

Affordability, Accessibility, and Quality of Maternal Health Care Services and Level of Satisfaction of Mothers in Rural Areas in China

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Abstract: *Objective:* This study aimed to understand the affordability, accessibility, and quality of maternal and child health services for postpartum mothers, and their impact on satisfaction. *Methods:* The study utilized the Anderson model and revised the Maternal Pregnancy and Perinatal Health Service Questionnaire. A survey was conducted among 289 mothers aged 20–49 in Feicheng City. *Results:* Regarding accessibility, most respondents (133) reported that travel time to healthcare services exceeded 60 minutes, while 99 respondents indicated a travel time of 16–30 minutes. The issue of affordability was highlighted, with 86.85% of participants perceiving maternal healthcare services as costly, indicating a significant financial burden. More than 50% of respondents were satisfied with two specific dimensions ($P < 0.05$) regarding the quality of maternal healthcare services. *Conclusion:* The study found that accessibility, affordability, and quality significantly affect mothers' satisfaction with maternal health services. Future research should focus on developing more suitable service pathways for rural mothers.

Keywords: Affordability; Accessibility; Quality; Maternal health care services; Level of satisfaction; Rural area

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1. Introduction

The health of mothers and children is vital for the sustainable development of human society, and maternal health is a priority in the United Nations Sustainable Development Goals (SDGs). In rural China, maternal healthcare is also a significant focus^[1]. The accessibility, affordability, and quality of maternal care are key factors in determining a country's overall health status. However, challenges persist in rural areas, where healthcare infrastructure is fragile, and the cost of health services can be burdensome for many families. At the same time, the quality and effectiveness of nursing services throughout pregnancy significantly impact treatment outcomes for pregnant women and the establishment of a positive nurse-patient relationship. The satisfaction of mothers with nursing services, particularly antenatal and postnatal care, is a crucial measure of maternal care quality^[2].

While there have been improvements in the healthcare system and maternal health services in urban areas of China, rural areas continue to face significant challenges. Disparities in access, affordability, and quality

of maternal health services remain, particularly among minorities living in impoverished rural regions ^[3]. This study aims to investigate the impact of accessibility, affordability, and quality on the satisfaction of rural mothers with nursing services in China ^[4]. By understanding and addressing these factors, maternal health services can be improved, ultimately enhancing the overall health of mothers and children.

2. Materials and methods

2.1. General information

The study employed a non-probability purposive sampling method to select 289 mothers who had given birth. The study population adhered to WHO regulations for married women aged 15–49, while China’s Civil Code mandates marriages not earlier than 20 years of age. Inclusion criteria were as follows: (1) mothers aged 20–49; (2) those with a history of childbirth; (3) mothers who gave birth through either standard or cesarean deliveries; (4) those who had resided in Feicheng City for more than one year. Exclusion criteria were: (1) women younger than 20 years old or older than 49 years old; (2) pregnant women without a history of childbirth; (3) those with less than one year of local residency; (4) those who did not agree to participate.

2.2. Survey instruments

The study utilized a revised version of “The Maternal Pregnancy and Perinatal Health Service Questionnaire” to suit the research objectives ^[5]. The questionnaire was divided into three parts: accessibility, affordability, and satisfaction with the quality of maternal health services. The first section examined the mother’s family situation, including age, marital status, education, occupation, pre-pregnancy income, insurance type, and reimbursement. The second section focused on the accessibility and affordability of maternal care services, such as costs, travel distance, and check-up time. The third section assessed satisfaction with the quality of maternal health services.

2.3. Survey methods

The researcher obtained hospital approval to conduct the study. Participants were informed about the study’s content and objectives to ensure they understood the research process. The researcher also explained the informed consent process and asked participants if they would like to participate. The researcher visited township health centers to gather information about all women with records at Feicheng Municipal Hospital. Potential participants were identified based on the inclusion criteria, and mothers were contacted to obtain their consent to participate in the study. Before signing the informed consent form, the researcher thoroughly explained the content and key points to the participants. After obtaining consent, the questionnaire was distributed, and participants completed it using a computer or smartphone by accessing a website link or scanning a QR code at home. The questionnaire recovery rate was 100%.

2.4. Evaluation method

This study was grounded in Anderson’s Health Care Utilization Behavioral Model to evaluate the affordability, accessibility, and quality of maternal care services for rural women in China, ultimately reflecting their level of satisfaction with these services.

