Factors Affecting the Satisfaction of Rural Residents in Accessing to Healthcare Services: A Case Study of Lishui City in Zhejiang Province, China

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Abstract

Access to public health services is a fundamental right for human life across the globe. However, not everyone has equal access to such services due to the differences in public health systems across countries and several other factors that affect accessibility. This study aimed to analyze factors affecting the satisfaction of rural residents in accessing healthcare services in Lishui City, Zhejiang Province, China. The sample group consisted of 400 rural residents of Lishui city in Zhejiang province, China. The sample size was obtained by the Taro Yamane technique, and then proportional sampling and convenience sampling were selected. The research tool used to collect data is a questionnaire. The data were analyzed by frequency, percentage, mean, standard deviation, and multiple regression analysis. The results of the research revealed that 1) the overall mean of the healthcare system factor is moderate ($\bar{X}$ = 3.31, S.D. = 0.82). When considering each aspect, the highest ranking factor was the family caregiver ($\bar{X}$ = 3.39, S.D. = 0.692). The second ranking factor was community welfare ($\bar{X}$ = 3.41, S.D. = 0.79), followed by family resources ($\bar{X}$ = 3.39, S.D. = 0.82), social support ($\bar{X}$ = 3.32, S.D. = 0.85) and quality of healthcare service provision ($\bar{X}$ = 2.98, S.D. = 0.82), respectively. 2) The quality of healthcare service provision (X5) has the strongest positive effect on the satisfaction of rural residents in accessing in healthcare services, followed by social support (X3), community welfare (X4), and family resources (X2). The model can explain 66.5% of the variance in healthcare service access. The research findings indicate that providing quality healthcare services and social support are

crucial factors in enhancing healthcare accessibility and satisfaction for individuals residing in rural areas.

Keywords: Factor Affecting; Quality of Healthcare Service; Supportive factor; Rural resident in Lishui city

Introduction

Access to public health and medical care is a fundamental human right, yet disparities in healthcare access persist globally due to varying healthcare systems and numerous influencing factors. It is estimated that more than half of the world's population lacks full access to essential health services, with a shortage of nearly 18 million health workers worldwide (World Health Organization, 2021). Despite experiencing economic growth and improved health outcomes over the past few decades, China still faces significant urban–rural health inequalities (Li et al., 2017). China is currently facing various challenges in meeting the healthcare needs of its citizens, particularly as a result of a rapidly aging society and the increasing burden of noncommunicable diseases (NCDs). The reduction in mortality and fertility rates has led to a rapidly aging population, while social and economic transformations have brought about urbanization and lifestyle changes that have resulted in emerging risk factors such as obesity, sedentary lifestyles, stress, smoking, alcohol and substance abuse, and pollution exposure (World Health Organization, 2019; Fu et al., 2022). Moreover, China is presently facing a shortage of healthcare professionals, particularly in primary care and rural healthcare facilities. This shortage can be attributed to factors such as low income and benefits, limited opportunities for clinical skill development, hindered academic and personal growth, and challenges in building professional networks (Yang & Hao, 2018; Fan et al., 2022).

In response to these challenges, China initiated a healthcare reform in 2009 aimed at establishing a well–functioning health system. Between 2000 and 2011, there was a significant increase in total health expenditures per capita in China, rising from CN¥319 to CN¥1888 with an average annual increase of 17.4%. During this period, government and social health expenditure also grew rapidly, averaging an annual increase of 22.9% and 18.8%, respectively. In contrast, out–of–pocket payments increased at a slower rate, from CN¥171 in 2000 to CN¥710 in 2011.

However, the proportion of out–of–pocket payments in total health expenditure decreased from 53% in 2005 to 38% in 2011 (Long et al., 2013).

Over the past two decades, China has made significant improvements in healthcare resources, particularly in urban areas where medical professionals, institutions, and pharmaceuticals have reached international standards. Healthcare reform has also contributed to this progress by improving healthcare services. However, some challenges still remain, particularly in rural areas where inadequacies persist. The affordability of healthcare services and access to primary care and public health services are still major concerns (Long, 2013). Economic disparities across provinces and regions exacerbate healthcare disparities between urban and rural areas, leading to unequal healthcare access for individuals and regions. This issue is consistent with previous research highlighting barriers to healthcare access for rural residents, including limited medical resources and high costs (Li et al., 2017; Wang et al., 2019).

