

Research on the Factors Influencing Residents' Satisfaction with Public Services in Urban Communities

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Abstract: In recent years, with the rapid development of big data, artificial intelligence, cloud computing and other high technologies, residents of urban communities in China have increasingly high demands for the quality of community public services, and residents' satisfaction is the most intuitive evaluation of community public services, reflecting the real needs of residents. In this paper, through the questionnaire survey method, a web-based questionnaire was distributed and information was collected from the community residents of Z street in Songbei district of Harbin city, and the corresponding reliability, validity and correlation analyses were conducted using SPSS 26.0. It was concluded that residents' perception of quality, residents' expectation, residents' satisfaction and residents' trust were positively correlated with residents' satisfaction of urban community public services, and residents' complaints were negatively correlated with residents' satisfaction of urban community public services. The conclusion is that residents' complaints are negatively correlated with residents' satisfaction with public services in urban communities, and we propose suggestions and countermeasures to integrate relevant industry resources, build smart communities, and improve residents' willingness to participate in communities, in order to further improve the quality of public services in communities, accelerate the development and application of high technology in urban communities, and thus improve residents' satisfaction in urban communities.


1 INTRODUCTION

The community is the home where people live and work happily, the basic unit of society, the basic platform for the organization and implementation of public power and innovative social governance, and the important cornerstone for consolidating the Party's ruling base (Li 2022). In November 2019, the Decision of the Fourth Plenary Session of the 19th CPC Central Committee called for improving China's public service system, innovating the way of providing public services, promoting the equalization and accessibility of basic public services, and meeting the multi-level and diversified needs of the people. The rapid development of urban public service system requires us to accelerate the construction of public infrastructure services in the community, which is a fundamental requirement to meet the growing material and cultural needs of the residents, and more importantly, to implement the demands of

the times to improve community governance and establish social ethos (Yang 2001).

Public services in urban communities refer to "products or services that are non-exclusive and non-competitive in terms of use or consumption" provided by the government, social organizations, district units and residents to meet the diverse and individualized needs of community members, with the community as the field of activity (Kong 2014). With the rapid improvement of China's social and material level, Internet, Internet of things, household networking and other applications are popular, community residents' demands on the quality of community public services have become more and more stringent. Therefore, the evaluation of residents' satisfaction with public services in urban communities also reflects the extent of the quality of public services in a community. In this paper, the factors influencing the satisfaction of urban community public service residents are studied and analyzed by means of a questionnaire survey to

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find out the shortcomings in the construction of urban community public services and to provide a reference basis for further improving the satisfaction of urban community public service residents and the construction level of urban community public services.

2 RESEARCH DESIGN

In order to explore and analyze the factors influencing residents' satisfaction with public services in urban communities, a questionnaire was administered in the form of a web-based survey platform, "Questionnaire Star", to community residents in Songbei District, Harbin City, with a total sample of 216 people. In order to improve the validity and reliability of the questionnaire, the design of the questionnaire refers to and draws on the ASCI model (customer satisfaction index model), and selects five variables: customer perception of quality, customer expectation, customer satisfaction, customer loyalty, and customer complaint, which are modified and organized to constitute the five variables of this questionnaire: residents' perception of quality, residents' expectation,

residents' satisfaction, residents' trust, and residents' complaint, in order to form A questionnaire suitable for the study of urban community residents. There are 21 questions in the questionnaire.

3 DATA ANALYSIS

3.1 Individual Characteristics

The data information related to the collected questionnaires was organized, and there were 216 basic personal information of the study subjects.

3.2 Descriptive Statistical Analysis

The sample statistics are shown in Table 1.

In terms of gender. Among the community residents who participated in the questionnaire survey, 99 were male, accounting for 45.83%; 117 were female, accounting for 54.17%. The number of females was more than the number of males, and the difference in numbers was small, and the ratio of males to females was more balanced.

Table 1: Characterization of the data sample.

