

Chapter 73

Influence of Hospital's Internal Service Quality to Staff Loyalty-in the Case of West China Hospital's Outpatient and Emergency Department

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Abstract Medical staff's service attitude and ability increasingly become the key factors influencing the patients' satisfaction. This paper analyzed the impact of hospital's internal service quality on staff loyalty by interaction quality, physical environment quality and outcome quality from the perspective of internal marketing. By researching 245 staffs of West China hospital's Outpatient and Emergency department, we found that: the interaction quality and outcome quality both had positive impacts on medical staff satisfaction and loyalty. The interaction quality was the key factor influencing medical staff satisfaction, and the outcome quality is the key factor influencing medical staff loyalty; During the process of outcome quality influencing medical staff loyalty, medical staff satisfaction had completely mediate effect. And during the process of interaction quality influencing medical staff loyalty, the medical staff satisfaction had partially mediate effect; The medical staffs with different personal characteristics had differences on the internal service quality perceptionsatisfaction and loyalty.

Keywords Internal service quality · Medical staff satisfaction · Medical staff loyalty · West China Hospital's Outpatient and Emergency Department

73.1 Introduction

Mobilizing the medical personnel's positivity and creativity is one of the most important parts to deepen the reform of medical and health, and ease the doctor-patient relationship. According to the "2012 China Health Statistics Abstract", the number

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of patients in China from 2008-2011 was: 49.01, 54.88, 58.38, 62.71 (units/100 million). From 2009 to 2011, the growth rate of health personnel is 7.30%, 5.47%, 4.97%. Medical staff's service ability in our country is still difficult to meet people's growing medical service needs, it is necessary to reform the policy environment. At the same time, "The Fourth Survey Report of Chinese Physician Association on Physician's practice situation" showed that 48.51% of medical staff were not satisfied with the professional environment, only 19.02% are satisfied. Employee satisfaction is the basis of customer satisfaction, and it is necessary to provide high-quality internal service quality to make employees satisfied [1]. Frontline staff contacting with the patients, their service quality and work efficiency will directly influence the patient's medical experience and satisfaction.

Existing researches on internal service quality is based on the perspective of human resource, their main methods are also references to external service quality researches. It has not yet formed a mature scale to be suitable for the internal service quality of our country's medical service. And there also is not a system model which can be in-depth study of its mechanism. In this article, we focus on internal marketing. It revised the new concept of service quality model [2] with the features of medical service industry, and got a scale which is suitable for the hospitals in our country. At the same time, this paper structured a model of hospital's internal service quality influencing staff satisfaction and loyalty. We also explored the differences of the personal characteristics influencing the internal service quality perception, satisfaction and loyalty. The case of this study is West China Hospital, which is the largest single point of the world's hospital. Its Outpatient and Emergency department is one of the key resources for hospital as the window for patients admitted to hospital. The conclusions are useful to improve the internal service effectively, improving the staff satisfaction and loyalty, optimizing the allocation of hospital resources, increasing internal operation efficiency and improving the medical service quality and hospital's competitiveness.

73.2 Theory and Research Hypothesis

(1) Internal marketing and service profit chain

Internal marketing is the result of service marketing [3]. The goal of internal marketing was to develop customer orientation of employees; The enterprise can use similar marketing methods to motivate employees' sense of service and customer oriented.

Heskett et al [1] put forward the model of service profit chain. It shows that it can effectively improve the service quality with external customers by increasing internal service quality. The social exchange theory also shows if an organization can correctly treat the employees, when employees agree with the organization value and think it is fair to trade with the organization, they are willing to repay organization through positive attitude and work behavior [4].

(2) Internal service quality

Internal service quality is the result of an external service quality. As well as external marketing, internal marketing should treat employees as customers, and provide good internal service for their needs. Internal service quality is the service quality of individuals or groups in the company to receive supports and help each other. It included staff's attitude and service to each other. Marshall et al [6] thought internal service quality were two-way trading process between two individuals same or different of the organization. The relationship between internal service quality and the organizational work efficiency, performance, atmosphere, staff satisfaction, and consumer satisfaction are very tightness. Huang et al [7] put forward and prove the model of internal service quality, relationship quality influencing the internal consumer loyalty.

