CHAPTER 6

FINANCIAL CONSIDERATIONS IN PREGNANCY OUTCOMES

This study discusses the demographic and socioeconomic factors influencing out-of-pocket expenditure related to pregnancy and childbirth in the Agra district of Uttar Pradesh in India. The data is collected across diverse groups of women in various delivery settings using a cross-sectional mixed methods design using surveys and semi-structured interviews. This study explores the financial burdens of expectant mothers associated with income, education, geographic location, etc. Additionally, the study also identifies the patterns of healthcare utilization, particularly observing home deliveries associated with lower expenses, but with limited access to quality healthcare. Overall, this research attempts to identify the critical factors that determine OOPE and offer insights to enhance maternal healthcare by reducing OOPEs related to pregnancy and childbirth.

6.1 Background of the Study

Pregnancy and childbirth are important life events that can be expensive for some households. There are several factors associated with the financial burden in pregnancy and related healthcare, including health expenditure patterns and socioeconomic conditions. In India, the financial consequences of pregnancy is surrounded by the socioeconomic status and the choice of healthcare access. According to the OECD 2021 report, health expenditure is approximately 3.2% of GDP and there is considerable dependence on out-of-pocket expenditure for maternity care (OECD, 2021). Along with the prenatal and postnatal care costs, medications and nutrition costs are also contributing to the significant OOPE burden on low-income mothers (K. Taylor et al., 2021). Financial burden may impact access to essential healthcare, which can pose challenges to maternal health outcomes.

Geographical disparity is a significant issue that can lead to financial challenges for pregnant women. It is obvious that people living in rural and remote regions will encounter greater challenges in accessing quality healthcare and have a greater likelihood of OOPE burden (Backes et al., 2020). Delayed care and limited prenatal visits, can affect the health-seeking behavior and pregnancy outcomes negatively (Borde et al., 2020).

Providing equal access to healthcare services is the responsibility of the government. Minimum service standards and regulatory frameworks are designed to protect against the denial of care by any public or private healthcare provider (Maqbool et al., 2019). In contrast, majority of the expectant mothers are under additional financial strain, especially in the private healthcare sector where expenses are often significantly higher (Sarowar et al., 2010).

Effective interventions to reduce the disparities require a detailed understanding of socioeconomic and demographic factors that contribute to the financial burdens during pregnancy. Exploring the out-of-pocket expenses related to prenatal and postnatal care, including medicine and nutrition costs can give clear insights into the financial needs of the expectant mothers (Rahman et al., 2022). In addition, expanding comprehensive insurance coverage and support services like subsidized childcare and transportation assistance in vulnerable population groups can reduce OOP costs (Jeong et al., 2016). In the view of socioeconomic and demographic insights, and the OOP cost implications, this study aims to evaluate the impact of financial challenges associated with pregnancy and related healthcare outcomes.

6.2 Methodology

6.2.1 Study Design

Using a mixed-methods approach (both quantitative and qualitative), this study focuses at the demographic, socioeconomic, and reproductive characteristics of women who gave live births.

It investigates the extent and factors influencing out-of-pocket expenditures related to pregnancy and childbirth.

6.2.2 Study Duration and Setting

The study is conducted from January 2023 to December 2023. During this time frame, women with post-partum periods, with various socio-economic strata, are recruited from healthcare facilities and community settings of Agra district, Uttar Pradesh, India.

6.2.3 Data Collection Methods

The quantitative aspect of the research is undertaken by a cross-sectional survey study with structured questionnaires. Complementing the quantitative study, the qualitative part again uses a facility-based cross-sectional survey study with self-administered questionnaires and semi-structured in-depth interviews to explore the contributing factors for the OOPE on pregnancy and related health care.

6.2.4 Study Population

A total population of 76,350 women who gave live births were found in the study setting during the period between January 2023 to December 2023. Upon conducting an initial survey for sample recruitment (consent to participate), 804 participants showed a willingness to participate. All the health facilities providing prenatal and childbirth services in the Agra district, as well as home deliveries (home), are considered to be the potential source facilities, while women who gave birth are considered sources of information. The women who gave live birth within one month during the timeframe from January 2023 to December 2023 in the sampled facilities are contemplated as the study population. The facility administration that showed unwillingness to conduct the study is excluded. Additionally, women with specific medical conditions that could potentially confound the results and those unwilling to participate are also excluded from the study.

