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THE EFFECT OF PHYSICIAN EMPATHY ON PATIENT OUTCOMES (PATIENT SATISFACTION AND COMPLIANCE) IN KOREA

By

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ABSTRACT

The Effect of Physician Empathy on Patient Outcomes (patient satisfaction and compliance) in Korea

By

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Physician empathy has been reported to be one of the most important determinants of patients' outcomes. Like American patients, empathic physicians may be desired by Korean patients as well, but rarely found in medical settings in Korea. Furthermore, the effects of Korean physician empathy on patients' outcomes are little known up to now. The purpose of this study was to evaluate a new empathy model with dualistic view (cognitive informational and affective empathy). The empathy model focuses on the physician-patient communication processes by determining how each empathy component is specifically related to patient outcomes (satisfaction and compliance). Participants in this study were recruited from a large, multifaceted university hospital in Pusan, Korea in 1999. Five hundred fifty (550) outpatients were participated in this survey. Structural equation analysis using EQS software program (Windows 5.7b version) was utilized to test the empathy model.

The results showed that the physician's empathic communication skills significantly influenced patient satisfaction and patient compliance via the mediating factors such as partnership and perception of physician expertise. Above all, for Korean patients, emotional aspects of physicians' communicative behaviors played the most important roles in their compliance and satisfaction (e.g., partnership and affective empathy). Interestingly, the fact that partnership was the most significant factor

influencing both patient compliance and satisfaction may reflect Korean patients' strong yearning for an egalitarian relationship with their physicians in the current hierarchical authority structure of the medical consultation processes in Korea. Finally, important implications for medical providers in Korea were suggested.

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Chapter 1

INTRODUCTION

Accumulating research shows the important effect that physician's communication behaviors have on patient outcome. Particularly, the physician empathy has been proposed as one of the most important determinants of patient satisfaction and illness improvement (Olson, 1995). A physician's use of empathy not only helps him or her to obtain a reliable history of the patient's illness, but also to more effectively understand the illness from the patient's point of view. This, in turn, enhances the patient's faith in the physician and creates an environment in which patients are encouraged to interact more with their physicians. Thus, the physician empathy provides an important conceptual framework for a better systematic theory of physician-patient communication which enables us to explain how and why physician empathy is one of the most important determinants of patient satisfaction and compliance.

Purpose of the study

Although much of the research agrees that the presence of empathy is an essential variable in successful physician-patient communication with positive outcomes, there has been a very few studies with the dualistic view (cognitive and affective) of empathy. Among those few studies, Squier (1990) proposed one of the most comprehensive empathy models by making theoretical links between dual components (cognitive and affective) of physician empathy and patient adherence. However, Squier's model suffers several shortcomings. First, it remains only a theoretical model since it has not been

empirically tested (consequently, no proper measurements have been developed). Second, Squier's model doesn't consider another important outcome variable such as patient satisfaction. Failing to incorporate other outcome variables into his model may have missed the significant link of the patient satisfaction to patient compliance. Third, Squier's model can't determine the degree to which each component of physician empathy is contributing to patient outcomes (satisfaction and compliance). Therefore, it needs an empirical test as well as further conceptual improvement.

Furthermore, while over the last couple of decades there has been impressive increase of empathy studies in the United States, the medical field in Korea has rarely seen physician-patient relationship studies, let alone the effect of the physician empathy on the patient outcomes. Most of the studies in Korea are related to Korean health care systems, showing a tendency to focus on such structural issues as financial, cost containment measures for the reformation of the Korean National Health Insurance (KNHI) with little concerns with the physician-patient communication issues.

Therefore, this study tested a new empathy model, derived loosely from the Squier's model, but built on the recognition of the shortcomings of the Squier's model. The empathy model for this study first attempted to develop and test a new empathy scale to measure two aspects (cognitive and affective) of physician empathy. Next, it attempted to give a first-kind of insight into the mechanism or process of the physician-patient communication in Korea. It did so by examining the effect of Korean physician empathy on patient outcomes from dualistic view of empathy. The dualistic view of the physician empathy provides us with a powerful explanatory mechanism of how each component of the empathy construct plays a part in patient behavior such as patients' satisfaction and

compliance. In other words, it determines how and what component of the empathy construct accounts for different levels of medical outcomes.

The Korean government is currently attempting to reform the health insurance system due to rapid growth of health care expenditure, proliferation and duplication of medical technology, and lack of access for low-income groups (Bong-Min Yan, 1996). Further impetus for this reform comes from the fact that the fees for health services healthcare institutions in Korea tend to provide low quality care (Youngsoo Shin, 1995). The knowledge provided by this study provided both physicians and medical educators in Korea with a scientific basis by which to foster a better physician-patient relationship. It suggested ways to eventually improve medical outcomes for patients without resorting to additional increase of medical cost. Additionally, it also provided Western readers with a rare opportunity to grasp the physician-patient relationship in Korea.

The premise adopted here was that the patient interpretation or impression of physician empathy during a medical encounter is a key variable in determining patient outcomes. Empathy underlies this impression made upon the patient. That impression results from the physician's connectedness to the patient by the conscious and unconscious confluence of thoughts and emotions (Brock, & Salinsky, 1993). The patient's feeling of being empathically understood will eventually influence both the patient's satisfaction and his or her compliance.

Chapter II

LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

Models of Physician-Patient Relationships, Patient Compliance and Satisfaction, and Cultural Variations

The quality of medical care depends largely on the interaction and communication between the patient and the doctor. Physician-patient relationships can be categorized according to their communication styles. Two important works which discussed the models of the physician-patient relationship were written by Szasz and Hollender (1956) and Veatch (1991). Szasz and Hollender (1956) described physician communication styles according to the nature of the patient illness. Their models improved and refined the Parsonian functionalistic and paternalistic views (Parsons, 1951) on the physician-patient relationships by encompassing different types of illness, other than the most acute (as in the Parsons' sick role model). Szasz and Hollender identified three different types of physician-patient interaction: activity-passivity (appropriate for acute illness); guidance-participation (for less acute illness); mutual cooperation (for chronic illness).

Concerned with the issue of moral partnership between physicians and patients, Veatch (1991) proposed four broader models for the physician-patient relationship models. The first type, the Engineering model, argues that the physician as 'a plumber' without moral integrity provides simply the facts to the patient, who then decides whether to use medical science to solve his or her problem. The second type, the Priestly model,

which is similar to the paternalistic model by Parsons (1951), and the activity-passivity model by Szasz and Hollender (1956), views the physician as a 'priest' who takes care of all decision-making and medical processes. The third type, the Collegial model, emphasizes a more balanced power association. In this case, both parties pursue the common goal of the well being of the patient. The last type, the Contractual model, which is developed based on the concept of contract, argues that physicians and patients can truly share ethical authority and responsibility.

Although both Szasz and Hollender (1956), and Veatch (1951) appear to agree on the much greater role of physician authority (or paternalism) in the traditional physician-patient relationship, which is still seen as the most common, patients have some means to control the relationship. Patient noncompliance can be viewed as an expression of patient power. Indeed, one study by Hayes-Bautista (1976) examined patient noncompliance in relation to the physician-patient relationship. In the study of Chicano patients, Hayes-Bautista (1976) attempted to analyze physician-patient relationships with focus on power and authority. Hayes-Bautista argued that the modification of medical regiments becomes an important sources of conflict between physician-patient communication. Hayes-Bautista observed two major tactics ('convincing' and 'countering') utilized by patients and physicians respectively. Hayes-Bautista found that patients used non-compliance as a means of taking control of the physician-patient relationship to achieve satisfaction with their treatment. In another patient-noncompliance study, Svarstad (1986) proposed the 'health communication model', which strongly emphasized the quality of physician-patient communication. The core of the model asserts that patient compliance is influenced mainly by two critical factors (patient comprehension and recall of regimen,

and patient motivation to follow regimen). Svarstad implied that physician socioemotional communication skills may increase patient compliance while the physician's dominant communication skills do otherwise. Although the Svarstad model remains only a conceptual model, it provides physicians with a variety of useful strategies for enhancing patient compliance (e.g., explicit direction and friendliness or approachability).

Another health outcome, patient satisfaction, was also related to physician-patient communication, particularly physician communication styles. For example, in their study of physician interviewing style and patient satisfaction, Rowland-Morin and Carroll (1990) found that 27% of the variance in patient satisfaction scores were explained by three aspects of a physician communication style (use of silence, language reciprocity and interruptions). Rowland-Morin and Carroll concluded that these verbal communication behaviors mostly reflect patient-centered interviewing style, involvement expressiveness, lack of dominance, and reciprocity.

Indeed, others (Allman, et al., 1993; Wyatt 1991) also found similar results in their literature review on physician-patient communication. Allman and his colleagues (1993) argue that the differences between physicians' and patients' agendas for medical encounters are the most serious obstacles to forming a satisfactory relationship between physicians and patients. For example, patients wish more information while physicians underestimate the patients' information desire. Moreover, they continued to find evidence to assert that the physician's communication style is directly related to patient satisfaction and patient compliance. In a similar study, Wyatt (1991) conducted a content analysis of the 168 articles published between 1983 and 1989 regarding physician-patient

relationships. Wyatt found that less than 1% of the medical literature was related to physician-patient relationships. Wyatt attributed this to the continuing power of the biomedical model in medicine. Wyatt implied that effective communication with more humanistic concerns between physicians and patients is the key to patient satisfaction.

Different cultural (or ethnic) groups communicate their illness to physicians in different ways by using their own cultural and contextual language of the disease (Helman 1994). Thus, cultural variations in patients can be an important factor that might affect physician-patient communication. One of the classic studies on cultural variation in physician-patient communication was done by Zola (1966). In the study of the presentation of the illness by the Italian and Irish Americans, Zola found that that the Italian Americans tended to dramatize their illness with many more symptom complaints while the Irish tended to downplay their symptoms. The physicians also showed a tendency to diagnose the patients differently, based on the patients' origins. Even without any physical disease present, the Italian was more often diagnosed neurotic than the Irish. Zborowski's (1952) study also reported similar findings in the responses to pain by different ethnic groups (Irish-, Italian-, Jewish-American patients, 'Old Americans'). Zborowski found that different ethnic groups had different attitudes toward pain. For example, the Italians tended to be more concerned with the actual pain experience, while Jewish patients were worried more about the symptomatic meaning of pain in relation to their health. Zborowski pointed out some factors which might cause these differences among different ethnic groups such as the degree of Americanization and education. Zborowski concluded that these attitude differences toward pain were the result of the

patients' early socialization. The researcher emphasized the importance of the cultural context of the patients.

In conclusion, with the help of the models provided by Szasz and Hollender (1956), and by Veatch (1991), we are able to better understand the nature of physician-patient communication. Szasz and Hollender's mutual participation model and the Veatch's contractual model provide an important implication for this study. Both models have one important element in common: egalitarianism. Like the physicians in these models, an empathic physician might be more likely to perform egalitarian behaviors (e.g., sharing power and responsibility). The relationship between the empathic physician and the patient might fall under these models (mutual participation and contractual model). I believe that the physician's egalitarian behaviors are the consequences of the physician's affective empathy.

Next, the physicians' socioemotional and communicative behaviors (or empathic behaviors) were shown to be directly related to such outcomes of health care as patient satisfaction and compliance (Rowland-Morin and Carroll,1990; Svarstad, 1986). More importantly, the studies by Rowland-Morin and Carroll (1990) and Svarstad (1986) provide a significant implication for a possible link between the physician's empathic behaviors and the medical outcomes (patient satisfaction and compliance). In the Svarstad' health communication model for patient compliance, there is a link between patient compliance and the two factors (patient comprehension and recall of regimen, and patient motivation to follow regimen). This implies that there are two distinct physician behaviors that affect patient compliance: cognitive behaviors for the patient comprehension and recall, and affective behaviors for patient motivation. Lastly, Zola

(1966) and Zborowski (1952) showed that there were clear cultural variations in physician-patient communication, depending on the patient's ethnic origin. With the important role of culture kept in mind, in the next section, I will examine how the Korean culture influences the physician-patient relationship.

Physicians in Korea: Cultural Context

Although little has been known about the relationship between physicians and patients in Korea, physicians in Korea are still widely considered a prestigious profession. Physicians enjoy quite a lot of both autonomy in their expertise and authority over the patients and the patients usually accept that. However, this seemingly high degree of the physicians' autonomy and authority in Korea can be explained not only by the technical knowledge gap between the physicians and the patients, but also partially by Koreans' traditional cultural norms toward authority figures such as doctors, teachers, scholars, government officials. Indeed, having reviewed many studies (e.g., Choi, 1979; Henderson, 1968; Kim, 1983; Lim, 1983) on Korean value system, Lee (1993) concluded that the traditional Korean value pattern is an authoritarian one, emphasizing deference to the traditional symbols and holders of authority.

The public perception that doctors can be self-interested and greedy rather than just interested in the public's well-being, and the level of the public's consciousness about their rights have significantly increased in the last a few decades. However, the ideas that the holders of authority--doctors, teachers, scholars, and government officials--should deserve authority and that people should not question about their authority, are still widely embedded in the general public's mind. There are still many Korean patients

who see themselves as passive objects in the medical encounter. This high public tolerance of physicians' authority may contribute to the lack of Korean physicians' empathic behaviors. Therefore, experiencing authoritarian Korean physicians in medical settings is not uncommon. To Korean patients who have been relatively less exposed to empathic physicians (compared to patients in the United States), experiencing empathic behaviors from their physicians might play a greater role in patients' outcomes (satisfaction and compliance) than in the US.

Furthermore, the Korean health care system rapidly expanded national health insurance in the last three decades (Ok, 1991). As a result, new challenges emerged. One of them is patient dissatisfaction. Due to the rapid social and economic growth in Korea, many Koreans began to see themselves as active health care customers rather than passive recipients. This change in the patients' perspective brought forth a new meaning in the doctor-patient relationship. The patients no longer want to be in an unequal hierarchical structure. The patients are trying to see it as a supplier-customer relationship between equals. Furthermore, since most patients prefer to be treated in general hospitals, overcrowded general hospitals became a serious concern for patient satisfaction (Yang, 1996). The general hospitals' inefficient bureaucratic management has left many patients with unpleasant experiences such as long-waiting time, unfriendly services, and above all impersonal treatment of patients by physicians.

Therefore, given the above situation, the increase of patient dissatisfaction with the quality of the services has become a critical factor for the survival of medical providers in the highly competitive Korean health care market.

Structure of Empathy/Definition

Despite the widespread recognition of empathy as an important quality of human characteristics, little consensus has been reached among the theorists on its definition. Mead (1934) contended that empathy, as a role-taking ability, is the essence of social and moral development as well as of social intelligence. Freud (1949) defined empathy as the mechanism that enables us to take up any attitude toward another's mental life.
For Jung, empathy was viewed as one's ability to project as a confluence of the viewer's and the viewed's thoughts. Others contended that the accurate understanding of another person's feelings is the key factor in empathic interaction (Bellet & Maloney, 1991). Although this diversity of definitions of empathy seems confusing, the underlying denominator concerns two important elements: cognitive ability to understand the other person's perspective and affective ability to respond and improve the others' emotional state.