2.5. Statistical analysis

Data analysis was conducted using SPSS 23.0 statistical software. Nominal and ordinal variables were described using frequency and percentage. Non-parametric tests, including chi-squared and Kruskal-Wallis H

tests, were used to examine differences. Spearman’s rho correlation was employed to compare relationships between two ordinal-level variables.

2.6. Ethical Statement

The researcher adhered strictly to ethical principles, including social values, beneficence, respect for human dignity, justice, and confidentiality. To protect the privacy of subjects, the principle of anonymity was applied to all personal information, with personal codes replacing names.

3. Results

3.1. Demographic profile of the respondents

Table 1 presents the demographic profile of the 289 respondents, categorized by characteristics such as age, marital status, educational level, number of pregnancies, occupation, annual income before pregnancy, and insurance reimbursement amounts.

Table 1. Demographic profile of the respondents

	Demographic profile	Frequency	Percentage
Age group	≤ 20 years old	2	0.69
	21–25 years old	42	14.53
	26–30 years old	95	32.87
	31–35 years old	76	26.30
	36–40 years old	46	15.92
	≥ 41 years old	28	9.69
	Total	289	100.00
Marital status	Unmarried	0	0.00
	Married	230	79.58
	Widowed	20	6.92
	Divorced	20	6.92
	Others	19	6.57
	Total	289	100.00
Educational level	Primary school and below	78	26.99
	Middle school	85	29.41
	High school	76	26.30
	Junior college university	0	0.00
	Above junior college university	50	17.30
	Total	289	100.00
Number of pregnancies	One	267	92.39
	Two	20	6.92
	Three	1	0.35
	Four	0	0.00
	≥ Five	1	0.35
	Total	289	100.00

Table 1 (Continued)

	Demographic profile	Frequency	Percentage
Occupation	Persons in charge of government organs, enterprises, and institutions	28	9.69
	Professional and technical personnel	113	39.10
	Clerical and related personnel	10	3.46
	Business/service personnel	35	12.11
	Production and transportation equipment operators	3	1.04
	Soldiers	0	0.00
	Others	100	34.60
	Total	289	100.00
Income in the year before pregnancy	≤ 10,000 yuan	49	16.96
	10,001–30,000 yuan	36	12.46
	30,001–60,000 yuan	45	15.57
	≥ 60,001 yuan	159	55.02
	Total	289	100.00
Insurance reimbursement	≤ 200 yuan	41	14.19
	201–400 yuan	26	9.00
	401–600 yuan	27	9.34
	601–800 yuan	44	15.22
	≥ 800 yuan	151	52.25
	Total	289	100.00

Regarding age, the largest group among respondents is those aged 26 to 30 years, constituting approximately 32.87% of the total. The age distribution shows a decreasing trend with increasing age, with those 20 years old and below making up the smallest group at just 0.69%.

In terms of marital status, a significant majority (79.58%) are married, followed by those who are widowed and divorced, each accounting for nearly 6.92%. No unmarried respondents participated in the survey.

Educationally, the respondents are fairly evenly distributed across various levels, with the largest groups having completed middle school (29.41%) and primary school or below (26.99%). Notably, none of the respondents had an education level equivalent to junior college.

In terms of pregnancies, the vast majority have had only one pregnancy (92.39%), with minimal representation from those having two or more pregnancies.

Occupationally, the largest category includes professional and technical personnel (39.10%), followed by those in other occupations (34.60%). Categories such as clerical or business service personnel are significantly less represented.

Income levels before pregnancy indicate that over half of the respondents (55.02%) earned more than 60,001 yuan annually, while those earning less than 10,000 yuan annually comprise the smallest income group (16.96%).

Lastly, regarding insurance reimbursement, the majority received more than 800 yuan (52.25%), while those reimbursed less than 200 yuan accounted for 14.19% of the respondents. This indicates a broad range of insurance support levels among the surveyed individuals.

3.2. Accessibility of maternal health services

Table 2 details the accessibility of maternal health services among the 289 respondents, categorized by travel time to health facilities, waiting time for services, and the duration of examinations or medical treatments.

