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REDEFINING SATISFACTION AS A PROCESS VARIABLE

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Karen M. Maduschke

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Major professor

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PHYSICIAN-PATIENT INTERACTION: REDEFINING SATISFACTION AS A PROCESS VARIABLE

By

Karen M. Maduschke

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ABSTRACT

PHYSICIAN-PATIENT INTERACTION:
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Karen M. Maduschke

Previous research has identified communicative behaviors related to patient satisfaction as an *outcome* of medical interviews. The identification of satisfaction as a *process* which develops within interaction, however, would suggest that satisfaction may be negotiated during the medical interview and thus have important implications for physician training. By examining the medical interview and correlations between patient and physician behaviors associated with satisfaction outcomes, we learn more about how to encourage the development of satisfied responses *during* the interview, as well as how to prevent dissatisfaction.

Interaction analysis was applied to 17 transcripts of physician-patient interviews. The physician behavior of showing agreement and understanding was strongly correlated with two patient variables associated with satisfaction: tension release and volunteering information. Significant relationships were also found between physicians eliciting questions and opinions from patients and patients expressing commitment to discussed medical regimens. Implications of the findings, limitations of the study, and directions for future research are discussed.

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CHAPTER ONE

INTRODUCTION

In 1898 Sir William Osler reportedly advised medical students "Listen to the patient, he is telling you the diagnosis" (Roter & Hall, 1987, p. 325). Despite this age-old adage, many patients still complain that their doctors do not listen to them and many continue to be dissatisfied with the care they receive from physicians. Though most physicians entering the medical profession have the altruistic goal of healing people, amazingly little attention is paid either during medical school or post-graduate residency training to learning how to communicate effectively with those people one intends to heal. As Sir William pointed out, communication is the link to understanding a patient's ailments, and likewise the key to alleviating a patient's pain.

It is argued here that the role of communication in the development of satisfaction during physician-patient interactions needs to be more closely examined in order to improve the health care process. Specifically, there are a number of communicative behaviors in the context of physician-patient interaction which are linked to increased and decreased patient satisfaction. These behaviors and their relationships to satisfaction as an outcome of the interview have been identified by previous researchers. If, however, satisfaction can be identified as a process which develops and can be recognized within interaction, it would suggest that satisfaction may also be negotiated during the medical interview. This would have important implications for physician training.

The verbal behaviors of patients which are known to indicate satisfaction level and which could thus act as cues to physicians about the patient's degree of

satisfaction have not been synthesized. Furthermore, there is little research which then correlates those behaviors of the patient with behaviors of the physician. By examining the medical interview, identifying patient behaviors associated with satisfaction and dissatisfaction, and then examining the correlations of patient and physician behaviors, we can learn more about how to encourage the development of satisfaction during the interview (as well as how to prevent the development of dissatisfaction).

This research attempts to make these connections in order to identify the role of communication in the development of satisfaction. It first assesses the body of literature regarding the nature of physician-patient communication related to satisfaction. Next, four hypotheses arising out of the literature are presented. A coding scheme for analyzing particular physician behaviors related to patient satisfaction and relevant to the hypotheses is then introduced. Finally, the results of an interaction analysis which applies the coding scheme to 17 physician-patient transcripts is presented and discussed, along with limitations of the study and suggestions for future research. Additionally, implications for the training of physicians are addressed.

LITERATURE REVIEW

The Significance of Satisfaction

Physician-patient interactions are of vital significance in the health care process. Cleary and McNeil have pointed out that "accurate and complete communication between a physician and patient is often a necessary condition for the provision of technical care" (1988, p. 25). While forming the basis of the physician-patient relationship, the interactions also provide the most basic means for medical

diagnosis and treatment of disease, the management of illness, and the prevention of many health problems (Wasserman & Inui, 1983). Because of this link, researchers have begun to investigate the relationships between aspects of the physician-patient interaction and factors such as patient knowledge, compliance, and satisfaction.

Although research in doctor-patient interaction has been increasing over the last 30 years, there is still a demand for focused research which integrates tested and valid methodology with issues of pressing concern. Arguably, patient satisfaction may be first and foremost on the list of such concerns. It has been demonstrated that patient satisfaction with their physicians is linked to a chain of variables such as compliance, number of complications, and length of treatment, as well as known efficacy of prescribed medication (Lane, 1983). These findings have, in part, led to the initiation of psychosocial teaching programs in several medical residency programs in the country (see Merkel, Margolis, & Smith, 1990; Smith, Osborn, Hoppe, Lyles, Van Egeren, Henry, Sego, Alguire, & Stoffelmayr, 1991). There is still a great deal of research that needs to be done, however, to improve these programs and encourage the continued development of similar ones.

Defining Satisfaction

Traditionally, the concept of satisfaction has been interpreted in a variety of ways. Therefore, it is meaningful to first define its scope. Satisfaction is sometimes viewed as a patient's global assessment of the visit. Frequently it is related to some specific physician behavior or characteristic such as knowledge and skill, trustworthiness, or humaneness (Lane, 1983). In other instances, satisfaction has included reactions to factors of the health care system such as waiting time and visit

costs, or appointment availability. For the purposes of this research, satisfaction is conceptualized as a positive, ongoing affective response toward the physician (Lane, 1983; Roter, Hall, & Katz, 1987). This is a very broad definition, but necessarily so. Because it is assessed during the medical encounter, satisfaction in this research is largely judged as a function of how thoroughly, considerately, and humanely the patient perceives s/he is treated by the primary care physician (Anderson, Fleming, Aday, & Aguirre, 1979; Lane, 1983).

As a behavior variable, patient satisfaction can be viewed as either (1) an outcome variable or (2) a process variable. Past research has almost exclusively categorized it as a short-term outcome of the medical encounter; one that can be assessed immediately after the appointment (Beckman, Kaplan, & Frankel, 1989; Schofield & Arntson, 1989). Other examples of short-term outcomes are health or disease related knowledge acquisition, tension release, and intention to comply with medical advice (Beckman et al., 1989). Short-term outcomes are commonly used to associate aspects of the medical interview with effects of the encounter. However, a major limitation of short-term outcomes is that they are not very good predictors of long-term effects (Beckman et al., 1989). In other words, we are not able to determine in what way the short-term outcomes affect long-term attitudes or behaviors. There is some evidence that although patients may express moderate satisfaction immediately after the interview, they may not comply with medical advice in the long-term (Beckman et al., 1989).

In this research, it is argued that satisfaction should be viewed as a process outcome; one which occurs and can be assessed within the medical encounter itself.

Typically, factors such as degree of patient assertiveness, effectiveness of patient information seeking, amount of patient opinion sharing, and physician empathy are considered process outcomes. Beckman et al. (1989) suggest that the improvement of specific details of the interviewing process serves as a form of early intervention linked to improvement in long-term outcomes. Furthermore, research on process outcomes has two major objectives which are similar to those which should be taken in the study of patient satisfaction during the medical encounter. According to Beckman et al. (1989) these objectives are: first, to recognize successful interaction behavior and improve the quality of the interaction; and second, to demonstrate the cause and effect relationship of longer term interventions.

The importance of patient satisfaction in the medical setting has been demonstrated in numerous studies. Although linked to myriad variables including perceptions of physician competence, overall effectiveness, and even abatement of malpractice suits (Hall, Roter, & Rand, 1981; also see Donabedian, 1982; Ware, Davies-Avery, & Stewert, 1977), satisfaction is perhaps most important to study because of its relationship to compliance with medical advice. Satisfaction has been linked to greater patient compliance, which reduces complications and the expense of medical treatment (Lane, 1983; Stewert, 1984; Stone, 1979).

Identifying satisfaction at its root, as a patient first, almost subconsciously, formulates a satisfied versus dissatisfied response to the encounter, is critical to improving the quality of interaction and in establishing a causal link between satisfaction and longer term interventions. Determining satisfaction or dissatisfaction upon completion of the medical visit is simply too late to improve the quality of the

interaction or to arbitrate long term behaviors. The following section outlines behaviors which have previously been linked to satisfaction and which aid in the examination of satisfaction as a process variable.

Communicative Behaviors Associated with Satisfaction

Physician Communicative Behaviors. Several physician communication behaviors are associated with patient satisfaction. In particular, research identifies that behaviors by the physician which make the patient feel more informed about their health as well as those which make the patient feel more comfortable or reassured about their prognosis, are correlated with patient satisfaction. Moreover, any behaviors which increase patient perceptions of physician warmth and openness may likewise increase patient satisfaction.