Indeed, historically, a controversy exists over whether empathy is an affective or cognitive construct, or both. Psychologists studying empathy use either one or the other of these general definitions. Some researchers took empathy to be a cognitive process with the emphasis on cognitive role taking or perspective taking. (e. g., Hogan, 1969). Others investigators took it to mean a primarily affective process (e.g., Mehrabian & Epstein, 1972). Still others, primarily in the medical area, focused on a communicatory and information-giving or information-gathering function of empathy (e.g., Roter et al. 1987; Dean, 1993; Roter, et. al., 1987; Glanz, 1997; Comstock, et. al., 1982; Waitzkin 1984).

As a result of the debate surrounding these perspectives, some researchers are now integrating what is most valuable in each view into a multidimensional consideration of the empathy construct (Eisenberg and Strayer, 1990). For example, some researchers like Davis (1983) approached empathy from a multidimensional perspective – a combination of the cognitive role-taking and vicarious arousal. In fact, the most prevailing current view among empathy theorists and researchers holds that empathy entails both affective and cognitive elements and that only the clear recognition of the existence of both affective and cognitive aspects can improve our understanding of empathy (Davis, 1983; Squier, 1990).

Likewise, in medical research on empathy in relation to patient outcomes, the most predominant trend in the field of the physician-patient relationship appears to lean toward the multifaceted aspects of empathy, emphasizing empathy as a communicatory process. For example, Squier (1990) defined empathy as consisting of two components: a cognitive-informational aspect and an affective-motivational component and saw both as enhancing patients' compliance. Brock and Salinsky (1993) also suggested a similar biphasic structure of empathy: empathic understanding and empathic response. In somewhat similar vein, Carmel and Glick (1996) viewed physician empathy as having two-dimensional constructs: what they call the scientific-technical and socio-emotional.

Therefore, conceptualizing the dual faceted empathy (cognitive and affective) has the most relevant implications for the present study. First, physicians' affective empathic behaviors alone can rarely produce such desired patient behaviors as compliance and satisfaction. They may make patients feel liked and friendly, but this is not sufficient to achieve the patients' compliance and satisfaction. Feeling friendly cannot alone motivate

the patients to attend to information and comply with a treatment regimen (Glanz, K. et. al. [eds.], 1997). Another benefit from the dual faceted conceptualization is that it shows exactly how each component of the empathy construct is related to patient outcomes -- patients' satisfaction and compliance (Is each component equally related to the outcomes? or does one component play a greater role in the outcomes?). Thus, this study will attempt to develop and evaluate a new empathy construct which enables us to measure two separate components (cognitive and affective) of physician empathy.

Definition

For the present study, some of the operational definitions used in the study should be clarified. The operational definition of physician empathy is a patient's feelings of being understood and accepted by a physician. It consists of two components: cognitive and affective. The cognitive aspect of physician empathy is defined as the physicians' ability to apprehend accurately the mental state of patients (ability to take another person's point of view), and to communicate effectively this perspective back to the patients. The affective aspect of physician empathy is defined as physicians' ability to respond and improve patients' emotional state. From now on, I will use physician empathy for patient-perceived physician-empathy for a stylistic reason.

Critique of Ben-Sira's Social Interaction Model and Squier's Model of Empathic Understanding and Adherence to Treatment Regimens

Among numerous studies of empathy, the two important theoretical models deserve attention for the present study. Both Ben-Sira's (1976) Social Interaction Model and Squier's (1993) model have attempted to examine the link between physician behaviors (affective or empathic) and patient outcome. In his attempt to explain the effect of physician affective behavior on patient satisfaction, Ben-Sira (1976, 1980) suggested a social interaction model. In his social interaction model, Ben-Sira argued that due to a patient's anxiety about the condition of the illness, lack of medical technical knowledge, and inability to judge better treatment, the patient's immediate satisfaction will be the results of the physician's affective communication behavior. Ben-Sira has contributed significantly to our understanding of the roles of physician empathy (or "caring") in patient outcome with his insightful social interaction model. However his model contains some conceptual shortcomings in explaining why physician empathy (or affective behavior for Ben-Sira) is one of the most important determinants of patient satisfaction and compliance.

First, Ben-Sira's social interaction model (1976) implicitly indicated that those patients who are educated about medical procedures, and not too emotionally involved in the illness, would depend only on a physician's technical performance of medical procedures when evaluating their medical care. This ignores an important role that physician empathy plays in these technical procedures. For more effective care, these technical procedures should depend on the use of physician empathy to more effectively ascertain the patient's medical condition and a reliable history, provide a more accurate

diagnosis, give more clear-cut treatment directives, and understand more clearly the meaning of the illness to the patient (Buller and Buller, 1987).

Second, Ben-Sira overlooked the importance of the nonverbal aspects of physicians' affective behavior in his model. A physician's empathic verbal statements are not the only factor influencing a patient's definition of the medical situation or interpretation of a physician's communication behavior. Nonverbal aspects of a physician's empathic behavior are actually the key factors with which patients are able to judge the genuineness of a physician's communication (Goffman, 1959). In support of this argument, Bensing (1991) argued that the nonverbal aspects of affective behavior (eye contact and showing interest) were strongly related to the quality rating of psychosocial care.

In contrast to Ben-Sira, Squier (1990) proposed the most comprehensive model of physician empathy and patient outcome. His model hypothesizes that physician's empathic understanding is a prerequisite to patient compliance with medical regimens. The strength of his theoretical model is that it takes a dualistic view of empathy (cognitive-informational and affective-motivational). As discussed previously, unlike many other studies, which take one-dimensional view of empathy (either affective or cognitive), Squier's model emphasizes that affective aspect of physician empathy is not alone sufficient enough to produce desired patient outcomes. Both dimensions (cognitive-informational and affective) must be present to achieve complete empathy.

Despite this model's theoretical strengths, as previously discussed, Squier's model suffers several shortcomings. First, it still remains a conceptual model since it has not been empirically tested (consequently, no proper measurements have been developed).

Second, Squier's model doesn't consider another important outcome variable, patient satisfaction. Failing to incorporate that variable into his model may have missed the significant link between the patient satisfaction and patient compliance. Third, Squier's model didn't conceptualize patients' trust in physicians and its effect on patient outcomes. Patients' trust in their physicians have been recently acknowledged as a significant factor in patient-physician relationships (Anderson and Dedrick, 1990) as well as in successful treatment (Mechanic, 1998). However, Squier's model seems to be ignorant of the importance of this variable in regard to the relationship processes between physician empathy and patient outcomes. Fourth, without an empirical test, the model can not determine the degree to which each component of physician empathy is contributing to patient outcomes (satisfaction and compliance). This is an important drawback since knowing this would help an individual physician to realize what aspect of his or her empathic communication skills he/she needs to improve to maximize patients' satisfaction and compliance. Thus, the Squier's model needs an empirical test as well as further conceptual improvement.

In sum, despite the important contribution of Ben-Sira's social interaction model and Squier's model to understanding of the relationship between empathic physician communication and patient outcome, the shortcomings of their work necessitate a new and improved conceptualization.

Physician Empathy in Medical Encounter

Physician's Cognitive and Affective Empathy

The physician should attempt to understand the patients' illness experience, both cognitively and affectively (Squier, 1990). The cognitive and affective components of the physician's empathy work in concert to form a more informed understanding of the patient. First, cognitive empathy is the physician's ability to accurately discern the mental state of the patient (the patient's point of view), and communicate effectively this perspective back to the patient, which explains most of cognitive consequences of physician's empathy. Second, affective empathy is the physician's ability to respond and improve the patient's emotional status, which accounts mainly for the affective benefit to patients.

Cognitive Information Exchange

The cognitive component of the physician's empathy facilitates the cognitive information exchange between physician and patient. Most of the traditional roles of the physician (e.g. Parsons' [1951] universalism, functional specificity, and affective neutrality) take place in the domain of cognitive information exchange. These roles are mainly technically based skills ("expertness") for which patients are consulted (Roter and Hall, 1997). These roles include information-giving, thoroughness, data-gathering, accurate diagnosis and appropriate treatment. Accuracy of the physician's cognitive understanding of the patient's illness experience as well as the physician's other cognitive informational behaviors (e.g., sufficient information giving, physicians' thoroughness) provides the patient with a feeling of being understood. This stimulates the patient to more accurately report past and current symptoms as well as medically relevant

experiences (Roter, 1997), thereby increasing insight into the nature of the illness (Squier, 1990;More and Milligan, 1994). A study by Young (1980) strongly supports the above argument. Young's study found that when patients perceived their physicians as highly, technically competent, their willingness to disclose all types of symptoms increased.

When the patient provides detailed information, it helps the physician obtain a reliable history, understand more accurately the patient's illness from the patient's point of view, and provide more information to the patient (Bellet and Maloney, 1991). The cognitive information exchange, facilitated by physician cognitive empathy, is mutually beneficial to both the physician and the patient. The functions of the cognitive information exchange are significant not only "in furthering the physicians' clinical agenda to diagnose and treat, but also in furthering the patient's agenda to understand and make sense of the frightening vulnerability of illness as well as to feel that his or her experience and perspective are understood."[1]

Thus, it is hypothesized that *the cognitive component of physician empathy leads to better exchange of cognitive information* (**Hypothesis 1-a**).

Partnership

While the cognitive component of physician empathy expedites the cognitive information exchange, the affective aspect of physician empathy stimulates a physician to define his or her relationship with the patient as a partnership. The partnership is defined as a physician's willingness to labor jointly with a patient to promote the same goal-- the

[1] Glanz, K. et al. (Eds.) 1997. *Health Behavior and Health Education: Theory, Research, and Practice* (2nd edition) Jossey-Bass Publishers, San Francisco. Pp. 215.

well-being of the patient. This type of relationship enables the physician to share power and responsibility with the patient for the patient's health and medical decisions as a partner. In particular, partnership helps the physician encourage the patient to express or indicate his or her feelings, concerns, opinions, and questions. The partnership also prevents passive or noncommunicative behaviors from the patients, since it engages them more fully in the medical conversation (Roter and Hall, 1993).

Without an empathetic partnership, passive, inactive, or dominant physicians may elicit negative reactions from patients. As in any informal social interaction (e.g. social conversation), patients may expect more egalitarian interaction or more partnership-like relationship with physicians. In such a relationship, both parties make reciprocal contributions to the medical communication rather than having the physician control and dominate the content and direction of the medical discourse (Street et al., 1987). For example, Waitzkin (1984) pointed out that a physician-dominated style of communication often overlooks patient concerns and correlates to subsequent patient dissatisfaction with physicians. Other findings are also consistent with Waitzkin's (1984) research (e.g., Buller and Buller, 1986; Hall, et. al., 1981).

In sum, physician's affective empathy is a crucial factor in building partnership between physicians and patients. Partnership enables both physicians and patients to make reciprocal contributions to the medical communication, which become an important basis for the patient's satisfaction and compliance. Thus, it is hypothesized that the *affective aspect of physician empathy leads to partnership* (**Hypothesis 1-b**).

Patients' Trust: Perception of Physician Expertise and Interpersonal Trust

The patient's trust in his or her physician has recently been recognized as a critical factor in the patient-physician relationship (Anderson and Dedrick, 1990) as well as in successful treatment (Mechanic, 1998). However, few studies have attempted to actually measure and examine the functions of the patient's trust in their physician in relation to patient outcomes. Here, I define patients' trust in physicians as another important factor in producing better patient outcomes. It consists of two components: the first is what I call 'perception of physician expertise' and the second, ' interpersonal trust.' The conceptualization of the dualistic structure of trust for this study is supported mainly by work of Thom and Campbell (1997). In their study of patients' trust in their physicians, Thom and Campbell classified physician behavior affecting trust into nine categories. They found that two of the nine categories were associated with technical competence (e.g., thoroughness in evaluation) and that five were related primarily to interpersonal behaviors (e.g., building partnership/sharing power). The other two categories were predisposing factors (e.g., age, sex) and structural/staffing factors (e.g., courtesy of office staff). I excluded the last two categories (predisposing factors and structural/staffing factors) since they are not related to the actual patient-physician communication. A careful examination of the rest of the categories revealed that trust might consist of two major components: perception of physician expertise and of trustworthiness.

Thus, based on the implications of the above study, the perception of physician expertise is defined as the patient's general assessment of whether he or she can trust the physician as a medical expert who will provide a proper treatment of their illness. The patient's perception of physician expertise is derived primarily from the patient's

impression of physician's technical behaviors in the cognitive information exchange domain. During a medical encounter patients are constantly assessing whether they can trust their physicians as well qualified to treat their medical problems, though they lack medical technical knowledge to judge accurately. Perception of physician expertise is an important basis for inspiring the patient's confidence in the physician, thereby giving patients hope for a fast recovery. Thus, I hypothesize that *better exchange of cognitive information leads to increased perception of physician expertise.* (**Hypothesis 2-a**).

Another aspect of trust is what I call ' interpersonal trust.' The interpersonal trust is defined as a patient's general perception of whether he or she can trust a physician emotionally. It is derived primarily from the partnership domain. Because of the gap between physicians and patients in regard to knowledge and power, trust becomes a very critical concern of the patient (DiMatteo et. al, 1985). Thus, the partnership practiced by an affectively empathic physician creates a feeling of trust in the patient. Stile et al. (1979) showed that physicians who acknowledged and understood the importance of the patient's own knowledge and abilities were found to elicit more trust and gain more involvement in the consultation process. This is particularly important when we consider a patient's "emotional orientation" toward his or her relationship with the physician (Segall et. al., 1980). In this view, patient expectations go beyond the mere desire for physicians' technical competencies, because as patients visit doctors they expect not only physical relief, but also social and psychological relief. The patient's expression of socio-emotional or, in Waitzkin's (1991) words, 'contextual problems,' is not typically facilitated in the medical discourse because of modern medicine's emphasis on technical and biomedical orientation. Thus, the partnership leads to increased interpersonal trust by

enhancing physicians' 'interpersonal competence' which, in turn, allows patients to comfortably express 'contextual problems' or socio-emotional concerns (Waitzkin, 1991; Bellet and Maloney, 1991). Patients need perception of physician expertise or confidence in their physicians' technical performances, but they also need interpersonal trust in their physicians. The interpersonal trust strengthens the physician-patient relationship and substantiates the patient's belief that the physician is working on their side and in their best interest (Roter and Hall, 1993).

Therefore, I hypothesize that *partnership leads to increased interpersonal trust* **(Hypothesis 2-b)**.