Brady and Cronin [2] put a new concept model of service quality including interaction quality, physical environment quality, and outcome quality; Many scholars used the SERVQUAL scale; Frost and Kumar [8] put forward the internal service quality model based on the gap model of service quality of PZB. But it is different between external and internal service, they should use different dimensions. Crawford and Getty [9] found external consumer paid attention to atmosphere, real-time, reliability, performance, value and the function of delivering service. But internal consumer paid attention to resources, clear responsibility, communication standard, decision-making autonomy and motivation; Brooks et al [10] found that there are eight in the 10 aspects of SERVQUAL scale can be used as internal service quality factors (reliability, responsiveness, competent, courtesy, communication, empathy and trust). And the other three were decision beforehand, paying attention to details, and leadership. Different internal customers had different requirements to internal service quality. Hollowell et al [11] came up with 8 dimensions of internal service quality influencing staff satisfaction, and it formed the internal service quality scale; In the field of medical services, Guo et al [12] developed an internal service quality measurement scale of large general hospital, and it had an empirical research. But most studies only get some thinking and strategy about internal marketing from the practical management experience.

(3) Internal consumer satisfaction and loyalty

Sasser and Arbeit [13] believed consumer is the frontline employees who directly contact with the market, not all members. Nagel et al [14] thought internal consumer should include all the members. They finished work by the product and service from interior. Varey [15] thought internal consumer was the employee accepting service in company. Satisfaction is different by industry. In the field of medical service, there were many studies on medical staff satisfaction. Most studies limited to the investigation and analysis of medical staff satisfaction and loyalty. They didn't study the root problem by standing in the perspective of internal marketing.

Study on staff loyalty is through four processes. Firstly is single factor theory, It looked employee loyalty as a whole variable; Secondly is two factors theory, and it divided employee loyalty into two dimensions including attitude and behavior loyalty; Thirdly is three factors theory, the QCQ scale of Modway, Steers and Porter [19] divided employee loyalty into 3 dimensions including value commitment, effort commitment and retention commitment; Fourthly is multifactor theory. Tan et

al [16] put forward a five-factors model including affective commitment, normative commitment, ideal commitment, economic commitment and opportunity commitment.

(4) Research hypothesis

It can improve customer satisfaction if the enterprises provide a good service for employees [17]. Brady and Cronin [2] divided internal service quality into interaction quality, physical environment quality and outcome quality. In this, interaction quality is employee's perception on the interaction with service supplier in the process of service delivery between departments, medical personnel, departments and medical staffs in hospital. Physical environment quality is the employee's perception on workplace design, facilities, environment and so on by hospital. Outcome quality is the employee's perception on the return and so on from the internal service (like performance, Promotion, training and so on). It is the result of internal service behavior; Medical staff satisfaction is internal consumer satisfaction in hospital. It is the satisfaction degree of medical staff comparing their expectation with perception after accepting or using the internal service of hospital. Based on the above, we got the following hypotheses:

H1 : Internal service quality of hospital has significantly positive impact on medical staff satisfaction:

H1a: Interaction quality has significantly positive impact on medical staff satisfaction;

H1b: Physical environment quality has significantly positive impact on medical staff satisfaction;

H1c: Outcome quality has significantly positive impact on medical staff satisfaction.

Medical staff loyalty is the internal consumer loyalty. It is the loyalty degree of medical staff on hospital; Huang et al [7] put forward internal service quality including interaction quality, physical environment quality and outcome quality had influence on internal consumer loyalty. Then, we got the following hypotheses:

H2 : Internal service quality of hospital has significantly positive impact on medical staff loyalty:

H2a: Interaction quality has significantly positive impact on medical staff loyalty;

H2b: Physical environment quality has significantly positive impact on medical staff loyalty;

H2c: Outcome quality has significantly positive impact on medical staff loyalty.

Hesktt et al [1] thought staff satisfaction is useful to improving staff loyalty. Then, we got the following hypotheses:

H3 : Medical staff satisfaction has significantly positive impact on medical staff loyalty.

73.3 Study Design

(1) Scale choosing

The questionnaire is made of scales and three open questions. This article adopts the Likert 5 level scales to measure variables. We also collected medical staffs' personal information as control variables, including age, gender, job title, department and years of working.

Internal service quality scale references the concept model of internal service quality by Brady [2], the general hospital's internal service quality scale of Guo et al [12], the revised SERVQUAL scale of Parasuraman et al [5] and Telecom enterprise's internal service quality scale of Huang et al [7]. We combined with the features of medical industry and the outpatient emergency of West China Hospital to become the preliminary questionnaire. Then, we tested and corrected questionnaire by experts and preliminary research. At last, we used Exploratory Factor Analysis to purify the items, and formed hospital's internal service quality scale made of 3 dimensions including interaction quality, physical environment quality and outcome quality. It has 18 items in all.

This article used the scale of study on internal relationship quality by Crosby et al [18] to measure staff satisfaction. Medical staff loyalty is mainly refer to the QCQ scale of Mowday et al [19] to measure.