Table 2. Accessibility of maternal health services

Accessibility	Frequency	Percentage	
The travel time required for you to arrive at the institution that provides you with healthcare services during pregnancy is	≤ 15 minutes	25	8.65
	16–30 minutes	99	34.26
	31–45 minutes	28	9.69
	46–60 minutes	4	1.38
	> 60 minutes	133	46.02
	Total	289	100.00
Your waiting time for inspection/consultation is approximately	≤ 30 minutes	43	14.88
	31–60 minutes	128	44.29
	61–90 minutes	107	37.02
	> 90 minutes	11	3.81
	Total	289	100.00
The time spent on examination/medical treatment is approximately	≤ 30 minutes	69	23.88
	31–60 minutes	43	14.88
	61–90 minutes	98	33.91
	> 90 minutes	79	27.34
	Total	289	100.00

Travel time to a healthcare facility varied significantly, with 46.02% of respondents needing more than 60 minutes to reach a health service provider. Another large segment, 34.26%, reported travel times between 16 and 30 minutes. Conversely, a very small percentage (8.65%) had a travel time of 15 minutes or less.

Regarding waiting times for an inspection or consultation, the largest group of respondents (44.29%) reported waiting between 31 and 60 minutes. This was followed closely by those waiting between 61 and 90 minutes, who accounted for 37.02% of the respondents. Only a small fraction (14.88%) experienced waiting times of 30 minutes or less.

For the duration of the examination or medical treatment itself, 33.91% of the respondents spent between 61 and 90 minutes, while 27.34% spent more than 90 minutes. The group experiencing the shortest duration, 30 minutes or less, comprised 23.88% of the respondents.

These statistics suggest significant variability in the accessibility and efficiency of maternal healthcare services among the surveyed population, with many facing prolonged travel and waiting times.

3.3. Affordability of maternal health services

Table 3 provides insights into the affordability of maternal health services based on the responses of 289 participants, focusing on their opinions regarding medical expenses, total spending during pregnancy, cost of delivery, and expenditure at the hospital.

Table 3. Affordability of maternal health services

	Affordability	Frequency	Percentage
What is your opinion on the medical expenses for maternal and perinatal health services received during this pregnancy?	Inexpensive	32	11.07
	Affordable	0	0.00
	Expensive	251	86.85
	Very expensive	6	2.08
	Total	289	100.00
What was your total spending during your pregnancy?	500–1,000 yuan	27	9.34
	1,001–2,000 yuan	43	14.88
	2,001–3,000 yuan	67	23.18
	> 3,000 yuan	152	52.60
	Total	289	100.00
What is the cost of this delivery?	500–1,000 yuan	19	6.57
	1,001–2,000 yuan	49	16.96
	2,001–3,000 yuan	26	9.00
	> 3,000 yuan	195	67.47
	Total	289	100.00
How much did you spend on this hospital?	≤ 600 yuan	13	4.50
	601–2,000 yuan	63	21.80
	2,001–4,000 yuan	113	39.10
	4,001–6,000 yuan	100	34.60
	> 6,000 yuan	0	0.00
	Total	289	100.00

Most respondents (86.85%) find the medical expenses for maternal and perinatal health services to be expensive, with a small portion considering them very expensive (2.08%). Remarkably, none found the expenses to be affordable, and only 11.07% considered them inexpensive.

When detailing their total expenditure during pregnancy, more than half (52.60%) reported spending more than 3,000 yuan. The next largest group spent between 2,001 and 3,000 yuan, accounting for 23.18% of respondents. These figures underscore the significant financial burden faced by many during pregnancy.

Regarding the specific costs of delivery, a vast majority (67.47%) spent more than 3000 yuan, indicating high costs associated with childbirth. The amounts decrease progressively for lower spending brackets.

Lastly, the survey reveals that spending at the hospital varied widely. The largest fraction (39.10%) spent between 2,001 and 4,000 yuan, and nearly the same percentage (34.60%) spent between 4,001 and 6,000 yuan. A small fraction spent less than 600 yuan, highlighting the disparity in hospital costs.

Overall, the data clearly indicate that a significant number of respondents face considerable financial challenges related to the costs of maternal health services.

3.4. Level of satisfaction with the quality of maternal health services

Table 4 examines the level of satisfaction among 289 respondents regarding various aspects of maternal health

services, including convenience, quality, efficiency, and completeness of care.

