

## Unmet Sexual and Reproductive Health Needs and Pregnancy Complications among Married Women in Urban Slums of New Delhi: A Quantitative Analysis

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#### ABSTRACT

**Background:** Pregnancy-related complications remain a persistent cause of maternal morbidity in urban slum populations. Limited access to essential sexual and reproductive health (SRH) services may contribute substantially to these adverse outcomes, yet quantitative evidence from urban slum settings is scarce. Women residing in urban slum communities are often limited in obtaining essential sexual and reproductive health services, including family planning, antenatal care, counselling. Inadequate access to such services may increase the risk of unintended pregnancies, delayed health utilization and untreated maternal health conditions which can ultimately lead to pregnancy complications.

**Objectives:** To determine the magnitude of pregnancy complications and to examine their association with unmet sexual and reproductive health needs among married women residing in selected urban slums of New Delhi.

**Methods:** This quantitative cross-sectional study constituted the quantitative phase of a sequential explanatory mixed-methods design. The study included 450 married women aged 15–49 years residing in an urban slum of South Delhi were selected using purposive sampling. Data were collected through a validated tools by the experts and interviewer-administered questionnaire covering socio-demographic characteristics, obstetric history, antenatal utilization, pregnancy complications and access to sexual and reproductive health services. Descriptive statistics were used to analyse the prevalence of pregnancy complications. Associations between unmet SRH needs and pregnancy complications were examined using chi-square tests and binary logistic regression analysis in IBM SPSS version 23. To determine the strength of associations Odds ratio(OR) with 95% confidence intervals (CI) were calculated.

**Results:** Nearly two-thirds of the participants (65.1%) reported experiencing at least one pregnancy-related complication. Anemia was the most frequently reported condition (61.8%), followed by postpartum hemorrhage (12.0%) and gestational diabetes (5.3%). Unmet SRH needs were reported by 92.9% of women. A statistically significant association was observed between unmet SRH needs and pregnancy complications ( $p < 0.001$ ). Women with unmet SRH needs had markedly higher odds of pregnancy complications (OR=15.68; 95% CI: 5.39–45.63). After adjustment for socio-demographic variables, the association remained statistically significant (AOR=0.064; 95% CI: 0.03–0.34;  $p < 0.001$ ).

**Conclusion:** Pregnancy complications are highly prevalent among women living in urban slums and are strongly associated with unmet sexual and reproductive health needs. Improving the availability, continuity, and quality of SRH services is critical for reducing preventable maternal morbidity in underserved urban communities.

**Keywords:** Pregnancy complications; unmet needs; sexual and reproductive health; urban slums; married women; India

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## INTRODUCTION

Maternal health continues to be a major global public health concern. Despite significant improvements in maternal healthcare services worldwide, pregnancy-related complications remain a leading cause of maternal morbidity and mortality, particularly in low- and middle-income countries. According to global estimates, approximately 287,000 maternal deaths occurred worldwide in 2020, with the majority occurring in resource-limited settings.<sup>1,2</sup>

Pregnancy complications such as anemia, hypertensive disorders of pregnancy, postpartum hemorrhage, infections, and gestational diabetes significantly contribute to maternal morbidity and adverse pregnancy outcomes.<sup>3,4</sup> These conditions are often preventable through timely access to quality antenatal care, adequate nutrition, and appropriate medical interventions.<sup>5</sup> However, disparities in maternal health outcomes persist across socio-economic groups.

Rapid urbanization has led to the expansion of informal settlements and slum communities in many developing countries. Women residing in urban slums often experience multiple vulnerabilities including poverty, overcrowding, inadequate sanitation, and limited access to healthcare services.<sup>6</sup> These structural disadvantages can restrict women's access to reproductive health services and increase the risk of adverse maternal health outcomes.

Sexual and reproductive health services play a critical role in ensuring safe pregnancy and childbirth. Access to family planning, antenatal care, safe abortion services, and treatment for sexually transmitted infections are essential components of comprehensive reproductive healthcare.<sup>7</sup> However, barriers such as financial constraints, lack of awareness, cultural norms, and inadequate health infrastructure often limit women's ability to access these services.

Previous research has highlighted the importance of equitable access to maternal health interventions in improving reproductive health outcomes.<sup>5</sup> Studies have also identified multiple barriers to facility-based childbirth and maternal healthcare utilization, particularly in resource-constrained settings.<sup>6</sup> In addition, health system limitations such as inadequate service quality and workforce shortages can further reduce women's access to effective maternal healthcare services.<sup>3</sup>

Anemia remains one of the most common pregnancy-related conditions globally, particularly among women living in low-income settings.<sup>8</sup> Similarly, inadequate antenatal care coverage and poor quality maternal healthcare services have been associated with increased risk of pregnancy complications.<sup>9</sup>

Despite improvements in maternal health programs in India, significant disparities remain among marginalized populations such as women living in urban slum communities. Limited access to reproductive health services may contribute to higher prevalence of pregnancy complications in these settings.

