A Cross Level Research on Doctor Professional Competence, Patient Trust and Satisfaction

Fur-Hsing Wen,
Soochow University, Taiwan.

Email: wenft@scu.edu.tw

Abstract

After the establishment of the national health insurance (NHI) in Taiwan, the ecology of the medical care industry significantly changes in many ways, such as patients' easy access to hospitals, and their decreased payables for medical treatments through the NHI payments, as well as their attention of patient rights. All the above shifts cause patients' increasing quarrels with doctors against medical treatments. Consequently, the doctor-patient relationship becomes a critical issue. Inspired by many researches focusing on the effect of customer trust on satisfaction, we propose a cross level framework to test the relationship between doctor professional competence and patient satisfaction with trust serving as a mediator. Our findings indicate that a complete mediation effect exists, implying that doctor competence indirectly affect patient satisfaction through trust. It is therefore suggested that a doctor attempting to promote patient satisfaction should not only learn and demonstrate more professional skills, but also build patient trust by treating patients carefully and affectionately.

Keywords: Professional competence, patient trust, patient satisfaction
1. Introduction

In the study of the relationship between professional competence and customer satisfaction, few researches discuss the intermediated effects of trust. In medical area, doctors’ competence critically relates to the lives of many patients. Most studies confirm that doctors’ competence has a positive effect on patients’ trust. Inspired by the above two kind of independent studies, we propose an integrated framework to investigate the relationship between doctors’ professional competence and patients’ satisfaction with trust serving as a mediator. Trust is an important bridging variable for interpersonal and inter-organizational behaviors (Golembiewski & McConkie, 1975). It is also a critical factor to build strong customer relationships and increase market share (Sultan and Qualls, 2000). Hennig-Thurau (2002) pointed out that in the process of interactions between customers and employees working for goods or services providers, higher trust between them decreases customers’ anxiety in transaction activities and results in higher customer satisfaction. Such empirical evidences can also be applied to the interactions between doctors and patients. That is, higher trust of a patient on a doctor decreases anxiety of the patient and pains of illness. Consequently, patient satisfaction is anticipated to increase.

The patient-eccentric communications are more likely to obtain patient trust and loyalty. Compared with those patients not involving their treatment decisions, patients participating in medical decisions obviously obtain better medical results and lower probability of medical errors, implying better treatment effect with lower medical costs (Larry, Epstein, Jawwad & Alvaro, 2005; Fiscella, 2005; Lorig et al., 2001; Meryn, 1998; Stewart et al., 1999; Korff et al., 1998). This phenomenon proves that well-informed communications in the process of a treatment help customers to build their trust in a doctor.

The interactions between doctors and patients also affect patients’ perceptions, trust, tolerance of medical errors and their satisfaction. Because loyalty can be enforced by satisfaction, which is affected by trust, many scholars consider trust as a stepping stone for long-term relationship with customers and maintenance of market share, as well as customer satisfaction and loyalty (Anderson & Naru, 1990; Doney & Cannon, 1997; Sirdeshmukh et. al, 2002). Therefore trust plays an important role in long-term interaction relationship.

Satisfaction is closely correlated with trust. If patients trust the professional competence of doctors, who present medical ethics and sympathy, they will be fully satisfied with the medical and treatment results. The purpose of medical treatment is to cure illness or relieve pains for patients. Although the basis of an effective treatment essentially lies in a doctor’s competence, perceptions of patients could have some effects on patient satisfaction. Therefore, our study attempts to unveil the effect of doctors’ professional competence on patient trust and satisfaction by a survey from both doctor and patient aspects. The empirical results provide managerial implications for the daily operation in the medical care industry.
2. Literature review and hypothesis

2.1 Professional competence and satisfaction

Norman (1985) proposed 6 principles for the creation of doctor professional competences:
(1) patient care, including affectionate, proper and effective treatments and health promotion;
(2) medical knowledge, including biochemical and clinical medicine and other medical sciences such as pandemic and social behavioral sciences relating to patient care; (3) clinical and experience-based learning and improving, including study and evaluation of self-performance on clinical care for patients; (4) interpersonal relationships and communications skills, including efficient information exchange to treat patients, their families and other medical practitioners as team members; (5) obligation fulfillment, including assuming professional obligations and ethical norms; (6) system-based clinical experiences, including actions to acquire efficient and effective systematic resources to provide patients with the most valuable medical cares.