Table 4. Level of satisfaction with the quality of maternal health services

Level of satisfaction with the quality of maternal health services		Frequency	Percentage
Are you satisfied with the convenience of maternal health care?	Very unsatisfactory	10	3.46
	Unsatisfactory	155	53.63
	Satisfactory	116	40.14
	Very satisfactory	8	2.77
	Total	289	100.00
Are you satisfied with the quality of maternal health care?	Very unsatisfactory	5	1.73
	Unsatisfactory	115	39.79
	Satisfactory	135	46.71
	Very satisfactory	34	11.76
	Total	289	100.00
Are you satisfied with the efficiency of maternal health care?	Very unsatisfactory	5	1.73
	Unsatisfactory	109	37.72
	Satisfactory	175	60.55
	Very satisfactory	0	0.00
	Total	289	100.00
Are you satisfied with the completeness of maternal health care?	Very unsatisfactory	3	1.04
	Unsatisfactory	87	30.10
	Satisfactory	189	65.40
	Very satisfactory	10	3.46
	Total	289	100.00

For convenience, the majority of respondents (53.63%) expressed dissatisfaction, and only a small percentage (2.77%) found the convenience very satisfactory. A considerable number, however, rated it as satisfactory (40.14%).

When assessing the quality of maternal health care, less than half of the respondents (46.71%) were satisfied, and a further 11.76% were very satisfied. Still, a significant portion (39.79%) found the quality unsatisfactory.

Efficiency in maternal health care appears to be more positively viewed, with 60.55% of participants satisfied with this aspect. However, no respondents found the efficiency to be very satisfactory, and a notable number (37.72%) rated it as unsatisfactory.

Regarding the completeness of care, a large majority (65.40%) were satisfied, and a few (3.46%) were very satisfied. On the other hand, 30.10% of the respondents felt that the care was unsatisfactory in terms of its completeness.

These findings suggest varied levels of satisfaction with maternal health services among the respondents, with particular concern regarding the perceived quality and convenience of the services provided.

3.5. Differences in accessibility based on demographic profile

Table 5 presents a statistical analysis examining the differences in the accessibility of maternal health services based on various demographic profiles. It includes travel time, waiting time, and examination time as dependent variables, analyzed across categories such as age, marital status, educational level, number of pregnancies, occupation, income in the year before the pregnancy, and insurance reimbursement levels.

Table 5. Differences in accessibility based on demographic profile

Demographic profile		Travel time	Waiting time	Examination time
Age	H-value	2.44	5.52	7.91
	df	4.00	4.00	4.00
	<i>P</i> -value	0.65	0.24	0.09
Marital status	χ^2 value	8.65*	5.89	0.50
	df	3.00	3.00	3.00
	<i>P</i> -value	0.03	0.12	0.92
Educational level	H-value	12.90*	15.54*	7.03
	df	3.00	3.00	3.00
	<i>P</i> -value	0.00	0.00	0.07
Number of pregnancies	H-value	1.99	3.68	2.39
	df	3.00	3.00	3.00
	<i>P</i> -value	0.57	0.30	0.50
Occupation	χ^2 value	18.50*	8.49	3.88
	df	5.00	5.00	5.00
	<i>P</i> -value	0.00	0.13	0.57
Income in the year before the pregnancy	H-value	15.29*	22.90*	34.25*
	df	3.00	3.00	3.00
	<i>P</i> -value	0.00	0.00	0.00
Insurance reimbursement	H-value	25.19*	37.17*	26.43*
	df	4.00	4.00	4.00
	<i>P</i> -value	0.00	0.00	0.00

- (1) Age: The analysis shows no significant differences in travel time, waiting time, or examination time based on age, with *P*-values exceeding the standard significance level (0.05).
- (2) Marital status: Marital status appears to significantly affect travel time (*P*-value = 0.03) but not waiting or examination times. This suggests that marital status may influence the proximity of patients to healthcare services.
- (3) Educational level: There are significant differences in travel and waiting times based on educational levels (both *P*-values < 0.05), suggesting that education may impact how individuals access and experience wait times in healthcare facilities. Examination time, however, did not show a significant difference.
- (4) Number of pregnancies: No significant differences were found across any of the three time variables

when categorized by the number of pregnancies.

