Exploring the Relationship between Service Quality of Private Hospitals and Patient Loyalty from the Perspective of Health Service

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Abstract

Background: With increasing demands for medical treatment and healthcare, private hospitals have enjoyed rapid development, and the quality and satisfaction ratings of their medical services have gradually become hotspot issues. We aimed to investigate the influencing mechanisms of medical service quality, patient perceived value, patient satisfaction, and patient loyalty.

Methods: On the basis of improved patient perceived value, service satisfaction, and loyalty scales, a questionnaire survey was conducted among 300 patients in 15 private hospitals in China. The action mechanisms of medical service quality, patient perceived value, patient satisfaction, and patient loyalty were verified via SPSS 22.0 and AMOS 20.0 statistical software.

Results: The service quality of private hospitals was positively correlated with patient perceived value, patient satisfaction and patient loyalty. Patient perceived value was positively correlated with patient satisfaction. Patient perceived value, as well as patient satisfaction was positively correlated with patient loyalty. Patient perceived value and patient satisfaction play a mediating role between medical service quality and patient loyalty. Patient perceived value and patient satisfaction play a chain mediating role between medical service quality and patient loyalty.

Conclusion: 1) Improving medical service quality is the main path to acquire patient loyalty for private hospitals. 2) When accepting high-quality medical services, patients will think that the cost paid is reasonable, and their satisfaction with private hospitals will consequently increase. 3) As patient satisfaction with private hospitals is elevated to a certain degree, they become increasingly willing to choose these hospitals again and recommend them to others.

Keywords: Private hospital; Service quality; Patient perceived value; Patient satisfaction

Introduction

The State Council of the People's Republic of China has issued documents to encourage private capitals to invest on medical treatment and the healthcare industry since 2010, numerous private hospitals have emerged (1). As of September 2018, the number of private hospitals had reached 20,000, accounting for 60% of the total number of hospitals; however, the number of patients being served by private hospitals had only accounted for about 20% of the total number of patients, and the profit rate has been declining for years (2). The reason for this phenom-

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enon lies in the doubts of the public over the medical levels of private hospitals.

Hospitals are considered public service sectors in China, and the public hospitals have relatively strict organizational discipline, hence both the Chinese government and residents regard public health institutions as trustworthy and the effective strength to depend upon in this public health emergency of COVID -2019. This is also related to the frequent occurrence of negative incidents in private hospitals in China in recent years, which have influenced the public trust in their medical service capacity and social responsibility. Medical services are traditional services characterized by trust. Patients who once accepted the medical services of private hospitals may still pause and ponder when making a choice or recommending these services to others. Currently, private hospitals in China face the major challenge of attracting and keeping patients.

Patient loyalty refers to the psychological tendency of a patient to recognize and repeatedly choose the same medical service provider (3). The higher a patient's loyalty is, the more likely will this patient choose the same services and recommend them to others. Improving patient loyalty can thus effectively address the issue of the limited number of patients treated in private hospitals in China. The American Customer Satisfaction Index (ACSI) model shows that through the mediating effect of value perception and customer satisfaction, perceived quality exerts a significant positive influence on customer loyalty under certain customer expectations, and the characteristics of different industries must be fully considered in the application of the ACSI (4). Combining the specificity of medical services and the characteristics of private hospitals in China, the current study aims to explore whether and how private hospitals in China can reach the goal of facilitating patient loyalty by improving medical service quality on the basis of the ACSI.

Literature Review and Hypothesis Development

Patient perceived value in medical treatment is an important index to measure the degree of satisfaction to the patient's health needs. Perceived value improves when perceived service quality, that is, a patient's satisfaction with treatment, service, and psychology after seeing a doctor is greater than patient cost, including time, energy, and the physical strength consumed before and after treatment. Therefore, medical service quality can influence perceived value by influencing the comparative relationship between gains and losses (5). Medical service quality exerts a direct effect on perceived value (6). In China's private hospitals, an important cause of doctor–patient conflict is ineffective doctor–patient communication, such as the misunderstanding of patient needs by medical staff and the untimely feedback to patient needs; so the importance of patient perceived value and their participation feedback have become the quality focuses of current medical service (7). The following hypothesis was established:

Hypothesis 1: Medical service quality positively influences patient perceived value.