On the other hand, customer satisfaction is the perceptual result of purchase and consumption of a product. It is also the result of a comparison between benefits customers expected and costs they incurred (Churchill & Surprenat, 1982). A satisfied customer is likely to repurchase, while a loyal customer not only repurchase, but also recommend the products or services to others by words of mouth. (Stum & Thirty, 1991). Howard & Sheth (1969) are the first researchers to apply customer satisfaction to the consumer behavior theory. They advocate that customer satisfaction is a cognitive state about whether the compensation for the sacrifice (time or money) of a buyer is worthwhile or not. It is also a result through the process of experiences and evaluations (Hunt, 1977). Moreover, Hempel (1977) pointed out that customer satisfaction is determined by the degree of consistency between what customers expected and what they actually get from goods and services. It is the result of a customer’s evaluation for the products and services based on her/his purchase and consumption experiences (Oliver, 1981).

Regarding the measurement construct of customer satisfaction, Folkes (1984) and Oliver (1985) proposed three factors impacting satisfaction: priori expectation, actual perception, and uncertainty, compared with fairness and attribution which are recently adopted by many researchers. However, Churchill and Suprenant (1982) proposed a model of perceptual performance, stating that the judgment of satisfaction relates to customers’ perceived performance of a product, but has nothing to do with their priori expectations. Vroom (1964) presented a formula “performance = capability x motive” to explain two factors impacting performance. It describes that higher employee capability results in better work performance under the same level of motive. The result can be applied to the work performance of doctors. That is, a doctor with more professions under consistent motive is anticipated to have higher work performance (higher cure rate of treatment), and thus gains more trusts from patients. Repeated cures of illness for patients will finally result in higher satisfaction and higher patient
loyalty to the doctor and the hospital where she/he practices. Based on the above argument, we propose a hypothesis.

**H1: Professional competence of a doctor positively impacts patient satisfaction**

**2.2 Professional Competence, Trust and Satisfaction**

The business community today is a highly specialized and collaborative environment, where an industry is the representative of a specialized profession. A profession consists of knowledge or skills possessed by a group of persons, who can independently think and work for a task. Especially, the tasks of doctors relate to the lives of many patients. The training for doctors’ competence is strictly required and emphasized. Jarvis (1990) suggest that a profession is in an ideal form but difficult to define. They proposed two attributes for a profession: (1) a competence based on a specialized knowledge; (2) a competence based on practice ethics. The professional training and competence can be classified into: (1) theoretic foundation; (2) specialized knowledge; (3) long-term training; (4) meditation; and (5) autonomy and independence. Moreover, Chisholm and Ely (1976) proposed that professional competence should include (1) knowledge, (2) skill, and (3) attitude. Most researches adopt the three items of Chisholm and Ely as variables to measure the construct of profession.

Professional competence reflects the ability of delivery for tasks and services. If employees demonstrate their authority and confidence in the process of services, customers will relieve their anxiety and have more trust in service providers (Crosby, Evans & Cowles, 1990). In our study, the same result is applied to the doctor-patient relationship. That is, if a doctor demonstrates competence and authority in the process of medical treatment, patients will relieve their anxiety and gain more trust in the doctor. Therefore, we propose the second hypothesis.

**H2: Professional competence of a doctor positively impacts patient trust**

Regarding the study on trust, scholars in different fields define in many ways. Psychologists consider that trust is affected by the status of personal responses to external environment and internal psychological state (Rotter, 1967). In addition, sociologists consider trust as one factor of social internalization (Granovetter, 1985). Management scholars consider trust in terms of its impacts and benefits (Das and Teng, 1998), while economists investigate trust in terms of transaction costs.