Item	Classification	Frequency	Percentage (%)	Cumulative percentage (%)
Gender	Male	99	45.83	45.83
	Female	117	54.17	100
Age	20 years old and below	19	8.8	8.8
	21-40 years old	89	41.2	50
	41-60 years old	83	38.43	88.43
	61age and above	25	11.57	100
Education	Junior high school and below	36	16.67	16.67
	High school (including vocational high school)	82	37.96	54.63
	University (including undergraduate and post-secondary)	72	33.33	87.96
	Master and above	26	12.04	100
Profession	Individuals	61	28.24	28.24
	Corporate Staff	52	24.07	52.31
	Government Staff	27	12.5	64.81
	Business Unit	21	9.72	74.53
	Students	23	10.65	85.18
	Retirement or other occupation	32	14.81	100
Monthly household income	Less than 1500 RMB	17	7.87	7.87
	1500-3000RMB	34	15.74	23.61
	3000-5000RMB	83	38.43	62.04
	More than 5000 RMB	82	37.96	100

In terms of age. Among the community residents who participated in the questionnaire survey, 19 were 20 years old and below, accounting for 8.8%; 89 were 21-40 years old, accounting for 41.2%; 83 were 41-60 years old, accounting for 38.43%; and 25 were 61 years old and above, accounting for 11.57%. Among the groups surveyed, two age groups, 21-40 years old and 41-60 years old, dominated, while 20 years old and below and 60 years old and above accounted for a relatively small percentage.

In terms of education. Among the community residents who participated in the questionnaire survey, 36 were junior high school and below, accounting for 16.67%; 82 were high school (including vocational high school), accounting for 37.96%; 72 were university (including bachelor and college), accounting for 33.33%; 26 were master and above, accounting for 12.04%. Among the group receiving the questionnaire, the education level of high school and above is as high as 83.33%, which shows that the residents of this community have a higher level of education, and it is easier to understand and fill in the questions set in the questionnaire.

In terms of occupation. Among the community residents who participated in the questionnaire survey, 61 were individuals, accounting for 28.24%; 52 were enterprise workers, accounting for 24.07%; 27 were government workers, accounting for 12.5%; 21 were institutions, accounting for 9.72%; 23 were students, accounting for 10.65%; and 32 were retired or other occupations, accounting for 14.81%. Among the groups surveyed, the occupations were mainly individual and enterprise workers, with the total percentage of enterprise workers, government workers, institutions and individuals reaching 74.54%, indicating that the community residents surveyed have higher requirements for quality of life and thus are more concerned about the public services provided by urban communities.

In terms of monthly household income. Among the community residents who participated in the questionnaire survey, 17 (7.87%) were below RMB 1,500, 34 (15.74%) were between RMB 1,500 and 3,000, 83 (38.43%) were between RMB 3,000 and 5,000, and 82 (37.96%) were above RMB 5,000. Among the groups surveyed, 76.39% of the community residents had an income of RMB 3,000 or more, indicating that the community residents surveyed had a higher income level and were more strict about the quality of public services provided by the community.

3.3 Questionnaire Quality Analysis

3.3.1 Reliability Test

Reliability refers to the consistency, stability and reliability of the test results, and is generally expressed by the internal consistency of the test. In this paper, we adopt the common practice of measuring Cronbach's alpha to test the reliability of the questionnaire, so as to ensure that the collected data and the corresponding data analysis are reliable. The Cronbach's coefficient test criteria are shown in Table 2.

Table 2: Cronbach's alpha criteria table.

Cronbach's α	Scale Reliability
Below 0.50	Not ideal, the scale can be used without
0.50-0.60	Not ideal, needs revision
0.60-0.70	Reluctantly accepted
0.70-0.80	More ideal
0.80-0.90	Ideal
Above 0.90	Very ideal

SPSS 26.0 reliability statistics was applied to detect and analyze the reliability of the questionnaire. The results of the reliability analysis of the scale items of the test questionnaire are shown in Table 3, in which the Cronbach coefficient of residents' perception of quality is 0.878; the Cronbach coefficient of residents' satisfaction is 0.727; the Cronbach coefficient of residents' expectation is 0.833; the Cronbach coefficient of residents' trust is 0.888; the Cronbach coefficient of residents' complaint This indicates that the internal consistency is very high, which shows that the questionnaire in this study has good reliability.

Table 3: Scale reliability analysis.

Analysis dimension	Number of items	Cronbach's Alpha
Tangibility	6	0.878
Reliability	2	0.727
Responsiveness	3	0.833
Assurance	3	0.888
Empathy	2	0.833

3.3.2 Validity Test

Validity, refers to the degree to which a measurement instrument or tool can accurately measure the thing to be measured. Applying SPSS 26.0 reliability statistics

to detect and analyze the validity of the questionnaire, the results of KMO and Bartlett's test analysis of the test questionnaire are shown in Table 4, the KMO value is 0.974, which is greater than 0.6, and the corresponding P value (significance) of Bartlett's spherical test is 0.000, which is greater than 0.5, indicating that the overall validity of the scale is good and suitable for factor analysis.

