# Healthcare Service Quality among Residents Enrolled in the Resident Medical Insurance Program: Evidence from Primary Healthcare Institutions in Zigong City, China

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## Abstract

This study aimed to examine residents' expectations and perceptions of service quality in primary healthcare institutions in Zigong City, Sichuan Province, compare expectation–perception gaps across five SERVQUAL dimensions, and explore residents' experiences and recommendations for improvement using a mixed-methods design. A SERVQUAL-based survey included 400 residents selected through stratified sampling, while semi-structured interviews involved ten residents and one government official. Quantitative data were analyzed with descriptive statistics, paired samples *t*-tests, and qualitative data through content analysis. 1) The results showed that residents' overall expectations of healthcare service quality were very high, while their overall perceptions were high. Expectations exceeded perceptions across all five dimensions. 2) Residents' overall expectations were significantly higher than their perceptions, with statistically significant differences across all five dimensions. Responsiveness exhibited the largest expectation–perception gap, whereas Assurance exhibited the smallest. 3) The interviews helped interpret the main service-quality gaps by highlighting inefficient care-seeking processes, limited doctor–patient communication, and insufficient understanding of insurance policies. Residents proposed improvements in service efficiency, medical equipment, health education, reimbursement procedures, and referral coordination to address these gaps. The findings indicate that primary healthcare institutions performed relatively well on professional competence but require systematic improvements in service responsiveness, communication, and policy transparency.

**Keywords:** healthcare service quality; resident medical insurance; primary healthcare; patient expectations and perceptions

## Introduction

Improving healthcare quality is a central priority of contemporary health–system reform. Universal health coverage (UHC) requires not only equitable access to essential health services without financial hardship but also the delivery of safe, effective, and responsive care (World Health Organization [WHO], 2025). Expanding access alone is insufficient to improve health outcomes if service quality is poor; therefore, quality is essential to achieving UHC (Friebel et al., 2018; Kruk et al., 2018). Despite progress in expanding healthcare access, substantial quality gaps persist, particularly in low– and middle–income countries. An estimated 5 million preventable deaths annually are associated with inadequate access to high–quality healthcare services (WHO, 2023). In health systems, coverage, access, and utilization are related but distinct concepts, and none of them is equivalent to perceived service quality: coverage removes financial barriers to care, access and utilization describe whether services are actually reached and used (WHO, 2023), whereas perceived service quality reflects residents' own evaluation of the services they experience (Parasuraman, Zeithaml, & Berry, 1988). Expanding insurance coverage therefore does not automatically ensure that residents experience services that meet their expectations; quality must be evaluated alongside coverage (Kruk et al., 2018).

In China, basic medical insurance covered approximately 1.33 billion people by the end of 2024, representing approximately 95% of the population (National Healthcare Security Administration, 2024). Existing research on China's resident medical insurance has focused mainly on coverage, utilization, and financial outcomes rather than perceived service quality. Meng et al. (2024) found that integrating urban and rural resident medical insurance improved self–rated health, particularly among rural residents, those in western regions, and low–to–middle–income groups. Zhang et al. (2023) reported increased healthcare utilization among older adults without corresponding health improvements. Ding and Zhou (2024) found that outpatient pooling in Sichuan Province increased primary healthcare utilization by 1.4% and reduced hospital visits by 1.3%. However, these studies did not examine whether primary healthcare services met insured residents' expectations.

This study extends SERVQUAL research by examining whether insurance–supported access to primary healthcare is accompanied by services that meet users' expectations. It distinguishes healthcare delivery quality from insurance benefit administration, recognizing that service interactions and reimbursement procedures are related but require different improvements.

Sichuan's urban–rural disparities and Zigong's aging population provide a relevant context. Despite RMI coverage for inpatient and outpatient services, complex reimbursement procedures and limited primary healthcare capacity may affect service experiences (Zigong Municipal Medical Security Bureau, 2023, 2025). Guided by SERVQUAL's five dimensions—tangibles, reliability, responsiveness, assurance, and empathy (Parasuraman et al., 1985, 1988). This study aims to

examine expected and perceived primary healthcare service quality, compare expectation–perception gaps, and explore service experiences and recommendations for improvement in Zigong. The findings can guide healthcare providers and policymakers in improving primary healthcare service quality to better meet insured residents' expectations and address related insurance administration issues.

## Objectives

1. To study the level of healthcare service quality expected and perceived by residents enrolled in the Resident Medical Insurance program in primary healthcare institutions in Zigong City, Sichuan Province.

2. To compare the differences between residents' expectations and perceptions of healthcare service quality dimensions under the 'Resident Medical Insurance' program in primary healthcare institutions in Zigong City, Sichuan Province.

