices during pregnancy as compared to others ($p= 0.002$). Furthermore, women whose husbands were educated reported good practices as compared to those whose husbands were illiterate ($p= 0.021$). Detail of the results is given in table 3.

Table 3: Association of Sociodemographic characters of Women with their Practices during Pregnancy

Sr. No.	Sociodemographic characters	Practices		X ² (df)	P value
		Poor n (%)	Good n (%)		
1	Age			1.66 (2)	0.435
	20-30 years	78 (42)	68 (38)		
	31-40 years	79 (43)	77 (42)		
	41-50 years	28 (15)	36 (20)		
2	Women's Education			3.79 (3)	0.0001
	Illiterate	45 (25)	42 (23)		
	Matric	81 (45)	72 (39)		
	Intermediate	37 (20)	41 (22)		
	Bachelors	18 (10)	30 (16)		
3	Women's Occupation			6.55 (1)	0.003
	Working	111 (61)	105 (57)		
	Non-working	70 (39)	80 (43)		
4	Husband's Education			3.79 (3)	0.021
	Illiterate	41 (22)	29 (16)		
	Matric	65 (35)	69 (39)		
	Intermediate	43 (23)	42 (23)		
	Bachelors	36 (20)	41 (22)		
5	Husband's Occupation			1.35 (2)	0.554
	Labor	48 (25)	43 (23)		
	White Collar Job	64 (35)	68 (38)		
	Business	73 (40)	70 (39)		
6	Monthly Income			5.39 (2)	0.001
	Less than 50,000	78 (42)	84 (36)		
	More than 50,000	97 (58)	107 (64)		
7	Number of Children			0.248 (2)	0.883
	Less than 3	73 (39)	68 (38)		
	More than 3	37 (20)	35 (19)		
	None	75 (41)	78 (43)		
8	Ethnicity			2.88 (3)	0.410
	Punjabi	55 (30)	58 (32)		
	Pathan	88 (48)	72 (40)		
	Sindhi	28 (14)	37 (20)		
	Mahajar	14 (8)	14 (8)		
9	Religion			0.07 (1)	0.980
	Muslim	160 (87)	156 (86)		
	Non-Muslim	25 (13)	25 (14)		

4.5. Logistic Regression Results:

Binary logistic regression was carried out to identify the determinants of awareness of danger signs during pregnancy and practices during pregnancy.

Table 4: Determinants of Awareness of Danger Signs Pregnancy

S. No.	Variables	AOR	P value	95% C.I.	
				Lower	Upper
1.	Women's Education				
	Illiterate	1			
	Matric	1.125	0.003	0.444	2.849
	Intermediate	1.536		0.187	1.542
Bachelors	4.224	0.057		0.877	
2.	Women's Occupation				
	Working	1	0.078	0.133	0.720
Non-working	0.310				
3.	Monthly Income				
	<50,000	1	0.044	0.354	2.710
	>50,000	2.979			

Results showed that full model containing all predictors was statistically significant ($p = 0.0001$) indicating that the model was able to distinguish between respondents who reported good and poor awareness levels. Model summary, which included the results of Nagelkerke R square and Cox & Snell R square test, showed that it can cause a deviation in awareness level in the range of 16-18%. It was observed that women with higher education level were more likely to have greater awareness levels regarding danger signs. It was noted that women who did bachelors, were nearly 4 times more aware about danger signs as compared to illiterate women ($p = 0.003$). Similarly, monthly income of the women was also found to be a main determinant of awareness level. It was found that women with more than 50,000 Rs/- monthly income were almost 3 times more likely to have good awareness as compared to those with less monthly income ($p = 0.044$).

Table 5: Determinants of Practices during Pregnancy

S. No.	Variables	AOR	P value	95% C.I.	
				Lower	Upper
1.	Women's Education				
	Illiterate	1			
	Matric	1.903	0.01	1.934	4.234
	Intermediate	2.546		0.845	1.672
Bachelors	2.983	0.682		2.534	
2.	Women's Occupation				
	Working	1	0.002		
Non-working	0.429	1.432		5.209	
3.	Husband's Education				
	Illiterate	1	0.034		
	Matric	1.094		1.436	3.226
	Intermediate	2.228		2.345	9.336
Bachelors	4.372	1.528		5.362	
4.	Monthly Income				
	<50,000	1	0.093		
>50,000	1.672	0.449		2.479	