Medical service quality is an expression of patient cognition level, and patient satisfaction is the expression of patients' emotional level; these two concepts differ, but they are also associated. In the medical field, service quality generates an influence on satisfaction (8), that is, the higher the medical service quality is, the higher the patient perceived value and patient satisfaction will be (8). Most hospitals exert much effort to improve medical service quality by focusing on their medical service process so as to improve patient satisfaction (9). If a patient's actual perceived service is superior to the expectation level, then the patient is satisfied with the service. Each dimension of inpatient perceived medical service quality presents a strong positive correlation with overall satisfaction, and all dimensions have significant effects on overall satisfaction (10). If patients' perceived medical service quality fails to reach expectations, they will likely choose other institutions. Hence, the medical service quality of private hospitals in China influences patient satisfaction. The following hypothesis was established:

Hypothesis 2: Medical service quality positively influences patient satisfaction.

When a patient receives outstanding service quality, the patient recommends the same service to others who may need it (11); consequently, patient loyalty is improved. Therefore, high medical service quality wins a positive evaluation for hospitals and increases the likelihood of other patients seeing doctors in these hospitals. This scenario is a direct manifestation of high patient loyalty. Therefore, the service quality of a hospital is closely related to patients' subsequent visits and exerts a direct impact on patient loyalty (12); then, we can infer that patients' actual perceived service quality directly determines patient loyalty. Many hospitals have indeed improved their medical service quality and patient loyalty by enhancing their utilization of patient satisfaction in their daily management improvement tasks. For instance, paying special attention to doctors' service attitudes and improvement of overall service level (13). So we hypothesized that:

Hypothesis 3: Medical service quality positively influences patient loyalty.

Launched in 1994, the ACSI was constructed according to the definition of accumulative customer satisfaction and is associated with perceived quality and perceived value. As indicated in the ACSI model, perceived value is an antecedent variable of satisfaction, and patient perceived value takes patient satisfaction as a mediating variable, which has an indirect impact on patient loyalty (14). The higher the patient perceived value is, the better the service provided by a medical institution is, and the higher the patient satisfaction is; otherwise, dissatisfaction increases. Hence, patient satisfaction is the result generated when the perceived service value is greater than the expected value. A survey on 350 inpatients revealed that patient perceived value has a direct effect on patient satisfaction (15); especially under the mobile medical environment, a value dimension—resource efficiency—exists in patient perceived value, and dimensions such as patient perceived value all have remarkable effects on

patient satisfaction (16). Therefore, we hypothesized that:

Hypothesis 4: Patient perceived value positively influences patient satisfaction.

According to the concept of the cognition–affect–conation (CAC) pattern, the patient perceived value is the cognition of medical technology and service; the patient loyalty is the conation to avail of a medical service of one medical institution for a long time. A survey on oral patients showed that patient perceived value is mainly manifested by perceived gains, such as treatment means, communication with patients in treatment, time cost saved in diagnosis, and waiting times, and that these gains have obvious effects on patient loyalty (17) and contribute greatly to loyalty (18). Therefore, patient attitudes and behavioral loyalty in the context of medical services depend on their psychological remedy and service value in the treatment process. An effective psychological remedy will generate positive perceived gain experience for patients and thereby enhance their perception of service value. As the charge mechanism of China's private hospitals is flexible, patients pay particular attention to service price (embodiment of service value) and medical added value. The attention paid by private hospitals to medical added value has gradually become the main driving force for Chinese residents to repeatedly choose and visit private hospitals. The following hypothesis was established:

Hypothesis 5: Patient perceived value has a direct positive influence on patient loyalty.

According to the model relation analysis, patient satisfaction is the affection phase of the CAC model. Although satisfaction and service quality influence patient loyalty, the influence of satisfaction on loyalty is more remarkable than that of service quality (19). In the diagnosis and treatment process in a private hospital, the diagnosis and treatment technology of this medical institution, the ethics and practices of personnel, and their communication abilities are important aspects of improving patient health and enhancing

patient loyalty. Patient satisfaction is the precondition for loyalty, especially, their satisfaction and high patient satisfaction level can be rapidly transformed into patient dependence, and they will engage in repeated healthcare-seeking behaviors. Therefore, the overall satisfaction with medical services will positively influence his/her loyalty, and he/she will thus consider choosing this medical institution again (20). The following hypothesis was established:

Hypothesis 6: Patient satisfaction has a direct positive effect on patient loyalty.
Medical service quality has no direct impact on patient loyalty, and patient satisfaction plays a mediating role between the two (21), and patient perceived value exerts a partial mediating effect between medical service quality and patient loyalty. Meanwhile, the action mechanism study between patient perceived value and patient loyalty indicates that patient satisfaction plays a mediating role between the two, that is, patient satisfaction is a mediating variable between the two (22).Therefore, this study proposed that the medical service quality of private hospitals can affect patient loyalty through patient perceived value and patient satisfaction, where the positive effect generated by the impact on patient perceived value and the further impact on patient satisfaction.
On the basis of the analysis above, the following hypotheses was established:
Hypothesis 7: Patient perceived value plays a mediating role between medical service quality and patient loyalty.
Hypothesis 8: Patient satisfaction exerts a mediating effect between medical service quality and patient loyalty.
Hypothesis 9: Patient perceived value and patient satisfaction play chain mediating roles between medical service quality and patient loyalty.