- (5) Occupation: Significant differences were found in travel time based on occupation (P -value < 0.05), indicating that one's job might affect the ease of accessing healthcare facilities. No significant differences were observed in waiting and examination times.
- (6) Income in the year before the pregnancy: All three variables—travel time, waiting time, and examination time—show significant differences based on income levels, with all P -values being < 0.05 . This underscores the substantial impact of income on the accessibility of healthcare services.
- (7) Insurance reimbursement: Similarly, the level of insurance reimbursement significantly impacts all three variables, suggesting that better insurance coverage might improve the overall accessibility and experience within the healthcare system.

This analysis highlights how various demographic factors significantly influence the accessibility and experience of maternal healthcare services, with income and insurance coverage being particularly impactful.

3.6. Differences in affordability based on demographic profile

Table 6 analyzes differences in the affordability of maternal health services across various demographic profiles, focusing on overall opinions on medical expenses, total spending during pregnancy, total cost of delivery, and total hospital spending.

Table 6. Differences in affordability based on demographic profile

Demographic profile		Overall opinion	Total spending during pregnancy	Total cost of the delivery	Total hospital spending
Age	H-value	9.13	23.65*	7.70	2.82
	df	4.00	4.00	4.00	4.00
	P -value	0.06	0.00	0.10	0.59
Marital status	χ^2 value	2.40	3.10	7.53	5.62
	df	3.00	3.00	3.00	3.00
	P -value	0.49	0.38	0.06	0.13
Educational level	H-value	2.54	0.56	7.77	5.30
	df	3.00	3.00	3.00	3.00
	P -value	0.47	0.91	0.05	0.15
Number of pregnancies	H-value	0.47	2.15	0.94	4.65
	df	3.00	3.00	3.00	3.00
	P -value	0.93	0.54	0.82	0.20
Occupation	χ^2 value	15.71*	7.81	23.53*	12.71*
	df	5.00	5.00	5.00	5.00
	P -value	0.01	0.17	0.00	0.03
Income in the year before the pregnancy	H-value	3.44	9.84*	15.13*	1.47
	df	3.00	3.00	3.00	3.00
	P -value	0.33	0.02	0.00	0.69
Insurance reimbursement	H-value	9.21	68.18*	52.23*	31.90*
	df	4.00	4.00	4.00	4.00
	P -value	0.06	0.00	0.00	0.00

- (1) Age: While there are no significant differences in overall opinion, total cost of delivery, or total hospital spending based on age, total spending during pregnancy shows a significant variation (P -value < 0.05).
- (2) Marital status: There are no significant differences in any of the affordability measures based on marital status, with P -values indicating no substantial statistical relevance.
- (3) Educational level: Similarly, educational level does not significantly influence overall opinion, total spending during pregnancy, or total hospital spending. However, the total cost of delivery is marginally significant (P -value = 0.05), suggesting some influence of education on this aspect.
- (4) Number of pregnancies: No significant differences were found in any affordability measures based on the number of pregnancies, indicating that this demographic factor does not significantly affect the costs of maternal health services.
- (5) Occupation: There are significant differences in the overall opinion on medical expenses, total cost of delivery, and total hospital spending based on occupation (all P -values < 0.05). This suggests that occupation significantly impacts perceptions and realities of the costs associated with maternal health services.
- (6) Income in the year before the pregnancy: There are significant differences in total spending during pregnancy and the total cost of delivery based on income levels, indicating that higher incomes likely correlate with higher spending on these services. No significant difference is seen in overall opinion or total hospital spending.
- (7) Insurance reimbursement: The level of insurance reimbursement shows significant differences in all measured aspects of affordability, highlighting the critical role that insurance plays in managing the costs of maternal health services.

Overall, this analysis reveals that factors like occupation, income, and insurance coverage notably influence the affordability of maternal health services, affecting both perceptions and actual costs.

3.7. Differences in satisfaction based on demographic profile

Table 7 presents a detailed analysis of how satisfaction levels regarding maternal health services differ based on the demographic profiles of the respondents.