Golembiewski and McConkie (1975) pointed out that nothing but trust has so great impacts on interpersonal and inter-organizational behaviors. Berry (1996) considered trust as a strongest relationship marketing tool for an organization. Urban, Sultan and Qualls (2000) considered trust as a required factor to obtain strongest customer relationship and market share. Reichheld and Schefter (2000) suggested that an organization attempting to win customer loyalty should obtain customer trust and satisfaction in advance. Zeithaml et al. (1990) quoted the study in USA as “even though there are only 4% of customers complaining about the goods or services, three are still 96% of customers dissatisfied with the level of services.”
Those customers complaining or dissatisfied are more loyalty than those who never complain. Those customers who give complaints to an organization expect service providers to solve the problems facing them (Disney, 1999). Hirschman (1970) proposed a theory "exit-voice" to prioritize the factors impacting customer satisfaction: the reduction of complaints and the promotion of loyalty. Fornell and Wernerfelt (1987) suggested that dissatisfied customers may leave or attack the organization with bad words. Therefore, promotion of customer satisfaction is a good method to increase customer loyalty. Reichheld (1993) argued that customer satisfaction is not a proxy of customer loyalty. As a result, satisfaction is not a necessary approach to increase customer loyalty. Anderson (1998) and Fornell (1992) pointed out that when dissatisfied customers give negative responses to defected products, the costs of good words of mouth from satisfied customers are much lower than those of new customer acquisition.

Barber (1983) suggested that the employees, whom customers trust in, have two attributes: (1) high performance skills, and (2) promise to fulfill their obligations on first priority. Ganeshan (1994) suggested that trust is a must in long-term relationship. Morgan and Hunt (1994) suggested that trust is not only the demonstration of confidence in others, but also demonstration of willingness to take riskier actions to support others. Because doctor-patient relationship is long-term oriented and the doctor choice behavior is a risky action, trust therefore plays an important mediated role between a doctor and a patient.

Moorman, Zaltman and Despande (1992) pointed out that persons who have already built a trust relationship could take four follow-up actions: (1) trusting party is more willing to join a riskier cooperation with trusted party; (2) both parties in a trust relationship proceed high quality interactions; (3) both parties make a promise to maintain or sustain the relationship; and (4) trusting party accepts the suggestions from trusted party for future decisions. In order to build patient trust, some behaviors related to trust should be demonstrated in front of patients, such as professional competence, kindness, and problem-solving skill. Once patient trust has been built, it is helpful to the further effective medical treatment or to the reduction of anxiety and pressure of patients. Therefore, trust is very critical to the tasks related to customers’ safety, lives, and transactions with huge dollar amounts. Trust is also an important factor leading to satisfaction. In view of the importance of trust, we propose the third hypothesis.

**H3: Professional competence of a doctor positively impact patient satisfaction through the mediated effect of patient trust**

3. The Research Approach

3.1 The Research Framework

Different from previous study, this research investigates the doctor-patient relationship using a hierarchical linear model (HLM). There are two levels in our framework: clinic and patient. At patient level, customer trust is an independent variable while customer satisfaction
is a dependent variable. At clinic level, doctor professional competence is an independent variable, which may impact patient trust and satisfaction at lower level. The research framework is illustrated as in figure 1.

**Figure 1: The Research Framework**

![Diagram showing the research framework](diagram.png)

### 3.2 The Definitions and Measurements for Variables

We used 7-point Likert scale with anchors ranging from ‘strongly disagree’ to ‘strongly agree’ for all questions in the survey. The definitions and measurements of variables are described as follows.