Results showed that full model containing all predictors was statistically significant ($p = 0.0001$) indicating that the model was able to distinguish between respondents who reported good and poor practices. Model summary, which included the results of Negelkerke R square and Cox & Snell R square test, showed that it can cause a deviation in practices in the range of 10-14%. It was observed that women with higher education level (bachelors) were nearly 3 times more likely to have good practices as compared to those who were illiterate ($p= 0.01$). Likewise, education of husbands was also found to be a significant predictor of practices during pregnancy. Women whose husbands had completed bachelors were 4 times more likely to observe good practices during pregnancy as compared to whose husband was illiterate. Similarly, monthly income of the women was also found to be a main determinant of good practices during pregnancy. It was found

that women with more than 50,000 Rs/- monthly income were almost 2 times more likely to have good practices as compared to those with less monthly income (p= 0.044).

CHAPTER V: DISCUSSION

In current study, awareness regarding danger signs during pregnancy and practices during pregnancy were assessed and their potential determinants were identified in study population. Data was collected from the public healthcare facilities of Rawalpindi city.

In present study, awareness of women regarding danger signs in pregnancy was determined and it was observed that slightly more than half respondents reported poor awareness (n= 190, 52%). Similarly, 51% of the women (n= 185) reported poor practices during pregnancy. Previous literature showed mixed results regarding awareness levels among women. A previous study conducted in Ethiopia revealed that 68% respondents reported good awareness about danger signs of pregnancy (Mesele et al., 2023). Similarly, another study showed that only 26% respondents had good knowledge about danger signs (Getachew et al., 2022). Additionally, another study reported that only 24% women had good practices during pregnancy. This could be attributed to different sociodemographic characteristics and surrounding influences including family, media and friends that affects the awareness level and practices of women.

Moreover, various factors have been tested to find the determinants of the awareness level and practices of women during pregnancy. It was noted that education of women and their monthly income are main determinants of their awareness regarding danger signs of pregnancy.

Current results showed that education of women is a major determining factor of their awareness level. Findings revealed that with increasing education level, awareness also increases. Women who did bachelors, were nearly 4 times more aware about danger signs as compared to illiterate women (p= 0.003). Similar findings are observed in a previous study which shows that women with higher education were 6 times more likely to have good awareness level (AOR: 6.06, C.I.:

3.08–11.94) (Mesele et al., 2023). Similarly, another study also confirms that higher education level increases awareness about danger signs of pregnancy (AOR: 1.21, C.I.: 0.59, 2.50) (Getachew et al., 2022). The reason could be that increasing education level is directly associated with greater knowledge and exposure to informational sources. Moreover, this also associates with decreasing biases and myths regarding pregnancy.

The current findings also suggest that income level is also a main determinant of awareness level among women regarding danger signs of pregnancy. It was found that women with more than 50,000 Rs/- monthly income were almost 3 times more likely to have good awareness as compared to those with less monthly income ($p= 0.044$). Similar findings are also observed in a previous study conducted in North-West of Ethiopia. The findings suggest that income level directly influenced the awareness level with women having higher monthly income having good awareness level (AOR: 1.1, C.I.: 0.3-1.8) (Asferie & Goshu, 2019). Similar findings are also reported in another study (AOR: 1.99, C.I.: 1.22-3.33) (Getachew et al., 2022). The possible reason could be an improved access to better resources and informational sources with strong economic situation. This in turn improves the awareness level of the women regarding danger signs of pregnancy.

Moreover, the results of the study revealed that practices during pregnancy are significantly associated with education level of the women. Women with higher education level (bachelors) were nearly 3 times more likely to have good practices as compared to those who were illiterate ($p= 0.01$). Similar findings are also observed in a previous study showing that having a formal education is directly associated with good dietary practices during pregnancy (AOR: 7.61, C.I.:

3.64-15.91) (Belay et al., 2021). This could be due to improved knowledge regarding healthy lifestyle during pregnancy and improved access to informational sources.