3. To analyze residents' experiences in receiving healthcare services under the Resident Medical Insurance Program and to identify recommendations for improving service quality in primary healthcare institutions in Zigong City, Sichuan Province.

## Literature Review

### 1. Healthcare Service Quality and the SERVQUAL Model

SERVQUAL is a widely used framework for assessing perceived service quality, developed by Parasuraman et al. (1988). It comprises five dimensions—tangibles, reliability, responsiveness, assurance, and empathy—and measures service quality by comparing users' expectations with their perceptions of service performance. Although adapted SERVQUAL measures have been applied in healthcare (Babakus & Mangold, 1992), patient evaluations primarily capture service experiences and cannot independently establish the clinical quality of diagnosis and treatment (Donabedian, 1988). Gap scores also require cautious interpretation. Cronin and Taylor (1992) questioned whether subtracting expectations provides a better measure than perceived performance alone. A negative gap may reflect high expectations, low perceived performance, or both; it identifies a perceived shortfall but does not establish its cause.

### 2. Expectations and Perceptions in Healthcare

Expectations represent standards against which services are evaluated, whereas perceptions concern the services actually experienced. Zeithaml et al. (1993) distinguish desired, adequate, and predicted service expectations, highlighting the need to clarify the standard being measured. When expectations are collected after care, they should not be treated as independently measured pre–service standards.

Perceived service quality is distinct from patient satisfaction. The former concerns judgments of service excellence, while the latter involves an evaluative response shaped by the confirmation or disconfirmation of expectations (Oliver, 1980). Accordingly, SERVQUAL scores in this study assess perceived quality gaps rather than satisfaction directly.

**3. The Resident Medical Insurance Program in Zigong City**

Research on China's integrated resident medical insurance has emphasized utilization and health equity. Li et al. (2023) found increased inpatient utilization among rural residents, while Meng et al. (2024) reported improvements in self-rated health, particularly among rural residents, residents in western China, and lower-middle-income groups. However, these findings do not establish whether the services received meet insured residents' expectations.

Examining RMI-enrolled residents in Zigong connects insurance-supported access with perceived primary healthcare quality. Healthcare delivery, including facilities and provider–patient interactions, remains distinct from insurance administration, including policy information and reimbursement procedures, although both may shape residents' experiences.

**4. Empirical Studies on Healthcare Service Quality**

Lin et al. (2023) identified negative expectation–perception gaps among outpatients in Shenzhen, with reliability and empathy showing the largest shortfalls. Karume et al. (2025), measuring expectations before care and perceptions afterward in Kenya, also found unmet expectations. These studies support examining quality gaps, but differences in settings, instruments, and measurement timing limit direct comparisons.

Related satisfaction research offers complementary evidence. Gao et al. (2022), using standardized patients in rural China, found that consultation processes, affordability, and convenience were associated with satisfaction. Rahmatia et al. (2025) likewise identified associations between SERVQUAL dimensions and inpatient satisfaction in Indonesia. Such findings highlight the importance of service experiences but do not substitute for examining expectation–perception gaps among insured primary healthcare users.

SERVQUAL guides the assessment of expected and perceived service quality and comparisons across its five dimensions, addressing the first two objectives. Interviews address the third objective by exploring residents' experiences and recommendations while helping interpret the measured gaps. Together, these approaches connect insurance-supported access with service experiences and identify priorities for improvement.

## Research Conceptual Framework

The researcher has defined the research conceptual framework based on the concepts and theories of the SERVQUAL model proposed by Parasuraman, Zeithaml, and Berry (1985, 1988), consisting of five dimensions: tangibles, reliability, responsiveness, assurance, and empathy, with details as follows (Figure1):

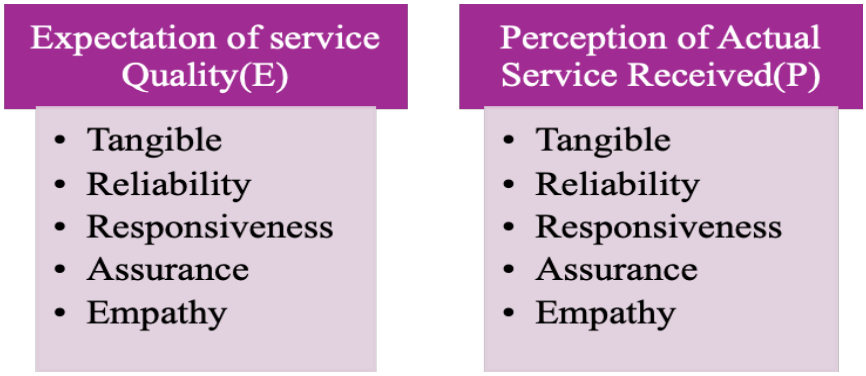



**Figure 1** Conceptual Framework

Source: Adapted from Parasuraman, A., Zeithaml, V. A., & Berry, L. L. (1985)

Based on the conceptual framework and the reviewed literature, the following hypotheses were proposed:

H1: There are significant differences between residents' expectations and perceptions of healthcare service quality across the five SERVQUAL dimensions (Tangibles, Reliability, Responsiveness, Assurance, and Empathy) in primary healthcare institutions in Zigong City.