#### 3.2.1 Doctor Professional Competence

Norman (1985) suggested that doctor competences can be measured from 7 aspects: (1) the application of knowledge to actual problems, such as the application of core knowledge, basic communications skills, information management, problem-solving, and self-learning as well as resource utilization abilities; (2) the skills of medical examination and operation procedures; (3) interdisciplinary integration of medical sciences, clinical experiences and ethical judgments, such as the application of biomedical, sociological and psychological information; (4) the clinical facilities; (5) effective interpersonal communications, including communications with patients and team members in medical treatments, such as conflict control, cooperation with team members, and educating patients; (6) careful medical practice from emotional and ethical aspects, such as practice with willingness and patience; (7) care for patients with sympathy, compassion, and curiosity. Chisholm and Ely (1976) classified professional competence into three factors, including core knowledge, attitudes, and skills. Core knowledge relates to the facts and information in a profession, which can effectively and efficiently achieve a functional goal. Attitudes relate to a person’s intention, which can be evaluated from her/his talks and behaviors. Skills relate to the ability of applying knowledge to solving a specific problem, which can be measured by the observation of work performance. Thom (2001) and Chowdhury (2005) considered professional competence as patients’
perceived performance of doctors’ skills, such as respect for doctors’ competence and reliability.

Based on the measurement items of Chowdhury (2005) & and Thom (2001), we modify them and adopt 6 items: (1) the doctor possesses adequate professional competence and thus can relieve my pains; (2) the attitudes of the doctor is friendly; (3) the doctor can give me best treatments depending on actual conditions; (4) The doctor’s clinical experiences are respectful; (5) the doctor demonstrates professional ability; and (6) the doctor’s competence is reliable.

3.2.2 Patient Trust

McAllister (1995) classified trust into perceptional trust and emotional trust. Hansen, Morrow and Batista (2000) further explained that perceptional trust can be measured by an objective or rational process of judgments for whether counterpart is worth trusting while emotional trust is measured by intuitional judgments. According to the above comparisons, perceptional trust includes suggestions and information provided by the counterpart and evaluation of the counterpart competence, while emotional trust includes caring, listening, or the feeling of regret for not re-consulting the doctor. Mechanic and Meyer (2000) pointed out that the patient trust in a doctor can be measured from 5 aspects: (1) capability, including skills , relating to educational background and professional licenses, and interpersonal capability, relating to the relationships with patients and their families such as affectionate and careful listening.; (2).fiduciary responsible and agency, including the commitments to provide best medical treatments; (3) control, including the power to run the procedures of the medical treatment properly; (4) disclosure, including well-informed medical treatment such as the notice of conflict of interests, and the notice of limitations of medical treatments; (5) privacy; including not revealing the medical records of patients to the public.

We modify the items used by Hall et al. (2002). There are 10 questions covering perceptional and emotional trust in our study. 7 out of 10 questions measure perceptional trust. Those questions include: (1) the doctor provides me necessary medical interview and treatment to her/his best; (2) the doctor may not provide specific medical treatment to cure my illness due to her/his convenience; (3) the doctor has skillful competence as my expectations; (4) the doctor takes care of the procedures of medical treatments in every detail; (5) the doctor may not have patience to listen to my medical complaints; (6) the doctor may not communicate with me about medical order; and (7) the doctor may not find the best procedures of medical treatment. In contrast, emotional trust includes three items: (1) I believe that the doctor will give best medical treatment; (2) I have confidence in giving my health problems to the doctor; and (3) I completely believe the doctor.

3.2.3 Patient Satisfaction

Folkes (1984) and Oliver (1985) suggested that the factors impacting satisfaction include priori expectation, actual perception, and uncertainty. In addition, fairness and attribution are two more factors adopted in recent studies. Ware and Snyder (1975) pointed out that factors
including the convenience, friendliness, accessibility, and continuousness of medical treatments can be used to measure patient satisfaction. Hulk (1975) proposed a framework to measure satisfaction from 3 aspects, including personnel quality, professional competence, and friendliness.