Similarly, it was also noted that education of husband is also a main determinant of practices during pregnancy. Women whose husbands had completed bachelors were 4 times more likely to observe good practices during pregnancy as compared to whose husband was illiterate. Current findings are also supported by the existing literature and it was found in a study conducted in Ethiopia that husband's education level plays a major role in determining practices during pregnancy (AOR: 2.11, C.I.: 0.79-5.67) (Belay et al., 2021). The possible reason could be education level of the husband plays a reinforcing role in shaping good practices during pregnancy. Moreover, educated husbands are supposed to provides a supportive role during pregnancy.

Results also depicted that monthly income also plays important role in determining practices during pregnancy. It was found that women with more than 50,000 Rs/- monthly income were almost 2 times more likely to have good practices as compared to those with less monthly income ($p= 0.044$). Similar findings are also found in previous literature. A study conducted in northwest Ethiopia suggested that husband's income plays important role in shaping practices of women during pregnancy (AOR: 3.120, C.I.: 1.743-5.586) (Nana & Zema, 2018). Another study also revealed similar findings (AOR: 2.47, C.I.: 1.31-4.65) (Girma et al., 2022). This could be due to improved access to resources, and health facilities with higher monthly income.

5.1. Strengths:

1. The study highlights the level of awareness about danger signs during pregnancy and practices during pregnancy. It also identifies main determinants of awareness level and practices, so helps in adding valuable information in the existing literature.
2. This study includes a diverse sample of respondents including various ethnic and religious groups.

5.2. Limitations:

1. Recall bias may be another limitation which can affect the results of the study.
2. Time constraint was also considered as a limitation in this study.

5.3. Conclusion:

Awareness about danger signs during pregnancy and good practices in pregnancy are influenced by a number of factors. The current study revealed that overall, the population reported slightly poor practices and awareness about danger signs. Main determinants of awareness about danger signs are education of women and their monthly income level whereas, major determining factors of practices in pregnancy are reported to be education level of women, education level of husband and monthly income level.

5.4. Recommendations:

Based on the current findings, following recommendations are put forward.

1. A comprehensive strategy should be devised to impart knowledge about danger signs in pregnancy through media, and healthcare personals.
2. Education level improves the practices during pregnancy and also enhances awareness level, so it is also suggested that more focus should be given to improve education status, especially women.
3. Financial security and improved income resources also help the women to approach better health facilities; improving their awareness level and practices during pregnancy.
4. Lady health workers and midwives can also play important role in dispensing awareness regarding good practices in pregnancy and danger signs.

References

- A., A. (2008). Text book of obstetrics and gynecology for medical student. *Heinemann Educational Books*, 305.
- Abel Girma, A. G. (2022). Determinants of dietary practice among pregnant women at the public hospitals in Bench-Sheko and Kaffa Zones, Southwest Ethiopia. *BMC Nutrition*.
- Afsha Bibi, R. A. (2023). Awareness of Pakistani Pregnant Women Regarding Danger Signs of Pregnancy. *Pakistan Journal of Health Sciences*, 4(5).
- Akowuah JA, A.-B. P.-V. (2018). Determinants of antenatal healthcare utilisation by pregnant women in third trimester in Peri-Urban Ghana. *J Trop Med*.
- Amrita N. Shamanewadi, M. P. (2020). Level of awareness of risk factors and danger signs of pregnancy among pregnant women attending antenatal care in PHC, Nandagudi. *Journal of Family Medicine and Primary Care*, 9(9).
- Anaam Ebrahim El-Nagar, M. H.-S. (2017). Knowledge and Practices of Pregnant Women Regarding Danger Signs of Obstetric Complications. *IOSR Journal of Nursing and Health Science*, 6(1), 30-41.
- Anja Oechsle, M. W. (2020). Health Knowledge of Lifestyle-Related Risks during Pregnancy: A Cross-Sectional Study of Pregnant Women in Germany. *Int. J. Environ. Res. Public Health*, 17(22).
- Bijaya Ghimire, P. P. (2022). Knowledge regarding obstetric danger signs among pregnant women. *Nepal Med Coll J.*, 24(2).
- Bustreo F, S. L. (2013). Ending preventable maternal deaths: the time is now. *Lancet Glob Health*, 1(4).