To provide a more detailed examination, Hypothesis 1 is further specified into five sub-hypotheses:

H1a: There is a significant difference between residents' expectations and perceptions of Tangibles in primary healthcare institutions in Zigong City.

H1b: There is a significant difference between residents' expectations and perceptions of Reliability in primary healthcare institutions in Zigong City.

H1c: There is a significant difference between residents' expectations and perceptions of Responsiveness in primary healthcare institutions in Zigong City.

H1d: There is a significant difference between residents' expectations and perceptions of Assurance in primary healthcare institutions in Zigong City.

H1e: There is a significant difference between residents' expectations and perceptions of Empathy in primary healthcare institutions in Zigong City.

## Research Methodology

### Research Design

This study employed a convergent mixed-methods design (Creswell & Plano Clark, 2018). Quantitative and qualitative data were collected concurrently, analyzed separately, and integrated during interpretation. A cross-sectional SERVQUAL survey assessed residents' expectations and perceptions and compared gaps across five dimensions. Semi-structured interviews explored residents' experiences and recommendations, providing contextual insights to interpret the quantitative gaps.

### Sample and Key Informants

The population used for sample allocation comprised 914,121 RMI-enrolled residents across four districts of Zigong: Ziliujing, Gongjing, Yantan, and Da'an (Da'an District People's Government, 2025; Gongjing District People's Government, 2025; Yantan District People's Government, 2025; Ziliujing District People's Government, 2025). The sample size was calculated using Yamane's (1967) formula with a 5% margin of error, yielding 400 participants. The sample was allocated proportionally across four districts: Ziliujing (n = 90), Gongjing (n = 81), Yantan (n = 113), and Da'an (n = 116).

From October 2025 to September 2026, residents were recruited on site at ten community health service centers and township health centers across these districts until the quotas were fulfilled. Eligible participants were aged 18 or above, enrolled in RMI, and had used primary healthcare services within the preceding year. After completing their medical visits, participants provided informed consent and independently completed a paper questionnaire covering expectations and perceptions. Trained interviewers explained the study and confidentiality arrangements and checked questionnaires for omissions. Questionnaires with extensive missing data were excluded, leaving 400 complete, eligible responses.

Purposive sampling was used to recruit ten residents and one government health administration official for semi-structured interviews. Residents were eligible if they were aged over 18, enrolled in RMI, lived in one of the four districts, had used primary healthcare within the preceding year, and voluntarily consented. The official provided a policy-level perspective on service delivery and policy communication. The researchers reported that no new themes emerged by the tenth resident interview, which informed the decision to conclude resident recruitment (Guest et al., 2006; Mwita, 2022). This study was granted an exemption from ethics review because it involved minimal risk to participants. Informed consent was obtained, and participants' anonymity and confidentiality were maintained.

### Measurement of Variables

The questionnaire collected demographic information and included 25 items across five SERVQUAL dimensions: tangibles, reliability, responsiveness, assurance, and empathy, with five

items per dimension. Each item measured expectations and perceptions separately on a five-point Likert scale (1 = strongly disagree; 5 = strongly agree).

Items were adapted from SERVQUAL (Parasuraman et al., 1988) and relevant studies for primary healthcare in China. Three experts assessed content validity and language clarity. content validity was evaluated using the index of item-objective congruence (IOC; Rovinelli & Hambleton, 1977), with scores ranging from 0.67 to 1.00. The questionnaire was pilot-tested with 30 respondents and revised before use. Cronbach's alpha (Cronbach, 1951) was 0.941 for expectations and 0.955 for perceptions; dimension-level coefficients ranged from 0.842 to 0.874, all above the commonly accepted threshold of 0.70 (Nunnally & Bernstein, 1994). The questionnaire was administered in Chinese. No factor analysis was conducted.