Table 4: Scale validity analysis.

KMO and Bartlett's test		
KMO The number of sample suitability measures.		.974
Bartlett's sphericity test	Approximate cardinality	2772.650
	Degree of freedom	120
	Significance	.000

3.3.3 Correlation Analysis

SPSS 26.0 Pearson algorithm was applied to detect and analyze the correlation of the questionnaire, and the results of the correlation analysis of the test questionnaire are shown in Table 5. The satisfaction evaluation refers to the overall rating of the five variables of the questionnaire, which is the overall rating or evaluation of the questionnaire filled out by the urban community residents who participated in the questionnaire. ** denotes P<0.01, and the correlation coefficient between each variable is with **, which indicates that there is a significant positive correlation between the variables. For example, residents' perceptions of quality have significant positive correlations with residents' satisfaction, residents' expectations, and residents' trust. Of particular note is that the options for the variable resident complaints were reversed when conducting the SPSS 26.0 analysis, that is, strongly disagree = 5 points, and so on, strongly agree = 1 point. Therefore, when analyzing the influencing factors, note that the resident complaints variable is negatively correlated with the other variables.

Table 5: Correlation analysis

	Residents' perception of quality	Resident satisfaction	Resident expectations	Resident Trust	Residents complain	Satisfaction rating
Residents' perception of quality	1.000					
Resident satisfaction	.664**	1.000				
Resident expectations	.584**	.638**	1.000			
Resident Trust	.678**	.667**	.582**	1.000		
Residents complain	.607**	.674**	.647**	.690**	1.000	
Satisfaction rating	.803**	.741**	.708**	.792**	.737**	1.000

4 CONCLUSION

After the reliability, validity, and correlation analysis of the variables in the five dimensions, the weights of each indicator have to be determined. In this paper, we borrowed the method of quality evaluation from Marcion (2021) to calculate the arithmetic mean score of each indicator, and then brought into formula (1) to calculate the importance value weight ω of each indicator.

$$\omega = \frac{\bar{x}_i}{\sum_{i=0}^n \bar{x}_i} \quad (i=1,2,3,\dots,20) \quad (1)$$

Factor analysis was performed using SPSS software to calculate the weighted weights ϵ , which were then brought into formula (2) to calculate the combined weights ξ for each index.

$$\xi = \frac{\omega_i \epsilon_i}{\sum_{i=0}^n \omega_i \epsilon_i} \quad (i=1,2,3,\dots,20) \quad (2)$$

Substituting into equation (3), the comprehensive score of residents' satisfaction with public services in urban communities C is obtained.

$$C = \frac{\sum \xi_i \bar{y}_i}{\sum \xi_i} \quad (i=1,2,3,\dots,20) \quad (3)$$

Among them, C is the comprehensive score of residents' satisfaction with public services in urban communities, ξ_i is the comprehensive weight of each indicator of public service quality in urban communities, and \bar{y}_i the average satisfaction score of each indicator.

By substituting the corresponding data, the overall satisfaction score of urban community public service residents is 3.5223.

The questionnaire uses a unified assessment standard, and the answers are divided into five levels: "very high expectations, high expectations, average expectations, low expectations, and very low expectations", and are assigned a score of "5, 4, 3, 2, and 1". Based on the collected data, the average score of each index was calculated and ranked. The average score of each indicator was calculated and ranked according to the collected data as shown in Table 6.

Table 6: Overall score of public service quality in urban communities

Variables	Dimensionality	Overall score	Sorting	Dimensional score
Residents' perception quality of	The overall scale and quantity of community resources	3.2547	13	3.4570
	Community talent building	3.1650	14	
	Community public cultural services	3.8745	1	
	Community health, epidemic prevention, security and other services	3.8683	2	
	Perceived degree of perfection	3.2937	11	
	Overall degree of perception	3.2862	12	
Resident satisfaction	The actual services received match the expected community public services	3.1408	15	3.1385
	Overall satisfaction level	3.1362	16	
Residents' expectations	Expectation level of personalized demand for community public services	3.4971	9	3.4640
	Reliability expectation level	3.5209	8	
	Overall expectation level	3.3740	10	
Resident Trust	You believe that the community's future public service construction will become better	3.7635	6	3.7630
	You support future public service reform initiatives in your community complaints from the public	3.7851	5	
	You choose to continue to live in the community and enjoy the public services provided by the community	3.7406	7	
Residents complain	You do not approve of the reform initiatives of public services in your community	3.8265	4	3.8284
	You doubt the future of public services in your community	3.8302	3	
Overall score		3.5223		

