

Influence of perception on service satisfaction of community health centers among older adults or their families in Chongqing, China: A path analysis

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Abstract: Public expectation, service quality and value recognition are the main factors affecting satisfaction of CHC services. Service quality and accessibility should be improved along with the incrementally construction of rational service expectation towards CHCs. Policy and financial inputs and the introduction of well-trained health providers are of great importance as well. Furthermore, equal access to CHC service should be gradually promoted especially for older adults.

1. Introduction

There are over 180 million individuals ≥ 60 years of ages with at least one chronic disease in China in 2019 according to the National Health Commission. Most of these older patients living with certain underlying health conditions are outpatients, which has imposed a considerable health burden on China's medical system. Since the establishment of hierarchical medical system in 2015 in China, community health centers (CHCs) have served as the primary healthcare facilities for Chinese residents[1]. Due to their function orientation and service content, CHCs have thereafter become the main providers of medical treatment, rehabilitation and health management for older adults in communities or other institutions such as nursing facilities[2]. Although China has made substantial progress in improving primary care through dynamic policies, gaps still remain in quality of care, efficiency in care delivery and public satisfaction[3]. CHCs are now facing low awareness, low utilization as well as low satisfaction, towards their services among older adults in communities or other institutions in China. Very little attention has been paid to public perception on satisfaction with CHC services in present studies. It is tempting to figure out what perception factors affect the satisfaction with the present CHC services.

A variety of studies have put their efforts on the factors influencing the satisfaction with primary healthcare services among the public and on strategies for improving inadequate utilization. The education background and ability of health practitioners[4], patient privacy protection[5], awareness of medical service[6], health outcomes[7], expectation and perception[5] could affect patient satisfaction with primary healthcare services[9].

Subjective satisfaction and behavioral perception have been widely applied in the evaluation of primary healthcare services. Based on the previous findings, this paper constructed an evaluation model of satisfaction with CHC services in China from five aspects, public expectation, perceived quality, perceived value, perceived justice and perceived trust. With the satisfaction modeling, we hope to identify the factors influencing satisfaction with CHC services and explore the influence paths in Chongqing, China. Meanwhile, through the path analysis of field data, we want to see real attitudes of older adults and their families towards CHC services in Banan district of Chongqing, China. Taken together, we tried to provide some advices for helping solve the difficulties older adults are facing when requiring health care based on actual utilization of CHC services, in order to strengthen the function and status of China's primary health service system.

2. Methods

2.1 Data sources

This study was based on questionnaire data from the Third-party Investigation and Evaluation of Service Quality of Aged Care Institutions in Chongqing and the Third-party Evaluation of Service Quality of Community Aged Care Service Stations in Banan District of Chongqing from January, 2019 to June, 2019. Older adults ≥ 60 years of ages themselves or their families were the respondents of the survey.

2.2 Survey method

After being stratified by age into three groups of roughly equal numbers of samples, namely, 0-30 years old, 30-59 years old, and 60 years old and over, a total of 385 samples were randomly obtained. The questionnaire was constituted by three parts, basic information, expectation and choices, satisfaction and recognition, with a total of 13 questions.

2.3 Data analyses

Smart PLS 3.0 software was used for partial least squares structural equation modeling in this paper, and SPSS version 17 software platform offered statistical analysis. Based on the existing research findings relating to satisfaction and perception of CHC services, hypothesized causal connections between relevant variables were firstly made to establish the satisfaction model. Then Cronbach's α was used to test the internal consistency of these constructs which refers to the reliability of the data, and average variance extracted (AVE) was used to assess convergent validity of the variables related to the proposed constructs. Cronbach $\alpha > 0.6$ and AVE > 0.5 were accepted in this research. Furthermore, the maximum likelihood estimation method was chosen for estimating all model path coefficients. An effect was considered significant at $P < 0.05$.