Cognitive Information Exchange, Perception of Physician Expertise, and Compliance

Cognitive information exchange (e.g., information-giving, accurate report of symptoms), facilitated by the physician's cognitive empathy, coupled with perception of physician expertise is more likely to lead patients to compliance. Although the literature on compliance shows that both the cognitive and the affective components of physicians' empathetic behaviors are related to patients' compliance (e.g., Hall, et. al, 1988), physicians' partnership behaviors is not enough to cause patients to attend to information, change lifestyles, and comply with medical regimens. In addition, much of the patient's non-compliance has been traced to the patient's difficulties of understanding the treatment regimen as well as miscommunication between the physician and the patient (Stanton, 1987; Svarstad, 1976; Freund, E. S. and McGuire, M. B. 1995). For example, one study found that patients' noncompliance increased from 11 percent to 24 percent when physicians failed to fulfill the patients' desire for expected information disclosures

about their illnesses (Francis, Korsch, and Morris 1969). In their meta-analysis study of communication dynamics, Roter and Hall (1997) found the weak relationship between physicians' socioemotional behaviors (e.g., partnership building, positive talk, and etc.) and patients' task behavior (e.g., compliance and recall). Thus, it is hypothesized that *better exchange of cognitive information has a greater effect on the patient's compliance than does partnership* (**Hypothesis 3-a**)

Furthermore, I argue that perception of physician expertise leads to more compliance than satisfaction. For the patient to comply with the medical advice of the physician, the patient should not only have a clear understanding of medical regimens, but perception of physician expertise (or confidence) in his or her physician. Without perception of physician expertise, the physician's instructions are not perceived as credible, which increases non-compliance. Although no studies have examined the direct link between perception of physician expertise and compliance as defined here, some research provided valuable implications on the two variables. For example, DiMatteo (1994) in his literature review on compliance argued:

> "Patients typically follow only the recommendations they really believe in ... when patients doubt the usefulness of a medication, for example, they purposely ignore it or conveniently forget to take it. It is up the physician to elicit all of the patient's concerns about the recommended treatment and to provide enough information for the patient to believe the treatment is right for him or her."[2]

Thus, from the implications of the above empirical statement, we could argue that if patients trust their physicians as reliable medical experts, they are more likely to believe in their physicians' recommendations and comply with them.

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[2] DiMatteo, M. R. 1994. "Enhancing patient adherence to medical recommendations" *JAMA*, Vol. 271(1):pp. 79, 79-83.

Furthermore, since patients build their perception of physician expertise mainly from their impression of physicians' technical behaviors (e.g., physicians' information-giving, accurate diagnosis) which was shown to be more associated with compliance than with patient satisfaction, it could be inferred that perception of physician expertise might also be more associated with patient compliance than with patient satisfaction. Therefore, it is hypothesized that *perception of physician expertise has a greater effect on the patient's compliance than on satisfaction* (**Hypothesis 4-a**).

Partnership, Interpersonal Trust, and Satisfaction

An empathic (affective) physician establishes and maintains partnership with a patient and a patient's interpersonal trust. Partnership and the interpersonal trust become strong bases particularly for the patient's satisfaction. Many studies revealed that physicians' partner-like behaviors (statements of agreement, social conversation, and more eye contact) were the most significant factor in determining patients' satisfaction. (Hall, Roter, and Katz, 1988;Bensing 1991; Buller and Buller, 1987). Quine and Rutter's (1994) study of satisfaction in relation to medical communication at the time of diagnosis of a child's severe mental or physical disability is especially relevant here. They tested two models of doctor-patient communication: Korsch's (1968) affective model and Ley's (1977) cognitive model. Ley's model concentrated on cognition (e.g., understanding of treatment and recall), while Korsch's model focused on affect and social interaction (e.g., "whether the doctor had a sympathetic manner; whether he or she understood the

mother's concern; and whether he was direct, approachable, and a good communicator"[3]). Quine and Rutter (1994) found that Korsch's affective model was a much stronger predictor of parental satisfaction than Ley's cognitive model. Indeed, in their meta-analysis study of communication dynamics, Roter and Hall (1997) also found that the physician socioemotional behaviors (positive, social, and negative talk, interpersonal competence and partnership building) were more correlated with patient satisfaction than with patient compliance

In sum, the implications of the above studies indicate that partnership appears to be a strong predictor of patient satisfaction. Thus, it is hypothesized that *partnership has a greater effect on the patient's satisfaction than does cognitive information exchange* (**Hypothesis 3-b**).

No empirical study has used the same definition of ' interpersonal trust' as employed in this study to examine its link to patient satisfaction. However, since empirical evidence showed a significant link between partnership and patient satisfaction (Roter and Hall, 1997) and since ' interpersonal trust' was conceptualized to be derived mainly from the patient's impression of the physician's partnership-like behaviors (e.g., the statement of agreement and approval), it is inferred that the interpersonal trust along with partnership can contribute significantly to patient satisfaction.

Thus, it is hypothesized that *interpersonal trust has a greater effect on the patient's satisfaction than on compliance* (**Hypothesis 4-b**).

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[3] Quine, L. and Rutter, D. R. 1994 "First Diagnosis of Severe Mental and Physical Disability: A Study of Doctor-Parent Communication." *Journal of Child Psychology and Psychiatry and Allied Disciplines Vol. 35(7):* 1276.

Satisfaction and Compliance

Although all of the relevant variables (cognitive information exchange, partnership, perception of physician expertise and interpersonal trust) in the medical consultation should also be present and combined to produce patients' satisfaction and compliance, patients' satisfaction is more likely to be influenced by the 'partnership' and ' interpersonal trust' variables. And more satisfied patients are more likely to comply with the medical regimens. Indeed, there is evidence that patient satisfaction with a physician's affective behavior leads to a greater patient compliance with the medical regimens (Haynes, 1976; Segall et. al, 1980; Ley, 1986; Becker et. al., 1975). Many other studies also revealed that the more satisfied patients are, the more compliant they are with their doctors' drug regimens (Weisman, C. S. and Nathanson C. A., 1985; Linn M. W. et. al. 1982; Barlett, E. E. et. al., 1984; Korsch, B. M. et. al, 1968; Hulka, B. S. et. al. 1976). The implications of all of the above studies would suggest a hypothesis that *patient's satisfaction has a positive influence on their compliance* (**Hypothesis 5**).

Hypotheses

Based on the literature review, it is hypothesized:

1 a) The cognitive component of physician empathy leads to better exchange of cognitive information.
b) The affective aspect of physician empathy leads to partnership.

2 a) Better exchange of cognitive information leads to increased perception of physician expertise.
b) Partnership leads to increased interpersonal trust.

3 a) Better exchange of cognitive information has a greater effect on patient's compliance than does partnership.

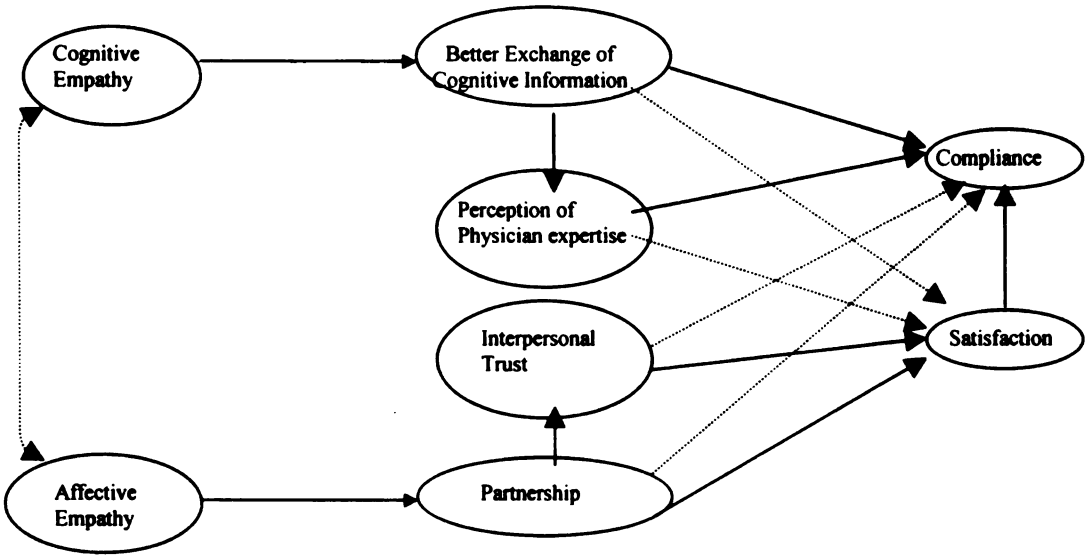
b) Partnership has a greater effect on patient's satisfaction than does cognitive information exchange.

4 *a) Perception of physician expertise has a greater effect on patient's compliance than on satisfaction.*
b) Interpersonal trust has a greater effect on patient's satisfaction than on compliance.

5 *Patient's satisfaction will have a positive influence on their compliance.*

Figure 1

Hypothesized Empathy Model (causal phases in the relationship between empathy and patient outcomes)



* Line (—) indicates weak causal effect while line (—) indicates strong causal effect between the two variables.

The causal model relating physician empathy to patient satisfaction and compliance is shown in Figure 1. It provides a powerful explanatory tool in understanding the processes in which each component of physician empathy is related to patient outcomes. The model shows that physician empathy is conceptualized as consisting of dual structure (cognitive and affective). And although all of the variables (cognitive information, partnership, and perception of physician expertise and trustworthiness) must

be present and combined to produce stronger patient satisfaction and compliance, cognitive information exchange and perception of physician expertise will have stronger effect on compliance than on satisfaction, while partnership and interpersonal trust will have better effect on satisfaction than compliance. Furthermore, the relationship between physician empathy, and patient satisfaction and compliance is expected to be mediated by other factors (better exchange of cognitive information, partnership, perception of physician expertise, and interpersonal trust). Thus, highly empathic physicians (both highly cognitive and affective) will result in more satisfied patients as well as more compliant patients.

Chapter III

Methodology

Research Design and Data Collection

Translation

I developed the questionnaire based solely on the US studies written in English. For this reason, I had to control for the cultural factor (Calantone etc., 1996) in measurement, that is, I accurately translated the original English version of the questionnaire into Korean.

The two-parallel double-translation method was used to translate the questionnaire. Four Korean translators were chosen because of their fluency in both English and Korean. Two were Ph.D. students in sociology at a US university and the other two majored in English at a Korean University and now work as professional translators. The process consisted of three steps. First, two of the four people were asked to translate the original English version questionnaire into Korean and then the other two were asked to translate the Korean version into English. Finally after comparing the back-translated English version with the original English version of the questionnaire showed considerable consistency, I met with all four of them to correct some minor inconsistencies. Based on intensive discussions with them, we developed the final Korean version of the questionnaire.

Sampling

Participants in this study were recruited from a large, multifaceted university hospital in Pusan, Korea. I chose this site because the patients represent a wide variety of illnesses, physician-patient relationships, and types and lengths of medical examination.

The six interviewers started to recruit the subjects in the pharmacy lobby, where people waited to pick up their prescriptions after seeing the doctors. The interviewers approached and asked patients whether they had seen the doctor within two weeks of their present visit. If the patient said yes, he or she was asked to participate in the survey. The interviewers promised that the patient would remain anonymous and that physicians would not see individual responses. After two weeks of the survey, I collected 550 questionnaires.

Obtaining approval for survey

To learn more about the proper way of doing the survey in Korea, I talked with a couple of experienced professors in sociology and in social work at a national university in Korea. Their general suggestions were: 1) make the questionnaire look very professional; 2) recruit the best female interviewers; 3) prepare gifts for patient-subjects to increase response rates; 4) obtain approval from the hospital using personal connections.

Based on their advice, the first major task was to obtain the approval from the hospital for the survey. As the professor in social work suggested, a personal connection appears to be the key factor in getting approval from the hospital in Korea. First, I targeted the head of the hospital in which I wanted to conduct the survey. I was told by

many that if I could get his cooperation, I would have no difficulties in conducting the survey. Fortunately, with the help of my family's social connections, a meeting was arranged to see the head of the hospital. I met him at his office to explain the nature of my survey. He agreed to cooperate and convened all the staff members to explain my survey. The four most important staff members came in and I explained the purpose of this survey and asked for their help. All of them agreed to help, although one of them raised an interesting question about the real intention of my survey. She asked me if this was a preliminary stage for a foreign hospital chain to open its hospital in Korea. I explained that this survey has nothing to do with anything like that. I explained that this was a purely scholarly investigation to understand the relationship between doctors and patients in Korea and the data collected will be used only for my dissertation purpose. In the end, she seemed convinced. Coincidentally, the head of the hospital said that his hospital was about to do a general annual patient-survey and that they would replace their survey with my survey. As a result of the meeting, I obtained their approval as well as their endorsement, which enabled me to indicate that this survey was being officially conducted by the hospital on the cover page of the questionnaire. I think that this legitimization of the survey increased the patients' response rate.

Printing Questionnaire

The next task was to contact a printer that had many experience in printing survey questionnaires. They showed me many choices of printing formats for the questionnaire. After a couple of meetings with them, I chose the one that looked the most professional.. I asked them to print 600 copies.

Recruiting and Training

Meanwhile, I started to recruit interviewers. From the previous consultation with a professor in social work, I learned that many senior students in social work have valuable experiences in surveying patients. I decided to recruit these students as interviewers because of their previous patient-involved survey experience. I contacted the social work department of a well-known national university and got eight students who showed interest in the survey. I decided to have an orientation to screen out the unqualified interviewers. The orientation was held in a classroom at the university. The orientation consisted of several parts to help them understand the importance of this survey and its procedures. It was composed of the following: 1) rules for interviewers such as how to talk and dress; 2) the importance of this survey; 3) how to proceed with the survey; and 4) an exercise where the candidates interviewed each other. In the end, I decided to hire six of them.

To ensure the reliability of the data collection process, I hold two debriefing sessions with the interviewers, one before and one after the survey. The interviewers were repeatedly asked to stop and discard the questionnaire whenever the patients seemed uneasy or insincere about answering the questions.

Modifications in the survey procedures

The original survey procedures had to be modified due to the unexpected circumstances in the university hospital. Initially, I had planned to conduct the survey on people who had previously seen the doctor (within two weeks) and were now in the waiting room for their second visit. However, the university started an appointment

system a few years ago. The head of the hospital pointed out some difficulties I might face with the original survey procedures since the appointment-based visits reduced the previously experienced waiting time substantially for the patient and that there might not be enough time for the patients to complete the questionnaire. Furthermore, he added that not enough patients might be available for the survey due to the appointment system in the doctors' waiting rooms.

However, the head of the hospital suggested that it might be a good strategy to get the subjects in the pharmacy lobby since the average waiting time to pick up a prescription was around 40 minutes. There was a huge pool of subjects waiting there. A careful consideration based on the previous consultation with several people who have done the survey in Korea convinced me of changing some of the survey procedures as follows:

1. I should utilize a small gift to enhance the response rate and reliability. As a result, I ordered six hundred gift items from a wholesale store at a cost of one dollar per gift.
2. I also utilized two interviewing methods: one is that patients filled out the questionnaire by themselves and the other is that the interviewers read the questionnaire for them. The professors who I consulted with pointed out that Koreans are not familiar with the former. They said that this might cause some uneasiness as well as difficulties of understating the questionnaire among the subjects. Not many outpatients at a big hospital in Korea are well educated enough to read and understand the questionnaire. Therefore, I decided to use both methods to conduct the survey. The decision to choose between the two methods depended on the subjects' preferences.