Lishui is a city located in Zhejiang province with a population of 2,514,000 permanent residents in 2021. Out of this number, 1,571,000 were classified as urban residents, while 943,000 were classified as rural residents. The urbanization rate, which is the proportion of the urban population in the total population, was 62.5%, representing a 0.6% increase from the previous year. Zhejiang Province, where Lishui city is located, has experienced rapid economic development, leading to an aging population and healthcare affordability challenges (Jiang et al., 2023) The residents of Lishui city are facing public health challenges, including the prevalence of chronic diseases and concerns about healthcare access, particularly in rural areas (Wang & Yang, 2019; Wu et al., 2016).

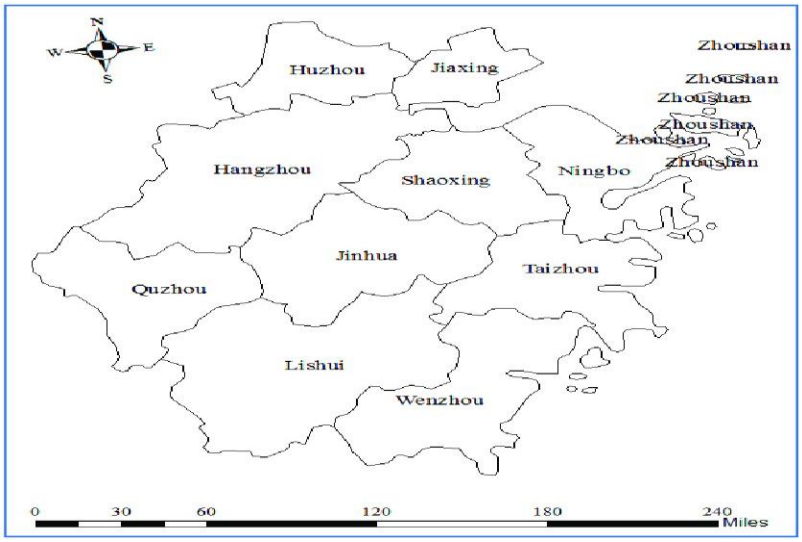

Figure 1 Map of Lishui city in Zhejiang Province, China.

Source: Wang and Yang (2019)

From the issue of importance and problems regarding access to healthcare services in China above, this study aimed to analyze the factors that impact healthcare access for rural residents in Lishui City, located in Zhejiang Province, China. The study aims to provide valuable insights to scholars and policymakers for the development of basic medical security in the region.

Research Objective

The purpose of this study is to analyze the factors affecting access to healthcare for Chinese people in Lishui city, in Zhejiang province, China.

Research Hypothesis

1. The factors of family Caregivers, family resources, social networks, and community welfare significantly influenced the access to healthcare services for Lishui city residents in Zhejiang province.

. 2. The factors of quality of healthcare service significantly influenced the access of healthcare services of Lishui city residents in Zhejiang province.

Review of the Literature

Concept and theory of healthcare access

Access to public health services is a system of people's health care services that is widely implemented. The heart of providing public health services to the people is to create service satisfaction for public health and play an important role in public health policy implementation (Levesque et al., 2013). Aday and Andersen (1974) explained that various factors influence access to health services, including healthcare policy (such as budget, human resources, and organizational management), characteristics of the health delivery system (such as sufficient resources), coverage of services, characteristics of the population at risk (age, gender, health values), utilization of health services, and consumer satisfaction. Aday and Anderson's framework is widely recognized as the predominant and most utilized theory for analyzing healthcare access and has been extensively applied in studies examining healthcare utilization among diverse populations (Vedom & Cao, 2011). While Penchansky and Thomas (1981) explain that “the assessment of access to healthcare services" should be based on at least five dimensions, such as availability, accessibility, affordability, accommodation, and acceptability.