Therefore, the present study was conducted to determine the prevalence of pregnancy complications and examine their association with unmet sexual and reproductive health needs among married women residing in selected urban slums of New Delhi.

## Methods

### Study Design

A quantitative cross-sectional design was adopted for this study. A survey approach was used to collect data from married women residing in selected slum areas of Delhi, India. The present study represents the quantitative phase of a sequential explanatory mixed- methods design. Study Setting and Participants

The study was conducted in Nehru Ekta Colony, an urban slum located in South Delhi. The target population was married women residing in the slums of Delhi, India.

Inclusion criteria for selecting the participants were:

1. Married women aged 15–49 years
2. women who were residing in the selected slum area for at least 1 year.
3. provided the written consent to take part in the study.

Exclusion criteria: Women were not willing to participate, and were not mentally stable

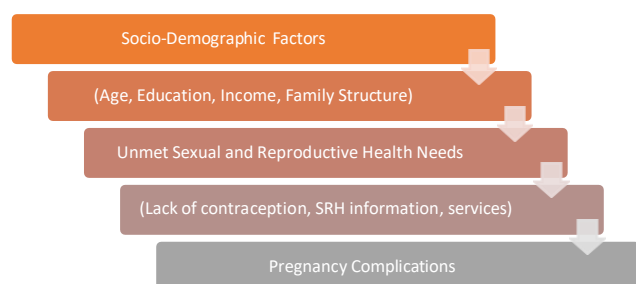
### Sample Size and Sampling

The sample size was estimated using the single population proportion formula ( $n = Z^2P(1-P)/d^2$ ) based on prevalence estimates reported in previous literature. The prevalence of unmet sexual and reproductive health needs was estimated to range between 27.6% and 36.1%, and an average prevalence of 32.8% was considered for the calculation. A total of 450 participants were included, based on this estimation and to improve the statistical power of the study. Participants were recruited using non-probability purposive sampling.

### Data Collection Instrument

Data were collected using a structured, interviewer-administered questionnaire that included items related to antenatal care utilization, pregnancy complications, and unmet sexual and reproductive health needs. Content validity was ensured through expert review, and internal consistency reliability was acceptable. Content validity

was established through expert review by specialists in maternal health and public health, and necessary modifications were made. Internal consistency reliability of the instrument was found to be acceptable.



**Fig 1. Flow chart showing pathways linking unmet sexual and reproductive health needs to pregnancy complications.**

### Data Analysis

Data analysis was performed using IBM SPSS version 23. Frequencies and percentages were calculated to describe pregnancy complications. The relationship between unmet SRH needs and pregnancy complications was assessed using chi-square tests. Logistic regression analysis was conducted to estimate unadjusted and adjusted odds ratios with corresponding 95% confidence intervals to examine the association between unmet sexual and reproductive health needs and pregnancy complications among the women residing in the urban slums. Statistical significance was set at  $p \leq 0.05$ .

### Ethical Considerations

Ethical approval was obtained from the Institutional Ethics Committee. Informed consent was secured from all participants prior to data collection, and confidentiality of the collected information was strictly maintained.

### Results

#### Socio-Demographic Characteristics of Participants

**Table 1. Socio-demographic profile of the study participants (N = 450)**

Variable	Category	Number	Percentage (%)
Age (Years)	18–24	104	23.1
	25–31	125	27.8

	32-38	139	30.9
	39-45	82	18.2
Respondent's Education	Intermediate/Diploma	7	1.6
	High School Certificate	129	28.7
	Middle School Certificate	119	26.4
	Primary School Certificate	114	25.3
	Illiterate	81	18.0
	Type of Family	Nuclear	97
Joint		336	74.7
Extended		17	3.8

Most participants were aged 32–38 years (30.9%), followed by those aged 25–31 years (27.8%). Educational attainment was generally low, with most women having completed education up to high school (28.7%) or middle school (26.4%), while 18.0% were illiterate. More than half of the respondents were engaged in elementary occupations (59.8%), and a large proportion lived in joint families (74.7%). Overall, the table reflects the socio-economically disadvantaged background of women residing in the selected urban slum area.