Measures

In order to measure each one of the important variables (physician empathy, cognitive information exchange, partnership, perception of physician expertise and interpersonal trust, patient satisfaction, and patient compliance) in the model, 7 measures will be utilized as described below. They were designed to be filled out less than 20 minutes by the participating patients. While a number of previously used scales were used, all were modified because of the different definitions of the concepts for this study.

Physician empathy

Since there has been no instruments to exactly measure the two constructs (cognitive and affective) of physician empathy, I decided to construct a new empathy scale. The new empathy scale was designed to specifically measure each of the two components (cognitive and affective) of physician empathy. In the process of constructing the new empathy scale, first, several items were selected and modified from the existing well-known empathy instrument (Barrett-Lennard, 1981,The Barrett-Lennard Relationship Inventory) which fit the theoretical definition of each component employed for this study. Second, based on the literature review and discussion with a number of colleagues, additional items were created to assess cognitive and affective empathy. This new scale asks patients to rate physician empathy. In other words, it measures the patient's perception of his or her physician's empathy.

Using this scale to measure physician empathy has a significant advantage over other empathy measures. A majority of empathy measures (e.g. Hogan's [1969] Empathy Scale [EM], Mehrabian and Epstein's [1972] Emotional Empathy [QMEE]) employ

subject (physician) ratings of their own empathic concerns. This hardly reflects actual patient feelings and these feelings have important implications for patient outcomes.

Furthermore, Squier (1990) found clear evidence in his review of psychotherapy literature that empathy must be perceived and felt by patients in order to be effective. In their comparative study of empathy rated by three different groups--patients, therapists, and clinical supervisors, Free, et al. (1985) found that only the patient perceived empathy was significantly related with patient outcomes. In a similar study, Kurtz (1972) also found that therapist self-reported empathy is not a useful measure since it is unrelated to outcome; only client-perceived empathy is highly associated with therapy outcomes. Therefore, it is more reasonable to use a patient-perceived empathy scale to measure physician empathy.

Satisfaction Measure

The scale for patient satisfaction is adopted from the existing measures (the Satisfaction Questionnaire suggested by Comstock et al., 1982 and Doctor Satisfaction Scale by Kaplowitz [unpublished]). The four-item questionnaire is scored on a 5-interval scale with a score of 1 indicating lowest satisfaction and a score of 5 indicating highest satisfaction. The four questions are: 1) Overall, I am satisfied with this doctor; 2) I have confidence in this doctor? 3) Overall, I am discontented with this doctor; 4) compared to the other doctors you have seen, this doctor is very good.

Compliance measure

A modified form of the General Adherence Scale suggested by DiMatteo et al (1993) is used to measure patient tendencies overall to adhere to medical recommendations, allowing comparison of respondents across different treatment regimens. The authors found Internal consistency reliabilities of .89 and higher for the General Adherence Scale. Two items compose this modified scale; 1) I followed my doctor's suggestions exactly; 2) I exactly complied with this doctor's drug regimens.

Patients' Questionnaire

The questionnaire given to patients to collect information about the patient includes items about the patient's age, sex, education, and income.

Cognitive Information Exchange and Partnership

In order to construct the measure of the cognitive information exchange variable and partnership, first, a number of instruments were reviewed (Roter, et. al., 1987; Kaplowitz [unpublished]). Then, items were written, based upon the definitions of the two variables employed here. The actual items are included in the appendix at the end of this paper.

Patient's Trust: perception of physician expertise and interpersonal trust

Anderson and Dedrick (1990) developed a Trust in Physician Scale (TPS) to measure patients' interpersonal trust in their primary-care physicians. First, a number of items from the TPS, which were considered to best tap perception of physician expertise

and interpersonal trust, were selected. Additionally, a few more items were written to measure interpersonal trust.

Analysis

Use of Structural Equation Modelings (SEM)

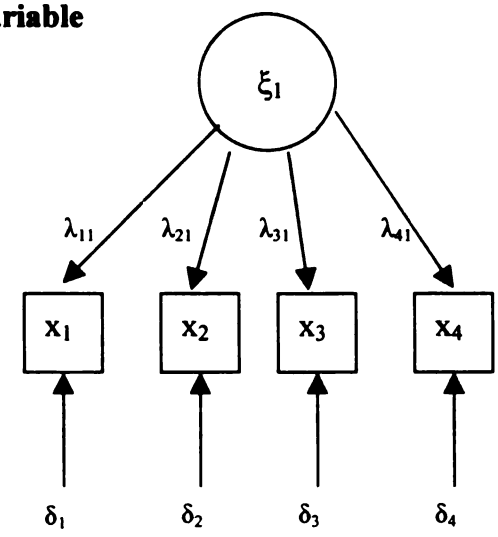
The works of Karl Jöreskog and his associates (e.g., Jöreskog, 1977; Jöreskog and Van Thillo, 1973) helped the social and behavioral researchers more easily access general SEM techniques since the 1970s. Considerable use of SEM has been noticed in social science research settings such as in the areas of psychology, sociology, and education (Anderson and Gerbing, 1988; Mueller, 1996). One important reason for this is that SEM, as a powerful multivariate data analysis tool, can equip researchers with a comprehensive means to assess and modify theoretical models (Anderson and Gerbing, 1988). Furthermore, with the help of SEM computer programs readily available such as LISREL (Jöreskog and Sörbom, 1993) and EQS (Bentler, 1993; Bentler and Wu, 1993), today SEM is a well-established and respected data analysis method for understanding aspects of social and behavioral phenomena.

Unlike simple and multiple linear regression techniques (often used in the social science literature as data analytical tools for prediction and variance explanation), SEM allows us to model the effects of unobserved or latent factors that are imperfectly measured by observed indicator variables. In other words, measurement error in observed variables can be taken into account when assessing the effect of a set of independent variables on one or more dependent variables (Mueller, 1996).

In multiple regression, or ANOVA (analysis of variance), for instance, we learn that the regression coefficients and the error variance estimates are computed from the minimization of the sum of squared differences between the predicted and observed dependent variable for each case. Residual analyses display discrepancies between predicted and observed values for every case of the sample (Bollen, 1989). However, SEM uses covariances rather than individual cases. Instead of minimizing functions of observed and predicted individual values, SEM minimizes the difference between the sample covariances and the covariances predicted by the model. The observed covariances minus the predicted covariances yield the residuals. The fundamental axiom for these structural equation procedures is that the covariance matrix of the observed variables is a function of a set of parameters. If the model were correct and if we know the parameters, the population covariance matrix would be exactly reproduced.

$\Sigma = \Sigma(\theta)$ (Bollen, 1989)[4].

Figure 2 Path Diagram of a Single Latent Variable



[4] Σ (sigma) is the population covariance matrix of observed variables, θ (theta) is a vector that contains the model parameters, and Σ (θ) is the covariance matrix written as a function of θ.

The covariances implied by the model are computed with covariance algebra. Figure 2 shows an example of a path diagram of a single latent variable with four indicators. Thus, COV (x_1, x_4) is

$$\text{COV}(x_1, x_4) = \text{COV}\ (\lambda_{11}\ \xi_1 + \delta_1,\ \ \lambda_{41}\xi_1 + \delta_4)^5$$

$$= \lambda_{11}\lambda_{41}\Phi_{11}$$

This indicates that the COV(x_1, x_4) is a product of the effects of ξ_1 on x_1 and x_4 (e.g., λ_{11} and λ_{41}) and of the variance of the latent variable ξ_1.

The fundamental axiom of SEM offers a unified way of encompassing many of the most widely used statistical techniques in the social sciences (e.g., regression analysis, path analysis, confirmatory analysis, ANOVA, and analysis of covariance).

Like most other model-development processes, SEM analysis starts with the identification of relevant variables and hypothesizes its relations to exogenous and endogenous latent variables. An exogenous (independent) latent variable is one whose causes lie outside of the model. On the other hand, an endogenous variable is determined by variables within the model (Bollen, 1989).

For instance, in Figure 3, cognitive empathy and affective empathy are exogenous variables and the rest of the variables are endogenous.

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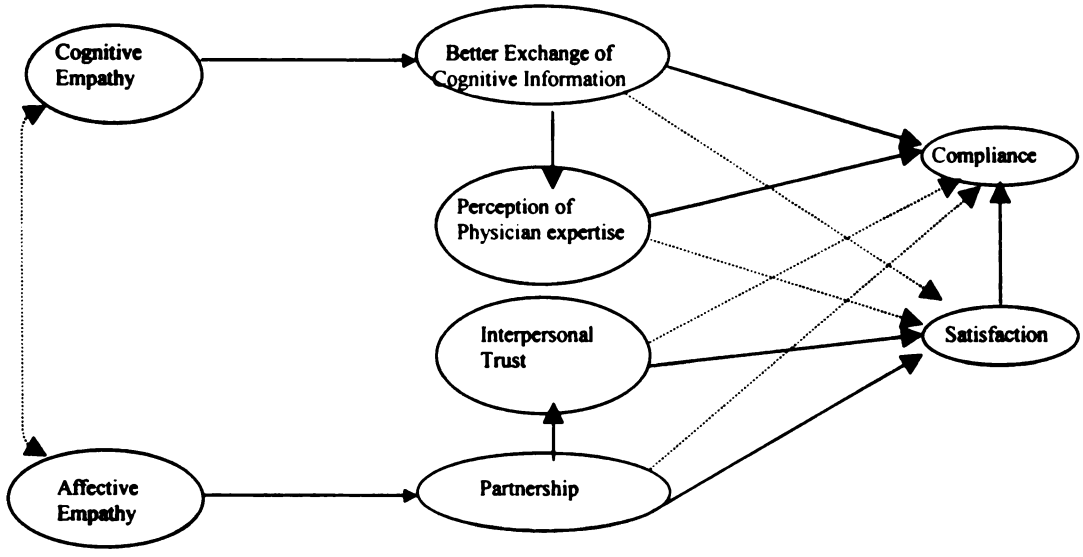
[5] ξ = latent exogenous variables; λ = coefficient relating to x to ξ; δ = measurement errors for x (Bentler, 1995).

Figure 3

Hypothesized Model



* Line (—) indicates weak causal effect while line (—) indicates strong causal effect between the two variables.

Structural Equation Modeling Software Program (EQS)

EQS (Bentler, 1989) version 5.7b for Windows was used for statistical analysis. EQS is gaining popularity for its straightforward programming language. It is also easy to learn and apply. It has a unique capability of dealing with corrected tests and statistics (e.g., a robust version of the Bentler Compared Fit Index [Bentler, 1990]). In EQS, observed variables are termed as Vs; latent variables, Fs (or factors). Residuals in observed (or measured) variables are called errors, or Es.

Assessment of Model Fit

The major purpose of assessing a structural equation model is determining whether the hypothesized model fits the sample data. In general, the overall model fit has been based on the χ^2 statistic. However, since the χ^2 statistic has been known to be

sensitive to variations of sample size and since it reflects the discrepancy between the observed and reproduced sample covariances, many different alternative fit indexes have been developed to help researchers reach a better judgment about the model fit. EQS provides several goodness-of-fit indexes. The χ^2 statistic is first given for the hypothesized model. EQS also gives a robust test statistic called the scaled χ^2 with a similar interpretation of the χ^2 statistic (Satorra & Bentler, 1988) as an option. The ML (Maximum likelihood) estimator which is used for this study has multivariate normal distributional assumption. The robust test statistic is designed to modify the usual test statistic so that it can more closely approximate χ^2 distribution when this normal distributional assumption is violated (Bentler, 1993). Hu et al. (1992) argued that the scaled χ^2 was the most reliable in their study. EQS yields a list of fit indexes (e.g., NFI, NNFI [Bentlter & Bonett, 1980], CFI [Bentler, 1990]).

For this study, CFI and Root Mean Square Error of Approximation (RMSEA; Steinger 1990; 1989) were used. I selected CFI which uses the sample noncentrality statistic because Bentler (1992) recommends it as the best index. RMSEA was chosen because it is increasingly gaining popularity in recent years (Wang etc., 1999). In addition, RMSEA and CFI were reported to be the least sensitive to sample size (Wang etc. 1999).

In general, for CFI, a value greater than .90 indicates an acceptable fit to the data (Bagozzi and Yi, 1988; Bentler and Bonett[1980]). For RMSEA, values less than .05 indicates a very good fit and those below .10 indicates a reasonable fit (Steinger 1989).

Preliminary Analyses

An essential prerequisite to SEM is an assessment of the statistical assumptions on which an estimation method (ML was used here in this study) is based. ML is based upon the assumption that the data are multivariately normal. EQS provides a number of univariate and multivariate statistics in this regard. For the univariate distribution, skewness and kurtosis for each variable in a model is automatically printed in EQS. For multivariate distribution, EQS provides multivariate measures of skewness and kurtosis developed by Mardia (1970).

Two-Step Modeling Approach

Following the suggestions of Anderson and Gerbing (1988), I used a comprehensive two-step modeling approach to make meaningful inferences about theoretical constructs and their interrelations. The two-step modeling approach consists of tests of confirmatory measurement (CFA) and latent variable model. Prior to the full structural model test, the test of measurement model provides a comprehensive, confirmatory assessment of both convergent validity and discriminant validity. Once convergent and discriminant validity are achieved in the measurement model, the test of the latent variable model (full structural equation model) enables a confirmatory assessment of nomological validity (Anderson and Gerbing, 1988).

1. Confirmatory Measurement Model Test (CFA)

EQS software version 5.7b (Bentler, 1998) was used with raw data as input to test the measurement model using CFA prior to assessing the full structural relationships.

Maximum likelihood (ML) was used as the estimation method because it has been the predominant estimation method (under the assumption of a multivariate normal distribution). ML has been shown to be unbiased, consistent, and efficient (Anderson and Gerbing, 1988). Furthermore, ML parameter estimates were shown to have some robustness for the nonnormal data (Browne, 1984; Harlow, 1985; Tanaka, 1984).

One of the major advantages of using CFA is that it allows researchers to develop a prespecified, theory-driven model for evaluating to what degree a certain data set 'confirms' what is theoretically believed to be its underlying structure (Mueller, 1996).

Thus, unlike other variable reduction methods such EFA (exploratory factory analysis) or PCA (principal component analysis), the CFA approach to multivariate data analysis enables the researchers to theorize an underlying structure and examine whether the data fits this prespecified model. In doing so, "CFA provides a framework for addressing some of the problems associated with traditional ways of assessing a measure's validity and reliability"[6].

According to Anderson and Gerbing (1982), we must ensure that all constructs are unidimensional and reliable prior to assessing the full structural relationships among them. The purpose of the measurement model test using CFA is to show that the measurement model has a satisfactory level of validity and reliability (Fornell and Larker, 1981).