**Data Collection**

Each respondent rated expectations and perceptions at the same time on the dual-scale questionnaire immediately after completing a medical visit. For respondents with limited literacy, the interviewers read the items aloud to facilitate completion. After data screening, 400 complete and eligible questionnaires were retained for analysis. Qualitative data were collected through semi-structured interviews with 11 participants, scheduled by telephone at mutually convenient times. The interview guide consisted of open-ended questions exploring residents' experiences of receiving healthcare services, their perceptions of service quality, and their recommendations for improvement. With participants' permission, interviews were audio-recorded, transcribed verbatim, and anonymized. All participants were informed of the study purpose, anonymity, and confidentiality principles before participation and gave informed consent; all information was kept confidential and used solely for academic research purposes.

**Data Analysis**

Quantitative data were analyzed using a statistical software package. After data cleaning, questionnaires with extensive missing data were excluded. Frequencies and percentages summarized respondent characteristics, while means and standard deviations assessed the levels of expectations and perceptions, with mean scores interpreted using the interpretation bands of Best and Kahn (2014) (4.21 – 5.00 = very high; 3.41 – 4.20 = high; 2.61 – 3.40 = moderate; 1.81 – 2.60 = low; 1.00 – 1.80 = very low). Paired-sample t-tests examined the differences between expectations and perceptions across the five SERVQUAL dimensions. Statistical significance was set at $p < 0.05$.

Qualitative data were analyzed using content analysis following Miles and Huberman's (1994) interactive model: data reduction, data display, and conclusion drawing/verification. The interview transcripts were read repeatedly, coded line by line, and grouped into categories and themes. The integration of quantitative and qualitative findings was conducted through juxtaposition, consistency analysis, and complementarity analysis.

## Result

### Demographic Characteristics of Respondents

A total of 400 valid questionnaires were collected. Table 1 presents the demographic characteristics of the sample. The sample was predominantly male (58.25%) and middle-aged or elderly, with 73.00% aged 36 years or above. Most respondents had low education levels (65.75% with middle school or below) and low monthly incomes (46.75% with less than 3,000 RMB). Retirees (31.75%) and farmers (23.75%) formed the largest occupational groups. Over 80% of respondents visited primary healthcare institutions at least twice per year, with 17.50% visiting more than 10 times annually.

**Table 1** Demographic Characteristics of Respondents (n = 400)

| Characteristic | Category | Frequency (n) | Percentage (%) |
|---|---|---|---|
| Gender | Male | 233 | 58.25 |
| | Female | 167 | 41.75 |
| Age | 18–25 years | 32 | 8.00 |
| | 26–35 years | 76 | 19.00 |
| | 36–50 years | 103 | 25.75 |
| | 51–60 years | 88 | 22.00 |
| | 61 years or above | 101 | 25.25 |
| Education Level | No formal education | 22 | 5.50 |
| | Primary school | 102 | 25.50 |
| | Secondary school | 139 | 34.75 |
| | Vocational training | 73 | 18.25 |
| | College diploma | 54 | 13.50 |
| | Bachelor's degree or above | 10 | 2.50 |
| Occupation | Farmer | 95 | 23.75 |
| | Self-employed | 55 | 13.75 |
| | Retired | 127 | 31.75 |
| | Unemployed | 46 | 11.50 |
| | Student | 34 | 8.50 |
| | Other | 43 | 10.75 |

| Characteristic | Category | Frequency (n) | Percentage (%) |
|---|---|---|---|
| Monthly Income (RMB) | Less than 1,000 | 38 | 9.50 |
| | 1,000–2,999 | 149 | 37.25 |
| | 3,000–4,999 | 90 | 22.50 |
| | 5,000–6,999 | 79 | 19.75 |
| | 7,000 or above | 10 | 2.50 |
| | Prefer not to answer | 34 | 8.50 |
| Annual Visits | Once | 75 | 18.75 |
| | 2–3 times | 135 | 33.75 |
| | 4–5 times | 79 | 19.75 |
| | 6–10 times | 41 | 10.25 |
| | More than 10 times | 70 | 17.50 |

Objective 1: Levels of Expectations and Perceptions

The findings showed that all five dimensions and overall service quality were rated at very high levels for expectations and high levels for perceptions.

**Table 2** Mean Scores, Standard Deviations, and levels of expectations and perceptions

| Dimension | Expectation Mean | S.D. | Interpretation | Perception Mean | S.D. | Interpretation |
|---|---|---|---|---|---|---|
| Tangibles | 4.600 | 0.353 | Very high | 3.730 | 0.365 | High |
| Reliability | 4.639 | 0.338 | Very high | 3.690 | 0.367 | High |
| Responsiveness | 4.634 | 0.343 | Very high | 3.631 | 0.354 | High |
| Assurance | 4.645 | 0.332 | Very high | 3.892 | 0.357 | High |
| Empathy | 4.597 | 0.354 | Very high | 3.639 | 0.342 | High |
| Overall | 4.623 | 0.305 | Very high | 3.716 | 0.281 | High |

As shown in Table 2, overall scores were calculated by averaging the five dimension means. Residents' expectations ($\overline{x}$ = 4.623) exceeded their perceptions ($\overline{x}$ = 3.716), corresponding to very

high (4.21–5.00) and high (3.41–4.20) levels, respectively (Best & Kahn, 2014). Among the dimensions, Assurance had the highest expectation mean ($\bar{x}$ = 4.645) and the highest perception mean ($\bar{x}$ = 3.892), while Responsiveness had the lowest perception mean ($\bar{x}$ = 3.631). The expectation–perception gaps ranged from 0.754 to 1.003 across the five dimensions.

