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# The Impact of Trust, Interaction, and Empathy in Doctor-Patient Relationship on Patient Satisfaction

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## Abstract

**Objective:** This study is designed to explore the impact of trust, interaction and empathy in doctor-patient relationship on patient satisfaction.

**Method:** This study utilizes questionnaires with target patients in Taiwan as the intended respondents. A total of 446 valid questionnaires were collected for relevant analysis using regression models.

**Results:** Trust ( $t=4.215$ ,  $p<0.001$ ), interaction ( $t=4.997$ ,  $p<0.001$ ) and empathy ( $t=8.474$ ,  $p<0.001$ ) have shown significant positive correlation with patient satisfaction ( $p<0.001$ ).

**Conclusions:** Building a positive doctor-patient relationship would not only lead to improved patient satisfaction but also reduce the likelihood of medical malpractice. Therefore, steps should be taken to enforce the trust, interaction and empathy in doctor-patient relationships, with patient-centered services. In the healthcare service value network, the integration of healthcare service resources ought to be emphasized in order to foster better doctor-patient relationships.

**Keywords:** Trust; Interaction; Empathy; Doctor-patient relationship; Patient satisfaction

## Introduction

The health care service quality of medical organizations is a complex issue, encompassing a broad range of concepts. The interaction between a medical provider and a recipient can be referred to as a "doctor-patient relationship". The doctor-patient interactions which form the building blocks of a doctor-patient relationship, thus, are instrumental in determining the success of a healthcare delivery process. Doctor-patient interaction and relationship in turn, are

determined by the socio-cultural dimensions of the context in which technological intervention is implemented [1].

A number of studies have demonstrated that greater trust in physicians is associated with improved treatment adherence [2-5]. Patient-physician relationship depicts a bi-directional exchange relationship. It involves the exchange of economic and social elements that create interdependencies and long-term interaction [6]. Some studies have discussed medical service quality from the perspectives of both medical personnel and patients [7]. Findings showed that medical personnel considered the quality of medical care to be "professional development," whereas patients considered it to consist of "concern" and "interpersonal interaction".

Trust in physicians is likely to be enhanced among patients who report that their physicians make an effort to understand their individual experiences, communicate clearly and completely, and share power [8]. Trust is a common concept understood as the belief between people, people and organizations, and people and events [9]. Trust can be recognized as an intangible connection between people with mutually rewarding relationships, and it was also viewed as a stimulant allows greater creativity, innovation, and performance [10]. Trust also plays a crucial and positive role in the patient-physician relationship in order to function smoothly. The level of trust between patient and physician is considered important in producing more effective therapeutic effects [11]. As a result, professionalism regarding medical trust can be viewed as a crucial factor of reliable interaction and allowing uninformed perceptions to guide treatment possibilities in healthcare [6].

Clinicians to better understand the emotions and perspectives of patients [12,13]. Empathy can manifest as behaviors in interpersonal interactions and can be perceived by patients [14,15], Empathic communication behaviors by clinicians have been associated with higher patient satisfaction [16-18], compassion and empathy are themes that have been talked about often over the last few years within the health environment [19] is a central aspect of healthcare, and has been associated with positive outcomes not only for the patient [20-22].

Patient satisfaction with doctor-patient interactions is an indicator of physicians' competence [23]. Patient satisfaction with the doctor-patient interaction indicates the level of doctor's success and competence in service provision [24]. Maintaining good technical as well as interpersonal skills is essential for the doctors to satisfy their patients [25]. With dimensions that correspond to the major characteristics of providers such as technical, functional, infrastructure, interaction, atmosphere and also services [26,27]. Patient satisfaction positively influences the patient's trust [28,29]. Satisfied patients described their primary care doctors as showing genuine interest in their health problems, able to provide clear descriptions of the diseases and future health consequences, gave them ample opportunities to talk about health and how the disease affected their everyday life [30].

Service quality determinants can be divided into two main categories: the tangible and intangible factors. Tangible factors refer to technology, physical facilities, personnel, communication materials and others. Intangible factors, on the other hand, consist of four sub-sectors which comprise reliability, responsiveness, assurance and empathy [31]. Service quality satisfaction is about nurturing and meeting customer preferences and expectation in order to enhance customer delivered value [32]. The Study aims to explore the connection of trust, interaction and empathy with patient satisfaction in the doctor-patient relationship, the research on this important issue may bridge the gap in health care practice research.