Measure Purification

Since no prior testing of the operational constructs used in the model has been done, a series of steps was taken to ensure the unidimensionality of the multiple-item constructs and improve reliability and validity as follows:

- Removing unreliable items that had cross-loadings on multiple constructs or had low coefficient loadings on its factor.
- Eliminating outliers (five cases [multivariate outliers] significantly contributing to multivariate kurtosis are identified in EQS program [EQS is unique in this regard]).

After removing questionnaire items that loaded on multiple constructs or had low factor loadings, CFI, and RMSEA were used to assess the degree of fits of the CFA to the data.

Reliability and Validity

Reliability (internal consistency) refers to how consistently the instrument measures whatever it was designed to measure (Mueller, 1996). Reliabilities were tested using Cronbach's alpha.

The validity of a measure refers to the measure's overall property of indeed measuring what it was designed to measure. For this study, two validity measures, convergent and discriminant, were used:

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[6] Mueller, Ralph O. 1996. Basic principles of structural equation modeling: an introduction to LISREL and EQS: p. 62.

Convergent validity: convergent validity was assessed from the measurement model by determining whether each indicator's loading on its prespecified construct factor is significant (Anderson, and Gerbing, 1988).

Discriminant validity: Discriminant validity tests whether measures of distinct constructs perfectly correlate or not. This was done in two ways. First, discriminant validity test was conducted by a chi-square difference test on the values obtained for the constrained and unconstrained models using two estimated constructs (Joreskog, 1971). "A significantly lower χ^2 value for the model in which the trait correlations are not constrained to unity would indicate that the traits are not perfectly correlated and that discriminant validity is achieved."[7] Second, a complementary assessment of discriminant validity was done by examining whether the confidence interval around the correlation estimate between the two factors includes 1.0 (Anderson and Gerbing, 1988).

2. Full Structural Model Test

Once convergent and discriminant validity were achieved in the measurement model, the full structural model was tested. First, the model's overall goodness of fit to the sample data was assessed by using the χ^2 test statistic, CFI, and RMSEA measures. Then, the standardized parameter estimates (structural path) and t-values were examined to test the individual hypotheses.

[7] Baggozi, R. R. and Phillips, L.W., 1982. "Representing and testing organizational theories: a holistic construal." *Administrative Science Quarterly*, vol.27: p.476.

Chapter IV

RESULTS

Data

Sampling was conducted from outpatients at a university hospital in Korea. Six trained interviewers collected 550 survey questionnaires with a 5 point-Lickert scale. Interviewers reported that the response rates were about 65% of those who were approached. After removing unusable questionnaires, we obtained 522 suitable questionnaires. The data were entered with SPSS windows programs. The data with missing values were replaced with variable mean.

Table 1, 2, 3, and 4 show the descriptive results of the sociodemographic characteristics (age, sex, education, and income) of the patients. Table 5 shows sociodemographic statistics about Korea. From Table 1 we see that there is a high concentration of patients in their 40s and 50s (about 66%), compared to the average age (32.2 years) in Korea. There is a relative lack of younger and older patients. About 68% of the patients were female; 32% were male (see Table 2). This high female concentration was due to the fact that most of the patients who were present (in the pharmacy's lobby) were female. The majority (69%) of the patients had at least a high school education (see Table 3). Interestingly, there is a very high concentration of patients with a high school education (about 45%), which is about the average education for Koreans (see table 5). Regarding patient income (see Table 4), about 50% of the patients reported that they earned above the average household income per month (about $1,500). And about 50% reported below average earnings. However, over 32% of the patients did not want to

reveal their income. The reasons for their refusal were unclear and we did not ask them any further questions on the issue.

Table 1 Age

Age

		Frequency	Valid Percent
Valid	10 - 19	6	1.2
	20 - 29	61	11.7
	30 - 39	72	13.8
	40 - 49	120	23.1
	50 - 59	133	25.6
	60 - 69	92	17.7
	70 - 79	33	6.3
	80 - 89	3	.6
	Total	520	100.0
Missing	System Missing	2	
	Total	2	
Total		522	

Table 2 Sex of Patient

Sex of Patient

		Frequency	Valid Percent
Valid	female	356	68.2
	male	166	31.8
	Total	522	100.0
Total		522	

Table 3 Patient Education

Patient Education

		Frequency	Valid Percent
Valid	elementary	69	13.9
	middle school	84	16.9
	high school	223	44.8
	2yr college	31	6.2
	4 yr college	83	16.7
	graduate school	8	1.6
	Total	498	100.0
Missing	System Missing	24	
	Total	24	
Total		522	

Table 4 Patient Income

Patient Income

		Frequency	Valid Percent
Valid	below $500	38	10.7
	$501-$1,000	59	16.7
	$1,001-$1,500	86	24.3
	$1,501-$2,000	89	25.1
	$2,001-$2,500	38	10.7
	above$2,5001	44	12.4
	Total	354	100.0
Missing	9	1	
	System Missing	167	
	Total	168	
Total		522	

Table 5

Sociodemographic Indicators in Korea: age, sex, education, and household income.

	Age (years)	Sex (rate)	Education (years)	Household income
Male	31.1	101.4	11.8	
Female	33.4	100.0	9.37	
Average	32.2		10.25	About $1,500

* Data was drawn from the 1998 Census study by the Korean National Statistical Office.

Assessment of Model Fit

Normality Test

1. Univariate normality checked for skewness, kurtosis

Since the method of estimation used (ML) assumes multivariate normality, test results of univariate normality and multivariate normality for the observed indicators were examined. The univariate statistics in EQS represent the mean, standard deviation, skewness, and kurtosis. As Table 6 shows, skewness for all the indicators was close to 1.0, which is reasonable. All of the indicators had a kurtosis of less than 2.0 except for four that were a little over 2.0. In general, skewness and kurtosis do not drastically deviate from univariate normality.

Table 6

Skewness and Kurtosis

Variables	CE1	CE2	CE3	AE1	AE2	AE3	AE4	AE5	AE6	AE6	CIE1	CIE2	CIE3	CIE4	CIE5
Skewness	0.717	0.789	-0.815	-0.689	-0.623	-0.893	-0.504	-0.450	-0.632	-0.417	-0.799	-0.499	-0.573	-0.663	-0.382
Kurtosis	0.226	0.571	0.998	-0.346	0.674	1.360	0.024	-0.000	0.896	0.238	0.186	-0.150	-0.122	0.123	-0.664

Variable	PPE1	PPE2	PPE3	IT1	IT2	IT3	IT4	PRTN1	PRTN2	PRTN3	PRTN4	PRTN5
Skewness	-0.857	-1.030	-0.526	-0.913	-0.809	-0.544	-0.599	-1.035	-0.860	-0.910	-0.827	-0.613
Kurtosis	1.510	0.463	1.712	0.065	1.414	0.406	0.393	2.352	2.054	0.057	2.359	0.250

Variable	PC1	PC2	PS1	PS2	PS3	PS4
Skewness	-0.841	-0.931	-0.638	-0.409	-0.904	-0.546
Kurtosis	1.113	0.606	0.604	0.547	0.870	0.198

2. Multivariate normality

Next, for the multivariate normal distribution test, variants of Mardia's (1970) coefficients of multivariate kurtosis (the multivariate statistics reported by EQS) were examined. Mardia's coefficient (G2, P) was 282.21 and the normalized estimate was 66.62 since the observed sample was distributed in large samples from a multivariate normal population as a normal variate so that large positive values indicated significance (pp. 145 Hoyle; Bentler [1995, manual]). Romeu and Ozturk (1993) published empirical critical values (values above which the population would fail to meet the assumption of multivariate normality) for Mardia's coefficients. According to them, for the sample size with over 200, 2.58 was considered a critical value. Therefore, our obtained normalized estimate for Mardia's coefficient (66.62) would indicate substantial non-normality of the data. In other words, the normal distribution assumption seems to be violated according to Romeu and Ozturk's(1993) criteria.[8] Thus, the scaled χ^2 (Satorra and Bentler, 1988), a robust test statistic in EQS, was used to treat this problem.

Results of Confirmatory Factor Analysis Measurement Model Test (CFA)

EQS software version 5.7b (Bentler, 1998) was used with raw data as input to test the measurement model using CFA prior to assessing the full structural relationships.

Measure Purification

Since no prior testing of the operational constructs used in the model has been done, a series of steps was taken to ensure unidimensionality of the multiple-item constructs and

improve reliability and validity. Table 7 shows the number of initial items (or indicators) for each construct. The original questionnaire had 57-items and 8 construct measures.

Table 7

Initial Number of Indicators for Constructs

Constructs	Number of Indicators
Cognitive Empathy	7
Affective Empathy	9
Cognitive Information Exchange	13
Perception of Physician Expertise	6
Interpersonal Trust	6
Partnership	10
Patient Compliance	2
Patient Satisfaction	4

Next, based upon the assessments of the results of largest standardized residuals and a multivariate LaGrange Multiplier test (see Bentler's EQS [1995] manual for more details), I purified unreliable items that had cross-loadings on multiple constructs or had low coefficient loadings (<. 50) on its factor.

The residual covariance matrix is the difference between sample covariance and covariance implied by the model. Large values in the residual covariance matrix indicate probable inadequacy in the structural model. However, due to its difficulty in interpretation, a standardization is performed on the residual covariance matrix so that problems with a model would be more easily identified than in the residual covariance matrix (Bentler, 1995). The elements from the Standardized Residual Matrix are ordered

[8] According to Romeu and Ozturk (1993), Marida's coefficient values over 2.58 might indicate the violation of the normal distribution assumption with the sample size of larger than 200.

from large to small in absolute value, and EQS provides the largest twenty of these along with a designation of which pairs of variables are involved. Large standardized residuals tend to be more influential in lack of model fit (Bentler, 1995).

Following Calantone's suggestion, for purification, we considered standardized residuals greater than 2.0 to indicate poor model fit. Out of over 1,500 residuals, only three were greater than 2.0 in the initial run. Those variables associated with these larger residuals were eliminated for better model fit.

Second, the LaGrange Multiplier (LM) test was used in the process of removing unreliable items. The LM test indicates the values of including more free parameters to improve the model fit. It does so by relying on the differences in chi-square test; comparing the nested hypothesized model M_n to one with more free parameters, say M_k. It indicates the expected decrease in the overall chi-square value when a presently fixed parameter (or set of parameters) is freed in a subsequent analysis. When there is a large decrease in chi-square by freeing the relationship between two variables (latent or observed), this shows a significant relationship between those variables. However, if there is an empirically strong relationship between a factor and an indicator (for example, F3[a latent factor] and V13 [an indicator]) but, theoretically there is no relationship between them, we consider removing the indicator, V13. Thus, the LM is often used for removing unreliable indicators.

By examining both largest residuals and LM test results, I reduced the indicators from 57 to 33 items with 8 constructs as shown in Table 8, which reveals the number of the final indicators for each construct.

Table 8

Final Number of Indicators for Constructs

Constructs	Items eliminated (# refers to initial instrument)	Final Number of Indicators
Cognitive Empathy	1, 2, 4, 5	3
Affective Empathy	5, 8	7
Cognitive Information Exchange	1, 2, 3, 6, 7, 8, 12, 13	5
Perception of Physician Expertise	4, 5, 6	3
Interpersonal Trust	1, 2	4
Partnership	2, 3, 4, 6, 7	5
Patient Compliance		2
Patient Satisfaction		4

In addition, EQS identifies five cases (multivariate outliers) that significantly contributed to multivariate kurtosis. The program automatically prints out the five cases with the largest contribution most to Mardia's multivariate kurtosis coefficient. An outlier is identified based on the estimate for one case presented for one case relative to those for the other four cases. However, no absolute value on which to make this judgement has been established. Thus, none of the five cases could be actually an outlier. (Hoyle 1995). In order to determine whether a case with largest contribution to kurtosis created a problem for the analysis, the job is resubmitted with the case with the largest contribution removed. I ran the same procedure until case contributions are similar in size which means no indication of another outlier (p. 122, EQS manual). In the process, seven items were removed.

After purifying questionnaire items that loaded on multiple constructs or had low

factor loadings, the χ^2 statistic CFI[9] and RMSEA[10] were used to assess the degree of fits of the CFA to the data. First, the results easily met the preliminary fit criteria suggested by Bagozzi and Yi (1988), showing the absence of negative error variances as well as correlations greater than one. The model converged very rapidly (6 iterations) and I had no problem estimating the model parameters. As shown in Table 9, the chi-square test was significant, therefore unsatisfactory. However, since the χ^2 statistic has been known to be sensitive to variations of sample size, other fit indexes should be examined other than the chi-square statistics to ensure the best assessment of model fit (Fan, etc., 1999; Bentler 1990; Bagozzi and Yi, 1988). As Table 9 shows, both CFI and CFI-Robust were well above .90 which indicates an acceptable model fit to the data. RMSEA was .043, which indicates a very good fit since values less than .05 shows a very good fit according to Steinger (1989). As a result, the model appears to fit the data well.

Table 9

Goodness of Fit Results for CFA

Chi-square	910.986
d.f.	467
p <	0.001
Scaled Chi-square	733.293
p <	0.000
CFI	.948
CFI-Robust	.957
RMSEA	0.043
90% confidence interval	(0.039, 0.047)

[9] Incremental fit index CFI (comparative fit index) is algebraically defined as
CFI = 1 – max[(T_T - df_T), 0]/max[(T_T - df_T), (T_B - df_B), 0]
Where T_B = T statistic for the baseline model; T_T = T statistic for the target model; df_B = degrees of freedom for the baseline model; df_T = degrees of freedom for the target model (Bentler, 1989, 1990).

[10] Absolute fit index RMSEA (root-mean-square error of approximation) is algebraically defined as
RMSEA = $\sqrt{F_0/df_T}$, where F_0 = max[T_T - df_T)/(N – 1), 0] (Hub, Bentler, and Steiger, 1998).

Reliability and Validity

According to Anderson and Gerbing (1982), the researcher must ensure that all constructs are unidimensional and reliable prior to assessing the full structural relationships among them. In other words, the measurement model should show a satisfactory level of reliability and validity.

Reliability was estimated using Cronbach's alpha. As shown in Table 10, the coefficients for all the scales were well above .60, indicating the usefulness of the scale (Nannally, 1978). Some might argue that having only two items for patient compliance causes a low reliability problem. The formula for the standardized α,

$\alpha = k\bar{r}/1 + (k-1)\bar{r}$: k = number of items, $\bar{r}$ = average correlation

Therefore, while holding $\bar{r}$ constant, more items lead to higher α. However, it is not so simple. It is also true that a) two items can have high α if their r is high and that b) adding additional items which result in a lower $\bar{r}$ can reduce reliability.

To determine convergent validity (whether each indicator's loading on its prespecified construct factor is significant [Anderson, and Gerbing, 1988]), each indicator's coefficient on its prespecified construct factors was examined and they all were significantly different from zero. All standardized factor loadings were above .60, as shown in Table 10. Thus, convergent validity was satisfactory.