Objective 2: The differences between residents' expectations and perceptions of healthcare service quality dimensions under the 'Resident Medical Insurance' program in primary healthcare institutions

**Table 3** Comparing gap means of expectations and perceptions' dimensions

| Dimension | E Mean | P Mean | E–P Gap | t–value | Sig. (2–tailed) | 95% confidence interval of the difference |
|---|---|---|---|---|---|---|
| Tangibles | 4.600 | 3.730 | 0.871 | 32.644 | <0.001 | [0.818, 0.923] |
| Reliability | 4.639 | 3.690 | 0.949 | 37.732 | <0.001 | [0.900, 0.998] |
| Responsiveness | 4.634 | 3.631 | 1.003 | 39.262 | <0.001 | [0.953, 1.053] |
| Assurance | 4.645 | 3.892 | 0.754 | 29.716 | <0.001 | [0.704, 0.803] |
| Empathy | 4.597 | 3.639 | 0.958 | 38.611 | <0.001 | [0.909, 1.007] |

As shown in Table 3, paired–samples t–tests revealed that residents' expectations significantly exceeded their perceptions across all five SERVQUAL dimensions (all $p < .001$). Responsiveness showed the largest gap (E – P = 1.003, t = 39.262, 95% CI [0.953, 1.053]), followed by empathy (0.958, t = 38.611, 95% CI [0.909, 1.007]), reliability (0.949, t = 37.732, 95% CI [0.900, 0.998]), tangibles (0.871, t = 32.644, 95% CI [0.818, 0.923]), and assurance (0.754, t = 29.716, 95% CI [0.704, 0.803]).

**Table 4** Outcomes of Hypothesis Testing

| Hypothesis | Statement | Result |
|---|---|---|
| H1a | Expectations and perceptions of tangibles are significantly different. | Supported |
| H1b | Expectations and perceptions of reliability are significantly different. | Supported |
| H1c | Expectations and perceptions of responsiveness are significantly different. | Supported |
| H1d | Expectations and perceptions of assurance are significantly different. | Supported |
| H1e | Expectations and perceptions of empathy are significantly different. | Supported |

**Objective 3**: Residents' experiences in receiving healthcare services under the Resident Medical Insurance Program and to identify recommendations for improving service quality in primary healthcare institutions in Zigong City, Sichuan province. The qualitative findings revealed themes in two main areas: problems and recommendations, as presented in Tables 5 and Table 6.

**Table 5** Core Problems Identified through Qualitative Interviews

| Core problem | Representative quotations |
|---|---|
| Efficiency challenges in the healthcare-seeking process | "When many elderly residents come for chronic disease medication, the waiting time becomes longer." (A2) |
| Distance in doctor–patient communication | "They may not have enough time to communicate with every patient in detail." (A1) |
| Gaps in health insurance policy understanding | "Reimbursement policies are sometimes difficult for ordinary residents to fully understand." (A10) |

**Source:** analyzed and summarized by authors

**Table 6** Residents' Recommendations for Healthcare Service Improvement

| Recommendation category | Representative quotations |
|---|---|
| Service process optimization | "I suggest extending service hours, improving appointment systems, and providing more information online." (A9) |
| Medical equipment and diagnostic capacity enhancement | "I hope the hospital can improve medical equipment and provide more examination services locally, so residents do not need to travel far." (A1) |
| Doctor–patient communication and health education | "Doctors could provide more health education and follow-up care for elderly residents." (A2) |
| Insurance policy transparency and reimbursement simplification | "I also hope the reimbursement policy can cover more medicines because many chronic disease patients need long-term treatment." (A5) |
| Referral coordination and institutional integration | "They could also strengthen cooperation with larger hospitals so that referral processes become smoother." (A3) |

**Source:** analyze and summarized by authors

The qualitative interviews with 11 participants revealed three core problems and five categories of recommendations as follows:

First, efficiency challenges in seeking healthcare, including peak-hour congestion, unclear referral procedures, and limited diagnostic capacity, help explain the largest expectation–perception gap in Responsiveness (1.003). One resident reported longer waiting times during peak hours: “When many elderly residents come for chronic disease medication, the waiting time becomes longer.” (A2). Other participant also described the need to visit larger hospitals for advanced

examinations: “Some advanced examinations cannot be completed there, and patients need to go to larger hospitals.” (A1).