Several researchers and studies, including Chansukree et al. (2017), Hu et al. (2019), Niramit & Promphakping (2019), and Swe et al. (2019), have conducted studies on healthcare access in China and Thailand. These studies have identified various factors that influence access to public health services, including family size, occupation, income level, income adequacy, family relationships, health behaviors, economic status, and social networks. The studies found that these factors significantly impact healthcare access and are correlated with self–management behaviors among hypertensive patients with comorbid diabetes. In conclusion, these studies highlight the importance of both individual and family resources, social resources, and community welfare services in accessing healthcare services.

The healthcare system in China

In China's health care system, health care services are composed of three levels. Primary–level health service institutions that are centered in villages and towns and directly provide prevention, medical treatment, health care, and other services to certain populations; secondary health services are municipal or district–centered hospitals; tertiary health services are made up of large hospitals. Among them, the public health sector is the main provider of health care. Although

China's medical care has made great progress in the past decade, it still cannot meet the needs of some residents. (Meng et al., 2015). In particular, with the aging of the Chinese population and the increasing incidence of chronic diseases, as well as challenges hit by COVID–19 in the past few years, China urgently needs to reform the medical care system and improve the capacity of the current medical care system as much as possible. The evidence from the study by Ying et al. (2020) has stressed that even though the economic development in China in recent years has made a positive impact on the health and well–being of individuals living in both urban and rural areas, rural residents experienced significant enhancements in insurance coverage and perceived access to care. Urban residents benefited more from increased insurance subsidies and better insurance coverage, but urban residents had significantly better access to care than rural residents. People residing in rural areas usually suffer from a shortage of healthcare providers, extended travel to health care facilities, lower income to purchase health services, and a lack of social support.

In the present day, China's healthcare system has been focusing not only on improving healthcare services but also on supporting the traditional family support mechanism to enhance access to healthcare. Family caregivers are critical to home care, especially in rural areas. They provide 75–90% of the care to people living in the community and assist with 10–30% of the care in congregate care settings such as lodges, assisted or supportive living, and long–term care (L'Heureux et al., 2022). According to a study by Lu et al. (2022), family caregivers play a crucial role in caring for stroke patients in China. This is attributed to traditional Chinese culture and the limited development of the primary healthcare system. Additionally, due to population aging, industrialization, and urbanization, spouses have become the primary providers of elderly care in China (Ai et al., 2022). Therefore, it can be concluded that family caregivers have an important role in providing care services for families in China.

Based on the theory of access to health services by Aday and Andersen (1974) and Penchansky and Thomas (1981), along with prior research and the researcher's perspective, it is believed that family caregivers, family resources, social support, and community play a crucial role in accessing healthcare for individuals in rural areas. As a result, the conceptual framework can be formulated as depicted in figure 2.