In order to understand satisfaction as an ongoing, affective response formulated during the process of the interview, it is important to begin by examining how patients describe an effective doctor, one with whom they are generally satisfied. Feletti, Firman, and Sanson-Fisher (1986) developed a questionnaire which assessed patient perceptions of an "ideal" doctor. Patients were asked, prior to a medical visit, to select the most important characteristics of an "ideal" doctor. After their visit, patients were asked to rate their own physician on those same characteristics. The results of the "ideal" doctor ratings were then compared to scores on a satisfaction scale completed by the patient. The data revealed that the ideal physician is one who possesses a number of various characteristics, most of which relate to communication. For example, the ideal physician is one who gives adequate time and attention to patient problems, who provides valuable information, and who treats the patient as a

unique individual rather than "yet another" medical complaint (see Appendix A for a description of the characteristics). Feletti et al. (1986) found that doctors possessing these ideal features had more satisfied patients.

The findings of Feletti et al. (1986) are consistent with the general conclusions arrived at by Hall et al. (1981) in a study of affective communication between patients and physicians: patients judge the overall medical competence of physicians on the basis of "bedside manner." According to Hall et al. (1981), "bedside manner" is largely a measure of the physician's ability to communicate in a warm, sympathetic, and personal manner. In particular, reassuring and positive words from the physician were found to be associated with patient satisfaction.

Freemon, Negrete, Davis, and Korsch (1971) similarly found that outcomes of medical consultations, such as patient satisfaction, were favorably influenced by a number of physician behaviors. These included: (1) expressions of solidarity with the patient (e.g., expressions of emotional support and trust in the patient); (2) the amount of time spent discussing nonmedical or social subjects; and (3) an impression of the physician offering information without the patient having to request it or feel excessively questioned. Their data also revealed that simply "being nice," as measured by the number of positive affect statements, was highly correlated with satisfaction outcomes (Freemon et al., 1971).

A further finding by Freemon et al. (1971) is that physician visits containing some conversation of a general or nonmedical nature were associated with higher levels of patient satisfaction. One draw back in this study, however, was that positive affect and nonmedical conversation were often too difficult to distinguish from one

another. That is, it was difficult to determine if the expression of warmth and friendliness by the doctor, regardless of subject matter (medical and non-medical), was the cause of the greater satisfaction, or if the social conversation was the cause.

The study by Ley et al. (1976) helps clarify the issue of time spent in medical interviews relevant to satisfaction. In their research, a group of patients who received extra interviews designed to increase their understanding of what they had been told about their illness showed significantly greater satisfaction than patients who received placebo interviews about their hospital stay. Thus, additional, or increased communication with the physician, in and of itself, is not sufficient to increase satisfaction; rather, it is important that the nature of the communication either: a) help the patient understand her/his illness better; or b) show friendliness and solidarity on the part of the physician, while helping relieve the patient's tension by engaging her/him in social conversation.

Question asking is another form of physician communication which is correlated with patient satisfaction. High levels of patient satisfaction have been related to physicians asking open-ended questions, clarifying questions, empathetic questions, and encouraging questions, and by physicians eliciting the patient's concerns and expectations (Comstock, Hooper, Goodwin, & Goodwin, 1982; Woolley, Kane, Hughes, & Wright, 1978). Moreover, Rowland-Morin and Carroll (1990) suggest that a high rate of physician questioning may facilitate information transfer. The transfer of information may serve two functions relevant to patient satisfaction. One, it may lead to increased patient perceptions of physician involvement and concern. Second, by increasing the time spent with the patient, it may lead to perceptions of the

physician giving appropriate time and attention to the patient's problem. Both of these are physician behaviors consistent with factors identified by Feletti et al. (1986) as characteristics of an ideal physician (see Appendix A). Thus, on the basis of this relationship, physician question asking should be likely to increase patient satisfaction.

Patient Communicative Behaviors. While physicians may communicate in ways directly related to patient satisfaction, patients themselves exhibit communicative behaviors which may indicate satisfaction. One communication behavior of patients shown to be positively correlated with satisfaction is identified as giving "orientation" (see Bales' Interaction Process Analysis categories, Appendix B) (Carter et al., 1982). Giving orientation is characterized by verbal behaviors which provide extended detail, such as lengthy story telling, whereby the patient extensively relates her/his experiences in her/his own words. Research has shown that the opportunity to engage in this type of expressive behavior seems to encourage patient perceptions of satisfaction with their medical encounters (Stiles, Putnam, Wolf, & James, 1979). It may be that this opportunity helps the patient release tension, or perhaps it demonstrates to the patient that the physician is willing to spend time and listen to her/his concerns. In either event, it increases the patient's level of satisfaction and is worthy of further investigation.

The opportunity for patients to relieve tension is another communication variable associated with satisfaction. In their research on outcome-based doctor-patient interactions, Carter, Inui, Kukull, and Haigh (1982) coded six different sources of patient tension statements (see Appendix C) and examined relationships between the various kinds of tension and patient satisfaction. To do this, they counted how many

patient tension statements in each of the six categories were made by the most satisfied patients, and how many in each category were made by the least satisfied patients. One category of tension, labeled "disease-related tension" was found to be associated with more satisfied patients. They described disease-related tension as utterances regarding the patient's pain or restriction of activities. It seems that the opportunity to share this type of information is a source of tension-release for patients and aids in the development of satisfaction. Patient communication regarding other sources of tension are specifically related to dissatisfaction and are discussed in a later section.

Communicative Behaviors Associated with Dissatisfaction

Physician Communicative Behaviors. In many cases, physician behaviors which were associated with satisfaction are the same as those associated with dissatisfaction. That is, while certain verbal behaviors are related to satisfaction, the absence of those behaviors, or, at time, the opposite behaviors, are linked to dissatisfaction. However, research does indicate that at least two variables are distinctly related to dissatisfaction. Ironically, these are both variable also associated with satisfaction: time and question asking.

Just as the amount of time spent with the patient was an important variable in satisfaction, it appears to be significant in the development of patient dissatisfaction. It was reported earlier that the time the doctor spent discussing the cause of an illness was positively correlated with satisfaction. But, Freemon et al. (1971) also found that the time the doctor devoted specifically to *history taking* was *negatively* associated with satisfaction. According to their research, patients seemed to become frustrated

and dissatisfied by lengthy discussions about their medical history. Freemon et al. (1971) hypothesize that this negative relationship between history taking time and satisfaction is a function of patients' perceiving longer history taking as ineffective communication.

Although Freemon et al. (1971) do not specifically identify what verbal behaviors might be perceived as ineffective, one might expect that the excessive question asking which commonly occurs in this period of the medical encounter contributes to such perceptions. This would be true to the extent that patients interpret the question asking as a "not dealing with" the immediate issues or concerns that the patients has. That is, they may not see any relevance in the questions and would prefer to be told immediately what causes their pain or discomfort and how to treat it.

Patient Communicative Behaviors. Based on the literature, at least three patient communication behaviors seem to indicate dissatisfaction. Specifically, research shows positive associations between dissatisfaction and the variables of patient tension statements, repetitive behaviors, and question asking. Each of these are discussed below.

Findings regarding patients' verbal indicators of dissatisfaction are found in the study by Carter et al. (1982). In their research on doctor-patient interaction, these researchers observe that "Tense verbal behaviors of patients were negatively associated to satisfaction with the encounter" (p. 565). As described earlier, Carter et al. (1982) coded six categories of patient tension statements. Examples of tense behaviors include complaints about treatment, or other aspects of the medical encounter, such as appointment availability or length of time waiting to be seen by the doctor (see

Appendix C). In each of the categories except disease-related tension, there were significantly more tension statements made by the least satisfied patients than by the satisfied patients.

Freemon et al. (1971) have similar conclusions regarding dissatisfaction. With an index measuring the proportion of negative affect (as expressed in statements of disagreement, tension, and antagonism) to the total amount of expressed affect, these researchers illustrate an inverse relationship between negative affect and both satisfaction and compliance. That is, the more a patient expressed negative emotion, the less satisfied the patient was with the interaction and the less compliant the patient was with prescribed medical treatments. These findings appear to be consistent with those in the research by Korsch, Gozzi, and Francis (1968), who found that the physician's lack of warmth was related to the patient's dissatisfaction. It may be that the physician's lack of warmth is a source of tension for the patient, creating the negative affect which is associated with dissatisfaction.