Second, problems in doctor–patient communication, particularly limited consultation time and insufficient health education, help explain the Empathy gap (0.958). One resident noted: “They may not have enough time to communicate with every patient in detail.” (A1).

Third, difficulties in understanding health insurance policies, including unclear reimbursement rules and cost–related delays in seeking care, help explain the reliability gap (0.949). One resident stated: “Reimbursement policies are sometimes difficult for ordinary residents to fully understand.” (A10).

In response to these problems, residents proposed five categories of recommendations. First, they suggested improving service processes, including extending service hours and improving appointment systems: “I suggest extending service hours, improving appointment systems, and providing more information online.” (A9). Second, they recommended upgrading medical equipment and diagnostic capacity to reduce the need to travel for examinations: “I hope the hospital can improve medical equipment and provide more examination services locally, so residents do not need to travel far.” (A1). Third, they emphasized strengthening doctor–patient communication and health education, particularly for elderly residents: “Doctors could provide more health education and follow–up care for elderly residents.” (A2). Fourth, they called for greater clarity in insurance policies, simpler reimbursement procedures, and broader medicine coverage: “I also hope the reimbursement policy can cover more medicines because many chronic disease patients need long–term treatment.” (A5). Fifth, they suggested improving referral coordination between healthcare institutions: “They could also strengthen cooperation with larger hospitals so that referral processes become smoother.” (A3).

These recommendations complement the qualitative accounts of residents’ experiences and identify practical ways to address the service quality gaps found in the quantitative analysis.

## Discussion

The results of the research objective 1 found that residents' expectations for primary healthcare service quality were very high, while their perceptions were only at a high level, indicating a substantial gap between ideals and actual experiences. The qualitative interviews help explain why this gap exists: residents described high hopes for clear explanations, convenient processes, and professional care, but encountered barriers such as limited consultation time and insufficient diagnostic capacity at primary institutions. This pattern is consistent with previous SERVQUAL studies conducted in various healthcare contexts, which have similarly found that process–related dimensions tend to exhibit larger gaps than structural dimensions (Lin et al., 2023; Karume et al., 2025). Taken together, these findings illustrate both the usefulness and the limits of

the SERVQUAL framework in a primary–care setting: it effectively captures the overall shortfall between residents' expectations and their experienced care, but, as a perceptual measure, it reflects residents' evaluations rather than objectively verified clinical quality.

The results of the research objective 2 found that responsiveness exhibited the largest gap, followed by empathy, reliability, tangibles, and assurance. Descriptively, this hierarchy points to process quality as a greater concern than structural quality in residents' experience. This finding aligns with recent evidence from Chinese primary healthcare settings, where consultation quality—particularly sufficient consultation time and proactive communication—has been identified as a critical determinant of patient satisfaction (Gao et al., 2022), and with SERVQUAL studies demonstrating that patient expectations consistently exceed perceived performance (Lin et al., 2023). These findings are also consistent with Essiam (2013), who found that assurance showed the smallest gap among Ghanaian outpatients, and with Al–Damen (2017), who reported that the most pronounced gaps in a Jordanian hospital lay in reliability and empathy—dimensions tied to service processes and communication rather than professional competence. The specific ranking differs across settings—Responsiveness was the largest gap here, whereas reliability was more prominent in Jordan—suggesting that the relative salience of service problems is shaped by local contexts such as insurance complexity, facility capacity, and patient mix. The qualitative interviews explain why responsiveness ranked first: residents consistently reported long waiting times, unclear referral procedures, and limited diagnostic capacity. One rural resident noted that when advanced examinations were needed, traveling to larger hospitals incurred additional time and costs. The smallest gap in assurance suggests that residents perceived professional competence and interpersonal courtesy relatively positively, as reflected in items on staff knowledge and skills, politeness, safety, and privacy protection—a perceptual evaluation rather than an objective measure of clinical competence. The empathy gap reflects insufficient consultation time and communication focused narrowly on symptoms rather than prevention, which the government official attributed to consultation times often under ten minutes and training emphasizing clinical over communication skills. The Reliability gap reflects uncertainty about insurance coverage, leading to financial concerns and delayed care. This link is directly grounded in the questionnaire: the third Reliability item asks whether the facility provides the medical services and medications covered by the Resident Medical Insurance Program as promised, so residents who are unclear about reimbursement rules may doubt whether the promised coverage will be delivered. Interview accounts were consistent with this interpretation—residents expressed that reimbursement policies are sometimes difficult to fully understand (A10) and that they sometimes delayed further examinations because they worried about costs (A7)—and the government official acknowledged that policy communication remains a significant challenge.