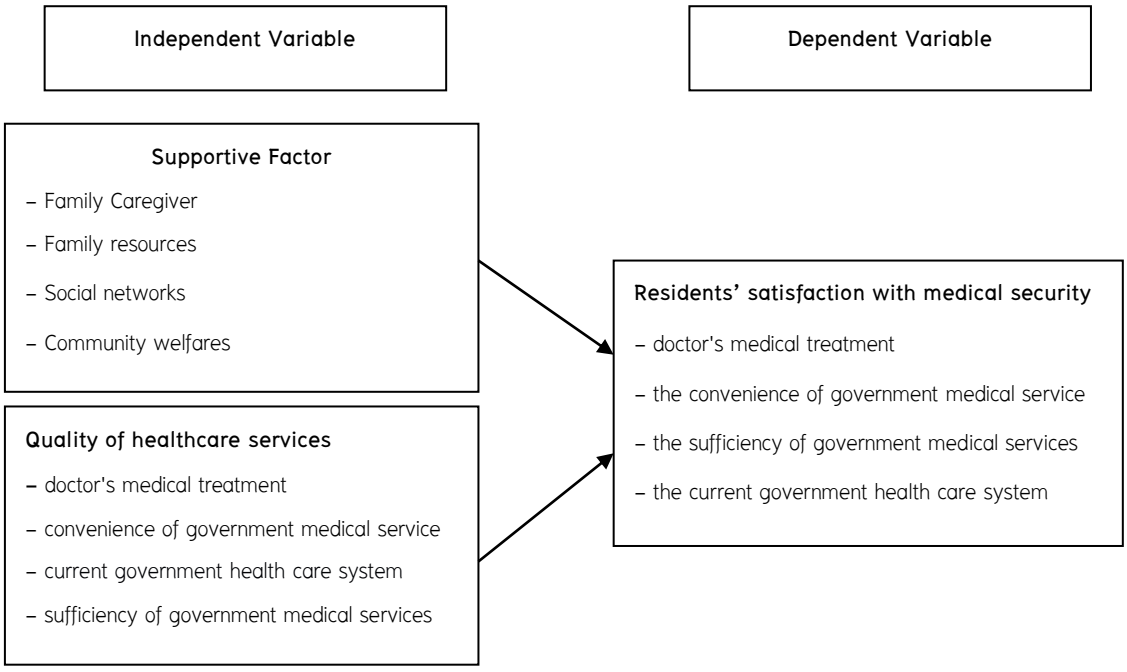

Figure 2 The conceptual framework

Research Methodology

Population and Sample

This research is quantitative and employs the survey method. The population in this study are residents of Lishui City, a rural area consisting of 918,000 people. (Lishui City Statistics Bureau, Zhejiang Province, 2022). The sample in this study are residents of Lishui City, a rural area consisting of 400 people. The sample was obtained by calculating the sample size according to the formula of Yamane (1967) at a confidence level of 95 percent and a level of error of 5 percent. The sample size equals 399.83. However, in collecting the actual data, all of the questionnaires may not be returned completely, or there may be some mistake in the questionnaires. Therefore, the researchers increased the sample size to 400. After that, proportional sampling and convenience sampling were used to obtain the number of samples in each area in proportion to the city's population.

Instrument for Data Collection

The research instrument used was a questionnaire that was created as a rating scale using the Likert scale approach, which allows respondents to rate their attitudes on a 5–point

scale. (The range of the five–point Likert scale was: 1: strongly disagree; 2: disagree; 3: neutral; 4: agree; 5: strongly agree.) The questionnaire underwent quality testing by three experts who assessed the validity and accuracy of the content and questions according to the research objectives. The scores were analyzed using the Index of Item Objective Congruence (IOC) method by Rovinelli and Hambleton (1976) to determine the congruence between the questions and objectives. The questions had an average score between 0.67 and 1.00, which exceeded the standard of 0.50, indicating good congruence. The questionnaire's reliability was tested by administering it to a sample of 30 participants with characteristics similar to those of the target group. The data was analyzed to calculate the Cronbach's alpha coefficient, which was 0.985 for the entire questionnaire, exceeding the standard of 0.70 and indicating high reliability (Tavakol & Dennick, 2011).

The process of collecting data

After the questionnaire had been revised, data collection for a research study was conducted in Lishui City. The following steps were taken during the data collection process:

1. The researcher had requested permission from the leader and residents of Lishui City for data collection.

2. The researcher distributed the questionnaire to the population by asking for cooperation from the target samples.

3. The researcher collected all the questionnaires that had been taken to perform further research steps. After collecting the questionnaires, the researcher would need to process and analyze the data collected to draw meaningful conclusions and insights from the study.

Data analysis

The data collected from the questionnaires was checked, and the completed questionnaires were selected for analysis. Subsequently, a coding system was established to organize the data. Finally, the data were analyzed using the SPSS software package to find research results that aligned with the research objectives.

Statistics for data analysis

The researcher employed several statistical methods to analyze the collected data. Firstly, Cronbach's alpha coefficient formula (1990) was used to assess the reliability of the questionnaire. Secondly, descriptive statistics, including frequency, mean, percentage, and standard deviation,

were used to analyze the level of access to healthcare among Chinese people living in rural areas. Finally, inference statistics and multiple regression analysis were used to analyze the factors affecting access to healthcare.

Research Results

1. Demographics Characteristics

According to the data collected by the survey, 52.25% of the respondents are female, 63.25% are over 40 years old, 70.07% have a bachelor's degree, 58.25% have an annual income of less than 10,000 yuan, and 60.75% are married. 56.75% of respondents have a family of three or fewer people, and 70.32% are married. 92.25% of rural residents believe that a social health care system is necessary. Among the various occupations employed by rural residents, agricultural personnel account for the highest proportion,17.75%. The proportion of consultations at clinics and town health centers reached 79.25 percent.