According to the calculation results and evaluation scores, the comprehensive score of residents' satisfaction with public services in urban communities of street Z in Songbei District, Harbin City is 3.5223, which is between average and high expectations, so it is concluded that the quality of public services in urban communities of street Z in Songbei District, Harbin City is in the middle to upper level. Among the five variables, residents' perception of quality scored 3.4570, residents' satisfaction scored 3.1385, residents' expectation scored 3.4640, residents' trust scored 3.7630, and residents' complaints scored 3.8284, all of which were between average and high expectations, with residents' satisfaction scoring low and favoring average expectations.

5 RECOMMENDATIONS

5.1 Integrate Related Industry Resources to Achieve Deep Integration of Resources

After identifying the contents and levels of residents' needs, public services in urban communities are classified according to laws and regulations and community service planning, so as to achieve targeted and precise supply (Geng 2022). Communities can develop public service platform systems and integrate industry-related resources to provide community medical services, community education services and other services to community residents in multiple fields. For example, community medical services can build "Internet + medical health" system, from cell phone reservation registration, online follow-up to assist decision-making, surgery and other forms of Internet hospitals. Health monitoring of chronic and occupational diseases using remote service function in order to provide timely health care advice and save people's time spent in seeking medical treatment and other aspects (Ji 2022). For community education services, community residents can realize teaching interaction, enrollment and other services in the public service platform system.

5.2 Use High-Tech Empowerment to Build Smart Communities

Smart community in the context of big data is based on the tripartite interconnection of government, enterprises and residents; government departments are responsible for the construction of relevant

policies to guide the operation of smart communities; enterprises are responsible for market development and product implementation and participate in the operation of smart communities; residents enjoy public services and pursue a higher quality of life in the practice of smart community operation (Zhao 2022). The introduction of "Internet+" into the public service supply system of urban communities has improved the quality of public services and played an important role in the accurate supply of public services and the overall improvement of public service level (He 2016). With the development and application of big data, artificial intelligence, cloud computing and other high-tech, urban communities uphold the resident services-oriented, focusing on the "new ten" policy objectives, and join hands with regional enterprises to strengthen the application of technology scenarios, the installation of intelligent "gatekeepers" in the community", to realize the "full coverage" of card gate technology empowerment in each community and build a smart security system. The so-called intelligent "gatekeeper" is the terminal, you can brush the ID card, face recognition to obtain personal information, the whole process takes only 2-3 seconds. In addition, for electric vehicles to implement "a car a code" of real-name management, the installation of "car face recognition" system in the stairwell, the installation of RFID wireless base stations in the building, through the "things and things connected" to eliminate the situation of electric bicycles into the elevator and upstairs. In short, urban communities should deeply use big data, artificial intelligence, the Internet of Things and other technologies to carry out intelligent and safe community construction work in the region, through the completion of face recognition access control, vehicle identification, electric bicycles prohibited entry and other "six systems" to provide fully enclosed community management, the formation of intelligent, three-dimensional security prevention and control system, and thus enhance the satisfaction of community residents.

5.3 Improve the Willingness of Community Residents to Participate

Urban residents are the core force in community building, and only proactive participation in community public affairs can lead to better services from the public sector (Zhu 2022). To improve the willingness of community residents to participate, we must first establish a perfect information communication channel. Play a public-oriented

service supply model, actively establish an innovative service management concept, and vigorously bring into play the effectiveness and synergy of public service functions (Wang 2020). First, urban communities can make use of "household networking" to facilitate residents to meet their own needs, expand individual participation in public affairs, enhance residents' trust in various organizations, and increase community residents' willingness to participate in the process of technology-enabled transformation. Secondly, a shared community app can be developed to post resources, needed service information and community activities that can be shared by the community and its residents on the app, creating conditions for residents to access information. Finally, The services provided by volunteer teams are not only an important resource for community public services, but also a cornerstone for fostering a community volunteer culture and forming a community of faith (Liu 2018). The community can open a team of "online volunteers" and promote "handheld volunteer services" and the integration of related resources, so that community work services can be networked and connected.

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