3. Results

3.1 Hypotheses

We did the literature research and review to obtain relevant evidence on public satisfaction associated with perception in terms of primary healthcare services. Based on the existing research findings, we proposed several hypotheses between six variables including service expectation, perceived quality, perceived value, perceived trust, perceived fairness and public satisfaction, and established the satisfaction model in regards to CHC services .

3.2 Reliability and validity tests

Factor analysis was used to test the composite reliability (CR), convergent validity and discriminant validity of variables. The alpha value of Cronbach greater than 0.6 is regarded reliable. Results of reliability and validity tests, the Cronbach's value (α) for all constructs were in between 0.688 and 0.875, and all the constructs passed the reliability test. The CR scores of all constructs were greater than 0.826, which was higher than the conventional benchmark of 0.70, indicating that the internal consistency of each variable of the model is generally satisfactory. In addition, the loadings values of all measurement indicators were greater than 0.7, and the AVE values of the six constructs were all above 0.5, indicating that all the indicators satisfied the convergent validity requirement.

3.3 Path analysis

T-test was carried out on the measured results of PLS paths. P-values less than 0.05 were used to reject the null hypotheses. According to the results, 11 hypotheses passed the test. Taken together, 10 hypotheses were finally verified as shown in table 1.

Table 1 Path analysis results of included hypotheses

Research hypothesis	Path coefficient	T	P	Verification result
H1: expectation negatively affects public satisfaction F→E.	-0.104	2.568	0.011	Support
H2: expectation negatively affects perceived quality F→A.	-0.195	3.569	0.000	Suggest giving up
H3: perceived quality positively affects public satisfaction A→E.	0.264	5.651	0.000	Support
H4: perceived quality positively affects perceived value A→D	0.492	11.760	0.000	Support
H5: expectation negatively affects perceived value F→D	-0.193	4.067	0.000	Support
H6: perceived value positively affects public satisfaction D→E.	0.407	7.172	0.000	Support
H7: expectation affects perceived fairness F→B	-0.051	0.991	0.322	Non-support
H8: perceived fairness positively affects public satisfaction B→E	0.018	0.309	0.757	Non-support
H9: expectation affects perceived trust F→C	-0.009	0.218	0.828	Non-support
H10: perceived justice positively affects perceived trust B→C	0.208	4.192	0.000	Support
H11: perceived trust positively affects public satisfaction C→E	0.061	1.023	0.307	Non-support
H12: perceived quality positively affects perceived fairness A→B	0.383	7.736	0.000	Support
H13: perceived value positively affects perceived fairness D→B	0.272	4.479	0.000	Support
H14: perceived quality positively affects perceived trust A→C	0.242	4.144	0.000	Support
H15: perceived value positively affects perceived trust D→C	0.427	8.801	0.000	Support

A, B, C, D, E and F refer to perceived quality, perceived fairness, perceived trust, perceived value, public satisfaction, and service expectation, respectively

4. Influence intensity

There were five paths influencing the final satisfaction of CHC services among older adults or their families. Service expectation, perceived quality and perceived value were the direct influencing factors. The final contributions of service expectation (F), perceived quality (A) and perceived value (D) to public satisfaction (E) were -0.191, 0.508 and 0.441, respectively. Service expectation had a negative impact on public satisfaction, while perceived quality and perceived value presented a positive impact. It could indicate that the higher the expectation for the CHC services, the lower the public satisfaction with.

In addition, there were two indirect influencing paths, and both were based on perceived value. Both perceived quality and public expectation could affect public satisfaction by way of influencing perceived value. The influence coefficients of the two indirect paths (perceived quality → perceived value → public satisfaction, service expectation → perceived value → public satisfaction) were 0.224 and -0.087, respectively. Judgment on the quality of CHC services could affect public satisfaction in a direct manner, and also go first to an intermediate stage, namely, judgment on the

value of CHC services, and further affect the final satisfaction. The public believe that the higher the quality of CHC services, the more worthwhile the government's investment and the more cost-effective the service consumption. In another indirect influencing path, high expectation for CHC services among the public may arouse a bad impression on service value when the public deems the services not cost-effective, which would therefore lower the service satisfaction.