6.2.5 Sampling Methodology

This study is conducted in both rural and urban areas for a comprehensive analysis of the disparities in health expenditure among pregnant women (Sanogo & Yaya, 2020). A total of 804 participants, who showed a willingness to participate are considered for the quantitative study.

Using the standard sampling formula, the total sample size (n) is calculated for the desired confidence level, margin of error and the estimated proportion of live births. Stratified random sampling method is used to make representation across diverse socioeconomic, and demographic groups. The sampling method comprises the participants across three strata such as home deliveries, private hospital deliveries, and public hospital deliveries. The allocation of sample size to different strata is done in proportion to their sizes (Emori et al., 2014).

A stratified random sampling for the proportional allocation is done by using the following formula:

$$n_h = \frac{N_h}{N} . n \qquad ---------- (1)$$

Where,

nh - Sample size required for stratum h.

Nh - Population size of stratum h (the total number of live births in that stratum).

N - Total population size across all strata.

n - Total sample size required for the entire population.

The total sample size is distributed among the strata according to the proportion of the population within that stratum (Cochran, 1977; Levy & Lemeshow, 2013).

Among the 804 participants, 125 women delivered at home, 308 women delivered in private hospitals and 371 in public hospitals. After adjusting for the total sample size based on standard sampling formula and proportional allocation formula, the total adjusted sample size is 428 and it is then allocated to each cluster as 67 samples to home deliveries; 164 and 197 samples to private and public hospital deliveries respectively. The sample size for each cluster is a proportional allocation based on the proportion of live births in each setting (Goli et al., 2018).

For the qualitative part of the study, a subset of 50 participants is chosen using the purposive sampling technique. Additionally, they are also purposively designated as key informants for the qualitative semi-structured in-depth interviews.

6.2.6 Questionnaire Development

To effectively address the research objectives of this study, an in-house questionnaire is developed for both quantitative and qualitative components based on the extensive research needs assessment and with valuable inputs from various experts, including government health officials, administrative officials, hospital administration, and public health officers.

The quantitative study questionnaires are designed with clear research objectives in mind and aim to gather specific observations and insights that are crucial for informing decision-making processes.

The Likert scale questions and interview questions in the questionnaire for qualitative study are thoughtfully designed and developed, ensuring their relevance in capturing the targeted qualitative aspects that this study aims to explore. Careful consideration is given to the response options to offer participants a sufficient level of granularity in expressing their opinions, experiences, or attitudes. It is firmly believed that the in-house questionnaires are the most appropriate and effective approach for this study's objective. The English version of

questionnaires used for both quantitative and qualitative studies are included as supplemental material (**Appendix C**).

6.2.7 Pre-testing and Validation

Each questionnaire (both quantitative and qualitative) is subjected to pre-testing and quality checks in 10% of the sample population to ensure reliability and effectiveness and is not included in the main study. This approach allowed to validation and refinement of the questionnaire, ensuring its optimal performance before implementing it in the main study.

The expertise and diverse perspectives of various professionals have greatly contributed to the questionnaire's content and design, ensuring that it elicits the necessary information accurately and comprehensively. In testing the questionnaire, the responses from the sample facilities are analyzed and critically examined for their performance in terms of clarity, relevance, and data reliability. Through this improvement and quality check process, potential ambiguities or issues are identified and necessary adjustments are made to enhance the questionnaire's validity and consistency. By following this rigorous scientific approach, a robust foundation is established for the data collection. Moreover, using an in-house questionnaire provides several benefits, as it allows to maintain the control over the research process, customizes the questionnaire to specific research needs, and ensures a higher level of consistency and reliability compared to using third-party questionnaires.

6.2.8 Data Collection Process

The authors/data collectors collected the data using data abstraction formats and self-administered questionnaires, and the principal investigator conducted the qualitative semi-structured in-depth interviews. Self-administered questionnaires data collection sheet includes questions related to demographics, income level, insurance coverage and healthcare utilization patterns. Moreover, questionnaires on their out-of-pocket expenses covering prenatal care like

healthcare bills, medications, transportation, and indirect costs like lost wages are included (Jeong et al., 2016). In addition, the questionnaires on the health seeking behaviour, insurance coverage and healthcare utilization patterns are also included (Yang & Yu, 2023).

Key informants are interviewed using a semi-structured approach designed to elicit their views/perspectives on the problem's causes and present initiatives to address them. Data collectors are trained for four days on the data collection instruments and processes before data collection. Two experts from the health department of the district administration are invited to review the interview guide for an in-depth interview to ensure its face and content validity.