This study modifies the questionnaire proposed by Andrus and David (1984), who made a survey at the hospitals in the western countries, to measure patient satisfaction by 6 items, including: (1) satisfaction with the medical treatments at the clinic; (2) no revisit to the clinic for subsequent treatments; (3) a good choice of the doctor at the clinic; (4) no regret in the choice of the doctor at the clinic; (5) dissatisfaction with the medical services; and (6) my consulting the doctor is a good choice. Among these 6 items, questions (2) and (5) are reversed items to test the validity.

3.3 Data Collection and the Respondents

High degree of loyalty is a basic feature in the medical care industry, because patients tend to re-consult the same doctor. The nested relationship between doctors and patients is what this study attempts to investigate. Such a phenomenon is more evident in dental clinics because the cost of maintaining healthy teeth is a kind of sunk cost, which is irreversible. In view of this, the respondents were randomly chosen from the patients at 27 dental clinics sampled randomly from 274 in the great Taipei area of Taiwan. A questionnaire was distributed to 4 through 29 patients at each clinic. There are 14.67 respondents at each clinic on average. A total of 396 completed surveys in April of 2009 were collected for further analyses. According to the theory of HLM, any member assigned to a group should be a physical entity, which highly interacts with each other in the group (Kozlowski & Klein, 2000; Morgeson & Hofmann, 1999). Because every respondent (patient) in the corresponding group (clinic) visited the same dental clinic, the grouping in this study is therefore adequate.

3.4 The Tests of Validity and Reliability

3.4.1 Validity Test

This study uses an exploratory factor analysis (EFA) to test the validity of items measuring each construct. The selection criterion is that the communalities of items in each construct should be greater than 0.5. Those with communalities less than 0.5 are therefore eliminated. We finally adapt the questionnaire to 13 items, including 5 items for doctor competence construct, 4 items for patient trust construct, and 4 items for patient satisfaction construct. Subsequently, a confirmatory factor analysis (CFA) is performed to test the measurement model. The chi-square value of three latent variables corresponding to three constructs is 125.35 with degree of freedom (df.) 62. The ratio of chi-square to df. for overall goodness-of-fit is 2.02(<3), RMSEA is 0.050(<0.60), GFI is 0.95(>0.90), NNFI is 0.99(>0.60), and SRMR is 0.025(<0.05). The results indicate that items to measure three constructs in this study demonstrate an excellent overall goodness-of-fit. Factor loadings for three constructs are within the range between 0.70 and 0.74 for doctor competence construct, within the range
between 0.71 and 0.85 for patient trust, and within the range between 0.61 and 0.75 for patient satisfaction with all significance levels above 0.01. The correlations among latent variables are 0.82 between doctor competence and patient trust, 0.87 for patient trust and satisfaction, and 0.80 for doctor competence and patient satisfaction, with all significance levels above 0.01.

To avoid common method bias or the violation of discriminant validity, this study performs one-factor CFA and two-factor CFA between any two constructs as well as three-factor CFA among three constructs. The results indicate that chi-square value and overall goodness-of-fit for three-factor CFA are better than those for one-factor and two-factor CFA. It demonstrates that 13 items to measure 3 constructs in this survey have excellent construct validity.

3.4.2 Reliability Test

Regarding the reliability in this survey, Cronbach’s α for each construct is within the range between 0.853 and 0.934, reaching a high level of reliability. In addition, composite reliability (CR) and average variance extracted (AVE) for each construct are 0.86 and 0.54 for doctor competence, 0.86 and 0.60 for patient trust, and 0.78 and 0.48 for patient satisfaction. Overall speaking, the items in this survey have high degree of consistency and reliability, which allow the further analyses using the standardized scores obtained from the items of three constructs.