The findings for research objective 3 provide contextual explanations for the three largest service quality gaps identified in the quantitative analysis. Efficiency challenges help explain the gap in responsiveness, communication deficits illuminate the gap in empathy, and difficulties in understanding health insurance policies offer insight into the gap in Reliability. Overall, these findings suggest that residents' perceptions of service quality reflect both their experiences of receiving care and their ability to understand and navigate healthcare procedures. Residents' recommendations address these concerns through improvements in service processes, medical equipment and diagnostic capacity, communication and health education, reimbursement procedures, and referral coordination. The convergence of quantitative findings, residents' accounts, and policy–level observations strengthens the credibility of the interpretation and highlights the need for coordinated improvements in service delivery, interpersonal care, and policy communication (Table 7).

**Table 7** Linking Service Quality Gaps to Interview findings and proposed actions

| Dimension | Key interview findings | Proposed actions |
|---|---|---|
| Responsiveness (1.003) | Long waiting times; unclear referral procedures; limited diagnostic capacity | Appointment scheduling; referral coordinators; extended service hours |
| Empathy (0.958) | Limited consultation time; communication focused on symptoms rather than prevention | Communication–skills training; health education as a standard consultation component |
| Reliability (0.949) | Uncertainty about reimbursement; delayed care due to cost worries | Simplified and transparent reimbursement communication; accessible policy information |
| Tangibles (0.871) | Facilities generally acceptable; equipment limits at the local level | Gradual equipment upgrading; diagnostic capacity expansion |
| Assurance (0.754) | Perceived trust in staff competence; workforce sustainability concerns | Workforce recruitment and retention; quality monitoring and performance accountability |

## Limitations

Several limitations should be considered. First, the sample was drawn from Zigong City, Sichuan province, which limits the generalizability of the findings to populations and primary healthcare settings in other areas. Future research should include other cities or provinces to compare service quality gaps and assess the applicability of the findings across contexts. Second, the qualitative findings were based on interviews with ten residents and one government official, which

may not fully capture diverse experiences and institutional perspectives. Future research should include healthcare professionals, institutional administrators, and a broader range of residents to gain a more comprehensive understanding of service quality gaps and improvement needs.

## New Knowledge from Research

The new knowledge generated by this study lies in connecting service quality gaps with explanations of problems and directions for improvement through the integration of quantitative and qualitative findings (Figure 2). SERVQUAL identifies priority areas for improvement, particularly responsiveness, while qualitative evidence helps explain challenges in accessing healthcare, communication between doctors and patients, and understanding health insurance entitlements. The integrated findings inform improvements in service processes, medical equipment and diagnostic capacity, communication and health education, insurance policy clarity, reimbursement procedures, and referral coordination across institutions. The distinctive contribution is translating service quality assessments into specific improvement directions that address service processes, interpersonal interactions, and coordination across the healthcare system. The effectiveness of these proposed improvements requires further evaluation.