6.2.9 Analysis and Statistics

Socioeconomic and demographic variables of the study participants, service utilization, and policy measures among the women who gave live births are the critical components of the analysis. The analysis is performed in aggregate and descriptive parameters such as Frequency, Mean, and Standard Deviation (SD) are calculated for different variables. To investigate the potential association between socioeconomic, and demographic variables and the choice of availing healthcare services from either public or private providers, or at home, a chi-square test is conducted using GraphPad Prism® Version 5.01 statistical software. The socioeconomic, demographic, and geographic variables considered in this analysis included residence, age, gravida, level of education, marital status, occupation of husband/guardian, self-occupation, monthly family income, distance to health facility, and number of hospital visits during pregnancy. The associated *p-value* is reported and the *p-value* ≤ 0.05 is considered statistically significant.

In the Likert scale method employed in the qualitative study, respondents are asked to rate their level of agreement or disagreement with each statement (total of 13 factors) using a 5-point scale from 1 to 5. The scale ranged from “1 - Strongly Disagree” to “5 - Strongly Agree”.

Participants are instructed to select the response option that best represents their viewpoint. Based on the specific values of each response, the mean scores and standard deviation for each factor are computed based on the provided ratings. The analysis and interpretation of participant responses are used to evaluate the factors contributing to impaired public service utilization and out-of-pocket expenditure.

Data from an in-depth interview is subjected to a thematic analysis approach. Key themes such as contributing factors, and suggestions for improving service utilization and reducing the OOPE are manually reviewed and handled.

6.3 Results

6.3.1 Quantitative Findings

6.3.1.1 Socioeconomic, Demographic, and Geographic Variables

In this study, pregnant women are recruited from urban and rural locations for geographical diversity. Participants were 18–40 years old and varied in education, occupation, and wealth status. The experiences of married, single, and divorced women are also considered by including pregnant women with different marital statuses. Additionally, a range of parity and gestational ages are allowed for a comprehensive analysis of reproductive characteristics.

The Chi-square tests conducted on various socioeconomic, demographic, and geographic variables across three clusters of delivery locations (Home, Private Hospital, and Public Hospital) aim at understanding its association with the financial burdens of pregnancy and related healthcare. The socioeconomic, demographic, and geographic variables across three clusters of delivery locations are shown in **Table 6.1**, along with the *p values* for differences.

The study assessed 67 home deliveries, 164 private hospital deliveries, and 194 public hospital deliveries. This study finds that there are no statistically significant differences in marital status

and self-occupation regarding the choice of availing services from the healthcare sector for childbirth. However, factors such as residence, age, gravida, level of education, occupation of husband/guardian, monthly family income, distance to the health facility, and the number of hospital visits during pregnancy are significantly associated with differences in the choice of availing maternity-related healthcare services between the private sector, public sector, and non-healthcare sector (home).

Table 6.1: Descriptive Statistics on the Socioeconomic, Demographic, and Geographic factors across three clusters of women who gave live births in the study setting (January 2023 to December 2023), Agra District, Uttar Pradesh, India

Variable	Home N (%) n=67	Private N (%) n=164	Public N (%) n=197	Chi-square statistic (χ^2) & P value*
Residence				
Urban	3 (4.5)	143 (87.2)	111 (56.3)	**137.7 & <0.0001**
Rural	64 (95.5)	21 (12.8)	86 (43.7)	
Age				
18-25	35 (52.2)	109 (66.5)	122 (62)	**19.53 & 0.0034**
26-35	28 (41.8)	55 (33.5)	73 (37)	
36-45	4 (6)	0 (0)	1 (0.5)	
>45	0 (0)	0 (0)	1 (0.5)	
Gravida				
Primigravida	8 (12)	77 (47)	48 (24.4)	**34.89 & <0.0001**
Multigravida	59 (88)	87 (53)	149 (75.6)	
Level of Education				
None	14 (20.9)	15 (9.2)	13 (6.6)	**21.64 &**
High School or Below	33 (49.3)	63 (38.4)	104 (52.8)	