To achieve discriminant validity (whether measures of distinct constructs perfectly correlate or not), first, a chi-square difference test was conducted on the values obtained for the constrained models (with correlations between constructs or latent variables fixed at 1.0) and the unconstrained models using two constructs whose

correlation is estimated (Joreskog, 1971). Each chi-square test examines a null hypothesis that the two constructs are perfectly correlated. If the null hypothesis is rejected, it means that the constructs are not perfectly correlated. As Table 11 shows, all of each pair of the chi-square tests yielded significant $\chi_{d\,(1)}^2$ values which are significant at $p < 0.05$. This shows that all construct measures are distinctly developed, measuring different concepts. Thus, even though some of constructs are highly correlated, the structural model is capable of separating out their effects on other variables.

Table 10

Test Results of Measurement Model (CFA)

Constructs/ Items	Standardized Parameter	Reliabilities (α)
Cognitive Empathy (F1)		.68
CE1	.600	
CE2	.662	
CE3	.693	
Affective Empathy (F2)		.87
AE1	.707	
AE2	.700	
AE3	.675	
AE4	.719	
AE5	.694	
AE6	.746	
AE7	.748	
Cognitive Information Exchange (F2)		.80
CIE1	.608	
CIE2	.770	
CIE3	.713	
CIE4	.647	
CIE5	.604	
Perception of Physician Expertise (F4)		.70
PPE1	.614	
PPE2	.690	
PPE3	.762	
Interpersonal Trust (F5)		.79
IT1	.663	
IT2	.727	
IT3	.765	
IT4	.709	
Partnership (F6)		.79
PRTN1	.646	
PRTN2	.715	
PRTN3	.644	
PRTN4	.706	
PRTN5	.626	
Patient Compliance (F7)		.78
PC1	.910	
PC2	.705	
Patient Satisfaction (F8)		.87
PS1	.852	
PS2	.805	
PS3	.806	
PS4	.752	

*All standardized coefficients were significant at $\alpha = 0.05$

*A item number refers to Appendix II.

Table 11

Test of Discriminant Validity: $\chi_{d(1)}^2$ test between the constrained and unconstrained models

Constructs	CE	AE	CIE	PPE	IT	PRNT	PC
CE							
AE	35.85						
CIE	27.64	59.87					
PPE	49.57	78.79	66.26				
IT	61.91	128.77	98.18	49.90			
PRNT	38.48	42.13	20.28	47.05	129.59		
PC	193.72	206.79	192.90	147.27	172.42	167.08	
PS	58.90	157.36	99.34	21.39	106.73	51.01	176.75

* All $\chi_{d(1)}^2$ were significant at α level of .05. Each test had one degree of freedom.

Next according to Anderson and Gerbing's (1988) recommendations, a complementary assessment of discriminant validity was also done by examining whether the confident interval around the correlation estimate between the two factors includes 1.0. As Table 12 shows, none of them included 1.0. That is, they were not perfectly correlated indicating the distinctiveness of each measure. As results, the discriminant validity was achieved. For example, the largest correlation was .911 (see Table12). If we transform it (Fisher's r) to T(r), T(.911) is 1.533. The upper confidence limit for T(p) is 1.574 which is computed by adding 1.96 standard errors (standard error = .021) to 1.533. Then, if we take the reverse transformation of 1.574, we find the upper confidence limit of ρ (the population correlation) to be .918. Therefore, the confidence internal does not include 1.0.

Table 12
Correlation / Discriminant Validity Measurement: correlation among constructs

Construct	(1)	(2)	(3)	(4)	(5)	(6)	(7)
(1) Cognitive Empathy	1.0						
(2) Affective Empathy	.891 (.026)	1.0					
(3) Cognitive Inf. Exchange	.820 (.033)	.866 (.021)	1.0				
(4) Perception of Physicians Expertise	.710 (.043)	.756 (.031)	.742 (.034)	1.0			
(5) Interpersonal Trust	.698 (.039)	.750 (.028)	.744 (.031)	.774 (.033)	1.0		
(6) Partnership	.770 (.036)	.895 (.019)	.911 (.021)	.779 (.033)	.679 (035)	1.0	
(7) Patient Compliance	.266 (.055)	.300 (.048)	.246 (.051)	.402 (.051)	.377 (.049)	.362 (.049)	1.0
(8) Patient Satisfaction	.740 (.034)	.809 (.022)	.813 (.024)	.882 (.023)	.786 (.026)	.867 (.021)	.381 (.047)

* Values in parenthesis are standard errors.

Results of Full Structural Model Test

Since convergent and discriminant validity were achieved in the measurement model, the test of full structural model proceeded. The model's overall goodness of fit to the sample data was assessed by using the χ^2 test statistic, CFI, CFI-Robust, and RMSEA measures. As Table 13 shows, examination of overall fit statistics showed acceptable fit of the model to the data. The χ^2 test statistic (chi-squared of 1066.992, 481 df, $p< 0.001$)

Table 13

Goodness of Fit Results for Full Structural Model

Chi-square	1066.992
d.f.	481
p <	0.001
Scaled Chi-square	857.0709
p <	0.000
CFI	.931
CFI-Robust	.940
RMSEA	0.049
90% confidence interval	(0.045, 0.053)

was not satisfactory, but as previously pointed out, the χ^2 test statistic was known to be sensitive to the sample size. Therefore, the best assessment should be based on other fit indexes rather than the χ^2 test statistic alone. CFI and CFI-Robust were well above .90 and RMSEA was 0.049. Thus, overall, fit indexes indicated the model had adequacy and satisfactory fit. Next, each structural path and t-values were examined to test the hypotheses.

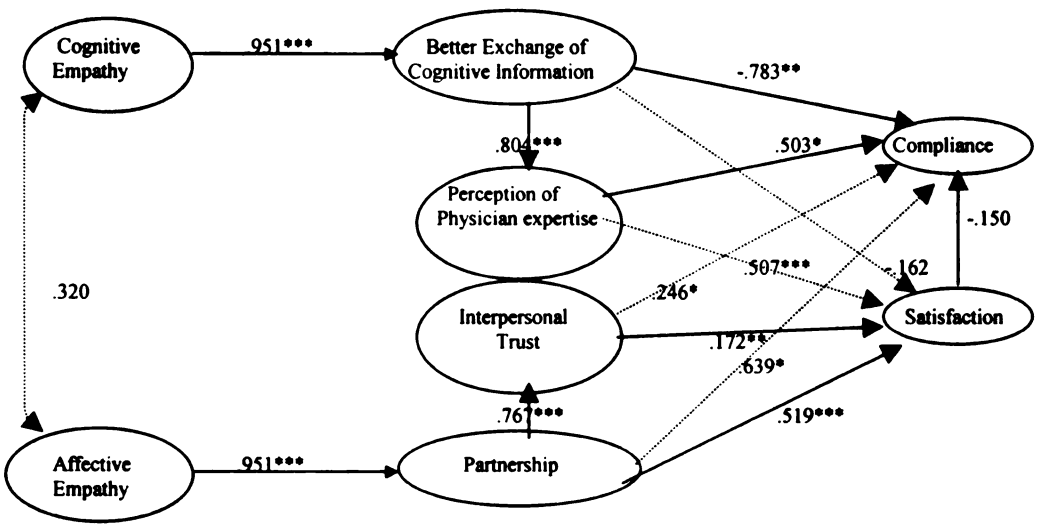
Hypotheses Test

The empathy model was developed on theoretical grounds and previous empirical findings. It contains several hypotheses. They were tested by estimating the full structural model as shown in Figure 4. Figure 4 reveals the key parameter values for testing hypotheses in the full structural equation model.

Table 14 shows the summary of the results of hypothesis test. The following discussion was based on these results.

Figure 4

Full Model SEM Results



* = p <.05, ** = p < .001, and *** = p < .001.

Hypothesis 1a: *The cognitive component of physician empathy leads to better exchange of cognitive information.*

Hypothesis 1b: *The affective aspect of physician empathy leads to partnership.*

Hypothesis 1a predicted that the cognitive component (CE) of physician empathy leads to better exchange of cognitive information (CIE). The effect of CE on CIE was positive and significant (path coefficient CE→CIE =.951, t=10.262, p<0.001). The strong relationship between CE and CIE showed that CE is a very good predictor of CIE. Thus, the result supported the hypothesis 1a. The effect of the physician's affective empathy (AE) had a significant positive impact on partnership (PRTN) (path coefficient AE→PRTN= .951, t=12.192. p<0.001). Physicians who are more affectively empathic are more partnership-oriented. Thus, hypothesis 1b was also supported.

Table 14
Results of Hypotheses Test

Hypothesis	Standardized Parameter Estimate	t-values	Conclusion
H1a: The cognitive component of physician empathy leads to better exchange of cognitive information.	.951 (CE→CIE)	10.262***	H1a supported
H1b: The affective aspect of physician empathy leads to partnership.	.951 (AE→Prtn)	12.192***	H1b supported
H2a: Cognitive exchange of information leads to increased perception of physician expertise.	.804 (CIE→PPE)	8.525***	H2a supported
H2b: Partnership leads to increased interpersonal trust.	.767 (Prtn→IT)	9.930***	H2b supported
H3a: Cognitive information exchange of has a greater effect on patient's compliance than does partnership.	-.783 (CIE→PC) .639 (Prtn→PC)	-2.712** 2.034*	H3a not supported
H3b: Partnership has a greater effect on patient's satisfaction than does cognitive information exchange.	.519 (Prtn→PS) -.162 (CIE→PS)	4.136*** -1.186	H3b supported
H4a: Perception of physician expertise has a greater effect on patient's compliance than on satisfaction.	.503 (PPE→PC) .507 (PPE→PS)	2.011* 5.351***	H4a not supported
H4b: Interpersonal trust has a greater effect on patient's satisfaction than on compliance.	.172 (IT→PS) .246 (IT→PC)	2.854** 2.124*	H4b not supported
H5: Patient's satisfaction will have a positive influence on their compliance.	-.150 (PS→PC)	-.565	H5 not supported

* = p <.05, ** = p < .001, and *** = p < .001.

Hypothesis 2a: Better exchange of cognitive information leads to increased perception of physician expertise.

Hypothesis 2b: Partnership leads to increased interpersonal trust.

The results indicated that cognitive information exchange (CIE) strongly influenced the perception of physician expertise (PPE) (path coefficient CIE→PPE = .804, t=8.525, p<0.001). Partnership (Prtn) also had a strong effect on interpersonal trust (IT) (Prtn→IT=. 767, t=9.930, p< 0.001). CIE and Prtn are strong predictors of PPE and IT respectively. Thus, both hypotheses were supported.

Hypothesis 3a: Better exchange of cognitive information has a greater effect on patient's compliance than does partnership.

Hypothesis 3b: Partnership has a greater effect on patient's satisfaction than does cognitive information exchange.

The results revealed that cognitive information exchange (CIE) had a greater effect on the patient's compliance (PC) than does partnership (Prtn) (CIE→PC=-. 783, t=-2.712, p<0.05; Prtn→PC=.639, t=2.034, p<0.05). However, contrary to the predicted positive effect of CIE on PC, CIE had a strong negative impact on PC. Thus, the hypothesis 3a was not supported. On the other hand, Prtn showed a greater positive effect on the patient's satisfaction (PS) than does CIE (Prtn→PS=. 519, t=4.135, p< 0.001; CIE→PS=-. 162, p> 0.05).

Confidence intervals for the two coefficients (Prtn→PS and CIE→PS) were computed to see if they are significantly different from each other. The confidence intervals of these coefficients did not overlap each other (.196 = lower point of confidence interval for Prtn→PS, .148 = upper point of confidence interval for CIE→PS). The two coefficients were significantly different from each other. In conclusion, Prtn strongly influenced PS. H3b was supported.

Hypothesis 4a: Perception of physician expertise has a greater effect on patient's compliance than on satisfaction.

Hypothesis 4b: Interpersonal trust has a greater effect on patient's satisfaction than on compliance.

Contrary to the hypothesis (4a), the results showed that the patient's perception of physician expertise (PPE) had almost the same effects on both PC and PS (the coefficients from PPE→PC = .503; PPE→PS = .507). The results (4b) also revealed that although the influence of IT on both PS and PC was relatively meager and not substantially different, interpersonal trust (IT) had a little more influence on PC than on PS (IT→PS = .172; IT→PC = .246). Thus, the hypothesis H4b was not supported.

Hypothesis 5: Patient's satisfaction will have a positive influence on their compliance.

Contrary to the hypothesis, the results indicated that the patient's satisfaction (PS) did not have any significant influence on the patient's compliance (PC)(PS→PC = -. 150, t =-. 565, $p > 0.05$). PS was not a good predictor of PC. Thus, the hypothesis was not supported.

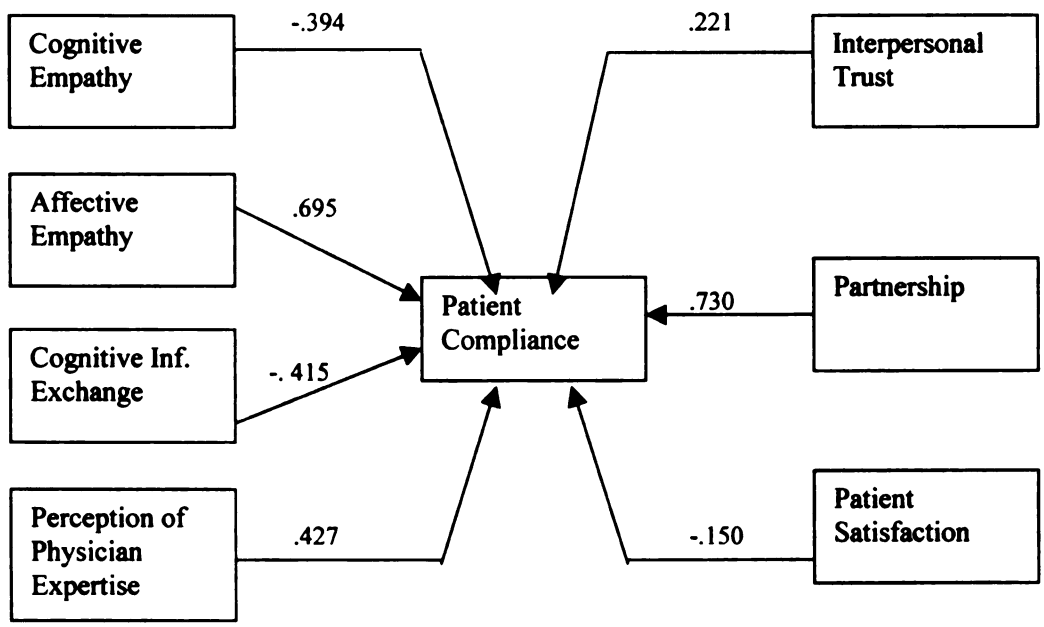
Total Effects

However, we should be cautious about using only the direct effect of a variable for the above interpretations. It may be misleading because it is calculated while controlling for all the variables that affect a given endogenous variable. "That is, the

variables that mediate the effect of a causal variable on an endogenous variable are also controlled when the direct effect of the former on the latter is calculated."[11]

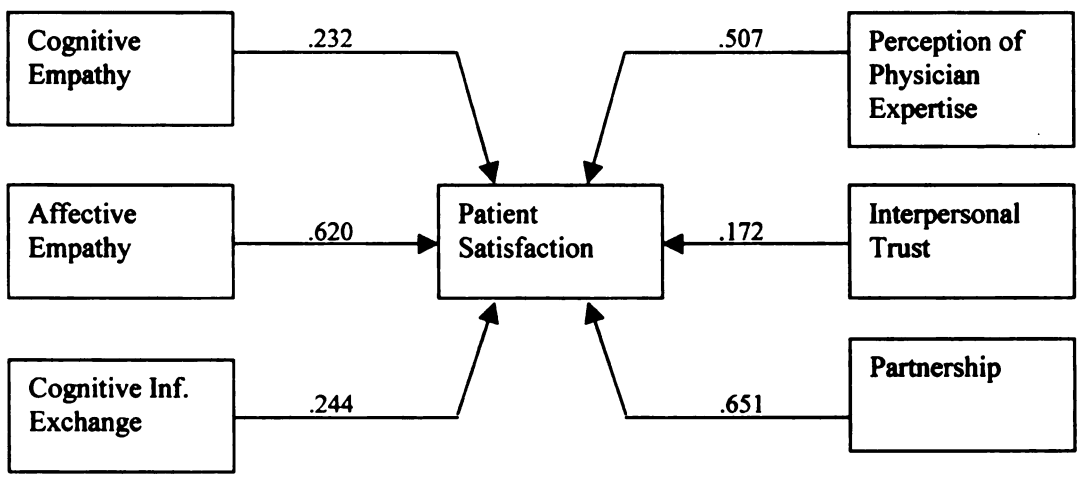
Figure 5

Total Effects on Patient Compliance



[11] Pedhazur, Elazar J. 1982. Multiple regression in behavioral research (2nd edition): p.604.