2. Factor level information.

Table 1 Mean, standard deviation of factors affecting the satisfaction of rural residents in accessing healthcare services in Lishui city

Factor level information	Mean	Std. Deviation	meaning	rank
1. Family caregiver	3.43	0.83	Moderate	1
2. Family Resources	3.39	0.82	Moderate	3
3. Social Support	3.32	0.85	Moderate	4
4. Community welfares	3.41	0.79	Moderate	2
5. Quality of healthcare services provision	2.98	0.82	Moderate	5
total	**3.31**	**0.82**	**Moderate**	

From Table 1, this research table summarizes the factor-level information based on the mean and standard deviation scores. The factors are ranked based on their mean scores, with the family caregiver aspect receiving the highest score (3.43), followed by community welfare (3.41), family resources (3.39), social support (3.32), and quality of healthcare service provision (2.98). All factors were rated as moderate.

Table 2 Mean, standard deviation of Residents' satisfaction with healthcare services in Lishui

Residents' satisfaction with healthcare service	Mean	Std. Deviation	meaning	rank
1. The satisfaction with doctor's medical treatment	3.24	0.93	Moderate	1
2. The satisfaction with the convenience of government medical service	3.02	1.08	Moderate	3
3. The satisfaction with the current government health care system	3.04	1.02	Moderate	2
4. The satisfaction with the sufficiency of government medical services	3.01	1.02	Moderate	4
total	**3.07**	**0.80**	**Moderate**	

From Table 2, The results showed that residents' satisfaction with doctors' medical treatment ($\bar{x}$ = 3.24, SD = 0.93) received the highest mean score, indicating that residents were relatively satisfied with the quality of medical treatment provided by doctors. The satisfaction with the current government health care system ($\bar{x}$ = 3.04, SD = 1.02) received the second–highest mean score, followed by the satisfaction with the convenience of government medical services. ($\bar{x}$ = 3.02, SD = 1.08), and the satisfaction with the sufficiency of government medical services ($\bar{x}$ = 3.01, SD = 1.02). Overall, the study suggests that residents' satisfaction with medical security is in the moderate range ($\bar{x}$ = 3.07, SD = 0.80).

Table 3: The results of the VIF and Tolerance index

Factor	Tolerance	VIF
1. Family caregiver	.555	1.802
2. Family Resources	.474	2.109
3. Social Support	.363	2.758
4. Community welfares	.373	2.683
5. Quality of healthcare services provision	.356	2.812

According to Table 3, the tolerance values range from 0.356 to 0.555, and the VIF values range from 1.802 to 2.812. Both values are within the range considered to have low multicollinearity, which is in line with the initial agreement of using statistical analysis in which tolerance values should be greater than 0.10 and VIF values should be less than 10

(Vanichbuncha, 2007). Therefore, it can be concluded that the predictor variables used in this analysis do not have a significant multicollinearity problem.

Table 4 Results of factors affecting the satisfaction of rural residents in accessing healthcare services in Lishui city (Stepwise Multiple Regression Analysis)

Factors	B	S.E.b.	β	t	P
Constant	**0.294**	**0.111**		**2.637**	**0.009**
1. Quality of healthcare services provision (X5)	0.483	0.047	0.496	10.206	0.000*
2. Social Support (X3)	0.163	0.045	0.174	3.611	0.000*
3. Community welfares (X4)	0.136	0.048	0.134	2.825	0.005*
4. Family Resources (X2)	0.101	0.041	0.103	2.456	0.014*
$R=0.668$, $R^2=0.665$ $F=199.005$					

*$P < 0.05$

Table 4 shows factors affecting the satisfaction of rural residents with accessing healthcare services. The variables included in the study were quality of healthcare service provision (X5), social support (X3), community welfare (X4), and family resources (X2). The table presents the regression coefficients, standard errors, t-values, and p-values for each variable.

The regression analysis revealed that quality of healthcare service provision (X5), social support (X3), community welfare (X4), and family resources (X2) were significant predictors of the satisfaction of rural residents in accessing healthcare services. Specifically, the quality of healthcare service provision had the highest positive impact (β=0.496, p<0.001), followed by social support (β=0.174, p<0.001), community welfare (β=0.134, p=0.005), and family resources (β=0.103, p=0.014). The overall model was significant (F = 199.005, p<0.001). The R-squared value of 0.665 suggests that the model explains 66.5% of the variance in healthcare service access.