Methods

Data Collection

Fifteen Grade Ⅱ-A private hospitals in China were selected as the research objects. Twenty in-

patients who basically finished treatment or their family members were randomly extracted from each hospital as the respondents. A total of 300 questionnaires were distributed. In the survey, questionnaires were distributed on site and were recovered within a limited time. A total of 253 valid questionnaires were recovered.
After the exclusion of several recovered questionnaires, the basic sample composition from the obtained valid questionnaires was as follows: sample size of 253, 143 male respondents (56.52%). The number of respondents who were over 60 years old was 81 (32.02%); the next age group included those aged 50–59 years old (26.09%). In the aspect of educational background, 92 respondents (36.36%) received high school education or lower, and 75 (29.64%) received senior high school education. In the aspect of occupation, the respondents included 83 peasants (32.81%) and 62 and enterprise employees (24.51%). As for family per capita monthly income, the group of respondents with a family per capita monthly income of RMB 2,000–2,999 was the largest, accounting for 37.15%. In terms of payment method, the group of respondents who choose medical insurance for urban residents was the largest, accounting for 37.55%. The descriptive statistics show that healthcare-seeking patients in private hospitals generally had low educational level and belonged to the middle and low social classes with low family income. Moreover, most of them were over 50 years old.

Scale source

All measurement scales of the related variables used in this study were derived from mature scales of domestic and foreign scholars. On the basis of the research contents of this work, professionals were invited to modify and improve the scales so as to form the final scales, all of which followed a five-point Likert scale (1 = "strongly disagree" and 5 "strongly agree").
Medical service quality. In consideration of the high cost of healthcare and flexible charge mechanisms in private hospitals, this study constructed a 6-dimension 24-item scale (23) through adding economic dimension-related items to the 5-

dimension 22-item scale of service quality measurement derived from Cronin et al. (24). Representative items included "Medical workers can give moral encouragement to patients and family members" and "The medical expenses of the hospital are reasonably charged." The sample data in this work showed that the Cronbach's α coefficients of tangibility, reliability, responsiveness, guarantee, empathy, and economy were 0.749, 0.742, 0.762, 0.790, 0.779, and 0.711, respectively. The credibility of each item, the Cronbach's α value of which was smaller than that in the original scale, was deleted. The construct credibility coefficient of medical service quality was 0.928.

Patient perceived value. This study generated five items by Feng ZQ (25) after excluding time cost-related items on the basis of the characteristics of private hospitals. Representative items included "Seeing a doctor in this hospital is rewarding" (Cronbach's α coefficient was 0.813, and a high internal consistency existed among the items).

Patient satisfaction. Based on the five-item scale proposed by Zhou YF (26), the representative items in the scale used in this study included "Satisfaction with healthcare-seeking experience" (Cronbach's α coefficient was 0.795, and a high internal consistency existed among the items).

Patient loyalty. The items derived from 5-item scale of Chen Y (15). Representative items included "The patient is willing to recommend this hospital to family members and friends" (Cronbach's α coefficient was 0.751, and a high internal consistency existed among the items).

Control variables. Five variables—gender, age, educational level, average monthly income, and payment method—were taken as the control variables. Age coding was divided into 1 = 30 years old, 2 = 30–39 years old, 3 = 40–49 years old, 4 = 50–59 years old, and 5 = over 60 years old. Education level coding was divided into 1 = below high school education, 2 = high school/technical secondary school education, 3 = junior college/university education, and 4 = postgraduate education and above. Average monthly income coding was 1 = RMB 1,000; 2 = RMB 1,000–1,999; 3 = RMB 2,000–2,999; and 4 = RMB 3,000. Payment method coding was 1 =

rural cooperative medical service, 2 = medical insurance for urban workers, 3 = medical insurance for urban residents, 4 = commercial insurance, and 5 = self-payment.

Variable validity analysis

The validity of each modified scale was verified through exploratory factor analysis (EFA). EFA results indicated that the KMO values of medical service quality, patient perceived value, patient satisfaction, and patient loyalty were 0.919, 0.812, 0.811, 0.804, respectively, all the values were greater than 0.8, which indicated that the factor analysis of the four variables were worthwhile. The significance level of the Bartlett sphericity tests of the four variables' scales were 0.00 (lower than 0.05), which showed that the EFA of them were all suitable.