(2) Samples

The study investigated the medical staffs of West China Hospital's Outpatient and Emergency department by questionnaires. We distributed 280 questionnaires in all. There are 245 valid questionnaires and the valid rate is 87.5%. Among the samples, women account for 84.5%. There are 61.2%. Outpatient department's staff, and the Emergency department's staff account for 38.8%. As the surveyed department mainly is made of nurses, the gender proportion and doctor-nurse proportion have big differences in the sample. As for age, 73.9% are below 30 years old. And 56.3% are less than 5years of working (as shown in Table 73.1).

73.4 Data Analysis

(1) Reliability and validity

Cronbach's alpha were greater than 0.85, indicating that the questionnaire design with high reliability. The KMO value was 0.861, and the Bartlett was $0.00 (< 0.05)$, indicating that the variables were suitable for factor analysis. In light of the results from the factor analysis, the items entered the respective factor normally, and has a good rate of factor explanation, which has a preferred statistical results and high Validity (as shown in Table 73.2).

(2) Analysis of West China Hospital's internal service quality, satisfaction and loyalty

The perception level of medical staff on internal service quality was high (Mean value = 3.8501), its loyalty and satisfaction were high, too (Mean value = 3.9837

Table 73.1 The samples

Project	Number	Percent
Gender		
male	38	15.5%
female	207	84.5%
Age		
< 25	99	40.4%
26-30	82	33.5%
31-35	21	8.6%
36-40	36	14.7%
41-45	7	2.9%
Department		
Outpatient	95	38.8%
Emergency	150	61.2%
Working years		
< 5	138	56.3%
5-10	49	20.0%
> 10	58	23.7%
Job title		
Uncertain	26	10.6%
Physician	28	11.4%
Physician-in-charge	7	2.9%
Associate chief physician	3	1.2%
Nurse	106	43.3%
Senior nurse	40	16.3%
Supervisor nurse	33	13.5%
Associate chief nurse	2	0.8%
Total	245	100%

Table 73.2 Reliability

	Dimension	Reliability	Item	Reliability
Internal service quality	Interaction quality	0.921	9	0.95
	Physical environment	0.854	3	
	quality Outcome quality	0.907	6	
Medical staff satisfaction	—	—	3	0.885
Medical staff loyalty	—	—	3	0.899

and 3.9796). And the Mean value of interaction quality, outcome quality and physical environment quality were 3.99, 3.80 and 3.51. The highest score of interaction quality is: the management level and overall quality of department leader, internal information transmission channel and department's participation decision-making; The scores of Workplace and safety in physical environment quality were low. But the score of equipment was high. The score of outcome quality was at the intermediate level. The item "I can do best to service patient under the good internal

service quality” got a high score. But the medical staff’s perception of the learning opportunities and performance appraisal system got low scores.

At the same time, this study classified and counted the keywords mentioned in open problems. The top three of medical satisfaction were work team, learning and leader’s care; The top three of medical dissatisfaction were hard work, bad environment and the doctor-patient contradiction. The top three of hopes were raising compensation, increasing the rest time, ensuring the safety of working environment.

(3) Analysis of the personal characteristic differences

Brooks [9] said that different internal consumers had different requirements for internal service quality. This paper regarded gender, age, title, working years and department as independent variables. And it regarded the internal service quality, medical staff satisfaction and loyalty as dependent variables. Then we got results by one-way ANOVA. It indicated it was different for medical staff perceptions on internal service quality with different age, title and department. It also was different for medical staff satisfaction with different age and department. And medical staffs in different departments had different loyalty.

In the age difference analysis, the levene significance of internal service quality perception and medical satisfaction were 0.796 and 0.961, which were greater than 0.05, indicating the variance between samples is homogeneous. Then we used LSD to explore the specific differences between matching groups. At 5% significance level, medical staffs who were less than 25 years old or been in 36-40 years old had higher perception on internal service quality compared with 26-30 or 31-35-year-old medical staffs. There were no significant difference between the medical staffs in other age groups. 36-40 year-old medical staff satisfaction were higher than the medical staffs who were 26-30, 31-35, 41-45 years old. Nurse perception is higher than physician’s; And staffs of Outpatient department had higher perception, satisfaction and loyalty than staffs’ of Emergency department.