5. Discussion

5.1 Service expectation as a direct influence factor

The influence coefficient of service expectation was -0.191. Service expectation has a negative impact on the satisfaction with CHC services. It is necessary to adjust the public expectation to achieve increase in service satisfaction. Excessive public expectation in certain time has no positive significance to the evaluation of satisfaction. CHCs should show their actual present condition without exaggeration to the public. It is necessary to promote public participation and guide the public to have rational expectations on present services CHCs can provide at its healthcare level. As service receivers, the public tend to exaggerates their needs and raise their expectations. Once their roles turn to service providers and regulators, the public would have more rational considerations in not just service satisfaction.

5.2 Perceived value as a direct influence factor

The influence coefficient of perceived value of CHC service was 0.441. Perceived value has a direct, positive impact on the satisfaction with CHC services. In addition, the influence coefficients of the two indirect paths were 0.224 and -0.087, respectively. We can conclude that value recognition of CHC services is an important driver to public satisfaction. Both perceived quality of care and service expectation could affect public value recognition and further the public satisfaction with CHC services. Thus, the present situation of CHCs starves for dynamic health publicity to cultivate existing sources and foster appropriate incentives to enhance value recognition. Health education should concentrate on imparting health-related knowledge and attitudes, and focus on function positioning and value orientation of CHCs. Furthermore, CHCs should show their crucial and irreplaceable role in protecting public health and addressing health crisis. Undoubtedly, for instance, Chinese health care system including CHCs has done a great job in quelling COVID-19 pandemic and further defending in China.

5.3 Perceived quality as a direct influence factor

We found through path analysis that perceived quality of CHC services could directly (influence coefficient: 0.508) or indirectly (through influence on perceived value of CHC services) affect public satisfaction towards CHC services. Policy and financial inputs, and the introduction of well-trained health providers especially general practitioners are of great importance. Governments and relevant authorities have to lean forward and fast-track resources to primary health care, for example, in terms of training of medical staff, medical equipment and instruments and financial protection. In some degree, improvement on the quality of CHC services can serve as a means to help gain value recognition, which is consistent with the indirect influence path (perceived quality → perceived value → public satisfaction) we found in the study. In terms of site location, we should take into account the distribution density of CHCs, floor space, and accessibility (topography, transportation, etc.). It is necessary to form a virtuous cycle between government funding, service providing and social evaluation, which could further restore the status of or reinforce the role of a CHC.

5.4 Lack of fairness and trust towards CHC service

Path analysis has shown that there are direct connections between perceived fairness, perceived trust, perceived quality, and perceived value. This indicates that perceived quality and perceived value of CHC services could further affect public evaluation or judgment on fairness and trust in CHCs and the stuff. But perceived fairness and trust have neither direct influence on final

satisfaction nor indirect with the help of other variables. These suggest that lack of trust and fairness in CHC services does exist among older adults or their families in Banan district of Chongqing, China.

6. Conclusion

We found that service expectation, perceived quality and perceived value were the main factors directly affecting public satisfaction towards CHC service. Among indirect paths, both perceived quality and service expectation could affect public satisfaction by way of influencing perceived value of CHC services. So subjective perception on the satisfaction with CHC services could be largely affected by expected outcomes, quality of health care and value of service at least among the public in Chongqing. Therefore, in order to improve service satisfaction in CHCs among older adults and their families, we need to increase public awareness to CHC services, and promote the publicity of function positioning and value orientation of CHCs, and thus incrementally facilitate the construction of rational service expectation among healthcare receivers. Most importantly, much more efforts should be paid to quality of healthcare services of CHCs. In addition, there is a lack of fairness and trust in CHCs among the public. Subjective perception of quality and value of CHC services could affect that of fairness and trust in CHCs. Positive public perception of fairness and trust could in turn help improve service satisfaction. Besides, various aspects such as accessibility, policy and financial inputs, introduction and training of health providers should be taken into consideration for the further development of CHCs.

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