## Methods

Trained interviewers provided assistance to patients who were illiterate or suffered from presbyopia or other eye diseases, program in a single-blind randomized study. The total number of qualified outpatient was 446 and the return rate was 70.2%. The factors of "gender" and "education level" were used to examine the appropriateness in order to prove the effectiveness of the samples and the result showed that these two factors did not have significant influence ( $p=0.238$ ;  $p=0.192$ ), indicating that each feature is representative. The questionnaire and research design have been inspected and approved by Institutional Review Board by (IRB 103-154-B) and all subjects have signed the informed consent form.

## Tools

The "doctor-patient relationship" the research tool of the study, has been drafted with reference to related literature; the questionnaire includes 4 dimensions, i.e. trust, interaction, empathy, and patient satisfaction. In the early stage of the research, we compiled 47 questions and score by using the 5 point likert scale from strongly agree/agree/don't know/disagree/strongly disagree. The higher the score is, the better the medical satisfaction.

Trust refers to the confidence between patients and physicians and the degree of confidence in medical treatment;

Interaction refers to the interpersonal interaction and relationship between doctors and patients; Empathy means that can manifest as behaviors in interpersonal interactions and can be perceived by patients. Medical satisfaction is to improve the quality and cooperation of medical service.

The basic information of subjects include gender, age, marital status, education level, occupation class and salary. After the draft of the scale was completed, 4 experts of health care administration and medical care were invited to conduct expert validation and provide modification suggestions. 6 questions were deleted from 47 questions after the experts discussed them and 41 questions were left for inspection. The content validity index (CVI) was 0.928 for the appropriateness of each question. In general, the question of original questionnaires determines what the first draft has before the grading method was selected. Thus, the questionnaire has effects to some degree in the measurement of variables and constructs. Finally, the questionnaire has been modified based on the content validity and face validity of actual interviews and theories to complete.

## Data analytical method

SPSS for Windows 19.0 was used to create files and analyze research data and the level of significance ( $p$ ) is  $<0.05$ . First, the demographic variables, gender, age, marital status, education level, occupation class and salary are shown through the descriptive statistics of patients. The data of patients have been used to find out the best regression model. In order to avoid sample errors from affecting the study, the non-response error verification has been conducted right after questionnaires were received. The questionnaires received were divided into the early respondents and late respondents based on the suggestion of Ary et al. [33] and verified by using important constructs (such as trust, interaction and empathy). The result shows that there is no significant difference in these important constructs, and therefore the non-response errors should not affect the sampling of the study.

## Results

The examination of the measurement model includes internal consistency, convergent validity and discriminate validity. First of all, three indicators are used to test the convergent validity of research tools in accordance as follows. (1) Factor loading should be significant and  $\geq 0.5$ , (2) Cronbach's alpha and composite reliabilities (CR) should  $\geq 0.60$  and  $0.70$  [34], (3) Averaged Variance Extracted (AVE) should be  $\geq 0.50$ . (Note: In other words, the square root of AVE should be  $\geq 0.71$ ). It can be known from **Table 1** that the AVE of each construct is 0.5 or higher on average, meaning that the measurement model has great convergent validity.

Cronbach's alpha and complex reliability (CR) are consistent with the aforementioned. Hence, the research tools of the study meet the basic requirements of the three convergent validity indicators mentioned above, indicating that the Study

has convergent validity and discriminate validity which proves the accuracy of the measurement result.

**Table 1** Validity and average variable extracted.

Construct	Mean	SD	Cronbach's $\alpha$	CR	AVE
Trust	3.737	0.659	0.955	0.489	0.919
Interaction	3.678	0.716	0.957	0.508	0.891
Empathy	3.696	0.722	0.95	0.471	0.861
Patient satisfaction	3.688	0.719	0.892	0.462	0.774

Discriminate validity is how well the measurement variables discriminate different constructs. The correlation coefficient of each variable and other variables by which the same construct is tested should be higher than that of the variables that are used to measure different constructs. In order to conduct

discriminate validity test, the AVE square root (**Table 2**, the value in the diagonal line) of individual construct should be higher than the correlation coefficient of other constructs in the model (**Table 2**, the value in the non-diagonal line).