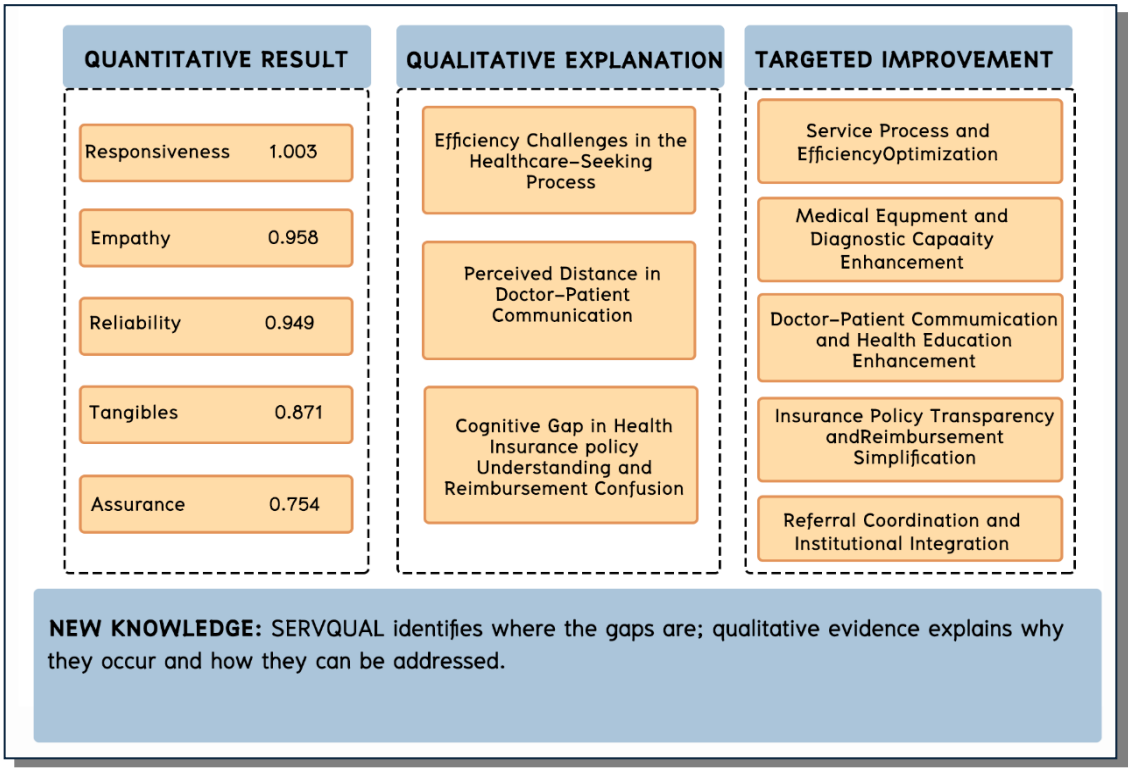



**Figure 2** Integration of Quantitative and Qualitative Findings to Inform Healthcare Service Quality Improvement

## Conclusion

This study identified a consistent gap between residents' expectations and perceptions of service quality in primary healthcare institutions under the Resident Medical Insurance program in Zigong City, Sichuan province. Expectations significantly exceeded perceptions across all five SERVQUAL dimensions, with responsiveness showing the largest gap and assurance the smallest. Qualitative findings complemented the survey results by highlighting inefficient healthcare seeking processes, limited communication between doctors and patients, and insufficient understanding of insurance policies. Together, these findings suggest the need to streamline service processes, strengthen medical equipment and diagnostic capacity, enhance communication and health education, clarify insurance policies and simplify reimbursement procedures, and improve referral coordination across institutions. The study's main contribution is to connect measurable service quality gaps with participants' experiences and specific directions for improvement, providing contextual evidence to inform primary healthcare planning in Zigong City. The effectiveness of the proposed improvements requires further evaluation.

## Suggestions

Based on the overall findings of this study, the researchers make the following recommendations for consideration by relevant stakeholders:

### 1. Suggestion for Implementing from the research findings

The results of the research objective 1 revealed that residents' perceptions of healthcare service quality were significantly lower than their expectations, particularly in the dimensions of responsiveness and empathy. Therefore, (1) Primary healthcare institutions should prioritize service process optimization by implementing appointment–based scheduling, redesigning service procedures to minimize waiting times, and establishing dedicated service windows for elderly patients and those with chronic conditions. (2) Primary healthcare institutions should strengthen doctor–patient communication through communication skills training for healthcare staff, allocating adequate consultation time for complex cases, and institutionalizing health education as a standard component of every consultation.

The results of the research objective 2 revealed that statistically significant gaps existed across all five SERVQUAL dimensions, with responsiveness showing the largest gap and reliability showing a substantial gap related to insurance policy understanding. Therefore, relevant agencies should take the following actions: (1) Health administration authorities should strengthen policy communication and information transparency by simplifying reimbursement policies and communicating them in accessible formats, establishing dedicated policy consultation services at primary institutions, and developing user–friendly digital platforms that enable residents to check coverage conditions and reimbursement rates before seeking care. (2) Authorities should allocate

resources to address urban–rural disparities in service capacity and establish systematic quality monitoring systems with regular performance reviews and public reporting.

The findings for research objective 3 highlighted three core issues that helped explain the service quality gaps identified in the quantitative analysis: efficiency challenges, communication deficits, and gaps in understanding insurance policies. Therefore, relevant agencies should consider the following actions. First, medical education and training institutions should integrate communication skills training into undergraduate and continuing medical education curricula, emphasize patient centered care and cultural competence as core competencies, and provide ongoing professional development opportunities for practicing healthcare providers. Second, primary healthcare institutions should establish clear, standardized referral protocols and designate referral coordinators to assist patients throughout the referral process.

**2. Suggestion for Future Research**

First, future research should include other cities and provinces to compare service quality gaps and assess the applicability of the findings across different geographical and institutional contexts.

Second, future qualitative research should include healthcare professionals, institutional administrators, and residents with diverse backgrounds and healthcare experiences to gain a more comprehensive understanding of service delivery challenges and improvement needs.

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