### Table 1: The results of CFA measurement model

<table>
<thead>
<tr>
<th>Factor Loading</th>
<th>Doctor Competence</th>
<th>Patient Trust</th>
<th>Patient Satisfaction</th>
</tr>
</thead>
<tbody>
<tr>
<td>λ11</td>
<td>0.72(.03)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>λ21</td>
<td>0.71(.04)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>λ31</td>
<td>0.73(.03)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>λ41</td>
<td>0.78(.03)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>λ51</td>
<td>0.74(.04)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>λ12</td>
<td>0.78(.04)</td>
<td>0.78(.04)</td>
<td></td>
</tr>
<tr>
<td>λ22</td>
<td>0.85(.05)</td>
<td>0.85(.05)</td>
<td></td>
</tr>
<tr>
<td>λ32</td>
<td>0.75(.05)</td>
<td>0.75(.05)</td>
<td></td>
</tr>
<tr>
<td>λ42</td>
<td></td>
<td>0.71(.04)</td>
<td></td>
</tr>
<tr>
<td>λ13</td>
<td></td>
<td>0.61(.04)</td>
<td></td>
</tr>
<tr>
<td>λ23</td>
<td></td>
<td>0.69(.04)</td>
<td></td>
</tr>
<tr>
<td>λ33</td>
<td></td>
<td>0.70(.04)</td>
<td></td>
</tr>
<tr>
<td>λ43</td>
<td></td>
<td>0.75(.04)</td>
<td></td>
</tr>
<tr>
<td>CR</td>
<td>0.855</td>
<td>0.856</td>
<td>0.783</td>
</tr>
<tr>
<td>AVE</td>
<td>0.542</td>
<td>0.599</td>
<td>0.475</td>
</tr>
<tr>
<td>α</td>
<td>0.934</td>
<td>0.859</td>
<td>0.853</td>
</tr>
</tbody>
</table>

3.5 Descriptive Statistics

A total of 396 approaches were made, including 230 female respondents (58.1%) and 166 male respondents (41.9%). The years of age for most respondents range from 21 to 30 years of
age, with 183 persons (46.2%). The highest educational degree most respondents received is university, with 229 persons (57.8%) and then senior high school, with 103 persons (26%). The occupation of most respondents is student, with 232 persons (24%), and then business, with 90 persons (22.7%). The monthly income of most respondents ranges from 20 thousand to 40 thousand NT dollars, with 172 persons (43.4%), and then income below 10 thousand NT dollars, with 90 persons (22.7%).

4. Empirical Evidences

The relationship between clinics and patients has a feature of hierarchical structure. Patients were nested within clinics or doctors, like repeated measures were nested within subjects in longitudinal study (Lee, Wen, Lin & Lin), therefore patient trust and satisfaction are the outcome variables in the hierarchical or multi-level structure (Brown & Prescott, 2006). The assumption of data independence in the traditional approach of data analysis is violated due to the nested property in multilevel or hierarchical data. Therefore this study adopts hierarchical linear model (HLM) or multi-level regression to test three hypotheses. As shown in table 2, trust and satisfaction in the null model are analyzed using standardized scores; therefore the intercept tends to be 0 and statistically insignificant by multi-level regression. The variance of doctor competence at higher clinic level and the variances of trust and satisfaction at lower patient level are 0.075, 0.929 and 0.067, 0.938, respectively. The variance at clinic level reaches significance level of 0.001, indicating that clinics or doctors have significant difference in patient trust and satisfaction, with ICC(1) calculated as 0.075 and 0.067 respectively. Those two values are both greater than 0.059, the medium degree of correlation suggested by Cohen (1988). The result demonstrates the violation of data independence. Consequently, HLM is a better approach to analyze the data collected in our survey.

Because doctor professional competence measured in this study is the perceived result of all patients, it belongs to a shared property at higher organization level (Chan, 1998; Kozlowski and Klein, 2000). It is a must to test the organization-level variable, which is aggregated by the data collected from respondents at lower individual level and used to measure doctor professional competence. According to the suggestion of Bliese (2000), ICC(1) and ICC(2) as well as intrarater agreement ($r_{wg(j)}$) (James, Demaree, & Wolf, 1984; 1993) should be calculated by aggregating the responses of patients for perceived doctor competence at each corresponding clinic. Those statistics are used to determine whether the higher-level aggregation of lower-level responses is acceptable. The calculation of ICC (1) and ICC(2) for doctor competence are 0.099 and 0.568 respectively. Because doctor competence is a newly developed variable, ICC (2), even a little bit lower than the standard value 0.60, is still within acceptable range. $r_{wg(j)}$ is within the range between 0.88 and 0.99, higher than standard value.
0.70. According to the above statistics, the doctor professional competence can be measured by the average of response scores from patients in this survey.