Higher Secondary or Diploma	18 (26.8)	75 (45.7)	73 (37)	**0.0014**
Degree/Graduates or Above	2 (3)	11 (6.7)	7 (3.6)	
Marital Status				
Married	66 (98.5)	163 (99.4)	195 (99)	1.90 & 0.7541^{ns}
Widowed	1 (1.5)	1 (0.6)	1 (0.5)	
Divorced	0 (0)	0 (0)	1 (0.5)	
Occupation of Husband/Guardian				
Casual Labour	19 (28.4)	12 (7.3)	70 (35.5)	**140.3 & <0.0001**
Cultivator	36 (53.7)	28 (17.1)	86 (43.7)	
Employed (Salaried)	0 (0)	66 (40.2)	18 (9.1)	
Employed (Self)	12 (17.9)	58 (35.4)	23 (11.7)	
Occupation (Self)				
Casual Labour	8 (11.9)	17 (10.4)	16 (8.1)	17.55 & 0.0631^{ns}
Cultivator	11 (16.4)	9 (5.5)	23 (11.7)	
Home Maker	48 (71.7)	123 (75)	147 (74.6)	
Employed (Salaried)	0 (0)	7 (4.3)	2 (1)	
Employed (Self)	0 (0)	3 (1.8)	2 (1)	
Student	0 (0)	5 (3)	7 (3.6)	
Monthly Family Income				
<5000 INR	39 (58.2)	24 (14.6)	57 (28.9)	**154.8 & <0.0001**
5001-10000 INR	18 (26.9)	18 (11)	99 (50.3)	
10001-15000 INR	8 (11.9)	65 (39.6)	18 (9.1)	
>15000 INR	2 (3)	57 (34.8)	23 (11.7)	
Distance to Health Facility				
Up to 5 KM	32 (47.8)	25 (15.2)	50 (25.4)	**26.85 & <0.0001**
More than 5 KM	35 (52.2)	139 (84.8)	147 (74.6)	
No. of Visits to Hospital During Pregnancy				

None	25 (37.3)	0 (0)	0 (0)	**201.3 &**
One or two	22 (32.8)	22 (13.4)	19 (9.6)	**<0.0001**
Three	15 (22.4)	58 (35.4)	117 (59.4)	
Four and more	5 (7.5)	84 (51.2)	61 (31)	

**P value ≤ 0.05 was considered statistically significant, ns – non-significant*
N-Frequency, %-Percentage, n-total respondents in the respective category, INR-Indian Rupee currency

6.3.1.2 Financial and Healthcare Utilization Variables

The analysis of financial and healthcare utilization variables across the three clusters of women who gave live births within the study setting reveal significant variations in expenditures, and the data are shown in **Table 6.2**. It is well known that public hospitals have no charges for consultations, diagnostic aspects, and monthly medicine expenses, but private hospitals impose charges on 100% of the participants in different aggregates, which cannot be prevented.

The distribution of OPD visits/consultation charges per visit varies widely, with private hospitals incurring charges ranging from less than 500 INR to over 1000 INR. Lab and radiology expenditures similarly show a diverse range, with some private hospital-delivered participants incurring significant expenditures exceeding 10,000 INR for lab tests and up to 10,000 INR for radiology services. Moreover, newborn care expenditures, nutritional expenses, and other expenses vary significantly, especially for the women participants from private hospital deliveries.

Regarding healthcare support, the presence of ASHA (frontline healthcare workers) visits during pregnancy and the receipt of Janani Suraksha Yojana (JSY) benefits are documented with varying proportions of participants receiving these services. Lastly, the source of money for expenditure includes daily wages, farming, government aid, insurance, loans, salaries, savings, and business income. These findings highlight the significant financial burden and diverse healthcare utilization experiences among the women participants in the study.

The analysis reveals significant differences in financial burden among the participants who gave birth at home, in private hospitals, and public hospitals within the study setting. It is important to note that the participants who gave birth at home incur negligible financial expenses compared to those who delivered in public or private. However, the healthcare utilization aspects for home deliveries are considered significantly poor, with less OPD visits, minimum lab and radiology expenditures, and lower nutritional and medication costs. This lack of healthcare utilization is associated with increased risks for both the mother and newborn. Despite not facing considerable financial burdens, the absence of adequate medical support and supervision during home deliveries underscores the critical need for improving maternal healthcare and safe delivery practices. These findings emphasize the importance of enhancing healthcare utilization to mitigate associated risks and improve outcomes for mothers and newborns in home birth settings.