Figure 6 Total Effects on Patient Satisfaction



Thus, considering the total effect (= indirect effect + direct effect) of each latent variable on PC and PS is more appropriate when we try to discern the order of the importance of each predictor on PC and PS. Figure 5 and 6 above show the total effect of each latent variable on PC and PS. Table 15 and 16 below show the order of the importance of these predictors on patient compliance and satisfaction.

First, for patient compliance (PC), partnership (Prtn) has the strongest effect on PC, followed by affective empathy (AE), physician expertise (PPE), cognitive information exchange (CIE), cognitive empathy (CE) and interpersonal trust (IT). Both perception of physician expertise (PPE) and cognitive information exchange (CIE) indicated a similarly moderate effect on PC while cognitive empathy (CE) and interpersonal trust (IT) showed a small effect on PC. Contrary to my expectations, CE and CIE had moderate negative total effects on PC. Although CIE had a moderate

negative total effect, it also had a positive indirect effect (.368) on PC via perception of physician expertise.

Table 15

The Order of the Importance of Predictors on Compliance: total effects

Order	Predictor	Total Effect
1	Partnership	.730
2	Affective Empathy	.695
3	Perception of Physician Expertise	.427
4	Cognitive Information Exchange	-.415
5	Cognitive Empathy	-.394
6	Interpersonal Trust	.221

Table 16

The Order of the Importance of Predictors on Satisfaction: total effects

Order	Predictors	Total Effects
1	Partnership	.651
2	Affective Empathy	.620
3	Perception of Physician Expertise	.507
4	Cognitive Information Exchange	.244
5	Cognitive Empathy	.232
6	Interpersonal Trust	.172

Second, for patient satisfaction (PS), like patient compliance (PC), partnership (Prtn) was again the most important predictor of PS, followed by affective empathy (AE), perception of physician expertise (PPE), cognitive information exchange, cognitive empathy (CE), and interpersonal trust (IT). While Prtn, AE, and PPE showed a strong

positive total effect on PS, other factors (CIE, CE, and IT) had a small total influence on PS.

Chapter V

SUMMARY, DISCUSSION AND IMPLICATIONS

Summary

The effects of Korean physician empathy on patient outcomes have been understudied until now. This study attempted to shed light on the communication processes between physicians and patients in Korea. The main purpose of this study was to propose and evaluate a new empathy model with a dualistic view (cognitive and affective empathy). The empathy model showed how each empathy component was specifically related to patient outcomes (satisfaction and compliance). The model was developed loosely based on Squier's empathic understanding model. This study also developed and tested a new empathy measure, which taps two aspects of physician empathy (cognitive and affective).

The premise tested here was that the patient's interpretation or impression of the physician's level of empathy during a medical encounter is a key factor in determining patient outcomes. Empathy underlies this impression made upon the patient.

The findings of this study were based on the data collected in a university hospital in Korea, 1999. Five hundred fifty (550) outpatients were participated in this survey. I chose this site because the patients represent a wide variety of illnesses, doctor-patient relationships, and types and lengths of medical examination.

Hypotheses were carefully developed based on theoretical and previous empirical studies. Due to the lack of existing measures for the constructs for this study, prior to the testing of the full structural model, new scales were developed and examined for their reliability and validity. Coefficient alpha was used to examine the reliability of each

measure. All of the measures had an acceptable level of coefficient alpha (> .60). Convergent validity was assessed from the measurement model by determining whether each indicator's factor loadings on its prespecified construct factor was significant and of satisfactory size via confirmatory factor analysis (CFA). All standardized factor loadings were above .60. Discriminant validity was examined by a chi-square difference test on the values obtained for the constrained and unconstrained models. All possible pairs of the constructs were tested for discriminant validity. All the chi-square difference tests showed significantly lower χ^2 value for the model in which the trait correlations are not constrained to unity. A complementary assessment of discriminant validity was also done by examining whether the confidence interval around the correlation estimate between the two factors includes 1.0. The results showed that none of them included 1.0. As results, convergent and discriminant validities were achieved.

After convergent and discriminant validity were achieved, the overall goodness of fit to the observed data was tested by using fit indexes (e.g., the χ^2 test statistic, CFI, CFI-Robust, and RMSEA measures). Examination of overall fit statistics showed acceptable fit of the model to the data. Hypothesis tests proceeded. They were tested by estimating the key parameter values and their significance in the full structural equation model.

Discussion of Major Findings

The major purpose of this study was to examine how each empathy component was specifically related to patient outcomes (satisfaction and compliance) through critical mediating variables.

Cognitive empathy was found to have a strong positive effect on cognitive information exchange. Physicians who were able to accurately discern the mental state of the patients and communicate effectively this perspective back to the patients were the ones who more effectively exchanged cognitive information between themselves and patients. Physicians with high cognitive empathy tended to not only provide more information to the patients but also stimulate the patients to more accurately report their symptoms as well as medically relevant experiences.

The affective component of physicians' empathy was a strong predictor of partnership. Physicians who had greater affective empathy were more likely to display willingness to work jointly with a patient to promote his or her well being. Thus, for Korean patients, the physician's affective empathy was a key factor in building partnership between physicians and patients.

Cognitive information exchange was strongly associated with the patient's perception of the physician's expertise. Patients appeared to have formed their perception of physician expertise based on the cognitive information exchange domain. The physicians' technical behaviors (e.g., sufficient information giving, physicians' thoroughness) as well as their strong efforts to discern patients' medical problems were determinants of patients' perception of physician expertise.

On the other hand, the patients' interpersonal trust (emotional) was strongly positively influenced by partnership. This confirms the previous findings of Stile et al. (1979). Because there is a gap between physicians and patients regarding knowledge and power, patients' emotional trust in physicians may be a more critical concern of the patient. The partnership practiced by physicians may have provided an important tool to

the patients to assess whether their physicians could be trusted emotionally. Patients may need perception of physician expertise or confidence in their physicians' technical performance, but they may also need interpersonal trust in their physicians. Therefore, for Korean patients, trust may consist of two distinct components (perception of physician expertise [PPE] and interpersonal trust [IT]). The results showed that the distinctly different predictors (cognitive information exchange and partnership) strongly influenced PPE and IT respectively.

Partnership had a strong direct effect on satisfaction while cognitive information exchange had insignificant influence on patient satisfaction. This is consistent with many previous studies (Hall, Roter, and Katz, 1988; Bensing 1991; Buller and Buller, 1987; Quine and Rutter, 1994). The results showed that the highly partnership-oriented physicians tended to have more satisfied patients.

Perception of physician expertise (PPE) was strongly positively associated with both patient compliance (PC) and with patient satisfaction (PS). The effect size (direct) of PPE on both PC and PS were almost the same magnitude. This partially supported the hypothesis that PPC would have effects on both PC and PS, but it was inconsistent with the initial prediction that PPE would have more effect on PC than on PS. Although no studies examined the direct linkage between PPC and PC, the prediction was based on the implication of the previous studies (DiMatteo, 1994). It was hypothesized that if patients trust their physicians as reliable medical experts, they would be more likely to believe in their physicians' recommendations and comply with them. Furthermore, as previously pointed out, compared to patient compliance, patient satisfaction has been shown to be more associated with affective and partner-like behaviors of physicians than task-oriented

behaviors (physician expertise). However, the results showed perception of physician expertise (PPE) as equally good predictors of both patient compliance and patient satisfaction. Physicians with a high rating of expertise by Korean patients tended to have more compliant and satisfied patients.

The finding that interpersonal trust had a weaker influence on patient satisfaction (PS) than on patient compliance (PC) ran counter to the prediction that it would have more influence on patient satisfaction. The direct effect size of interpersonal trust on both PS and PC was found to be relatively small, compared to that of PPE on PC and PS. One possible explanation for this might be related to the measure of interpersonal trust (IT). Some of the measurement items for IT may have been outside the reality of the Korean patients. For instance, one of the items was 'I feel I can call him or her if something goes wrong and I need him or her'. Since a family physician system has been rarely instituted in Korea, most of the patients may never have internally developed the idea of 'my doctor or my physician'. Thus, it is not very common for the patients to call a specific doctor even in the case of an emergency. They would simply go to the hospital in that situation. Thus, for Korean patients, some items for the interpersonal trust as defined for this study may not be very meaningful.

A significant influence of patient satisfaction (PS) on patient compliance (PC) was not found. Although this finding was inconsistent with many of the previous studies in U.S. (Haynes, 1976; Segall et. al, 1980; Ley, 1986; Becker et. al., 1975; Weisman, C. S. and Nathanson C. A., 1985; Linn M. W. et. al., 1982; Barlett, E. E. et. al., 1984; Korsch, B. M. et. al., 1968; Hulka, B. S. et. al., 1976), it is consistent with one study arguing that patient satisfaction with their medical visit was not necessarily a good

predictor of patient compliance (Speedling & Rose, 1985). Lastly, the large negative direct effect of cognitive information exchange (CIE) on compliance (PC) was a very unexpected finding. CIE was indeed found to have greater direct influence on PC than did partnership (Prtn) in absolute value. But I expected CIE to have a positive effect on PC, not a negative effect. The result was inconsistent with the previous study that when the doctor offers more information, the patient is more likely to be compliant (Hall, Roter, & Katz, 1988).

Some possible explanations might be found in the Korean cultural context. First, it may have to do with Korean patients' expectation about the physician-patient relationship. As previously discussed, the traditional Korean value pattern is a collectivistic and authoritarian one, emphasizing deference to the traditional symbols and holders of authority (Lee, 1993). The ideas that the holders of authority-doctors, teachers, scholars, and government officials-should deserve authority and that people should not question their authority, are still widely embedded in the public mind. Physicians as authority figures in Korea enjoy quite a lot of both autonomy in their expertise and authority over the patients. Therefore, for Korean patients, it may be very typical to expect a paternalistic physician-patient relationship (passive patients and dominant physicians) in their medical encounters.

Furthermore, as Freidson (1970) pointed out, the physician-patient relationship is inevitably asymmetric because physicians possess what patients do not have, the professional medical expertise, and patients need that expertise for their health problems. This gap between physicians and patients along with the Korean patients' expectation of paternalistic physician-patient relationship may heighten physician-dominant behaviors.

Thus, for Korean patients, it may be part of their social norms to accept the power and authority of physicians.

Like American patients, Korean patients may have a great desire for information and explanation about their medical conditions. However, because of the culture and the asymmetric power in medical encounters, Korean patients may not often expect to receive a lot of information and explanations from physicians. At the same the patient does not expect the physicians to create conditions which stimulate to fully report their current medical problems. In other words, the institutionalized passive patient roles may have prevented Korean patients from actively getting information from their doctors and criticizing physicians for not providing that information.

On the other hand, the Korean physicians, because of the social norms assigned to them (dominant roles), might have been trying to maintain their expected authority and dominance in the physician-patient relationship by limiting the flow of information to patients.

Consequently, as the Korean patients encounter physicians who behave otherwise, they may begin to question the physicians' authority. As Street (1987) pointed out, highly expressive physician behaviors might connote insincerity. To Korean patients, this might violate their expectations about the physicians. The patients may think that the physicians are uncertain about the nature of the illnesses and therefore trying to cover up their uncertainty by giving too much medical information, most of which is not understood by the patients anyway. Subsequently the patients might be less likely to believe in and comply with their medical recommendations because the physician's behavior did not fit the typical image of physicians in the hierarchical authority structure of the Korean

medical settings.

However, as previously pointed out, we should be cautious about using only the direct effect of a variable for the above interpretations. It may be misleading because it is calculated while controlling for all the variables that affect a given endogenous variable.

The total effects of each variable on PC and PS were examined to discern the order of the importance of each predictor on PC and PS in the previous section. For both patient compliance (PC) and patient satisfaction (PS), partnership has the strongest effect, followed by affective empathy (AE), physician expertise (PPE), cognitive information exchange (CIE), cognitive empathy (CE) and interpersonal trust (IT). Contrary to my expectations, CE and CIE had moderate negative total effects on PC. While Prtn, AE, and PPE showed a strong positive total effect on PS, other factors (CIE, CE, and IT) had a small total influence on PS.

In sum, the results of this study showed that the physician's empathic communication skills significantly influenced patient satisfaction and patient compliance via the mediating factors such as partnership and perception of physician expertise. However, the findings that cognitive empathy and cognitive information exchange had some negative effects on patient compliance were contrary to the hypotheses. As previously discussed, I attempted to find some explanation for this in the Korean cultural context (social norms or roles in an authoritarian culture). Above all, for Korean patients, emotional aspects of the physicians' communicative behaviors played the most important roles in their compliance and satisfaction (e.g., partnership and affective empathy). Unexpectedly, perception of physician expertise was one of the best predictors of both

patient satisfaction and compliance, although Korean patients were more concerned with their physicians' affective aspects of communicative skills.

Interestingly, the fact that partnership was the most significant factor that influenced both patient compliance and satisfaction may reflect Korean patients' strong yearning for an egalitarian relationship with their physicians in the current hierarchical authority structure of the medical consultation processes in Korea.