Patient communication which is repetitive in nature has also been linked to dissatisfaction. Carter et al. (1982) found that repetitive patient disclosure in the introduction and history taking segment of the visit was negatively associated with subsequent satisfaction scores. The conclusions they draw regarding this relationship are that patients who perceive their doctors do not understand the severity of their symptoms feel the need to reiterate the extent and degree of their pain. Therefore, patients who repeatedly make statements regarding their condition are likely to feel that the doctor does not understand them, and consequently, these patients will be less satisfied with the encounter.

An inconclusive finding of the research by Freemon et al. (1971) may hold an interesting clue regarding patient dissatisfaction. An expected, positive relationship between the opportunity to ask many questions of the physician and higher levels of satisfaction was not confirmed. Freemon et al. (1971) suggest that patients prefer a doctor who freely offers information, without the patient needing to extract the desired information through numerous questions. Research by Cartwright (1964) confirms this, concluding that patients who said they had to ask for more information expressed greater dissatisfaction than those who said they were freely given all the information they required. As mentioned earlier, Comstock et al. (1982) and Freemon et al. (1971) similarly found that physicians freely offering information to the patient was positively correlated with high levels of patient satisfaction. Thus, if this is true, the number of questions a patient asks during the medical visit would indicate degree of satisfaction.

Additional Variables in the Satisfaction Equation

Thus far, the research has identified a number of communicative behaviors of physicians and patients which are linked in some way to patient satisfaction. Research has shown, however, that these associations with satisfaction or dissatisfaction may only be valid during particular segments of the interview. In other words, the timing of physician and patient behaviors plays a significant role in their relationship to patient satisfaction.

Some researchers suggest that the medical encounter can be divided into different sections with varying objectives and processes (Carter et al., 1982; Stiles et al., 1979). In formulating their research, Carter et al. (1982) separate the medical encounter into three, independent segments: (1) an introduction-history; (2) a physical

examination; and (3) a conclusion. They argue that the timing of behaviors within and across these segments is critical to subsequent outcomes. In particular, Carter et al. (1982) cite an example dealing with patient question asking. For instance, if a patient requests medication early in the encounter, this behavior has been positively related to subsequent satisfaction. However, requests for medication which are made in the concluding segment have been negatively associated with reports of satisfaction.

Further evidence for the role of appropriate timing is found in the research by Freemon et al. (1971) who indicated that patient satisfaction was correlated with the amount of time the physician spent with the patient, while the length of time specifically spent in the history taking segment was correlated with dissatisfaction. It was suggested that the difference is attributable to perceived effectiveness of communication. Questions by the physician, much like some questions from the patient, need to be delivered at the appropriate time. Because of this relationship between the timing of behaviors and outcomes such as satisfaction, it is important that research continue to evaluate when specific behaviors occur, thus figuring the timing of behaviors into the satisfaction equation.

HYPOTHESES

The literature confirms that a number of patient communicative behaviors are associated with satisfaction. There is also evidence supporting the relationship between physician communication and satisfaction. However, in order to understand how physicians may affect the process of satisfaction development, it is essential that physician behaviors which are correlated with patient satisfaction and dissatisfaction behaviors can be identified. Thus, four hypotheses regarding the relationship between

physician and patient communication behaviors have been developed. The hypotheses focus on four specific patient behaviors: (1) disease-related tension release; (2) non-disease related tension; (3) question asking; and (4) repetitiveness. Each of the hypothesized relationships is addressed separately below.

Disease-Related Tension Release

Expressions of tension during the medical encounter may have different meanings. Carter et al. (1982) found that patient expressions of tension generally bear strong negative relationships to patient satisfaction, while patient expressions of tension release are positively related to satisfaction. Tension release is operationalized as statements of disease-related tension, whereby the patient "unveils" their concerns to the physician about their medical or socioemotional condition. One would expect that that, in order to lead to higher levels of satisfaction for the patients, these behaviors must be met or encouraged by statements from the physician which demonstrate concern, empathy or support. Such communicative behaviors of the physician might be characterized as those which show agreement or understanding or which express solidarity with the patient. An absence of such physician behaviors would be expected to result in either the patient not engaging in (or quickly discontinuing) this type of disclosure, or in the development of dissatisfaction.

Returning to the arguments made by Carter et al. (1982), it is anticipated that this would only be true during the history taking segment, which provides the appropriate outlet for tension-release. Later in the interview, such behaviors may be interpreted more as repetitive (which will be discussed further in a later section). Therefore, it is hypothesized that:

H_{1a} Utterances of tension release made by the patient during history taking are positively correlated with the physician showing agreement/understanding during the same segment.

H_{1b} Utterances of tension release made by the patient during history taking are positively correlated with the physician expressing solidarity during the same segment.

Non-Disease Tension Statements

Non-disease related tension is characterized as verbal behaviors which express discontent with aspects of the medical visit not directly associated with the patient's medical or socioemotional condition (Carter et al., 1982). This may include complaints regarding the length of time the patient waited before being seen by the physician, or difficulty in finding transportation or obtaining the appointment. Expressions of these types of tension, regardless of when they occurred, were found to be made more frequently by the least satisfied patients. It is hypothesized that these statements continue when the physician does not express appropriate levels of agreement and understanding or solidarity with the patient. Thus, it is specifically hypothesized that:

H_{2a} Non-disease related tension utterances made by the patient throughout the interview are negatively correlated with physician statements of agreement/understanding

H_{2b} Non-disease related tension utterances made by the patient throughout the interview are negatively correlated with physician expressions of solidarity.

Question Asking

Freemon et al. (1971) found that patients more favorably rate a physician who freely offers information than one who requires the patient to extract the needed information through extensive question asking. Research by Cartwright (1964) confirms that patients who said they had to ask for more information expressed higher levels of dissatisfaction than those who said they were offered all the information they required. Thus, the number of questions a patient asks during the medical visit would be an indicator of level of satisfaction. In particular, the more questions that a patient asks, the less satisfied the patient is.

One would expect patient behaviors which are associated with dissatisfaction to be negatively correlated with physician behaviors which are associated with satisfaction. Furthermore, patient questioning behaviors should be negatively correlated with physician behaviors intended to increase understanding and reduce the need for questions. Several researcher identified physician question asking as one important behavior which is correlated with patient satisfaction (Comstock et al., 1982; Woolley, et al., 1978). Additionally, one might expect that when a physician summarizes her/himself, that it would serve to clarify and synthesize information, thereby decreasing the need for patient questions. These conclusions lead to the third hypothesis:

H_{3a} The frequency of the patient asking questions is negatively correlated with physician questioning behaviors

H_{3b} The frequency of the patient asking questions is negatively correlated with the physician summarizing her\himself.

Repetitiveness

The research on repetitive behaviors indicates that the more patients repeat themselves, the less satisfied they are with the physician (Carter et al., 1982). Repetitiveness is considered to be statements made by the patient which repeat earlier expressions or which summarize in new words what the patient has already said. Carter et al. concluded that behavior is considered necessary by the patient when the patient is under the impression that the physician is not listening or responding to what s/he is saying. Therefore, such behaviors should be negatively correlated with the physician demonstrating understanding either by summarizing the patient or by directly showing agreement or understanding. These behaviors would serve to demonstrate that the physician is listening, is attuned to the patient's concerns, and empathizes. This the following is hypothesized:

H_{4a} Repetitive utterances made by the patient are negatively correlated with the physician summarizing the other.

H_{4b} Repetitive utterances made by the patient are negatively correlated with the physician expressing signs of agreement/understanding.

CHAPTER TWO

METHODS

Estimating Satisfaction

Finding estimates of patient satisfaction with various aspects of health-care delivery has been the impetus of many studies. However, the vast majority of these studies measure satisfaction through the use of self-report questionnaires such as the Medical Interview Satisfaction Scale developed by Wolf, Putnam, James, and Stiles (1978; in Rowland-Morin & Carroll, 1990) or a modification of the Interpersonal Communication Satisfaction Scale (Lane, 1983). Although Roter et al. (1987) used a third party observation measure of satisfaction, and others have used personal interviews (Stewart, 1984), there have been almost no efforts made to measure satisfaction in any way other than through personal reports. Such reports are frequently subject to a variety of reliability and validity threats including self-selection bias (i.e., patients who respond to questionnaires tend to be more satisfied; Ley, Bradshaw, Kincey, & Atherton, 1976) and subject apprehension to admit dissatisfaction (Oksenberg & Cannell, 1977). Recognizing that there are serious limitations to this method, Freemon et al. (1971) have specifically appealed for more recorded interaction and direct analysis.