This study uses HLM to test hypotheses in subsequent data analysis. The empirical evidences are shown in models 3, 4 and 5 of table 2. In model 3, the result supports the hypothesis that doctor competence positively impacts customer satisfaction with regression coefficient 0.787 under confidence level 0.001. Similarly, the result of model 4 supports the hypothesis that doctor competence positively impacts patient trust with coefficient 0.790 under confidence level 0.001. Based on the multilevel mediation proposed by Krull and Mackinnon (1999, 2001), the criterion (Baron and Kenny, 1986) is applied to our framework: the effect of doctor competence on patient satisfaction through the mediation of patient trust. Once doctor competence and patient trust are simultaneously taken into account in HLM, the effect of doctor competence on patient satisfaction decreases to 0.190 and is statistical insignificance under significance level 0.05. However, if doctor competence is controlled, the effect of patient trust on patient satisfaction is 0.218 under significance level 0.001. The result supports the hypothesis that doctor competence positively impacts patient satisfaction under the complete mediation of patient trust. Even model 5 adds some control variables such as gender, age, education level, and the evaluation of facilities in clinics, patient trust still has a significant effect on patient satisfaction, while the effect of doctor competence is still insignificant. In models 3 and 5, after doctor competence is introduced in the regression model, the variances of trust and satisfaction among doctors at level 2 become insignificant, indicating that the construct of doctor competence can explain the degree of variation among doctors. In model 5, after the trust construct as an exploratory variable at individual level is added, the variance of error terms among patient satisfaction at individual level decreases from 0.929 to 0.390. Pseudo R² is calculated as 0.58, indicating that trust can explain the degree of variation for patient satisfaction. The results of tests for hypotheses are discussed as follows.

<table>
<thead>
<tr>
<th>Model</th>
<th>Model 1</th>
<th>Model 2</th>
<th>Model 3</th>
<th>Model 4</th>
<th>Model 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hypothesis</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dependent</td>
<td>Satisfaction</td>
<td>Trust</td>
<td>H1</td>
<td>H2</td>
<td>H3</td>
</tr>
<tr>
<td>Intercept</td>
<td>-0.006</td>
<td>-0.007</td>
<td>-0.000</td>
<td>-0.000</td>
<td>-0.000</td>
</tr>
<tr>
<td></td>
<td>(0.075)</td>
<td>(0.071)</td>
<td>(0.040)</td>
<td>(0.048)</td>
<td>(0.034)</td>
</tr>
<tr>
<td>Trust</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.218***</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(0.052)</td>
</tr>
<tr>
<td>Profession</td>
<td></td>
<td></td>
<td>0.787***</td>
<td>0.790***</td>
<td>0.190</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(0.077)</td>
<td>(0.082)</td>
<td>(0.099)</td>
</tr>
<tr>
<td>L1 variance</td>
<td>0.929</td>
<td>0.938</td>
<td>0.910</td>
<td>0.909</td>
<td>0.390</td>
</tr>
<tr>
<td>L2 variance</td>
<td>0.075***</td>
<td>0.067***</td>
<td>&lt; 0.001</td>
<td>&lt; 0.001</td>
<td>0.004</td>
</tr>
<tr>
<td>ICC(1)</td>
<td>0.075</td>
<td>0.067</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

4.1 The Test for the Relationship between Doctor Professions and Patient Satisfaction

Our study tests the hypothesis that a doctor with more professional competence can build
more patient trust and can obtain higher patient satisfaction. The result indicates that doctor competence positively affects patient trust. Doctor competence also creates good image, wins patients’ recognition, and convinces patients of trusting the doctor. This confirms the argument of Lagace et al. (1991) that professional competence makes customers to more strongly commit to an organization or to its personnel. Giffin et al. (1967) further pointed out that the professional competence or skills of service persons are the key factor impacting customers’ trust. Similarly, our study confirms that doctor competence, which meets the needs of patients, results in not only patient trust but also patient satisfaction with the doctor and the clinic (Mayer et al., 1995).