Table 73.3 Regression analysis of internal service quality influencing medical staff satisfaction and loyalty

Variable	Medical staff satisfaction		Medical staff loyalty	
	First step	Second step	First step	Second step
(Constant)	3.827*	0.876*	3.754*	0.604*
Age	-0.020	0.041	-0.088	-0.023
Title	0.002	-0.009	0.021	0.009
Department	0.280*	0.017	0.300*	0.019
Gender	-0.034	-0.003	-0.052	-0.019
Working years	0.044	-0.004	0.126	0.074
Internal service quality		0.797*		0.851*
R^2	0.039	0.555	0.056	0.573
Adjusted R^2	0.019	0.544	0.036	0.562

(4) Regression analysis of hospital’s internal service quality influencing staff loyalty

We did multiple level regression analysis here. Take medical staff satisfaction and loyalty as dependent variables, and take internal service quality as independent variable. And the age, title, gender, department and working years were taken as control variables. It indicated that VIF were less than 10, and there wasn't multicollinearity. Internal service quality had positive impact on medical staff satisfaction ($\beta = 0.797$, $p < 0.05$) and loyalty ($\beta = 0.851$, $p < 0.05$). It was shown as Table 73.3.

Do regression analysis of medical staff satisfaction which was regarded as dependent variable. Interaction quality, physical environment quality and outcome quality were regarded as independent variables. Then take age, gender, title, department and working years as control variables. The results showed VIF were less than 10, and there wasn't multicollinearity. Interaction quality ($\beta = 0.284$, $p < 0.05$) and outcome quality ($\beta = 0.509$, $p < 0.05$) had significant impacts on medical staff satisfaction. But physical environment quality ($\beta = 0.011$, $p > 0.05$) had no significant impact on medical staff satisfaction.

Do regression analysis of medical staff loyalty which was regarded as dependent variable, and the other is same. The results showed VIF were less than 10, and there wasn't multicollinearity. Interaction quality ($\beta = 0.284$, $p < 0.05$) and outcome quality ($\beta = 0.457$, $p < 0.05$) had significant impact on medical staff loyalty. But physical environment quality ($\beta = 0.009$, $p > 0.05$) had no significant impact on medical staff loyalty (as shown in Table 73.4).

Table 73.4 Regression analysis on 3 dimensions of internal service quality influencing medical staff satisfaction and loyalty

Variable	Medical staff satisfaction		Medical staff loyalty	
	First step	Second step	First step	Second step
(Constant)	3.827*	0.727*	3.754*	0.464*
Age	-0.020	0.046	-0.088	-0.021
Title	0.002	-0.008	0.021	0.010
Department	0.280*	0.096	0.300*	0.086
Gender	-0.034	-0.028	-0.052	-0.003
Working years	0.044	-0.011	0.126	0.068
Interaction quality		0.284*		0.395*
Physical environment quality		0.011		0.009
Outcome quality		0.509*		0.457*
R^2	0.039	0.577	0.056	0.588
Adjusted R^2	0.019	0.563	0.036	0.574

In a similar way, we took medical staff loyalty as dependent variable, and regarded satisfaction as independent variable. The age, title, gender, department and working years were control variables. Then VIF were less than 10 without multicollinearity. Medical staff satisfaction had significant impact on medical staff loyalty (as shown in Table 73.5).

Table 73.5 Regression analysis on 3 dimensions of internal service quality influencing medical staff satisfaction and loyalty

Variable	Medical staff loyalty	
	First step	Second step
(Constant)	3.754*	0.359
Gender	-0.052	-0.022
Age	-0.088	-0.070
Title	0.021	0.019
Working years	0.126	0.086
Department	0.300*	0.052
Medical staff satisfaction		0.887*
R^2	0.056	0.720
Adjusted R^2	0.036	0.713

Do regression analysis when medical satisfaction was taken as dependent variable, and the others were in a similar way. The determination coefficient of regression model is $R^2 = 0.754$, and VFI were less than 10 without multicollinearity. The significance probability of outcome quality was greater than 0.05, indicating medical staff satisfaction had completely mediate effect during the process of outcome quality influencing medical staff loyalty (shown in Table 73.6). The coefficient of Bate decreased, but it was significant. It indicated during the process of interaction quality influencing medical staff loyalty, the medical staff satisfaction had partially mediate effect. The final results were shown in Table 73.7.