In this study interaction analysis is used in attempts to answer that appeal; to develop more insight into patient satisfaction with the physician in the context of interaction. It focuses on patients and their consultations with new physicians. While the literature review identified physician and patient communication behaviors related to either satisfaction or dissatisfaction as an outcome, the proposed research seeks to

identify correlations between specific physician and patient verbal behaviors which can help determine how satisfaction develops in the process of the medical interview.

Interaction Analysis

Interaction analysis (IA) is a process of coding and quantifying qualitative data in order to allow for sophisticated and systematic statistical analysis (Wasserman & Inui, 1983). Several distinct IA coding systems have been developed within the last thirty-five years to assess aspects of dyadic or small group interaction. Among these, the Bales' Interaction Process Analysis (IPA) and Roter's modification of the Bales' system (Modified IPA) have been the most widely adopted in medical interview research. Each of these has been very useful for the research to which they have been previously applied, however, neither is completely adequate for the proposed study. Therefore, a new scheme has been developed which draws upon the significant contributions of each of these, plus one additional system which has not been previously applied to research in the medical setting. The following section will first review the relative merits and weakness of each of these systems and then present the new coding system designed specifically for examining the four hypotheses of this research.

Existing Coding Systems

Wasserman and Inui (1983) present a systematic review and critique of IA approaches, highlighting the relative strengths and weaknesses of each. In their review these authors call for interaction research which has, as its ultimate goal, modifying the interactions of doctor-patient dyads, and thereby affecting the health care process.

Their evaluation of each of the analysis systems is geared to assessing the utility of each system to that end.

The Bales system was developed in 1950 specifically "for the study of the social and emotional behavior of individuals in small groups" (see Appendix B) (Wasserman et al., 1983). This system, which has been shown to have strong validity and reliability, is particularly well suited for the study of relationships. The instrument is sensitive to the feelings of the interactants towards one-another, since it concentrates on statements of affect. Furthermore, the system has a strong potential for analyzing the interaction sequence, and is applicable to many diverse situations. The primary weakness of Bales' IPA is that each utterance can only be coded into one category. Unfortunately, there are many instances of statements which transfer both content information, and relational information. These would represent distinct categories with the Bales method. Wasserman et al. (1983) cite the example of "Doctor, am I going to die?" It is difficult to determine whether this should be coded as "asks for opinion," or as "shows tension;" it appears to do both simultaneously.

A second shortcoming in the Bales system is a limited selection of neutral classifications appropriate to physician-patient interactions. The choices for a physician's expression of neutrality include only: "suggestion," "opinion," and "orientation." Modifications of the system by Freemon et al. (1971) and Roter (1977) have provided some solutions to this problem (Wasserman et al., 1983). For instance, Freemon et al. (1971) changed "suggestion" to "instructions" and added subcategories for simple acknowledgements such as "Yes, I see."

Roter's adaptation of IPA provides two unique sets of categories; one for the physician's communication and one for the patient's (Wasserman & Inui, 1983; see Appendix D). Although the two sets of categories are similar, the classifications are altered to more appropriately fit the roles of each interactant. These modifications are helpful in applying interaction analysis specifically to the health care setting, however, the modified system is subject to many of the same criticisms as the original Bales model. Both methods suffer, additionally, from an inability to specify the informational content of the interactions, thus prohibiting any contextual references in the analysis. Wasserman et al. (1983) note that this is potentially dangerous, since the entire course of the interaction and the outcomes are influenced tremendously by the subject of the conversation.

Furthermore, Roter's modified IPA does not have a category for patient asking questions, other than requests specifically for medication or for a clarification. Given the relationship between the frequency of questioning by patients and their satisfaction, it is imperative that all questioning behavior be included in any coding scheme meant for the analysis of satisfaction.

The Carter et al. (1982) study to identify effective provider and patient behavior also compares and contrasts the advantages of these two systems. They measured the ability of the Bales and Roter systems (among others) to predict various outcomes (knowledge, compliance and satisfaction) in each of the three interaction time periods (history-physical-conclusion). The results of their research indicated that the Bales and Roter systems both have moderate explanatory power for the dependent variable of satisfaction.

Based on the studies by Wasserman et al. (1983) and Carter et al. (1982), the Bales' Interaction Process Analysis and Roter's modified IPA both appear to be useful for investigating the role of affective communication. However, these systems are still incomplete. By looking outside of the medical literature, one can expand the range of possible coding schemes significantly. For instance, Gottman (1979) has developed a procedure for investigating marital interactions called the Couples Interaction Scoring System (CISS). This system has additional content categories not previously considered. Some of these are categories such as: (1) summarizing oneself; (2) summarizing the other person; and (3) diverting the topic ("communication talk"). Each of these are as relevant to a medical interview as to any other dyadic encounter and are not directly addressed by the other two systems.

A New Coding Scheme

The following system is a specially adapted translation of these three coding procedures which has been devised for coding physician and patient verbal communication behaviors. The scheme helps to identify the correlations between patient behaviors associated with satisfaction and dissatisfaction and related physician behaviors (see Table 1). The specific purpose of this scheme is to identify correlations between physician and patient behaviors associated with the development of satisfaction. As such, each item was selected to represent relevant behaviors previously described in the literature.

While the coding scheme is not intended to represent an ordinal scale, the behavior variables are generally arranged on a continuum of patient satisfaction. That is, lower numbered variables are less frequently correlated with patient satisfaction (or

may be correlated with dissatisfaction), while variables with higher numbers tend to be more strongly correlated with satisfaction. For instance, question asking by the patient, when observed to occur excessively, is considered to be negatively correlated with satisfaction (or more highly correlated with dissatisfaction), whereas frequent expressions of solidarity are positively correlated with patient satisfaction. The same is true with the physician behaviors. The more behaviors at the higher end of the continuum occur, the more frequently they demonstrate a positive correlation with patient satisfaction. The coding categories will be used to test each of the hypothesized relationships.

Table 1
Coding Categories for Assessment of Satisfaction

Patient Behaviors	Physician Behaviors
1 asks questions	1 shows disagreement or criticism
2 shows disagreement or criticism	2 gives direction/instruction
3 summarizes/repeats self	3 summarizes/repeats self
4 expresses non-disease tension	4 personal remarks or digressions
5 expresses disease tension	5 gives information or opinion
6 requests opinions/suggestions	6 indicates listening
7 summarizes other	7 summarizes other
8 personal remarks or digressions	8 requests questions
9 responds directly to question	9 requests opinions/suggestions
10 gives voluntary orientation	10 asks questions
11 shows agreement/understanding	11 shows agreement/understanding
12 offers solidarity	12 shows solidarity

Physician Behaviors

Twelve categories of physician communication behaviors were developed based upon previous research. The categories are designed to be inclusive of a vast array of possible behaviors, while specifically addressing variables related to satisfaction. The first physician behavior listed in the coding scheme is "shows disagreement." This is defined as an instance of the physician directly contradicting the patient, or responding negatively to an assumption or concern of the patient. The next category of physician behavior is "gives direction/instructions" and includes things such as "you may put your shirt on now" or "take one of these tablets every four hours with a glass of milk." Any request for the patient to alter her/his behavior would fall under "gives direction or instruction." Disagreement and directions/instructions fall relatively low on the satisfaction continuum because they are associated with perceptions of the physician as dominant and distant.

The "summarizes/repeats self" code represents any attempts on the part of the physician to rephrase statements that s/he previously made. Greetings, introductions, and other comments not related to the medical encounter are categorized as "personal remarks or digressions." This latter category usually represents neutral comments, but may also be considered positive, if social conversation or positive affect is communicated.

Listening behaviors of the physician are generally very short, neutral comments, such as "uh=huh," "okay," or "I see." These are indicators that the physician has heard the patient and will often precede other statements by the physician, or interrupt the patient during longer turns at speaking. Attempts to

summarize, paraphrase, repeat or confirm what the patient has previously expressed is counted under the "summarizes other" category. This is seen as relatively positive behavior, since it demonstrates active listening and an attempt to fully understand the patient.

Requesting questions and requesting opinions or suggestions from the patient are also very positive behaviors. Such behavior demonstrates that the physician is concerned about the patient's ability to understand the communication and that the physician feels that opinions and suggestions of the patient are valuable. As such, it would be considered quite positive. A request for questions or opinions is generally very direct and easily recognized, such as "Do you have any questions?" or "How long do you think you'll need to quit smoking?"