The prediction equation in raw score form for predicting healthcare accessibility in rural areas based on the significant predictors is:

Healthcare access =.294 +.483 (quality of healthcare service provision) +.163 (social support) +.136 (community welfare) +.101 (family resources).

The study's conclusion is that quality healthcare services, social support, community welfare, and family resources are significant predictors of the satisfaction of rural residents with

accessing healthcare services. Improving the quality of healthcare services is crucial to enhancing healthcare accessibility, while providing social support and community welfare can also contribute to improving access. The study emphasizes the importance of addressing these factors to ensure equal access to healthcare services in rural areas.

Research Discussion

1. The study found that the overall mean of factors affecting the satisfaction of rural residents in accessing healthcare services in Lishui City was at a moderate level. The highest ranking factor was the family caregiver, followed by community welfare, family resources, social support, and the quality of healthcare service provision. The quality of healthcare service provision had the lowest mean score among the five factors. The results align with the study conducted by Ying et al. (2020), which found that while economic development in China has positively impacted the health and well-being of individuals in urban and rural areas, rural residents have seen improvements in insurance coverage and access to care, while urban residents have benefited from increased insurance subsidies and better coverage. However, urban residents still have better access to care compared to rural residents due to factors such as healthcare provider shortages, longer travel distances, lower income, and a lack of social support in rural areas. The result of this study is also consistent with research by Sritart et al. (2021), which revealed that accessing hospitals in the border region and remote areas of Ubon Ratchathani Province presents difficulties due to lengthy travel durations. This issue is especially concerning for the growing population of elderly individuals, as over 30% of them are required to travel for more than 30 minutes in order to reach a hospital. And the study by Seetamanotch (2002), which studied the access to universal health care coverage for the elderly with factors related to Phuket, found that the elderly's overall accessibility to the healthcare system was at a moderate level. However, this result is contrary to the findings by Nirarat & Kidsom (2017), which found that the elderly in Bangkok had a high level of access to health services. The difference in these research findings may be attributed to one possible factor: the rural-urban disparity in terms of access to resources and infrastructure. The rural area in Lishui city may have limited resources and infrastructure compared to a metropolitan city like Bangkok, which could affect the quality and availability of public services.

Finally, the results show that the family caregiver aspect receives the highest score, followed by community welfare. This result is consistent with a study by Ai et al. (2022), which found that due to population aging, industrialization, and urbanization, spouses have become the primary providers of elderly care in China. Therefore, it can be concluded that family caregivers have an important role in providing care services for families in China.

2. The factors affecting resident's satisfaction on healthcare access of rural area in Lishui city.

The study found that the quality of healthcare service provision, social support, community welfare, and family resources were significant predictors of the satisfaction of rural residents with accessing healthcare services. The quality of healthcare service provision had the highest positive impact, followed by social support, community welfare, and family resources. The study concluded that addressing these factors could improve healthcare accessibility for rural residents. The findings of this study align with the healthcare access theory proposed by Aday and Anderson (1974), which suggests that healthcare access is influenced by factors such as healthcare policy and population characteristics. Additionally, Penchansky and Thomas (1981) explain that the assessment of healthcare access includes considerations of availability, accessibility, affordability, and accommodation. These results are also consistent with previous studies conducted by Swe et al. (2019) and Niramita and Promphakping (2019), which found that factors such as family relationships, economic status, income, and social networks have an impact on healthcare access. Lastly, this finding came from Dassah et al. (2018), who stated that four major factors—availability, acceptability, geography, and affordability—influenced healthcare services. Therefore, in this study, these factors were found to have an impact on the healthcare access of rural residents with low income and family support, as well as social factors affecting access to healthcare services.

Conclusion

The study concludes that the overall mean of the healthcare system factor is at a moderate level, with the family caregiver aspect receiving the highest score, followed by community welfare. It indicates that family caregivers and community welfare remain crucial for improving access to healthcare services for the rural population in China. The study also concludes

that several factors, including quality healthcare services, social support, community welfare, and family resources, play a significant role in predicting healthcare accessibility in rural areas. These findings highlight the importance of addressing these factors to improve access to healthcare services for rural populations.