Table 6.2: Financial and Healthcare Utilization variables across three clusters of women who gave live birth in the study setting (January 2023 to December 2023), Agra District, Uttar Pradesh, India

Variables	Type of Hospital for Availing Health Service		
	Home N (%) n=67	Private N (%) n=164	Public N (%) n=197
OPD Visits/Consultation Charges Per Visit			
Free of Charge/NA	25 (37.3)	0 (0)	173 (87.8)
<500 INR	42 (62.7)	103 (62.8)	16 (8.1)
501-1000 INR	0 (0)	42 (25.6)	8 (4.1)
>1000 INR	0 (0)	19 (11.6)	0 (0)
Lab Expenditure			
Free of Charge/NA	30 (44.8)	0 (0)	153 (77.7)
<1000 INR	28 (41.8)	45 (27.4)	31 (15.7)
1001-5000 INR	9 (13.4)	85 (51.8)	13 (6.6)

5001-10000 INR	0 (0)	28 (17.1)	0 (0)
>10000 INR	0 (0)	6 (3.7)	0 (0)
Radiology Expenditure			
Free of Charge/NA	29 (43.3)	0 (0)	149 (75.6)
<1000 INR	38 (56.7)	24 (14.6)	17 (8.6)
1001-5000 INR	0 (0)	125 (76.2)	24 (12.2)
5001-10000 INR	0 (0)	15 (9.2)	7 (3.6)
Transportation Expenditure			
Free of Charge/NA	49 (73.1)	0 (0)	27 (13.7)
<500 INR	13 (19.4)	56 (34.1)	152 (77.2)
501-1000 INR	5 (7.5)	67 (40.9)	8 (4.1)
1001-2000 INR	0 (0)	29 (17.7)	7 (3.5)
>2000 INR	0 (0)	12 (7.3)	3 (1.5)
Monthly Medicine Expenses			
Free of Charge	61 (91)	0 (0)	172 (87.3)
<500 INR	6 (9)	80 (48.8)	11 (5.6)
501-1000 INR	0 (0)	34 (20.7)	8 (4.1)
1001-2000 INR	0 (0)	22 (13.4)	6 (3)
>2000 INR	0 (0)	28 (17.1)	0 (0)
Newborn Care Expenditure			
Free of Charge	0 (0)	9 (5.5)	174 (88.3)
<1000 INR	0 (0)	91 (55.5)	11 (5.6)
1001-4000 INR	0 (0)	38 (23.1)	8 (4.1)
4001-10000 INR	0 (0)	26 (15.9)	3 (1.5)
>10000 INR	0 (0)	0 (0)	1 (0.5)
Nutrition Expenditure			
Free of Charge/NA	38 (56.7)	49 (29.9)	115 (58.4)
<1000 INR	15 (22.4)	24 (14.6)	56 (28.4)
1001-5000 INR	11 (16.4)	67 (40.9)	17 (8.6)
>5000 INR	3 (4.5)	24 (14.6)	9 (4.6)
Other Expenses			
NA	28 (41.8)	0 (0)	0 (0)

<500 INR	17 (25.4)	120 (73.2)	144 (73.1)
500-1000 INR	12 (17.9)	20 (12.2)	34 (17.3)
1001-2000 INR	10 (14.9)	17 (10.3)	13 (6.6)
>2000 INR	0 (0)	7 (4.3)	6 (3)
ASHA Visit during Pregnancy			
Yes	37 (55.2)	162 (98.8)	197 (100)
No	30 (44.8)	2 (1.2)	0 (0)
Janani Suraksha Yojana (JSY) Benefits			
Yes	0 (0)	86 (52.4)	170 (86.3)
No	67 (100)	78 (47.6)	27 (13.7)
Source of Money on Expenditure			
Daily Wages	27 (40.3)	15 (9.2)	16 (8.1)
Farming	30 (44.8)	28 (17.1)	32 (16.2)
Government Aid	0 (0)	45 (27.4)	124 (62.9)
Insurance	0 (0)	4 (2.4)	0 (0)
Loan	10 (14.9)	5 (3)	2 (1.1)
Salary	0 (0)	34 (20.7)	3 (1.5)
Savings	0 (0)	17 (10.4)	20 (10.2)
Business	0 (0)	16 (9.8)	0 (0)

N-Frequency, %-Percentage, n-total respondents in the respective category, INR-Indian Rupee currency, OPD-Out Patient Department, NA-Not Applicable

6.3.2 Qualitative Findings

6.3.2.1 Perceived factors contributing to the burden of OOPE on pregnancy and related healthcare expenses

A total of 13 factors, which are believed to influence service utilization and the OOPE burden, especially on pregnancy and related health care, are given as questionnaires to all the respondents, and the responses are assessed using a 5-point Likert scale.