**Table 2** Variable correlation coefficient Matrix.

Measure	1	2	3	4
1. Trust	0.712			
2. Interaction	0.799***	0.686		
3. Empathy	0.659***	0.691***	0.686	
4. Patient satisfaction	0.682***	0.697***	0.697***	0.699

Note: \*\*\* $p < 0.001$  Note: \*\*\*  $p < 0.001$

**Table 2** shows the matrix of correlation coefficient of each construct. The AVE square roots of the construct are shown diagonally. According to **Table 2**, the AVE square root of the measurement variable of each construct is higher than the correlation coefficient of any two constructs, indicating that the Study has good discriminate validity.

**Table 3** summarizes patient demographic characteristics. Of participants, 446 effective samples were acquired, 50.4% subjects are male, 21.3 and 20.5 were age in both groups was >41 years, 25.3 and 26.5% were junior college, 24.0 and 24.0% were bachelor, 9.9 and 8.7% were service industry ( $p < 0.001$ ), 20.9 and 22.2% were salary (NT \$20,000~39,999) ( $p < 0.001$ ).

**Table 3** Baseline Characteristics (n=446).

Measure	Female	%	Male	%	All	%	p-value
Age							0.86
<20 Years	29	6.5	29	6.5	58	13	
21-30Years	59	13.2	58	13	117	26.2	
31-40Years	38	8.5	46	10.3	84	18.8	
41-50Years	29	6.5	32	7.1	61	13.7	
51-60Years	29	6.5	31	6.9	60	13.5	
>61Years	37	8.3	29	6.5	66	14.8	
Marital status							0.221
Bachelor	107	24	107	24	214	48	
Married	96	21.5	102	22.9	198	44.4	
Divorced	4	0.9	9	2	13	2.9	
Widower	14	3.1	7	1.6	21	4.7	

Education level							0.642
Middle school	33	7.4	29	6.5	62	13.9	
Junior high school	68	15.2	66	14.8	134	30	
Junior college	113	25.3	118	26.5	231	51.8	
University	7	1.6	12	2.7	19	4.3	
Occupation class							0.001***
Agriculture	41	9.2	41	9.2	82	18.4	
Industry and commerce	29	6.5	42	9.4	71	15.9	
Service industry	44	9.9	39	8.7	83	18.6	
Government employees	12	2.7	38	8.5	50	11.2	
Student	37	8.3	23	5.2	60	13.5	
Freelancer	24	5.4	26	5.8	50	11.2	
Retirement	24	7.6	19	3.6	50	11.2	
Salary							0.001***
<NT\$20,000	92	20.6	70	15.7	162	36.3	
NT\$20,000-\$39,999	93	20.9	99	22.2	192	43	
NT\$40,000-\$59,999	32	7.2	41	9.2	73	16.4	
NT\$60,000-\$79,999	3	0.7	10	2.2	13	2.9	
>NT\$80,000	1	0.2	5	1.1	6	1.3	

The Study conducted the multiple regression analysis on variables about the effect of doctor-patient relationship contracts in patient satisfaction. The analysis result showed that after controlling the other variables, the Study forecast that  $R_2$  of medical satisfaction model attained 62.3% and  $F=27.773$ ,  $p<0.001$ , reflecting the statistical significant difference. The factors of significant difference included trust, interaction and empathy. The marital status (divorced) and patient satisfaction showed significant positive correlation ( $t=-2.023$ ,  $p<0.05$ ), the education level (junior high school,

university) and patient satisfaction showed significant positive correlation ( $t=-2.205$  and  $t=-2.012$ ,  $p<0.05$ ), the occupation class (student) and patient satisfaction showed significant positive correlation ( $t=2.505$ ,  $p<0.05$ ), the trust, interaction and empathy showed significant positive correlation ( $t=4.215$ ,  $t=4.997$ ,  $t=8.474$   $p<0.001$ ). There was no significant primary effect of age and salary toward the patient satisfaction, and  $\beta$  value failed to attain the statistical significant difference ( $p>0.05$ ) (Table 4).