Research Recommendation

Based on the study's findings, there are several recommendations for different sectors to improve healthcare accessibility in rural areas:

1. Government and public health agencies should focus on improving the quality of healthcare services in rural areas. This can be achieved by investing in healthcare infrastructure, providing training and education for healthcare providers, and ensuring that healthcare services are available and accessible to all. Additionally, government should provide financial Support such as financial incentives or subsidies for healthcare professionals who choose to work in rural areas. This can help attract and retain talented medical personnel in underserved regions.

2. Families in rural areas should take advantage of the available resources to ensure that their members receive quality healthcare services. They can also participate in community outreach programs to promote health education and awareness.

3. Community organizations should engage with the government to work toward providing social support and community welfare to rural residents. This can include organizing transportation services to healthcare facilities, providing health education and outreach programs, and creating support networks for those in need.

Overall, it is crucial to address the factors that influence healthcare accessibility in rural areas to ensure that all residents have equal access to quality healthcare services. Collaboration between different sectors is essential to achieving this goal.

The suggestions for Future Research

Based on the findings of this study, here are some recommendations for future research:

1. Conduct mixed–methods research to gain a more comprehensive understanding of healthcare accessibility in rural areas. This can involve combining quantitative data analysis with qualitative data collection methods, such as focus groups and interviews, to provide a more nuanced understanding of the issue.

2. Explore the potential impact of technology on healthcare accessibility in rural areas. This can include examining the effectiveness of telemedicine and other digital health solutions in improving access to healthcare services.

New Knowledge

The study's conclusion is that quality healthcare services, social support, community welfare, and family resources are significant predictors of healthcare accessibility in rural areas. Improving the quality of healthcare services is crucial to enhancing healthcare accessibility, while providing social support and community welfare can also contribute to improving access. The study emphasizes the importance of addressing these factors to ensure equal access to healthcare services in rural areas. The new knowledge has developed, as depicted in Figure 3.

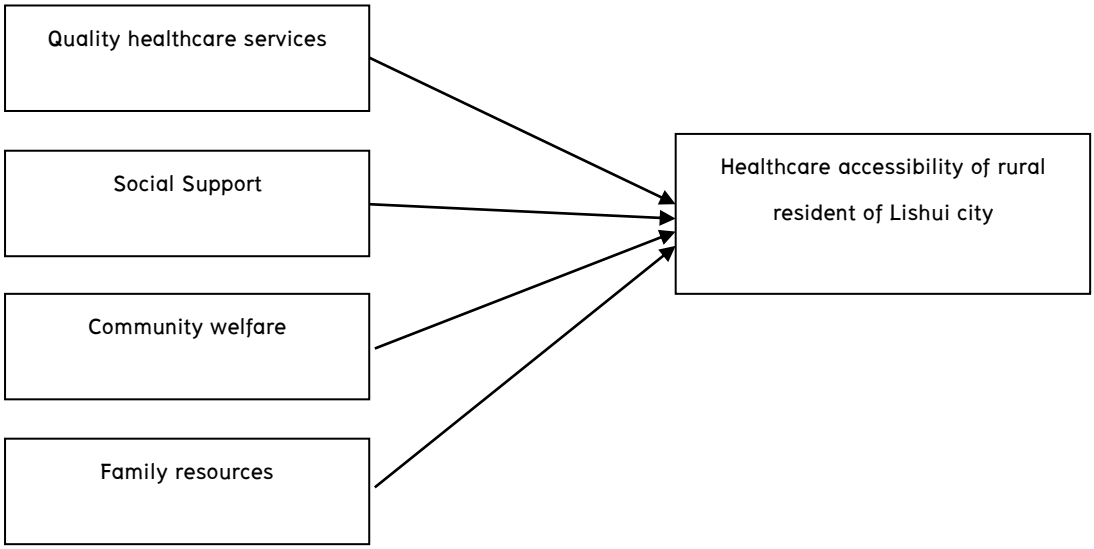

Figure 3 The summary of knew knowledge.

Source: Summarized by the researchers.

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