Among the factors assessed, several factors are found to be particularly significant in the context of pregnancy and related health care. The most commonly perceived contributors are as follows,

- **Inadequate Government Maternity Care Facilities**: Respondents indicated that there is insufficiency in government related maternity care facilities, which leads to rely on more expensive private sector services, significantly increasing their OOPE. This factor received a mean score of 3.88 ± 1.18 (Mean ± Standard Deviation).
- **Rising Costs of Prenatal and Postnatal Care**: Another key factor identified is the escalating costs associated with prenatal and postnatal care services, allowing many families to allocate a larger portion of their income to ensure adequate maternal and child healthcare. This factor received a mean score of 3.76 ± 1.16 (Mean ± Standard Deviation).
- **Limited Availability of Essential Medicines and Supplies**: The limited availability of essential medicines and supplies in government hospitals identified as another critical factor, which force the individuals towards additional out-of-pocket costs to obtain necessary medicines from private sectors. This factor received a mean score of 3.70 ± 1.28 (Mean ± Standard Deviation).
- **Low Real Monthly Disposable Income**: Respondents also expressed concern about the impact of a low real monthly disposable income on worsening the financial problems associated with pregnancy. This factor is rated with a mean score of 3.64 ± 1.41 (Mean ± Standard Deviation).

The mean scores of all responses concerning the various contributing factors are presented in **Table 6.3**.

Table 6.3: Perceived factors contributing to the burden of OOPE on pregnancy and related healthcare expenses in the study setting (January 2023 to December 2023), Agra District, Uttar Pradesh, India (n=50)

S. No	Contributing Factors	Frequency (%)					Mean (SD)
		SD	D	N	A	SA	
1	Rising costs of prenatal and postnatal care services create a significant financial strain	1 (4)	2 (4)	3 (5)	4 (24)	5 (13)	**3.76 (1.16)**
2	Rising inflation increases the overall cost of pregnancy-related healthcare	1 (16)	2 (1)	3 (7)	4 (21)	5 (5)	2.96 (1.46)
3	Government spending on prenatal and postnatal care is insufficient	1 (10)	2 (4)	3 (12)	4 (20)	5 (4)	3.08 (1.26)
4	Prescriptions often include high-cost branded maternity drugs and supplies that are expensive	1 (16)	2 (8)	3 (7)	4 (10)	5 (9)	2.76 (1.52)
5	Limited availability of essential medicines and supplies in government hospitals leads to additional costs	1 (7)	2 (2)	3 (3)	4 (25)	5 (13)	**3.7 (1.28)**
6	Utilization of government maternity medical services is poor due to perceived inadequacies	1 (10)	2 (6)	3 (4)	4 (14)	5 (16)	3.4 (1.52)
7	Inadequate government maternity care facilities lead to a reliance on more expensive private services	1 (3)	2 (5)	3 (5)	4 (19)	5 (18)	**3.88 (1.18)**
8	Government schemes targeting the reduction of OOPE for maternity care are not sufficient	1 (15)	2 (6)	3 (10)	4 (12)	5 (7)	2.8 (1.44)
9	Government schemes for reducing OOPE in maternity care are not effectively reaching the target population	1 (10)	2 (6)	3 (3)	4 (21)	5 (10)	3.3 (1.43)
10	Most pregnant women do not have sufficient health insurance coverage to cover pregnancy-related expenses	1 (13)	2 (6)	3 (5)	4 (12)	5 (14)	3.16 (1.58)
11	Private maternity medical services are perceived to offer better quality of care compared to public services	1 (13)	2 (8)	3 (4)	4 (12)	5 (13)	3.08 (1.57)
12	Dependence on private maternity services, which are more costly, significantly contributes to OOPE	1 (23)	2 (8)	3 (4)	4 (10)	5 (5)	2.32 (1.46)
13	Low real monthly disposable income worsens the financial impact of pregnancy-related expenses	1 (8)	2 (3)	3 (5)	4 (17)	5 (17)	**3.64 (1.41)**

SD-Strongly Disagree, D-Disagree, N-Neutral, A-Agree, SA-Strongly Agree, Mean (SD)- Mean (Standard Deviation)
Response scores ranged from Strongly Agree (5) to Strongly Disagree (1)