One of the most positive behaviors a physician may exhibit is the offering of solidarity or commitment. This is a behavior which demonstrates confidence in the patient's ability to overcome their challenges, raises the patient's status, or offers help, reassurance or rewards to the patient. It shows support for the patient and lets the patient know that the physician is "in it together" with the patient. An example of such as statement would be: "I know you can stop smoking. Keep in touch with me when it gets tough and we'll get through this."

Patient Behaviors

The codes for patient communicative behaviors also address a wide option of possible utterances. As with physicians, there are twelve distinct categories. One of the less positive of the categories is "ask questions." This category encompasses a wide range of questions but excludes direct requests for physician opinions or

suggestions. Therefore, "May I get dressed now?" would be included, but "What do you think I should do?" is not. The latter example would be coded as "request for opinions/suggestions." Question asking is considered low on the satisfaction continuum because of the expectation that physicians should provide the desired information without prodding from the patient.

The next code for patient behaviors is "shows disagreement or criticism." This category incorporates utterances from patients which indicate a conflict with the physician. This would include statements such as "I don't think the patch will do any good for my smoking problem."

Several patient behaviors on the scale are identical to ones on the physician scale, such as "summarize self" and "personal remarks/digressions." The most unique statements on the patient scale concern the expression of tension. Two types of tension statements are distinguished: those which are directly related to the patient's physical or socioemotional state (termed disease tension); and those which are not associated with a physical or socioemotional condition (non-disease tension). As discussed earlier, the expression of disease tension can be a positive behavior when it occurs at the appropriate time, since it allows patients to share concerns and relieve themselves of burdensome worries. Non-disease related tension, however, tends to be negative, since it is less seldom associated with positive changes which may take place during the medical visit, and more often represents unproductive complaints.

There are also two categories for patients to provide information. The first is a direct response to a question posed by the physician. The second category pertains to

information which is offered by the patient beyond the physician's question. For instance, consider the following exchange:

> Physician: "Where does it hurt?"
>
> Patient: "The whole knee hurts. The pain started under the knee cap two weeks ago during a basketball game, but spread and got worse in the last couple of days."

The patient's first sentence "The whole knee hurts." would be an example of responding directly to a question (9). The second sentence elaborates beyond the question, providing additional information which the patient has volunteered. Thus, the second sentence would be coded as giving voluntary orientation (10). Voluntary orientation must be distinguished from direct responses to questions because of the relationship between orientation giving and satisfaction identified by Carter et al. (1982). Orientation giving is a highly positive patient behavior that aids the physician in diagnosis and which is associated with increased levels of patient satisfaction.

The most positive of patient behaviors is the same as the most positive of physician behaviors: "shows solidarity." Such statements indicate that the two interactants are prepared to work together to ensure the health of the patient. Examples of the patient expressing solidarity would include "I'm sure I'll be able to quit smoking with this new patch."

PILOT STUDY

The research was executed in two stages: a pilot study for confirmation of the coding scheme and reliability testing, followed by a full scale research endeavor to address the four hypotheses. At the time of the pilot study, the coding scheme was not yet fully developed. Rather, a preliminary scheme had been devised, which underwent some modifications as a result of the pilot study.

Two undergraduate research assistants were originally trained in the preliminary coding scheme. An intercoder agreement ratio of .91 was achieved during training, before the coders began working with the actual transcripts. The assistants then applied the coding scheme to six transcripts in order to test the scheme for appropriate focus and scope, and work out any potential difficulties. Although the assistants were provided with background information about physician-patient communication issues and interaction analysis, they remained blind to the hypotheses.

Transcript Preparation

The six test transcripts[1] were each full-length interviews, ranging in length from 98 to 260 turns. In the transcripts, names of the physicians were changed and any personal names of patients or their friends and families were blacked out to ensure anonymity. Demographic information for the physicians and patients in the test transcripts is unavailable.

In order to analyze where important behaviors such as tension release occur, each transcript was divided into the three sections proposed by Carter et al. (1982): (1) introduction-history taking; (2) physical examination; and (3) conclusion. The first and last segments of the encounter are defined by their exclusion from the physical

examination section. The first section, introduction-history, begins with the very first verbal message, and ends when the physical exam begins. The physical examination section is then defined as beginning with the first verbal event that suggests an examination activity (such as instructions for undressing, or assuming a specific position or a statement such as "Let's take a look at..."). The physical examination section ends with the last verbal message indicating that the examination has concluded (such as "You may get dressed now"). The conclusion segment begins when the examination ends, and continues until the last verbal message is delivered (Carter et al., 1982).

Coding Units

The primary unit of analysis in the study was a single person's turn. A turn is defined as one person's uninterrupted speaking time (Hopper, Koch, & Mandelbaum, 1985). Occasionally, when it was evident that clearly different behaviors were expressed in the course of a single turn, then the turn was divided into independent thought units. Only when the code of a thought unit changed from a previous one within the same turn was it coded differently. It is possible that multiple thought units could be used to represent the same coded behavior. To avoid tremendous redundancy, multiple thought units representing the same behavior were not coded separately.

Each transcript was coded for characteristics such as the physician identification, the total number of turns in the transcript, the total number of questions asked by the physician and the total number of questions asked by the patient. Each individual turn was then coded for the segment of the transcript in which the turn

occurred (introduction-history, examination, conclusion), then for the speaker (physician, patient, third party), and finally for the behavior the turn represents according to the newly developed coding scheme (such as "asks a question" or "summarizes the other"). Multiple thought units representing different behaviors within a single turn were also coded.

In coding the behaviors of the physicians and patients, coders were instructed to carefully examine the preceding utterances, in order to distinguish subtle differences between categories such as "shows agreement or understanding" and "shows solidarity." A physician's thought unit was only coded as showing solidarity when it was an independently offered gesture, and not a response to a previous comment by the patient (unless the patient was expressing disease-related tension). The same is true for statements made by patients; differences between offering commitment and showing agreement or understanding could be detected through the careful scrutiny of previous statements by the physician.

Further clarifications of the coding scheme included the "priority system" by which utterances were coded. Any utterance which seemed to fall into more than one category, was coded into the category with the most narrow scope. For instance, if a patient were to say: "How do you think I should go about reducing my weight?" the utterance would be coded as 'requests opinion/suggestion' as opposed to simply 'asks questions.' Likewise giving 'direction or instruction' is a more narrow category than 'gives information or opinion.'

DATA ANALYSIS

After the original coding process was completed and the data from the pilot test entered, the coding scheme was carefully reviewed and several adjustments were made to the coding categories. These adjustments resulted in the revised coding scheme presented in Table 1. The primary change was the addition of the "listening" category for physicians and the "responds directly to questions" category for patients. These refinements were necessary because the original categories were sometimes too broad. For instance, most "listening behaviors" had previously been subsumed under the "shows agreement/understanding" category. However, expressions such as "yeah" and "okay" made by the physician after every utterance by the patient are not necessarily expressions of agreement or understanding, but rather are mere indicators of listening or hearing.

For the patient, it was necessary to separate out the type of information giving which was voluntary, from that which directly answered a physician's questions. Thus, another distinction in the coding scheme, would be the difference between "responds directly to a question" (9) and "gives voluntary orientation" (10) on the part of the patient. "Gives voluntary orientation" is any information offered by the patient which is not directly solicited by the doctor. In many cases, a patient will provide more information than is necessary to answer a question. When this is the case, the portion of the answer which is necessary to respond to the question is coded as a "9" and the remaining portion is coded as a "10."

Once the coding scheme was fully developed, it was applied to seventeen transcripts of physician-patient interaction[2]. All the transcripts represented either first

time or relatively early visits between the particular patient and physician. Only first time and very early visit transcripts were used because once a relationship develops between a physician and patient, it is likely that the dynamic of verbal interaction changes substantially, and more frequently non-verbal cues are relied upon.

Of the seventeen transcripts, 10 represented same sex dyads, while seven were mixed sex dyads. Of the same sex dyads, four were male physicians and patients, while six were female physicians and patients. Two transcripts had male physicians with female patients, and five had female physicians with male patients. Transcripts ranged in length from 86 to 437 independent thought units, with a mean of 231 thought units (e.g., representing interviews ranging from approximately 11 minutes to approximately 40 minutes of speaking time).