4.2 The Test for the Relationships among Doctor Professions, Patient Trust and Satisfaction

From table 2, we are certain that doctor competence significantly and positively impacts patient trust because it is the key factor of patients’ evaluations of a hospital or a clinic. The application of communications, knowledge, skills, clinical inference, emotion and values to the daily practice of a doctor makes the public to benefit (Epstein & Hundert, 2002). This study suggests that doctors should routinely acquire new knowledge by taking courses, participating in workshops and activities relating to experience exchange, such as advanced studies abroad, visits to instruments or medicine manufacturing companies to discuss the medical trend and developments. Through aggressive involvements in the opinion exchange activities, doctors will keep pace with the changing medical environments and have enough competence to cope with the medical problems patients may suffer. In doing so, doctors can definitely build patient trust and promote patient satisfaction.

5. Conclusion and Suggestion

5.1 Concluding Remarks

American Education Association suggests that a professional competence should include eight elements: (1) highly mental activity, (2) specialized knowledge or skills, (3) long-term training, (4) continuous learning on job, (5) eternal practice, (6) contribution to a society, (7) well-managed organization, and (8) profession-related ethics. Every element mentioned above closely relates to the practice of a doctor. In contrast, International Organization for Migration (2003) proposed 5 core competences medical practitioners should acquire: (1) patient-centric medication, (2) interdisciplinary medical team of join works, (3) clinical experiences and practices, (4) medical quality promotion, and (5) utilization of information technology. The attitudes and appearance of the medical service personnel at the front desk directly affect the perceived quality of patients towards the clinic and the doctor (Baker, 1986). The attitudes of the service persons also affect patients’ senses of reliability. If patients feel friendly and easy to contact, positive perception is generated and trust is thereby built (Crosby et al., 1990).

All patients consulting a doctor attempt to relieve their mental pains and physical illness. Therefore, a doctor serves not only a medical consultant, but also a comforter of minds.
Bendapudi and Berry (1997) suggests that stronger intensity of interactions provides customers with more opportunities to evaluate the services they received. Stronger positive interactions result in more trust of customers and thereby higher satisfaction with the organization delivering the services. Based on the above arguments, this study suggests that a doctor should carefully listen to what patients complain from the points of patients, skillful guide the questions patients ask, comfort patients and then finish the medical treatment procedures successfully. Besides, a doctor should communicate with patients about the pros and cons in necessary treatment procedures and co-work with patients to make the final medical decisions, because well-informed treatments are a key to patient trust and satisfaction.

5.2 Suggestions for Further Study

5.2.1 Inclusion of More Variables
The factors impacting patient satisfaction are numerous and complicated. According to previous literatures and current medical environments, this study takes into account some critical factors such as doctor professional competence, experiential environment, doctor-patient interaction, and patient trust and satisfaction. However, this study does not include the factor of personality, which is a behavioral manner and characteristic a person owns to adapt to the environment surrounding the person. Kotler (1999) pointed out that the medical care industry is a service industry with the highest degree of interactions among customers and servicemen. Consequently, doctor personality can be another critical factor impacting doctor-patient relationship. Further studies can include this factor to make the empirical result more complete.

5.2.2 Inclusion of More Approaches
This study surveyed the doctor-patient relationship at dental clinics in the great Taipei area of Taiwan. The acquired sample does not necessary present a whole picture of the medical care industry. It is therefore suggested that further research can extend the scope of survey to different type of clinics or hospitals, such as surgical clinics or hospitals.

Reference


Journal of Marketing Research, 29(August), 314-29.