**Table 4** Regression model.

Control variable	Patient satisfaction	p-value
<b>Gender (Reference group: Female)</b>	0.124	0.902
<b>Age (Reference group: 31-40 Years)</b>		
<20 Years	-0.811	0.418
21-30 Years	-0.245	0.807
41-50 Years	0.936	0.35
51-60 Years	-0.421	0.674
>61 Years	-0.007	0.994
<b>Marital status (Reference group: Bachelor)</b>		
Married	-0.477	0.634
Divorced	-2.023	0.044*

University	-0.002	0.998
<b>Education level (Reference group: Junior college)</b>		
Middle school	-1.398	0.163
Junior high school	-2.205	0.028*
University	-2.012	0.045*
<b>Occupation class (Reference group: Agriculture)</b>		
Industry and commerce	1.059	0.29
Service industry	0.761	0.447
Government employees	-0.385	0.701
Student	2.505	0.013*
Freelancer	0.093	0.926
Retirement	-0.359	0.72
<b>Salary (Reference group: &lt;NT\$ 20,000)</b>		
NT\$20,000-\$39,999	0.253	0.8
NT\$40,000-\$59,999	0.418	0.676
NT\$60,000-\$79,999	-1.238	0.217
>NT\$80,000	0.273	0.785
<b>Independent variable</b>		
1. Trust	4.215	0.001***
2. Interaction	4.997	0.001***
3. Empathy	8.474	0.001***
<b>R2</b>	0.623	
<b>Adj.</b>	0.601	
<b>R2</b>	27.773	
<b>F values</b>	0.001***	
<b>P values</b>		

## Discussion

With the changes in social structure and increasing number of citizens who have received higher education, consumers today have demonstrated a higher awareness in their roles and patients have been placing a higher emphasis and expecting more from doctor-patient relationships and the quality of medical care. As such, building a positive doctor-patient relationship would not only lead to improved patient satisfaction but also reduce the likelihood of medical malpractice. According to the study, trust, interaction and empathy function as key factors that affect patient satisfaction, with empathy having the strongest direct influence on patient satisfaction.

This result is in keeping with the findings of a previous study, Clinician empathy may be expressed through addressing patient engagement in care [13], Clinicians who use more empathic communication are able to elicit more relevant information from patients about their illnesses and concerns

[22], Thus the outcome of this study was important in terms of management practices. Then, the research on the factors that influence patients' decisions to join patient-physician relationship has been compiled through a systematic review of literature. It is found out that the demographics of patients (marital status, education level, occupation class), a good patient-physician relationship is beneficial to creating higher value when medical services are provided and used.

Our results were similar to Davies et al. and Rundall et al. [11,6]. Trust also plays a crucial and positive role in the patient-physician relationship in order to function smoothly. The level of trust between patient and physician is considered important in producing more effective therapeutic effects [11]. As a result, professionalism regarding medical trust can be viewed as a crucial factor of reliable interaction and allowing uninformed perceptions to guide treatment. Interactions are characterized by a respectful, mutual understanding, and treatment decisions, Patient-physician relationship depicts a bi-directional exchange relationship. It involves the exchange

of economic and social elements that create interdependencies and long-term interaction, which were similar to the results obtained by Leisen and Hyman [6].

## Contribution and Suggestion

It is proven in the study that trust, interaction and empathy have positive influence on patient satisfaction. Since the medical ecology is totally different, individualism and customer awareness rise and medical service becomes easily accessible, medical institutions and doctors face fierce competition. Nowadays, more focus has been put on understanding and respecting patients' autonomy, how to understand the psychology and behavior mode of patients and how to use knowledge and experience to have great interaction with patients and win their trust in order to attract potential customers and acquire new customers.

## Study Limitations

This study has limitations. For example, we examined the doctor patient relationship in terms of operational variables, validity content, time, and institutional norms. Further research should address the future of trust is a bilateral response and physician family relationship of such studies should be based on a theoretical framework of mutual control.

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