For these analyses, four new undergraduate coders were trained, with an intercoder reliability for coding agreement .90 being achieved. Again, these coders remained blind to the hypotheses, but were given basic instruction in interaction analysis. The transcripts were prepared in the same manner as in the pilot study; divided into three segments of interview time. Each of the hypotheses was tested then using a Pearson product-moment correlation (Pearson-*r*). Two correlation matrixes were originally created. The first one was for the patient and physician behaviors exhibited during the introduction-history segment only. This was used specifically to test the first hypothesis where the timing of certain behaviors was a variable. The second correlation matrix included all the physician and patient behaviors hypothesized in the second, third and fourth hypotheses.

CHAPTER THREE

RESULTS

This study attempted to find relationships among a variety of patient communicative behaviors indicative of satisfaction/dissatisfaction, and physician behaviors. Eight specific relationships were tested in four hypotheses, with significant results found for two of the relationships. In this section, descriptive statistics for each of the behaviors are presented, results for each of the hypotheses are reviewed, and relationships discovered beyond those hypothesized are also discussed.

Descriptive Statistics

Twelve patient behavior variables and 12 physician behavior variables were identified in the present study. Table 2 illustrates the mean occurrence of each variable, the range, and the standard deviation across all transcripts.

Table 2
Descriptive Statistics for Patient and Physician Behaviors

Behavior Variable	Mean	Range	Std Dev	Total
Patient Behaviors				
asks questions	14.82	0 - 59	13.80	252
shows disagreement or criticism	0.53	0 - 4	1.01	9
summarizes/repeats self	1.06	0 - 3	1.09	18
expresses non-disease tension	3.35	0 - 9	2.74	57
expresses disease tension	1.94	0 - 7	2.36	33
requests opinions/suggestions	1.06	0 - 3	1.09	18
summarizes other	1.41	0 - 4	1.18	24
personal remarks or digressions	5.76	0 - 17	4.52	98
responds directly to a question	23.00	2 - 53	13.80	391
gives voluntary orientation	30.12	7 - 69	15.44	512
shows agreement or understanding	22.18	6 - 58	14.39	377
offers solidarity	0.65	0 - 6	1.54	11
Physician Behaviors				
shows disagreement or criticism	0.35	0 - 1	0.49	6
gives direction/instruction	7.24	1 - 20	5.49	123
summarizes/repeats self	2.94	0 - 16	4.02	50
personal remarks or digressions	6.65	1 - 20	4.91	113
gives information or opinion	43.94	5 - 106	29.48	747
indicates listening	19.53	4 - 47	12.50	332
summarizes other	2.76	0 - 8	2.49	47
requests questions	0.41	0 - 2	0.62	7
requests opinions or suggestions	0.35	0 - 2	0.61	6
asks questions	26.53	4 - 56	14.25	451
shows agreement or understanding	9.24	0 - 21	6.05	157
shows solidarity	3.65	0 - 7	2.23	62

Note: N = 17 transcripts. Means represent average occurrence in each transcript. Range, Standard Deviations and Total Utterances represent distribution of behaviors across all transcripts.

Tension Release

The first hypothesis posited a positive relationship between patient tension release and physician expressions of: (1) agreement and understanding; and (2) solidarity. The first part of this was confirmed. The Pearson-*r* correlation between

patient tension release and physician agreement/understanding was .47 ($p \leq .05$). Thus, as the incidence of a patient expressing disease-related tension increases or decreases, the rate of the physician expressing agreement or understanding likewise increases or decreases.

The second part of the first hypothesis, the relationship between patient tension release and physician expressions of solidarity, was not confirmed. The Pearson *r* correlation was .24, and not statistically significant. Table 3 illustrates the correlations between variables in the first hypothesis. Significant relationships are distinguished with an asterisk, and the significance level is indicated below the table.

Table 3
Correlation Matrix of Patient Tension Release and Physician Expressions of Agreement/Understanding and Solidarity

	Patient Tension Release	Physician Agreement/ Understanding	Physician Solidarity
Patient Tension Release	1.0000	.4677*	.2369
Physician Agreement/ Understanding		1.0000	.2687
Physician Solidarity			1.0000

Note: N = 17. Correlations represent only behaviors in the introduction-history segment of the interview.
* $p \leq .05$

Non-Disease Tension

The second hypothesized relationship concerned patient expressions of non-disease related tension. According to the literature, these statements indicate dissatisfaction on the patient's behalf (Carter et al., 1982). They were hypothesized to be negatively correlated with the positive behaviors of a physician showing agreement

or understanding and expressing solidarity. However, neither relationship was supported. The Pearson-*r* correlation for non-disease tension and physician agreement/understanding was $r = .10$ (n.s.), while the correlation for non-disease tension and physician solidarity was $r = .41$ (n.s.; see Table 4). This would indicate that the expression of concerns or tensions which are not related to a physical condition, but rather to unrelated circumstances (such as complaints regarding the length of time the patient waited before being seen by the physician, or difficulty in finding transportation or obtaining the appointment), are not associated with these particular physician behaviors.

Table 4
Correlation Matrix of Patient Tension, Question Asking and Summarizing with Related Physician Behaviors

Patient Behaviors	Physician Behaviors				
	Agreement/ Understanding	Shows Solidarity	Asks Questions	Summarizes Self	Summarizes Other
Non-Disease Tension	.1062	.4110	-.1568	-.0992	-.0984
Question Asking	.0867	.1800	-.5916*	.6828**	-.2781
Summarize/ Repeat Self	.3872	.2147	.1984	-.0991	-.2485

Note: N = 17. Correlations represent behaviors from all segments of the interview.
* $p \leq .01$, ** $p \leq .001$

Question Asking

For the third hypothesis, question asking behaviors of the patient were investigated. The "frequent asking of questions" was operationalized as the ratio of questions to other behaviors. Included in this ratio are all questioning behaviors. For patients this would include questions under the first, broad category of "asks

questions" as well as those under the sixth category, "requests opinions and suggestions." For the physician, question asking behavior incorporates three categories: "requests questions," "requests opinions/suggestions," and "asks questions."

The first part of the hypothesis stated that the frequency of patient questions should be negatively correlated with the frequency of physician questions. This relationship was strongly supported. The Pearson-*r* correlation was -.59 ($p \leq .01$; see Table 4). Therefore, as a physician asks more questions of the patient, the patient asks fewer questions of the physician.

The second part of the hypothesized relationship stated that patient questions should be negatively correlated with the physician summarizing her/himself. This relationship was not supported. In fact, where a negative relationship was anticipated, a strong positive relationship was discovered. The Pearson-*r* correlation for this relationship was .68, $p \leq .001$ (see Table 4).

Repetitiveness

The final hypothesis dealt with repetitive patient behaviors. It must be noted that there were too few instances of repetitiveness in the sampled transcripts to be able to accurately test this hypothesis (see Table 2). However, the findings are reported here. Negative relationships were hypothesized between repetitive utterances by the patient and two physician behaviors: (1) summarizing the patient; and (2) showing signs of agreement and understanding. Although not statistically significant, the correlation between repetitive utterances and physician summarizing her/himself was in the predicted direction (r = -.25, n.s.). The second part of the hypothesis was not

supported. The Pearson-*r* correlation for patient repetition and physician statements of agreement/understanding was .39, (n.s.; see Table 4).

Other Relationships

Although not directly hypothesized, several other significant relationships emerged between patient and physician verbal behaviors (see Table 5). A strong positive correlation was found between the patient offering commitment and the physician directly requesting opinions or suggestions from the patient ($r = .54$, $p \leq .01$). Likewise, patient solidarity was strongly correlated with the physician requesting questions from the patient ($r = .49$, $p \leq .05$). Although no causal ordering can be established, it would appear that the more the physician elicited either opinions and suggestions or questions from the patient, the more the patient demonstrated a commitment to the discussed medical regimen.

The positive behavior of patients giving voluntary orientation was also found to be highly correlated with two physician variables. The first relationship is with physicians showing agreement or understanding ($r = .83$, $p \leq .001$). The second is with physicians giving information or opinions ($r = .65$, $p \leq .01$). This would suggest that as physicians express agreement with and understanding of the patient, the more the patient is willing to offer further information. Additionally, the more information the physician offers, the more the patient offers as well. Again, no causal ordering can be inferred from the data.

Another interesting finding regarding patient orientation giving is that is was negatively correlated with physician question asking ($r = -.42$, $p \leq .05$). As physicians ask more questions, patients volunteer less information. In fact, patients disclose more

information when the physician provides information, than when the physician asks excessive questions.

Table 5 summarizes the relationships found between variables which were not specified in the original hypotheses. The implications of these findings are discussed in the final chapter.