6.3.3 Qualitative Semi-Structured In-Depth Interview Findings

In-depth interviews are conducted with all the qualitative study participants (n = 50), to explore their perspectives. The interviews are structured around three primary patterns of responses, such as

- ✓ Factors that contribute to impaired public service utilization
- ✓ Strategies for improving the burden of OOPE on pregnancy-related expenses
- ✓ Suggestions to the Government/policymakers in reducing the burden of OOPE on pregnancy-related expenses

6.3.3.1 Factors that Contribute to Impaired Public Service Utilization

The key informants mention several critical factors that contribute to the impaired public healthcare service utilization, such as:

- ✓ Prolonged wait times at OPD and drug counters
- ✓ Insufficient infrastructure in government hospitals
- ✓ The lack of branded medicines in government hospitals
- ✓ Misconceptions regarding the quality of services in government hospitals

6.3.3.2 Strategies for improving the burden of OOPE on pregnancy-related expenses

Key informants in the study are asked for their opinions on the effective strategies that could be implemented at the facility level to alleviate the burden of out-of-pocket expenditures (OOPE). The following suggestions are made by the key informants,

- ✓ Enhancing government facilities and infrastructure.
- ✓ Increasing the number of healthcare professionals.
- ✓ Decreasing long wait times.
- ✓ Providing financial counselling services to households.

- ✓ Creating awareness on government subsidies for pregnancy-related healthcare.

6.3.3.3 Suggestions to the Government/policymakers in reducing the burden of OOPE on pregnancy-related expenses

Key informants are asked for their suggestions to the government and policymakers on the strategies to improve service utilization and reduce OOPE. Their insights reveal a comprehensive set of proposed strategies in addressing existing challenges. They suggest for increased funding for maternal healthcare in public hospitals to ensure that all essential services and medications are available free of charge. They also suggest that policies should be implemented to regulate the costs of prenatal and postnatal care in private hospitals, that are affordable.

Some of the key informants mention that introducing government subsidies specially to the pregnancy-related healthcare costs can directly alleviate the financial burden on households. This targeted financial support could make a substantial difference in ensuring equitable access to quality maternity care.

6.4 Discussion

In this study, the quantitative analysis uncovered significant correlations between various socioeconomic, demographic, geographic factors and out-of-pocket costs on pregnancy-related healthcare (Krishnamoorthy et al., 2020). It is found that factors such as education, income, and geographic location are closely associated with the level of financial burden experienced by pregnant women (A. K. Taylor et al., 2006). A lower OOPE burden is linked with educational qualification and high income, which underscores the influence of socioeconomic status on health expenditure during pregnancy. In addition, this study reveals the gaps associated with OOP costs in urban and rural areas, which highlights the need for the targeted

interventions to address the financial challenges faced by pregnant women (Ouedraogo et al., 2021; Simkhada et al., 2014).

Out-of-pocket expenditure (OOPE) in India accounts for 63% of the total health spending, which is significantly above the global trends. The burden on public healthcare infrastructure often drives the general public towards private clinics, where the charges are significantly higher. On the other hand, individuals pay out-of-pocket due to the limited health insurance coverage. Additionally, the cost of medicines and diagnostic services remains high due to inefficient government regulations, which further increases the financial burden on households (Sriram & Khan, 2020).

Expanding public healthcare infrastructure, increasing awareness of government health insurance schemes like Ayushman Bharat Pradhan Mantri Jan Arogya Yojana (PM-JAY), and regulating the cost of essential medicines and diagnostics could reduce OOPE burden. Additionally, the initiatives by the government of India to distribute generic medicines at affordable prices and by making essential medications more accessible align with the goal of lowering healthcare costs for the general public (Rejikumar et al., 2018).

This study also shows the intricate relationship between socioeconomic, demographic, and geographical factors and the choice of delivery location. Age, gravida status, education level, occupation of husband/guardian, distance to health facilities, and the number of hospital visits during pregnancy are significant determinants in the financial decision-making process for delivery locations. These factors influence not only the direct costs, such as fees for delivery services, but also indirect costs, including transportation and additional hospital visits. The absence of significant associations with marital status and the respondent's occupation suggests that the direct costs of delivery and related healthcare services might be more universally challenging, regardless of these factors.