After the factor rotation of the medical service quality scale, six satisfactory common factors were extracted, these factors were identical to the dimensions of medical service quality in the hypotheses. The cumulative explained variance contribution ratio was 63.95%, which indicated that the information of medical service quality could be explained. The factor loading coefficient of each item was greater than 0.5, and thus, the medical service quality scale had excellent construct validity.

For the other three variables, patient perceived value, patient satisfaction, and patient loyalty, factor rotation all extracted a satisfactory common factor from their items, the cumulative variance contribution ratio were 57.37%, 55.02%, and 50.23%, respectively, which indicated that the information of all the three variables could be well explained by their items. The factor loading coefficient of each item of the three variables' was greater than 0.5, which indicated that scales of perceived value, patient satisfaction, and patient loyalty all had good construct validity.

Results

Model fitting and path analysis

AMOS statistical software was used to test the structural equation model. The maximum likeli-

hood method was employed as the estimation method for the structural equation model, and the model fitting results are shown in Table 1.

The results indicate that the overall model fit was good (Fig. 1).

Table 1: Model fitting results

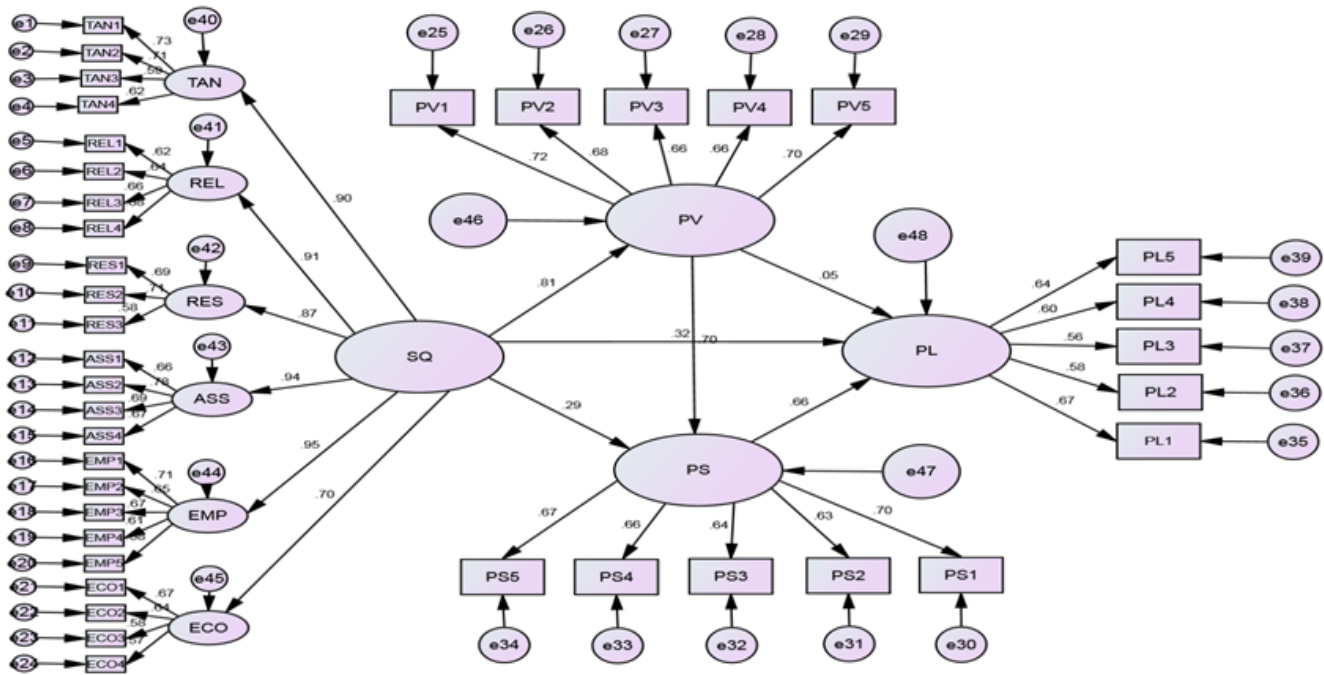| Fitted index	Good goodness of fit	Fair goodness of fit	Fitting result	Judgment of goodness of fit
χ^2/df	$1 < \chi^2/df < 3$	$3 \leq \chi^2/df < 5$	1.366	YES
CFI	> 0.9	> 0.8	0.932	YES
NFI	> 0.9	> 0.8	0.841	YES
RMSEA	< 0.05	< 0.08	0.043	YES
RMR	< 0.05	< 0.08	0.034	YES