- Chaitra TR, S. W. (2018). Knowledge, Attitude and Practice of Oral Health and Adverse Pregnancy Outcomes among Rural and Urban Pregnant Women of Moradabad, Uttar Pradesh, India. *Journal of Interdisciplinary Dentistry*, 8(1).
- Dagnachew Getachew, T. G. (2022). Magnitude and determinants of knowledge towards pregnancy danger signs among pregnant women attending antenatal care at Chiro town health institutions, Ethiopia. *SAGE Open Med.*
- Daniel Tadesse, A. E. (2021). Health Care Seeking Behavior of Obstetric Danger Signs and its Associated Factors Among Pregnant and Delivered Mothers in Kewot District, North Shoa Zone, Amara Region, Ethiopia: A Cross-Sectional Study. *1.*
- DICMH. (2014). Data and Information Center Ministry of Health. Mother's Day Maternal Health Situation.
- EL., A. (2019). Maternal and Neonatal Death in Indonesia (Kematian Maternal dan Neotatal di Indonesia.
- Hiba Naji Abdulrida, R. J. (2019). Knowledge and Health-Seeking Practices of Mothers Attending Primary Health-Care Centers in Baghdad Al-Karkh Sector about Danger Signs in Newborns. *Mustansiriya Medical Journal*, 17.
- Junko Yasuoka, K. N. (2018). Barriers for pregnant women living in rural, agricultural villages to accessing antenatal care in Cambodia. *PLOS ONE*, 13(3).
- Kabakyenga KJ, O. P. (2011). Knowledge of obstetric danger signs and birth preparedness practices among women in rural Uganda. *Reproductive Health*, 8(33).
- Khushboo Nusrat, M. R. (2020). Neonatal danger signs and healthcare seeking behaviours: A cross-sectional study. *JPMA*, 70(1).

- Muawiyah Babale Sufiyan, N. A. (2016). Knowledge, attitude and perception of pregnancy danger signs among women of childbearing age in samaru community Northwestern Nigeria: Results from a cross-sectional survey. *Archives of Medicine and Surgery, 1*(2), 24-29.
- Nega Terefe, A. N. (2020). Prevalence of Obstetric Danger Signs during Pregnancy and Associated Factors among Mothers in Shashemene Rural District, South Ethiopia. *Journal of Pregnancy.*
- Neil Abdurashid, N. I. (2018). Level of Awareness on Danger Signs During Pregnancy and Associated Factors, among Pregnant Mothers, Dire Dawa Administrative Public Health Facilities, Eastern Ethiopia. *Clinics Mother Child Health, 15*(1).
- Pasha O, S. S. (2015). Maternal and newborn outcomes in Pakistan compared to other low and middle income countries in the global network's maternal. *Reproductive Health, 12.*
- Rashad WA, E. R. (2010). Women's awareness of danger signs of obstetrics complications in Egypt. *American Journal of Science, 6.*
- Rashidul Azad, S. M. (2023). Mother's care-seeking behavior for neonatal danger signs from qualified providers in rural Bangladesh. *Frontiers, 10.*
- Ratna Dwi Wulandari, A. D. (2020). Determinants of knowledge of pregnancy danger signs in Indonesia. *PLOS ONE, 15* (5).
- See Poh Teng, T. C. (2015). Knowledge of pregnancy danger signs and associated factors among Malaysian mothers. *British Journal of Midwifery, 23*(11).

- Sufiyan MB, A. N. (2016). Knowledge, attitude and perception of pregnancy danger signs among women of childbearing age in samaru community northwestern Nigeria. *Arch Med Surg., I(2)*.
- Tewodros Yosef, M. T. (2021). Pregnancy danger signs: Knowledge and health-seeking behavior among reproductive age women in southwest Ethiopia. *Sage Journals*.
- Tiruye Tilahun Mesele, A. T. (2023). Knowledge of danger signs in pregnancy and their associated factors among pregnant women in Hosanna Town, Hadiya Zone, southern Ethiopia. *Front Reprod Health* .
- UNICEF. (2010). Saving the lives of the world's women, newborns and children. .
- UNICEF. (2010). Saving the lives of the world's women, newborns and children.
- Wagaye Shumete Belay, E. A. (2021). Dietary practice during pregnancy and associated factors among pregnant women in Farta district, South Gondar Zone, Northwest Ethiopia, 2021. *Clinical Epidemiology and Global Health*.
- Wajid A, R. Z. (2010). Initial Assessment of Community Midwives in Rural Pakistan. *JSI Research and Training Institute*.
- Wang W, H. R. (2015). Levels and determinants of continuum of care for maternal and newborn health in Cambodia-evidence from a population-based survey. *BMC Pregnancy Childbirth*.
- WHO, U. U. (2015). Trends in Maternal Mortality 1990-2015. *WHO Publication*.
- Worku Necho Asferie, B. G. (2019). Knowledge of pregnancy danger signs and its associated factors among pregnant women in Debre Tabor Town Health Facilities, South Gondar