#### Unmet needs expressed by the participants

**Table 2. Distribution of Unmet needs among participants (N = 450)**

Services	Response	n	Percentage (%)
Unmet SRH Needs	Yes	418	92.9
	No	32	7.1
Access to Contraception	Yes	263	58.4
Access to Abortion Services	Yes	244	54.2

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Access to STI Testing/Treatment	Yes	281	62.4
Lack of Information/Education	Yes	399	88.7
Need for Antenatal/Maternal Health Services	Yes	151	33.6
Need for Safe Abortion Services	Yes	282	62.7
Need for HIV Testing & Counselling	Yes	335	74.4
Other SRH Needs	Yes	19	4.2

The findings indicate a very high prevalence of unmet sexual and reproductive health (SRH) needs among the participants, with 92.9% reporting that their SRH needs were not adequately met. Access to key services was moderate, with 58.4% reporting access to contraception, 54.2% to abortion services, and 62.4% to STI testing and treatment. A substantial proportion of women reported lack of information or education related to SRH (88.7%). Additionally, notable unmet needs were observed for antenatal and maternal health services (33.6%), safe abortion services (62.7%), and HIV testing and counselling (74.4%). Overall, the results highlight significant gaps in access, information, and service availability related to sexual and reproductive health among women residing in the selected urban slum area.

**Prevalence of Pregnancy Complications**

**Table 3. Distribution of pregnancy complications among participants (N = 450)**

Category	Response	Frequency	Percentage (%)
Pregnancy Complications	Yes	293	65.1
	No	157	34.9
Type of Complication	Anemia	278	61.8
	Hypertension/pre-eclampsia/eclampsia	22	4.9

	Gestational diabetes	24	5.3
	Infections	11	2.4
	Postpartum hemorrhage	54	12.0
	Others	48	10.7

Out of 450 participants, 65.1% reported at least one complication during pregnancy. Anemia was the most commonly reported condition (61.8%). Other complications included postpartum hemorrhage (12.0%), gestational diabetes (5.3%), hypertensive disorders (4.9%), and infections (2.4%), which contribute to increased morbidity and highlight the continuing burden of preventable pregnancy-related health problems among women living in urban slums.

**Table 4. Antenatal care utilization among participants (N = 450)**

ANC Indicator	Category	Frequency	Percentage (%)
Received ANC	Yes	440	97.8
	No	10	2.2
Number of ANC Visits	1-3 visits	425	94.4
	4-7 visits	13	2.9
	More than 7	2	0.4

Although almost all participants reported attending antenatal care services at least once during pregnancy (97.8%), the majority of participants limited contact with health services. Nearly 94.4% reported only one to three antenatal visits; this pattern suggests that while initial access to ANC services may be relatively high, continuity and completeness of care remain insufficient.

**Association between Unmet SRH Needs and Pregnancy Complications**

**Table 5. Association between unmet SRH needs and pregnancy complications (N = 450)**

Unmet SRH	Total	Pregnancy Complications (Yes) n (%)	Pregnancy Complications (No) n (%)	p value

Needs				
Yes	418	289(69.1)	129(30.9)	<0.001
No	32	4(12.5)	28(87.5)	

Unmet SRH needs were reported by 92.9% of women. Among those with unmet needs, 69.1% experienced pregnancy complications, compared to 12.5% among women whose SRH needs were met. This difference was statistically significant ( $p < 0.001$ ). These findings highlight the potential role of inadequate access to sexual and reproductive needs which is increasing the risk of adverse maternal health outcomes.

### Logistic Regression Findings

**Table 6. Odds ratio for pregnancy complications associated with unmet SRH needs**

(N = 450)

Variable	Odds Ratio	95% CI	p value
Unmet SRH needs (unadjusted)	15.68	5.39–45.63	<0.001
Unmet SRH needs (adjusted)	0.064	0.03-0.34	<0.001

Binary logistic regression analysis was performed to examine the association between unmet sexual and reproductive health (SRH) needs and pregnancy complications among married women residing in the selected urban slum areas.

In the unadjusted model, women who reported unmet SRH needs had significantly higher odds of experiencing pregnancy complications compared with women whose SRH needs were met (OR = 15.68; 95% CI: 5.39–45.63;  $p < 0.001$ ). This finding indicates a strong positive association between unmet reproductive health needs and pregnancy-related complications.

To control for potential confounding factors, a multivariable logistic regression model was applied,

including selected socio-demographic variables. After adjustment, the association between unmet SRH needs and pregnancy complications remained statistically significant (AOR = 0.064; 95% CI: 0.03–0.34;  $p < 0.001$ ).

The adjusted odds ratio suggests that women whose sexual and reproductive health needs were adequately met had approximately 93.6% lower odds of experiencing pregnancy complications compared with women whose needs remained unmet.

These findings highlight the important role of access to reproductive health services in preventing maternal health complications. Limited availability of contraception, reproductive health information, and maternal health services may increase women’s vulnerability to pregnancy complications, particularly in socio-economically disadvantaged urban slums.