Fig. 1: Fitting results of structural equation model

According to the hypothesis test results in Table 2, medical service quality exerts a significant positive effect on patient perceived value ($\beta = .809$, $P < .001$); thus, H1 is supported. Medical service quality has a significant positive influence on patient satisfaction ($\beta = .290$, $P < .05$); thus, H2 is supported. The effect of medical service quality on patient loyalty is significant positive ($\beta = .316$, $P < .05$); thus, H3 is supported. Medical service quality has an evident positive effect on patient perceived value ($\beta = .697$, $P < .05$); thus, H4 is supported. Patient perceived value has no significant effect on patient loyalty ($\beta = .053$, $P > .05$); thus, H5 is rejected. Patient satisfaction has a significant positive effect on patient loyalty ($\beta = .656$, $P < .05$); thus, H6 is supported.

Table 2: Variable Description

Variable			Std.	S.E.	C.R.
PV	<---	SQ	0.809***	0.106	7.953
PS	<---	SQ	0.290*	0.133	2.444
PL	<---	SQ	0.316*	0.156	2.187
PS	<---	PV	0.697***	0.12	4.975
PL	<---	PV	0.053	0.305	0.180
PL	<---	PS	0.656*	0.140	2.219

Note: ***, **, and * mean that *P* is lower than 0.001, 0.01, and 0.05, respectively

Mediating effect analysis

The research model in this work belongs to the chain mediating model, and AMOS software fails to analyze the mediating effect of each path. The PROCESS plugin and bootstrap method were used to verify the mediating effect. First, the number of repeated sampling times was set as 5, 000, and the confidence interval estimation method of offset correction was used; the confidence level was 95%. By referring to the work of Wen ZL (27), the current study determined whether or not the mediating effect was significant according to the upper and lower limits of the confidence interval. If the upper and lower limits of the confidence interval included zero values, then the mediating effect was insignificant.

According to the test results of the mediating effect in Table 3, medical service quality exerts a significant mediating effect on patient loyalty via patient perceived value and patient satisfaction (*P*= .389, [.285, .492]). The mediating effect exerted by patient perceived value is significant (*P*= .165, [.058, .269]). The mediating effect of patient satisfaction is significant (*P* = .125, [.062, .205]). The mediating effect simultaneously exerted by patient perceived value and patient satisfaction is notable (*P* = .099, [.062, .205]).

Table 3: Mediating effect analysis

Variable	Effect	S.E.	BC 95% confidence interval	
			Lower limit	Upper limit
PL<---PV<---SQ	0.165	0.536	0.058	0.269
PL<---PS<---SQ	0.125	0.364	0.062	0.205
PL<---PS <---PV<---SQ	0.099	0.325	0.046	0.176
Total Indirect	0.389	0.053	0.285	0.492

Discussion

Similar to the conclusions drawn by Tang and Cheng (28), the results of the current study show that medical service quality has a direct positive effect on patient loyalty. Through the test of mediating effects, medical service quality was found to have a positive effect on patient perceived value and patient satisfaction. Moreover, patient perceived value and patient satisfaction play me-diating roles between service quality and patient loyalty, specifically the chain mediating effect is supported. Comparison results indicate that the mediating effect exerted by patient perceived value is the strongest, hence the importance of elevating patient perceived value.

This study suggests that private hospitals take measures from the following aspects. First, private hospitals should develop a patient information library, and provide loyal patients with

dedicated services. Second, they should further strengthen the service concept and communication ability of medical workers, and create a harmonious doctor–patient relationship. Third, they should improve the overall medical environment and equipping private hospitals with advanced medical equipment. Fourth, private hospitals should enhance patient gains through the improvement of image, service process design, and the attitudes of medical workers. Patients' sense of loss should be relieved by shortening the healthcare-seeking time to reach the goal of elevating patient perceived value.

Conclusion

This study addresses the issue of attracting and keeping patients in private hospitals in China. On the basis of the customer satisfaction model, valid questionnaires from 253 patients in 15 private hospitals in China were adopted to explore how to improve patient loyalty. The research results indicated that the service quality of private hospitals has a positive effect on patient loyalty. Moreover, patient perceived value and patient satisfaction exert mediating effects, specifically chain mediating effects. In terms of practice, the research results inform private hospitals that they can win patient loyalty only by being continuously dedicated to improving service quality. Furthermore, the extension and application of the service quality dimension in this work will help private hospitals in taking pertinent measures at the strategy level so as to reach the goal of effectively improving medical service quality.

Ethical considerations

Ethical issues (Including plagiarism, informed consent, misconduct, data fabrication and/or falsification, double publication and/or submission, redundancy, etc.) have been completely observed by the authors.

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