Table 5
Correlation Matrix of Patient Solidarity and Orientation with Related Physician Behaviors

Patient Behaviors	Physician Behaviors				
	Agreement/ Understanding	Request Opinion/ Suggestions	Request Questions	Give Information/ Opinion	Ask Questions
Solidarity	0.3924	0.5438**	0.4907*	0.0946	-0.0543
Voluntary Orientation	0.8309***	-0.1315	-0.0708	0.6471**	-0.4218*

Note: N = 17. Correlations represent behaviors from all segments of the interview.
* $p \leq .05$, ** $p \leq .01$, *** $p \leq .001$

CHAPTER FOUR

DISCUSSION

Perhaps Rowland-Morin and Carroll (1990) expressed it best: "If it is true that patient satisfaction is significantly affected by the interviewing style of doctors, then it is important to identify specific variables in the interviewer's style that produce such an effect" (p. 173). This study has attempted to do just that. The ability of a physician to discern dissatisfaction during interaction with a patient is particularly valuable. When a physician is aware that the patient may be unhappy with the visit, s/he can take immediate steps to turn those feelings around, and thus decrease the likelihood of malpractice suits and increase the probability of the patient complying with medical advice.

This paper identified patient and physician behaviors which have been associated with satisfaction as an outcome of the medical interview. It then proposed a specially adapted translation of three coding procedures in order to tackle the challenge of identifying satisfaction and dissatisfaction as a process which develops in the interview, and which can be encouraged by specific verbal behaviors from the physician. This process is revealed by examining the correlations between physician behaviors and patient behaviors which are known to indicate satisfaction or dissatisfaction.

The developed coding system is a combination of content categories from Bales' Interaction Process Analysis, Roter's modified IPA, and Gottman's Couples Interaction Scoring System. This combination, although not completely free from the limitations of other systems, does provide for two things. The system presents a

comprehensive set of categories which are mutually exclusive and ones which are particular to the individual interactants' roles (i.e., physician and patient). It also incorporates behavior categories which have been identified by different researchers and linked to patient satisfaction. Thus, it synthesizes the findings of numerous studies.

Significant findings included a positive correlation between patients relieving tension through the expression of concerns regarding their illness or treatment and physicians showing agreement or understanding during the initial introduction and history taking segment of the medical interview. The data also revealed two significant findings regarding patient question asking behaviors. In particular, the frequency of patient questions was negatively correlated with physician questions, and positively correlated with the physician summarizing her/himself.

Several significant relationships which were not hypothesized, but which emerged in the data were relevant to patient solidarity and voluntary orientation giving. Specifically, the physician behaviors of showing agreement or understanding and giving information or opinions were positively correlated with patients freely offering information, while physicians asking questions was negatively correlated with patients giving additional information (information which was not directly requested by the physician, but which may aid in diagnosis or treatment). Furthermore, the physician behavior of requesting opinions or suggestions from patients was positively correlated with patients expressing solidarity or offering commitment.

Implications of the Findings

Disease-Related Tension Release

The first hypothesis was developed based upon research by Carter et al. (1982) which found that patient expressions of tension release are positively related to satisfaction. In the research, tension release was operationalized as statements of disease-related tension, whereby the patient shared concerns about their medical or socioemotional condition with the physician. It was posited that when these behaviors are met or encouraged by statements of agreement or understanding from the physician or statements of solidarity, they will result in higher levels of satisfaction for the patient.

This hypothesis was partially supported, with a strong correlation between physician agreement and patient tension release. This finding is significant for two reasons. First, it confirms how important it is that the physician is aware of the impact that her/his communication has on the satisfaction of the patients, and potentially on long term health behaviors. In order to make the patient feel more comfortable and to relieve their anxieties the physician must demonstrate empathy and agreement, letting the patient know that her/his concerns are valid, and that they can be dealt with effectively. Second, given that patient tension release and physician behaviors which demonstrate support and empathy were both identified in the literature as strongly correlated with patient satisfaction (Carter et al., 1982; Feletti et al., 1986; Hall et al., 1981) this findings lends support to the idea that satisfaction can be identified not only as an outcome of interaction, but as it develops in the medical interview.

Question Asking

The literature suggests that excessive questioning behaviors by the patient are indicative of dissatisfaction with the interview, because they force the patient to extract information which the physician should be offering freely. Given this premise, patient question asking should be negatively correlated with physician behaviors which are strongly correlated with satisfaction. One of these behaviors, according to Comstock et al. (1982) and Woolley et al. (1978) is physician question asking.

The hypothesized negative correlation between physician and patient question asking was supported, and has several implications. The relationship is likely due, in part, to an increased sense of physician "thoroughness." Characteristics of an ideal physician, identified by Feletti et al., (1986) which were highly associated with general satisfaction included competence in the physical domain and the amount of time spent in consultation. When the physician asks many questions of the patient, this may increase the patient's perceptions of the physician's competence and the amount of time the physician is spending with the patient, examining problems and trying to elicit valuable information from the patient. This increasing satisfaction results in a decreased need for the patient to ask questions.

These data would suggest that physicians need to be aware that their questioning behaviors are relevant to patient satisfaction, as well as to their diagnosis. By asking questions, physicians also fulfill patient needs. However, the literature does suggest that questions need to be phrased carefully. Very directive questioning may actually lead to dissatisfaction, if it communicates physician dominance (Rowland-Morin & Carroll, 1990). Questions should be open-ended. They should also be

intended to clarify patient information and express empathy. Furthermore, the physician needs to encourage questions from the patient and elicit the patient's concerns and expectations. There was a strong positive correlation between physician asking the patient if s/he had any questions or concerns and the patient's expression of solidarity ($r = .49$, $p \leq .05$).

It was further hypothesized that when a physician summarizes her/himself, this should serve to clarify and synthesize information, thereby decreasing the need for patient questions. However, instead of the anticipated negative correlation, a strong positive correlation was found between patient questions and physicians summarizing themselves.

Several things may contribute to this unexpected finding. First, as the physician summarizes things s/he has already said, further clarifying information or instruction, the patient may think of new things they want to ask and take this opportunity to be sure they understand. By summarizing earlier statements, the physician demonstrates a concern that the patient understands, and perhaps an increased willingness to take time to assist the patient. This may allow a greater opportunity for the patient to ask questions, and may make the patient feel more comfortable to ask questions. When physicians fail to review their comments, they may create an impression that they are either hurried, or not very concerned about the patient's level of comprehension. Such an impression might actually inhibit the question asking behaviors of patients.

This assumption is supported with an examination of the correlation between patient question asking and total time spent in the interview. The questions-time

relationship has a correlation of $r = .55$ ($p \leq .01$). Furthermore, the physician summarizing her/himself is also correlated with the length of interview or time spent with patient. This relationship has a correlation of .46 ($p \leq .05$). Lastly, those physicians who took the time to summarize themselves, are also the ones who more frequently asked the patient if s/he had any questions. The correlation between physician summarizing self and physician requesting questions of the patient is .49 ($p \leq .05$). This is further evidence that those physicians who were summarizing themselves may have imparted a greater sense of comfort on the patient, allowing the patient more freedom and confidence to ask questions.

Solidarity

One of the most interesting findings of this study concerned the patient expressing solidarity with the physician in overcoming difficult health situations, maintaining a prescribed health regimen, or otherwise leading a healthy lifestyle. This type of verbal behavior is a positive expression of commitment from the patient, indicating a willingness to work with the physician. As such, any behavior on the part of the physician which encourages this would be beneficial. The data revealed that two physician behaviors were highly correlated with patient expressions of solidarity: (1) requests for questions; and (2) requests for opinions or suggestions.

Therefore, important questioning behaviors in which physicians should engage are asking patients if they have any questions or concerns and seeking opinions or suggestions from patients regarding their own health. Particularly when opinions and suggestions are elicited, they seem to be accompanied by solutions in which the

patient believes and for which the patient has a high level of self-efficacy, thus increasing patient commitment. This conclusion is summarized well by Lane (1983):

> "Communication is the best method for getting at patient expectations. When patients and physicians agree about expectations regarding an illness or treatment, patients have greater expectations for improvement. Similarly, ...communicating about expectations is the best method of fulfilling them and creating treatment regimen adherence" (p. 775).