Overall, the results demonstrate that unmet sexual and reproductive health needs are a significant predictor of pregnancy complications among women living in urban slum settings.

### Discussion

The present study examined the prevalence of pregnancy complications and their association with unmet sexual and reproductive health (SRH) needs among married women residing in urban slum communities of New Delhi. The findings revealed a high burden of pregnancy complications, with nearly two-thirds of participants reporting at least one complication during pregnancy. Anemia emerged as the most frequently reported condition, followed by postpartum hemorrhage and gestational diabetes. These findings highlight the persistent maternal health challenges faced by women living in socio-economically disadvantaged urban environments.

The high prevalence of anemia observed in this study is consistent with global evidence indicating that anemia remains one of the most common maternal health problems in low- and middle-income countries. Previous research has shown that nutritional deficiencies, poor antenatal care utilization, and socio-economic inequalities contribute significantly to maternal anemia in developing countries.<sup>26</sup> Similarly, national surveys in India have reported high levels of anemia among pregnant women, particularly among those belonging to economically disadvantaged populations.<sup>4</sup>

The study also identified a strong association between unmet sexual and reproductive health needs and pregnancy complications. Women with unmet SRH needs had significantly higher odds of experiencing pregnancy complications compared with women whose

needs were met. These findings support earlier research demonstrating that limited access to reproductive health services increases women's vulnerability to adverse pregnancy outcomes. Studies conducted in urban India have shown that inequalities in maternal health service utilization remain substantial, particularly among women residing in slum communities.<sup>9</sup>

Urban slum populations often face multiple structural barriers that limit access to essential healthcare services. Poor living conditions, limited financial resources, lack of awareness, and inadequate healthcare infrastructure can restrict women's ability to obtain timely maternal healthcare. Previous studies have highlighted that socio-economic disadvantage and urban inequalities significantly influence maternal health outcomes and healthcare utilization patterns.<sup>10,16</sup>

Although the majority of women in the present study reported receiving antenatal care, many reported fewer visits than recommended by international guidelines. Adequate antenatal care is essential for early detection and management of pregnancy complications. Evidence from previous studies indicates that insufficient antenatal visits are associated with increased risk of maternal morbidity and adverse pregnancy outcomes.<sup>13,18</sup>

The association between unmet SRH needs and pregnancy complications observed in this study may be explained by several pathways. Limited access to contraception and reproductive health counselling may increase the likelihood of unintended pregnancies and closely spaced births, both of which are known risk factors for pregnancy complications. In addition, inadequate reproductive health information may delay healthcare seeking and reduce awareness of pregnancy danger signs. Similar findings have been reported in studies examining maternal health service utilization in India and other low-resource settings.<sup>7,8</sup>

The findings of this study also align with global evidence emphasizing the importance of strengthening reproductive health services to improve maternal health outcomes. High-quality healthcare systems and equitable access to maternal health interventions are essential for reducing maternal morbidity and mortality.<sup>21,29</sup>

From a policy perspective, improving access to comprehensive sexual and reproductive health services in urban slum communities is critical. Community-based awareness programs, improved healthcare infrastructure, and culturally sensitive reproductive health services can play an important role in addressing unmet SRH needs. Furthermore, strengthening maternal health programs under initiatives such as the RMNCH+A strategy may contribute to improved maternal health outcomes in underserved populations.<sup>5</sup>

The present study has several strengths. It provides empirical evidence on the relationship between unmet SRH needs and pregnancy complications in an urban slum population, a group that remains underrepresented in maternal health research. In addition, the use of primary data collected through interviewer-administered questionnaires allowed for detailed assessment of reproductive health experiences among women in marginalized communities.

However, certain limitations should be acknowledged. The cross-sectional design of the study limits the ability to establish causal relationships between unmet SRH needs and pregnancy complications. In addition, pregnancy complications were self-reported and may therefore be subject to recall bias. Despite these limitations, the findings provide important insights into maternal health challenges faced by women residing in urban slum communities.

Overall, the results highlight the urgent need to strengthen reproductive health services and improve maternal healthcare accessibility in urban slum settings. Addressing unmet sexual and reproductive health needs may play a crucial role in reducing preventable pregnancy complications and improving maternal health outcomes among vulnerable populations.

## Conclusion

Pregnancy complications are common among married women living in urban slums of New Delhi and are significantly associated with unmet sexual and reproductive health needs. Addressing these unmet needs through improved access to timely, comprehensive, and high-quality SRH services is essential for reducing maternal morbidity in marginalized urban populations.

## Limitations

The cross-sectional nature of the study limits causal interpretation. Pregnancy complications were self-reported.

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