The significant association between delivery location choice and distance to health facilities, as well as the number of hospital visits, underlines the critical role of accessibility and the need for frequent healthcare interventions in shaping the financial burdens of pregnancy. This points towards a need for policy interventions that could include improving transportation, reducing travel costs for pregnant women, and enhancing insurance coverage or financial support for those requiring frequent medical attention. In terms of health insurance, this quantitative and qualitative finding shows a very low number of individuals on health insurance, which is overall 2.4% in whole sampled participants, and it is one of the significant perceived contributing factors in escalating the OOPE issues. Concerning the issue of financial inequality, pregnant women who has lower household incomes are subject to higher financial burdens. The government should prioritize advancing the promotion of comprehensive health insurance schemes. Understanding all these dynamics is crucial for designing effective policies and interventions aimed at minimizing the financial burdens of pregnancy.

The financial variables analyzed in this study underscore the diverse and significant financial burdens associated with pregnancy, reflecting both direct healthcare costs and broader socioeconomic and demographic factors influencing out-of-pocket expenses. Public hospitals play a crucial role in alleviating financial burdens through free or subsidized services, including JSY benefits, radiology, and newborn care. However, the presence of significant out-of-pocket cost in private hospitals highlights disparities in access to affordable care. In terms of socioeconomic and demographic correlations, variations in financial burdens across different types of expenditures suggest that the factors such as income, education, and geographic location significantly influence healthcare choices and the associated costs.

The qualitative analysis provided rich insights into the nuanced experiences of pregnant women with out-of-pocket expenditures. It complemented the quantitative results by providing a deeper understanding of the financial challenges faced during pregnancy (Sekandari et al.,

2024; Tura et al., 2022). Inadequate government maternity care makes expectant mothers to rely on costly private healthcare services and thus further adds to the financial burden. Also, the rising costs associated with prenatal and postnatal care services further compound the financial strain on families, particularly those with limited resources, which can significantly impact the financial well-being of individuals and families. Moreover, the low real monthly disposable income among the individuals with pregnancy-related expenses magnifies the economic challenges.

Key informants mention several critical factors that contribute to the impaired public healthcare services. They emphasize the urgent need for infrastructure improvements to enhance service delivery. Additionally, addressing misconceptions about the quality of care provided in public health facilities is deemed essential. Strategies proposed by informants aims at strengthening the capabilities of government healthcare facilities, offering financial counselling, and advocating for more comprehensive government subsidies to alleviate the burden of out-of-pocket expenses on pregnancy-related healthcare costs. Overall, the integrated analysis of both quantitative and qualitative data allowed for a comprehensive exploration of the determinants of out-of-pocket costs during pregnancy. The findings underscore the complexity of factors influencing health expenditure and highlight the critical need for targeted interventions to alleviate the financial burden on expectant mothers, ultimately improving maternal and child health outcomes (Sriram & Khan, 2020).

6.5 Limitations and Strengths of this Study

The study is limited by self-reporting bias and geographical focus, which pose limitations despite its valuable insights. Further, the study covered only service utilization and OOPE burden in public and private hospitals, and did not assess the quality and outcome of the private

sector hospitals. The strength of this study includes the use of both quantitative and qualitative methods to supplement each other.

6.6 Conclusions

A comprehensive analysis of both quantitative and qualitative data lead to insights of the determinants of out-of-pocket costs incurred during pregnancy and childbirth, and the financial burden of out-of-pocket cost borne by expectant mothers of varied socio-economic and demographic profiles. These results reveal notable trends and correlations between various socioeconomic and demographical factors to the pregnancy and related healthcare expenditure, and a greater understanding of the factors that contribute to health expenditure during pregnancy. Structured questionnaires and semi structured interviews are integrated together to explore the emotional and practical implications of financial strain on pregnant women in different location. Further, the outcome of the study provides a critical need for targeted interventions to help reduce the financial burden of expectant mothers and improve maternal and child health outcomes. This research leverages the financial burden of pregnancy to highlight the need of comprehensive policy measures in addressing the gaps for equitable access.

6.7 Ethical Considerations

The study complies with the declaration of Agra district health department. The Chief Medical Officer (CMO) of the Agra district administration has given approval for the study protocol, and the permissions are obtained from all the study facilities to conduct the study. Participants are informed that their personal information will remain confidential and will only be used for the study purpose. The consent process includes a clear explanation of the study's objectives, and the participants are given the privilege to withdraw from the study at any time. Written informed consent is obtained from each study participant for their participation and publication

of the results. All data collected from participants is kept confidential by not using personal identifiers. For confidentiality and ethical considerations, the names of sampled health facilities are identified only by codes throughout the study.