Table 73.6 Analysis of medical staff's mediate effect

Variable	Medical staff loyalty		
	First step	Second step	Third step
(Constant)	3.754*	0.464	-0.023
Gender	-0.052	-0.003	-0.022
Age	-0.088	-0.021	-0.052
Title	0.021	0.010	0.016
Working years	0.126	0.068	0.076
Department	0.300*	0.086	0.022
Interaction quality		0.395*	0.205*
Physical environment quality		0.009	0.001
Outcome quality		0.457*	0.116
Medical staff satisfaction			0.670*
R^2	0.056	0.588	0.754
Adjusted R^2	0.036	0.574	0.745

Table 73.7 Results of hypothesis testing

NO.	Hypothesis	Results
H1	Internal service quality of hospital has significantly positive impact on medical staff satisfaction	✓
H1a	Interaction quality has significantly positive impact on medical staff satisfaction	✓
H1b	Physical environment quality has significantly positive impact on medical staff satisfaction	×
H1c	Outcome quality has significantly positive impact on medical staff satisfaction	✓
H2	Internal service quality of hospital has significantly positive impact on medical staff loyalty	✓
H2a	Interaction quality has significantly positive impact on medical staff loyalty	✓
H2b	Physical environment quality has significantly positive impact on medical staff loyalty	×
H2c	Outcome quality has significantly positive impact on medical staff loyalty	✓
H3	Medical staff satisfaction has significantly positive impact on medical staff loyalty	✓

73.5 Conclusion

(1) Conclusion and discussion

This study analyzed the mechanism of internal service quality influencing on staff loyalty, taking staff satisfaction as a mediate variable, by measuring hospital's internal service quality.

Conclusion 1: Hospital's internal service quality can be measured by interaction quality, physical environment quality and outcome quality. The interaction quality and outcome quality both had significantly positive impacts on medical staff satisfaction and loyalty. The outcome quality had greater influence on medical staff satisfaction than interaction quality, and the interaction quality had greater influence on medical staff loyalty. But the physical environment quality had no significantly positive impact on medical staff satisfaction and loyalty, indicating the staff paid more attention to internal service comparing with environment. During the process of outcome quality influencing medical staff loyalty, medical staff satisfaction had completely mediate effect. And during the process of interaction quality influencing medical staff loyalty, the medical staff satisfaction had partially mediate effect.

So the hospital should pay attention to interaction quality and outcome quality. For example, the Outpatient and Emergency department of West China Hospital can implement democratic decision-making mechanism to improve medical staff's participation; It can reduce medical staff's work load by increasing the number of medical staffs and optimizing the workflow; It also can push the evaluation system of internal service, and link it to performance appraisal to promote the service. Hospital should provide more valuable training opportunity for medical staff, and improve the performance appraisal system for staffs' requirements;

Conclusion 2: Generally speaking, the perception on internal service quality, loyalty and satisfaction got high scores. The top three of medical satisfaction were

work team, learning and leader's care; The top three of medical dissatisfaction were hard work, bad environment and the doctor-patient contradiction. The top three of hopes were raising compensation, increasing the rest time, ensuring the safety of working environment.

It provides a basis for the optimization of internal services for West China Hospital. It can start from the management of physical environment quality. The hospital should pay more attention to improve medical staffs' working conditions, and implement the culture, in addition to provide medical personnel with advanced medical equipment. At the same time, it should strengthen the security to reduce the doctor-patient conflict to ensure the safety of working environment.

Conclusion 3: The hospital should segment the internal market based on the personal characteristics of staffs to provide differentiated services for staff. In the case, medical staffs who were less than 25 years old or been in 36-40 years old had higher perception on internal service quality comparing with 26-30 or 31-35-year-old medical staff. 36-40 year-old medical staffs' satisfaction were higher than the medical staffs who were 26-30, 31-35, 41-45 years old. Nurse perception is higher than physician's; And staffs in Outpatient department had higher perception, satisfaction and loyalty than staffs' in Emergency department. We should focus on the medical staff of Emergency. They have been contacting with critically ill patients for a long time. And they had long working time and large load. But their income is not high. So we can provide good working conditions for them, arrange the work schedule reasonably, intensify support for the department's resources, provide more trains about stress management and improve their income. Hospital also can support more for new staffs with low income and full enthusiasm; It should provide more motivate and challenge opportunities for 41-45-year-old staff to get new breakthrough.

(2) Prospects for future research

The questionnaires was corrected and optimized based on the internal service quality of general service enterprise, future research could develop a scale for medical industry. Considering from sample selection, we only study one case. It depends on more samples to verify if the conclusions were right or be worth promoting; And future study could bring the culture into environment quality.

Acknowledgements This research is supported by the key special project of Central University basic scientific research expenses (Philosophy and social sciences) of Sichuan University (No. skqy201208): Hospital outpatient service quality evaluation and optimization strategy based on the patients' satisfaction, the key project of NSFC: Resource dispatching and optimizing research in medical service (No. 71131006) and NSFC: Hospital resource planning and control optimizing based on patients' demand (No. 71172197).

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