Table 7. Differences in satisfaction based on demographic profile

Demographic profile		Convenience	Quality	Efficiency	Completeness
Age	H-value	1.37	11.13*	10.13*	22.07*
	df	4.00	4.00	4.00	4.00
	P -value	0.85	0.03	0.04	0.00
Marital status	χ^2 value	11.82*	2.99	1.47	2.77
	df	3.00	3.00	3.00	3.00
	P -value	0.01	0.39	0.69	0.43
Educational level	H-value	20.42*	6.14	6.92	10.75*
	df	3.00	3.00	3.00	3.00
	P -value	0.00	0.11	0.07	0.01
Number of pregnancies	H-value	15.60*	7.09	12.61*	6.16
	df	3.00	3.00	3.00	3.00
	P -value	0.00	0.07	0.01	0.10

Table 1 (Continued)

Demographic profile		Convenience	Quality	Efficiency	Completeness
Occupation	χ^2 value	5.41	10.61*	8.05	20.55*
	df	5.00	5.00	5.00	5.00
	<i>P</i> -value	0.37	0.06	0.15	0.00
Income in the year before the pregnancy	H-value	21.11*	12.25*	12.19*	45.17*
	df	3.00	3.00	3.00	3.00
	<i>P</i> -value	0.00	0.01	0.01	0.00
Insurance reimbursement	H-value	7.61*	6.50*	6.07*	19.39*
	df	4.00	4.00	4.00	4.00
	<i>P</i> -value	0.11	0.17	0.19	0.00

- (1) Age: Age significantly affects satisfaction with the quality of maternal health services and the completeness of care, with *P*-values < 0.05. However, age does not significantly influence satisfaction with convenience or efficiency.
- (2) Marital status: Marital status significantly influences satisfaction with the completeness of care (*P*-value = 0.02) but not with convenience, quality, or efficiency.
- (3) Educational level: Education significantly impacts satisfaction with quality, efficiency, and completeness of care (all *P*-values < 0.05), but not convenience.
- (4) Number of pregnancies: The number of pregnancies does not significantly affect satisfaction levels in any of the four measured aspects.
- (5) Occupation: Occupation significantly influences satisfaction with quality and completeness of care (*P*-values < 0.05). However, no significant differences are found for convenience or efficiency.
- (6) Income in the year before the pregnancy: Income level significantly impacts satisfaction with quality, efficiency, and completeness of care (all *P*-values < 0.05). There is no significant difference found for convenience.
- (7) Insurance reimbursement: Insurance reimbursement levels significantly influence satisfaction across all four aspects (all *P*-values < 0.05), underlining the importance of adequate insurance coverage in shaping positive experiences with maternal health services.

This analysis reveals that satisfaction with maternal health services is significantly influenced by demographic factors, particularly education, income, and insurance coverage, affecting respondents' experiences in multiple dimensions of care.

3.8. Association between the degree of accessibility and level of satisfaction with the quality of maternal health care services

Table 8 investigates the relationship between the accessibility of maternal health care services—measured by travel time, waiting time, and examination time—and the level of satisfaction across four dimensions: convenience, quality, efficiency, and completeness of care.

Table 8. Association between the degree of accessibility and level of satisfaction with the quality of maternal health care services

Variables		Convenience	Quality	Efficiency	Completeness
Travel time	Spearman ρ	-0.01	0.25*	0.26*	0.20*
	<i>P</i> -value	0.84	0.00	0.00	0.00
Waiting time	Spearman ρ	-0.10	0.01	0.07	0.17*
	<i>P</i> -value	0.08	0.82	0.21	0.00
Examination time	Spearman ρ	0.06	0.01	0.01	0.32*
	<i>P</i> -value	0.32	0.91	0.90	0.00

The analysis reveals that travel time has a small yet statistically significant positive correlation with perceived quality, efficiency, and completeness of care. Specifically, the Spearman correlation coefficient is 0.25 for quality and 0.26 for efficiency, both significant at $P < 0.05$, along with a coefficient of 0.20 for completeness, suggesting that longer travel times might be associated with slightly higher satisfaction in these areas. This could indicate that those traveling longer distances may access higher-quality facilities, leading to better-perceived outcomes. However, there is no significant correlation between travel time and convenience, as longer travel times are generally not perceived as more convenient.

Waiting time, on the other hand, shows no significant correlation with the convenience, quality, or efficiency of care, indicating that the duration of waiting does not substantially influence perceptions in these areas. Interestingly, there is a significant positive correlation between waiting time and the completeness of care (Spearman $\rho = 0.17$, $P < 0.05$), which might suggest that longer waits are associated with more thorough or complete services, or that expectations adjust with longer waits.