Administrative Zone, North West Ethiopia, 2019: Cross-sectional study. *SAGE Open Med.*

Zema, A. N. (2018). Dietary practices and associated factors during pregnancy in northwestern Ethiopia. *BMC Pregnancy and Childbirth volume .*

Zeyene Abute Idris, G. T. (2022). Healthcare-Seeking Behavior and Associated Factors for Newborn Danger Signs among Mothers Who Gave Birth in the Last 12 Months in Anlemo District. *Advances in Public Health.*

Appendix A – Questionnaire

Data Collection Tool

Awareness Regarding Danger Signs and Barriers to Health Seeking in Pregnant Women Attending BBH Filter Clinic, Rawalpindi

Section A: Demographic Information

1. Age:
 - 20 – 30
 - 31 – 40
 - 41 – 50

2. Educational Level:
 - Illiterate
 - Matric
 - Intermediate
 - Bachelors
 - Above

3. Occupation:
 - House wife
 - Working

4. Husband occupation:
 - Laborer Class
 - White Collar Job
 - Business

5. Husbands' education:
 - Illiterate
 - Matric
 - Intermediate
 - Bachelors
 - Above

6. Monthly Household Income:

- Less than Rs. 50,000
 - Above Rs. 50,000
7. Religion:
- Muslim
 - Non – Muslim
8. Ethnicity:
- Pathan
 - Punjabi
 - Sindhi
 - Mahajar
9. Number of children:
- Less than 3
 - More than 3
 - None

Section B: Awareness of Danger Signs during Pregnancy

1. Do you know about the danger signs during pregnancy?
- Yes
 - No
2. Have you received any formal education or information about pregnancy-related health issues?
- Yes
 - No
3. If you have acquired any knowledge about the dangerous signs during pregnancy, how did you acquire them?
- Doctor
 - Family/Friends
 - Media
4. Are you aware that high blood pressure complaints during pregnancy can be dangerous?
- Yes
 - No

5. Do you think that bleeding at any time during pregnancy can be dangerous?
- Yes
 - No
6. Are you aware that acute abdominal pain in pregnancy can be dangerous?
- Yes
 - No
7. Do you have any Knowledge that elevated blood glucose levels (gestational diabetes) can lead to dangerous consequences?
- Yes
 - No
8. Are you aware of danger of decreased fetal movement?
- Yes
 - No
9. Do you know that high grade fever could be dangerous during pregnancy?
- Yes
 - No
10. Are you aware that pale complexion of a mother during pregnancy can be dangerous?
- Yes
 - No
11. Are you aware that fits can be dangerous during pregnancy?
- Yes
 - No
12. Are you aware of availability of maternal health services in your local community?
- Yes
 - No
13. Where would you go if you experience any of these signs in pregnancy?
- Hospital
 - Mid-wife
 - Stay at home

14. Do you think awareness of dangerous signs during pregnancy is important?
- Yes
 - No
15. Do you think that poor knowledge during pregnancy can be dangerous for the mother as well as the baby?
- Yes
 - No
16. Do you think by awareness of dangerous signs during pregnancy, the maternal death rate (MMR) can decrease?
- Yes
 - No
17. Do you think that awareness of dangerous signs during pregnancy can reduce infant death rate too? (IMR)
- Yes
 - No

Section C: Practices

1. Have you ever sought medical care or advice due to experiencing any dangerous signs during pregnancy?
- Yes
 - No
2. How frequent do you attend antenatal care visits during pregnancy?
- Regularly (as recommended by healthcare provider)
 - Occasionally (not regularly)
 - Rarely (very infrequent)
3. Have you received information about the dangerous signs during pregnancy by your healthcare provider
- Yes
 - No
4. Is it easy for you to get information about the dangerous signs during pregnancy
- Yes
 - No
5. Have you sought medical care in case of severity of symptoms during pregnancy?
- Yes
 - No