Implications for Practitioners and Educators

The findings of this study have several implications for both physicians and medical educators in Korea. The findings revealed that the patients' perception of the physician' empathy was indeed a key to patient outcomes. Each component of physician empathy (cognitive and affective) was significantly associated with patient outcomes via such mediating factors as partnership and perception of physician expertise, although cognitive empathy had an unexpected negative effect on patient compliance. In general, physicians' emotional aspects of communicative behaviors significantly affected Korean patients' satisfaction (PS) and compliance (PC). In order to improve patient outcomes, Korean physicians and medical educators should first identify the weak areas of communication for each individual physician. Special attention should be given to those areas. For example, physicians with low affective empathy or with low partnership should reexamine whether their communication style is too dominant. Above all, they first honestly ask themselves if they feel superior to their patients. The long established ideology of this kind might have been so imbedded in the Korean physicians' mind that they might have taken it for granted. If the answer is 'yes', they should start to educate

and shift themselves toward a more equal and mutual doctor-patient relationship and more compassionate concerns for their patients' well-being.

Since it may be very difficult for the established physicians to adjust to the new kind of egalitarian doctor-patient relationship, it is more reasonable to start to expose medical students to the egalitarian doctor-patient concept as well as empathic communication skills in the early medical school training. Specifically, for medical educators, the finding that emotional aspects of physicians' communicative skills (affective empathy and partnership) were the most important factors in patient satisfaction and compliance suggests that those interpersonal communication skills should be incorporated in their medical curriculum. And special emphasis should be put on teaching empathic communicative skills to medical students.

Regarding patient compliance, the established physicians may argue that they do not have enough time for empathy and may not see the immediate benefits from being empathic. However, as the findings of this study showed, the physicians' partnership and affective empathy were strongly associated with patient compliance. This suggests that physicians with highly empathic communicative skills are more likely to make patients obey their medical recommendations, which could result in saving much time and expense for both sides.

In sum, every physician and medical student in Korea should learn to improve the effective use of empathy because as Donald Light (1979) points out, too much emphasis on clinical judgments and techniques might cause physicians to become insensitive to complexities in diagnosis, treatment, and relations with patients. This can result in errors and malpractice suits. Moreover, given the rapid growth of health care expenditures, the

proliferation and duplication of medical technology, the lack of access for low-income groups, and the low quality care (Bong-Min Yan, 1996; Youngsoo Shin, 1995), the effective use of empathic communicative skills may be one of the best alternatives to improving patient outcomes without increasing medical costs that are often caused by frequently switching doctors, patient non-compliance, and malpractice suits. Empathy will help physicians make patients more satisfied and more compliant. Consequently, patients have better chances for recovery with proper treatment. In addition, as one of management strategies, hospitals in Korea should adopt a program to enhance their physicians' empathic skills. Hospitals that have more empathic physicians have an advantage over hospitals that have fewer empathic physicians because they are more satisfying to patients.

Limitation and Future Research

There are several limitations to this study. First, the measure of compliance did not include an item about the difficulty of following the medical regimen. For example, one study showed that patients showed low compliance rates with the treatment regimens that were very complex, time consuming, and demanded major behavior changes (Turk and Meichenbaum, 1989).

Other item questions addressing these issues should be added. For example, "How difficult was the medical regimen to follow?" "How many times did you have to take your medicine each day?" and "How long did you have to follow the treatment regimen?"

Second, question items in the interpersonal trust (IT) measure should be modified to be more culturally meaningful to Korean patients. For example, as previously explained, one of the items of IT, " I feel I can call him or her if something goes wrong and I need him or her", should be changed since it was later found that for Korean patients, the idea of calling a doctor personally appears to be relatively uncommon or even foreign to them. An item that is more closely related to the reality of Korean patients should be developed to tap the core of the interpersonal trust construct.

Third, this study was done solely on outpatients, not on inpatients, in a big hospital in Korea. Further research is needed to examine possible differences between inpatients and outpatients as well as between big hospital patients and small clinic patients.

Fourth, this study focuses only on physicians' abilities to be empathic and their effects on patient outcomes. However, each physician may have different levels of empathy. And these variations in physician empathy might be influenced not only just by the physicians' individual empathic abilities but also by patient's communication behaviors as well. For example, two important elements of patient's communication behaviors -- question-asking and negative affect expressing -- might be capable of influencing a physician's communication skills. The previous research shows physicians' dominant role in medical communication. For instance, Waitzkin (1984; 1985) found that physicians do not prefer patient-initiated questions and discourage them by interrupting and changing the topic. Thus, patients may appear to have little control over the content of communication with their physicians. However, like many other conversations, medical discourse in itself is a mutual interactant process between the

participants. According to a symbolic interactionist perspective, for an interaction to be successful, an actor in a social interaction does not arbitrarily define the situation and act upon it all by himself or herself. The actor is required to act in line with the other actor's response. Thus, in a medical discourse, when asked, physicians may feel obligated to give at least some information to patients. In support of this argument, several studies documented that physicians provided more information to patients who asked more questions (Street, 1991; 1992; Beisecker and Beisecker, 1990). Furthermore, given the fact that the idea of patients as health care customers is rapidly spreading among the general public, Korean patients might be more willing to show aggressive communication styles more than ever before. Therefore, future study should take this into consideration. patients' communication behaviors need to be considered in the future study for further investigation.

Fifth, although the comprehensive review of the US literature on the relationship between sociodemographic factors and patient's satisfaction with medical care shows conflicting results, the characteristics (sex, age, etc.) about both patients and physicians might be related to patient outcomes in Korea. This study did not include these factors in the empathy model. Future research is recommended to look into the possible link between these factors and patient outcomes.

Sixth, this study does not include a patient expectation about physician communication styles (for instance, expectation of authoritarian versus egalitarian styles). Some patients might prefer authoritarian physicians while others do not (Street, 1990). Korean patients might in general, have different expectations about physicians' communication styles from those in other countries. Even within Korea there may be

important variations in patients' expectations about physicians' communication styles. Future researchers should consider patients' expectation as another mediating factor in the model.

Lastly, one should be cautious about the interpretation and generalization of the results until the findings can be replicated in other countries. Future research might want to replicate this study in the US or other countries and compare them to see cross-cultural differences and similarities.

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APPENDIX I

Initial Empathy Survey Questionnaire

You are asked to fill out this survey on completely voluntary basis. This survey is completely anonymous. Nowhere on this form will an identify mark or number be placed. If you feel uncomfortable with completing the survey, you may simply stop it. You indicate your voluntary consent to participate by completing this questionnaire.

Background Information about Patients:

1. Your sex: ___ Male ___ Female
2. How old are you now? ___ Years
3. Have you finished ____ ?
   1) Elementary school 2) Middle school 3) High school
   4) Some college or associates' degree 5) Bachelor's degree 6) Graduate Degree
4. What is your family's income a month?
   1) below 50 manwon 2) 51-100 manwon 3) 101-150 manwon
   4)151-200 manwon 5) 201-250 manwon 6) above 251 manwon

Below is a list of thoughts and feelings people sometimes have about their doctors Each item is a statement with which you may agree or disagree. Beside each statement is a scale that ranges from strongly agree (1) to strongly disagree (5). For each item please circle the number that represents the extent to which you agree or disagree with the statement.

Please make sure that you answer every item and that you circle only one number per item. It is important that you respond according to what you actually believe and not according to how you feel you should believe or how you think we may want you to respond.

1 = Strongly disagree
2 = Disagree
3 = Neutral
4 = Agree
5 = Strongly agree

Cognitive Empathy

1. This doctor tries to see things through my eyes.	1	2	3	4	5
2. This doctor does not understand the way I feel.	1	2	3	4	5
3. This doctor nearly always knows exactly what I mean.	1	2	3	4	5

4.	At times he/she jumps to incorrect conclusions about my feelings.	1	2	3	4	5
5.	This doctor understands what my experiences feel like to me.	1	2	3	4	5
6.	When I am not clear, this doctor still understands me.	1	2	3	4	5
7.	This doctor is interested in knowing what my experiences mean to me.	1	2	3	4	5

Affective Empathy

1.	This doctor responds to me mechanically.	1	2	3	4	5
2.	This doctor tries to keep me from worrying.	1	2	3	4	5
3.	This doctor respects my feelings.	1	2	3	4	5
4.	This doctor shows caring about my psychological well-being.	1	2	3	4	5
5.	This doctor is able to remain calm even though I worry so much about my problems.	1	2	3	4	5
6.	This doctor cares about me.	1	2	3	4	5
7.	This doctor is interested in me.	1	2	3	4	5
8.	Sometimes this doctor is not at all comfortable with me.	1	2	3	4	5
9.	This doctor shows great concern for my well-being.	1	2	3	4	5

Cognitive Information Exchange

1.	This doctor clearly explained what my troubles are.	1	2	3	4	5
2.	This doctor told me exactly what he planned to do next.	1	2	3	4	5
3.	This doctor told me why certain tests would be done.	1	2	3	4	5
4.	This doctor clearly explained why I should do the things he	1	2	3	4	5

asked me to do.

5. This doctor does a good job of explaining things to me.	1	2	3	4	5
6. I understand what this doctor is telling me about my condition.	1	2	3	4	5
7. I understand what the doctor wants me to do.	1	2	3	4	5
8. It is sometimes hard to know what the doctor is telling me to do.	1	2	3	4	5
9. This doctor clearly explains my medical condition to me so that I understand it perfectly.	1	2	3	4	5
10. I have a feeling that I was able to accurately report current and past symptoms and medically relevant experiences.	1	2	3	4	5
11. The way this doctor talks stimulated me to fully report my current medical problems.	1	2	3	4	5
12. This doctor understands my medical problem very well.	1	2	3	4	5
13. This doctor tries to get thorough information about my physical condition.	1	2	3	4	5

Perception of Physician Expertise

1. If this doctor tell me something is so, then it must be true.	1	2	3	4	5
2. I sometimes distrust my doctor's opinion and would like a second one.	1	2	3	4	5
3. I trust my doctor's judgments about my medical care.	1	2	3	4	5
4. I feel my doctor does not do everything he/she should for my medical cares.	1	2	3	4	5
5. I trust my doctor to put my medical needs above all other considerations when treating my medical problems.	1	2	3	4	5
6. This doctor is a real expert in taking care of medical problems like mine.	1	2	3	4	5

Interpersonal trust

1. This doctor is usually considerate of my needs.	1	2	3	4	5
2. I doubt that this doctor really cares about me as a person.	1	2	3	4	5
3. I feel I can call him or her if something goes wrong and I need him or her.	1	2	3	4	5
4. I feel this doctor trusts me.	1	2	3	4	5
5. I have confidence that he/she is on my side.	1	2	3	4	5
6. I believe that this doctor is working in my best interest.	1	2	3	4	5

Partnership

1. This doctor often makes acknowledgment that he or she has heard the statement that I have just made.	1	2	3	4	5
2. This doctor treats me as an equal.	1	2	3	4	5
3. This doctor regards me as a disagreeable patient.	1	2	3	4	5
4. This doctor encourages me to ask questions.	1	2	3	4	5
5. This doctor answers my questions respectfully.	1	2	3	4	5
6. This doctor often agrees with my opinion.	1	2	3	4	5
7. This doctor encourages me to express my own feelings or concerns.	1	2	3	4	5
8. I feel comfortable asking this doctor questions about my illness.	1	2	3	4	5
9. This doctor was interested in hearing about my symptoms.	1	2	3	4	5
10. This doctor is very flexible, open to my suggestions or ideas.	1	2	3	4	5

Patient Compliance

1. I followed my doctor's suggestions exactly.	1	2	3	4	5
2. I exactly complied with this doctor's drug regimens	1	2	3	4	5

Patient Satisfaction

1. Overall, I am satisfied with this doctor.	1	2	3	4	5
2. I have confidence in this doctor.	1	2	3	4	5
3. Overall, I am discontented with this doctor.	1	2	3	4	5
4. Compared to the other doctors you have seen, this doctor is very good.	1	2	3	4	5

APPENDIX II

Final Set of variables Used For the Data Analysis

Cognitive Empathy

1. This doctor nearly always knows exactly what I mean.	1	2	3	4	5
2. When I am not clear, this doctor still understands me.	1	2	3	4	5
3. This doctor is interested in knowing what my experiences mean to me.	1	2	3	4	5

Affective Empathy

1. This doctor responds to me mechanically.	1	2	3	4	5
2. This doctor tries to keep me from worrying.	1	2	3	4	5
3. This doctor respects my feelings.	1	2	3	4	5
4. This doctor shows caring about my psychological well-being.	1	2	3	4	5
5. This doctor cares about me.	1	2	3	4	5
6. This doctor is interested in me.	1	2	3	4	5
7. This doctor shows great concern for my well-being.	1	2	3	4	5

Cognitive Information Exchange

1. This doctor clearly explained why I should do the things he asked me to do.	1	2	3	4	5
2. This doctor does a good job of explaining things to me.	1	2	3	4	5
3. This doctor clearly explains my medical condition to me so that I understand it perfectly.	1	2	3	4	5
4. I have a feeling that I was able to accurately report current and past symptoms and medically relevant experiences.	1	2	3	4	5

5. The way this doctor talks stimulated me to fully report my current medical problems.	1	2	3	4	5

Perception of Physician Expertise

1. If this doctor tell me something is so, then it must be true.	1	2	3	4	5
2. I sometimes distrust my doctor's opinion and would like a second one.	1	2	3	4	5
3. I trust my doctor's judgments about my medical care.	1	2	3	4	5

Interpersonal trust

1. I feel I can call him or her if something goes wrong and I need him or her.	1	2	3	4	5
2. I feel this doctor trusts me.	1	2	3	4	5
3. I have confidence that he/she is on my side.	1	2	3	4	5
4. I believe that this doctor is working in my best interest.	1	2	3	4	5

Partnership

1. This doctor often makes acknowledgment that he or she has heard the statement that I have just made.	1	2	3	4	5
2. This doctor answers my questions respectfully.	1	2	3	4	5
3. I feel comfortable asking this doctor questions about my illness.	1	2	3	4	5
4. This doctor was interested in hearing about my symptoms.	1	2	3	4	5
5. This doctor is very flexible, open to my suggestions or ideas.	1	2	3	4	5

Patient Compliance

1. I followed my doctor's suggestions exactly.	1	2	3	4	5
2. I exactly complied with this doctor's drug regimens	1	2	3	4	5

Patient Satisfaction

1. Overall, I am satisfied with this doctor.	1	2	3	4	5
2. I have confidence in this doctor.	1	2	3	4	5
3. Overall, I am discontented with this doctor.	1	2	3	4	5
4. Compared to the other doctors you have seen, this doctor is very good.	1	2	3	4	5

Appendix III: References for Questionnaire Items

The following table shows where some of the initial questionnaire items had been adopted from (all the items had been modified for the study).

Empathy Scale: BLRI (Barrett-Lennard, 1981)	Stan's Satisfaction Scale	DiMatteo's General Adherence Scale
CE: 1, 2, 3, 5, 6, and 7. AE: 1, 5.	PS: 1, 3.	PC: 1, 2.