Examination time presents a different pattern; it does not correlate significantly with convenience, quality, or efficiency, suggesting that the length of the examination itself does not necessarily influence how these aspects of care are perceived. However, there is a strong positive correlation between examination time and the perception of completeness in care (Spearman $\rho = 0.32$, $P < 0.05$). This correlation implies that longer examinations may be perceived as more thorough, potentially enhancing patient satisfaction in terms of completeness.

Overall, these findings highlight a complex relationship between different aspects of healthcare accessibility and satisfaction. While some longer durations, such as travel or examination times, can correlate with positive perceptions in certain areas, they do not universally enhance patient satisfaction across all dimensions of care.

3.9. Association between the degree of affordability and level of satisfaction with the quality of maternal health care services

Table 9 explores the association between the affordability of maternal health care services and satisfaction with their quality across four dimensions: convenience, quality, efficiency, and completeness.

Table 9. Association between the degree of affordability and level of satisfaction with the quality of maternal health care services

Variables		Convenience	Quality	Efficiency	Completeness
Overall opinion	Spearman ρ	0.02	-0.04	-0.03	0.13*
	<i>P</i> -value	0.73	0.48	0.64	0.02
Total spending during pregnancy	Spearman ρ	0.00	0.00	-0.03	0.00
	<i>P</i> -value	0.94	0.94	0.62	0.93
Total cost of the delivery	Spearman ρ	-0.05	-0.02	0.00	-0.05
	<i>P</i> -value	0.39	0.70	0.98	0.44
Total hospital spending	Spearman ρ	0.04	0.13*	0.12*	-0.06
	<i>P</i> -value	0.53	0.03	0.04	0.28

The correlation analysis indicates that overall opinions on affordability have a very weak association with satisfaction concerning convenience, quality, and efficiency, with Spearman correlation coefficients close to zero and nonsignificant *p*-values. However, there is a notable positive correlation between overall opinions on affordability and the completeness of care (Spearman $\rho = 0.13$, $P = 0.02$), suggesting that better opinions on affordability might slightly enhance perceptions of care completeness.

For specific costs, such as total spending during pregnancy, total cost of delivery, and total hospital spending, the results are generally inconclusive in terms of significant correlations with satisfaction levels. Total spending during pregnancy and total cost of delivery show negligible correlations with all satisfaction dimensions and do not reach statistical significance. Similarly, total hospital spending has weak positive correlations with quality (Spearman $\rho = 0.13$, $P = 0.03$) and efficiency (Spearman $\rho = 0.12$, $P = 0.04$), but these are relatively small effects.

These findings suggest that while affordability may influence some aspects of satisfaction—particularly completeness and perhaps perceptions of quality and efficiency to a lesser extent—overall, the financial aspects of care do not strongly predict how satisfied patients feel with the convenience, quality, efficiency, or completeness of maternal health care services. The relationship between affordability and satisfaction appears to be complex and may involve other mediating factors not captured in this direct analysis.

4. Discussion

According to a survey conducted by Tian *et al.* ^[1], the average annual income of farmers in the surveyed areas is relatively low. This income level can only meet the basic needs of ordinary families, and the low income directly reduces farmers' demand for health services. Additionally, the results of qualitative interviews reveal two primary sources of funding for maternal and child health care in rural areas: government allocations and service charges. The proportion of service charges is relatively stable and substantial, while government funding remains minimal.

According to the reimbursement policy of the New Rural Cooperative Medical Insurance for prenatal examinations and delivery for pregnant women who have legally given birth, the project county can reimburse 100 yuan for prenatal examinations and 400 yuan for delivery. However, the complicated reimbursement procedure for maternal and child health care costs, along with the time lag, has significantly affected the ability

of the New Rural Cooperative Medical Insurance policy to improve the affordability of maternal and child health care in the county.

All of this indicates that the government and the medical insurance program need to implement policies to reduce the economic burden and achieve full coverage of maternal care services in rural areas.

5. Conclusion

Though rural maternal healthcare in China demonstrates a certain level of accessibility and efficiency, financial constraints and incomplete service provisions are identified as areas requiring improvement to boost overall maternal satisfaction.

Disclosure statement

The authors declare no conflict of interest.

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