6. Do you go to the hospital due to the trust on healthcare provider for advice during pregnancy?
 - Yes
 - No
7. Do you go to the hospital because your family and friends recommend it?
 - Yes
 - No
8. Do you avoid going to the hospital due to financial constraints?
 - Yes
 - No
9. Is the cost of seeing medical care during pregnancy affordable for you?
 - Yes
 - No
10. Do you avoid going to the hospital during pregnancy because of the cultural beliefs?
 - Yes
 - No
11. Have you faced any challenges related to transportation when seeking medical care during pregnancy?
 - Yes
 - No
12. Are you satisfied with the healthcare services you have received during pregnancy?
 - Yes
 - No
13. Does your family cooperate in case you have any dangerous signs during pregnancy for seeking medical care?
 - Yes
 - No
14. After seeking medical care, did your symptoms improve?
 - Yes
 - No

Thank you for your participation!

Appendix B – Consent Form

I am Tayyaba Mudassar, student of MSPH- Final Semester, Alshifa School of Public Health, Alshifa Eye Hospital, Rawalpindi. I am doing research on “Awareness Regarding Danger Signs and Barriers to Health Seeking in Pregnant Women Attending BBH Filter Clinic, Rawalpindi”.

PURPOSE OF THE RESEARCH

The purpose of this study is to determine awareness level regarding danger signs and barriers to health seeking in pregnant women.

PARTICIPATION

I do not anticipate that taking this study will contain any risk or inconvenience to you. Your participation is strictly voluntary and you may withdraw your participation at any time without penalty. I request you to answer the questions as honestly as possible. It will take no longer than 15 minutes to complete a questionnaire. All information collected will be used only for research purpose and will be kept highly confidential. Your identity and your responses will not be identifiable; all data will be stored anonymously. As this is solely a student project no incentive will be provided. Once study is completed, I would be happy to share the results with you if you desire.

Thank you for agreeing to participate in this study. Your feedback is important.

Consent

I have read and understand the information sheet and agree to take part in the study.

Signature_____ **Date**_____

Appendix C – IRB Letter



PAKISTAN INSTITUTE OF OPHTHALMOLOGY
AL-SHIFA SCHOOL OF PUBLIC HEALTH
AL-SHIFA TRUST, RAWALPINDI

MSPH-IRB/16-16
2nd Oct, 2023

TO WHOM IT MAY CONCERN

This is to certify that Tayyaba Mudassar D/O Syed Muhammad Sarwar Shah is a student of Master of Science in Public Health (MSPH) final semester at Al-Shifa School of Public Health, PIO, Al-Shifa Trust Rawalpindi. He/she has to conduct a research project as part of curriculum & compulsory requirement for the award of degree by the Quaid-i-Azam University, Islamabad. His/her research topic, which has already been approved by the Institutional Review Board (IRB), is "Awareness regarding dangerous signs and barriers to health seeking in pregnant women attending BBH filter clinic, Rawalpindi".

Please provide his/her necessary help and support in completion of the research project. Thank you.

Sincerely,

OS
2-11-2023

Allured
Mudassar

Dr. Ayesha Babar Kawish

Head
Al-Shifa School of Public Health, PIO
Al-Shifa Trust, Rawalpindi

4032
Medical Superintendent
Benazir Bhutto Hospital,
Rawalpindi.

AL-SHIFA TRUST, JEHLUM ROAD, RAWALPINDI – PAKISTAN
Tel: +92-51-5487820-472 Fax: +92-51-5487827
Email: info@alshifaeve.org Web Site: www.alshifaeve.org

Appendix D - Budget

Budget item	Transport	Stationery and internet	Printing	Publishing
Pilot testing	500 Rs/-	6000 Rs/-	3000 Rs/-	-
Data collection	10,000 Rs/-	8,000 Rs/-	-	-
Thesis write-up	1,000 Rs/-	9,000 Rs/-	6,000 Rs/-	20,000 Rs/-
Total expenditure	11,500 Rs/-	23,000 Rs/-	9,000 Rs/-	20,000 Rs/-
Grand total	62,500 Rs/-			

Appendix E – Gantt Chart

Activities	September 2023	October 2023	November 2023	December 2023	January 2024	February 2024
Literature search						
Synopsis writing and IRB approval						
Pilot testing						
Data collection and entry						
Data analysis						
Write-up						
Thesis submission						