Orientation Giving

The research also found a positive correlation between patients freely volunteering information, and the physician behaviors of giving information or opinions and showing agreement or understanding. These findings would suggest first that the basic principle of reciprocal exchange applies to physician-patient interactions, so that increased disclosure of information offered by one individual is reciprocated with an increase in disclosure by the communication partner. Furthermore, it demonstrates that this reciprocal exchange is encouraged by the expression of agreement and understanding on the part of the physician. Note that listening behaviors were not correlated with patient information sharing, but rather the expression of true understanding, which differed in this coding scheme. Demonstrating listening (i.e., "okay," "yeah," and "I see") appears to be insufficient. It is important that the physician become involved in the conversation to a greater extent, showing the patients that they are aware of the implications of their information and that they empathize with them.

This last assumption relates to a hypothesis by Freemon et al. (1971) that patients perceive longer history taking as ineffective communication. Perhaps it is not necessarily the length of history taking time, but the nature of the conversation which prompts perceptions of ineffectiveness. If excessive question asking is perceived negatively by patients, then this would be consistent with the finding that increased question asking is negatively correlated with voluntary information giving. As discussed previously, Freemon et al. (1971) found that patients more favorably rate a physician who freely offers information than one who requires the patient to extract information through extensive question asking. Again, this voluntary offer of information from the physician seems to be responded to favorably with more information from the patient, increasing the length of time spent in history taking, but doing so in a productive and mutually satisfying manner.

In summary, increased disclosure of information and increased commitment from the patient are behaviors which are critical to the promotion of health as well as to the development of satisfaction. Physician should be able to promote these behaviors by expressing more understanding and agreement with patients, as well as by taking time to elicit the opinions, suggestions and questions of patients. These findings offer valuable insight into improving the physician-patient interaction.

Limitations and Directions for Future Research

Several limitations of the present research must be acknowledged. Each of these limitations, however, provide opportunities for future research which can strengthen our understanding of communication in the health care setting and help in the development of more effective medical interviews.

Methodological Issues

First, several hypothesized relationships were not supported. Weaknesses in the data set and methodology could account for the lack of significant findings. In this section, a number of problems common to several of the unsupported hypotheses will be discussed, and potential solutions presented.

Consistently, when hypotheses were not supported, one problem was too few instances of a behavior. If there is an insufficient amount of data for any variable, then it becomes difficult to correlate that variable with other variables, and the problem is defined as a "restriction of range." This was the case for a number of variables in this study. In particular, there were very few utterances of patient tension, patient repetitiveness, and physician solidarity. (The average transcript had fewer than two utterances of patient repetition, while no single transcript had more than three occurrence of this behavior. Refer to Table 2).

A second problem that emerged in this research regards the method of analysis itself. For at least one hypothesis, the use of correlations may not be appropriate. For instance, the hypothesis for patient expressions of non-disease tension was originally formulated with the assumption that if such behaviors continued, they would lead to greater overall dissatisfaction with the physician. In order to circumvent such tension and avoid the development of dissatisfaction, it was suggested that physicians would need to demonstrate understanding of the expressed concerns and offer solidarity to the patient. However, these relationships were not found. It is suggested that since understanding and solidarity may be expressed in conjunction with any number of patient behaviors (and not just tension statements) they will often occur in the absence

of any tension. Thus, an observed correlation with tension may not necessarily indicate a direct relationship between the two behaviors.

Potential Solutions

There are at least two potential solutions to these problems. The first would be to gather more data. With 30 or more transcripts one might be able to find sufficient levels of solidarity, tension and repetition to test the hypotheses and find some support. It is interesting, however, to observe that the variables which occurred most infrequently on the patient's behalf are those which are most highly correlated with dissatisfaction. This points to a potential problem with the sample. It may be that the patients in the transcripts obtained for this research were largely satisfied with their physicians. Hopefully, a larger sample would correct for this as well, providing a more even distribution of satisfied and dissatisfied patients.

The second potential solution to the problems encountered with the research, would be the utilization of different methods of analysis. For instance, correlations are problematic when behaviors may occur in response to numerous variables. This was the case described with physician expressions of agreement or understanding and statements of solidarity. Sequential analysis techniques such as phase mapping allow the researcher to examine series of conversation and determine what types of behaviors accompany other behaviors. That is, for each patient expression of non-disease tension, one would be able to see what physician verbal behaviors immediately proceeded and followed the patient's utterance. Another potential advantage to this technique is that it would allow the researcher to make conclusions about causation, which can not be inferred from correlations.

Conceptual Issues

Another limitation of the research is its focus on verbal interaction. Communication is a highly complex process which naturally involves more than verbal behaviors. The coding scheme developed in this research was designed for and applied only to transcribed interactions. Thus, all non-verbal behaviors were overlooked. It is possible that non-verbal cues, such as facial expressions and body movement, as well as vocal qualities such as tone of voice, rate of speech, and pitch, would play a significant role in demonstrating patient satisfaction and dissatisfaction. To some extent physicians may already be able to interpret these cues and any verbal behaviors which they exhibit in response to non-verbal messages, would be misinterpreted in this research. It is important that further research is undertaken which specifically identifies the relationship between various non-verbal or vocal cues and patient satisfaction, and that these behaviors are examined in conjunction with physician verbal and non-verbal behaviors. This would provide a bigger picture of the medical interview as well as more precise tools for physician communication training.

An additional concern involves contradictions in the literature and the present findings regarding patient questioning behaviors. Given that frequent question asking (which is purported to indicate dissatisfaction) was negatively correlated with one positive physician behavior and positively correlated with another, it is not clear if excessive patient questioning necessarily indicates dissatisfaction. There may be a problem with how the coding scheme grouped directive, closed-ended questions with probing and open-ended questions for both the patient and the physician. There are known differences in how physician questions affect patient satisfaction, but the

coding scheme does not adequately address these differences. However, there are other possibilities which may account for the inconsistencies. For example, one or more of the variables believed to be associated with satisfaction, particularly patient question asking, may be poorly specified. There may also be a curvilinear relationship between the frequency of patient questions and satisfaction. This points to a need for further research.

Future Research

Research is still needed at several levels. One, researchers must continue to identify patient and physician variables which are associated with satisfaction. This will require that outcome measures such as self-reports and third-party observations of satisfaction continue to be used. Second, relationships between physician and patient behaviors need to be explored further. By refining the coding scheme and applying it to a wider sample of interactions, significant relationships may still be found, and hypotheses which were not supported here may be substantiated. Third, as research continues to identify variables associated with satisfaction as an outcome, it may be beneficial to merge methodologies. That is, when researchers collect outcome data (with self-report or third-party observation measures), they should collect recordings of the interaction and use interaction analysis as well to obtain process measures of satisfaction. This may help identify where there are differences, and allow researchers to better understand some of the weaknesses of each methodology, while permitting a broader perspective on patient satisfaction. Potentially, such a perspective may also help to more clearly define patient satisfaction.

Pragmatic Relevance

"Descriptions or even predictions of those aspects of communication which are related to positive effects are not highly meaningful if communication cannot be improved as a result" (Roter, Hall, & Katz, 1988, p. 112). While the coding scheme presented here requires some additional refining, it does have practical implications for physician training in communication and psychosocial medicine. By using this system to link physician behaviors and patient behaviors which contribute to satisfaction, we can confirm the ways in which the physician can recognize the development of satisfaction in the process of interaction, and thus intercede in the development to facilitate higher levels of satisfaction. This research has identified a number of physician behaviors which may have a positive impact on patient satisfaction. It is the responsibility of communication scholars to continue to identify such behaviors and then to incorporate them into training programs designed to improve physician communication.

Summary

Sir William Osler's words about listening to the patient ring true today as they did 90 years ago. However, the present research has demonstrated that listening is not enough. Physicians must take an active role in the medical encounter, recognizing patient cues and communicating effectively using a number of techniques in order to encourage the development of patient satisfaction. Furthermore, they must be acutely aware of their own communicative behaviors and how they impact patient satisfaction. Although listening is certainly an important technique, asking questions of and specifically eliciting questions and opinions from the patient are critical, as are freely

offering information and expressing commitment to the patient. With greater attention to these issues, improvements can be made in the health care system.

APPENDICES

APPENDICES

Appendix A: Characteristics of an "Ideal" Physician[3]

Characteristic	Description
1. Competence in a physical domain	Perception of the physician's ability to understand and cure their illness.
2. Competence in the emotional domain[4]	Perceptions of the physician's understanding of the importance of their emotional status.
3. Competence-social awareness[4]	Perceptions of the physician's understanding of the interaction between patient's health and their relationship with significant others.
4. The physician as a model	Perceptions of whether or not the physician modeled a desirable style of living.
5. Amount of time for consultation[4]	Perceptions of the physician giving adequate time and attention to their problem.
6. Perceived amount of continuity of care by the physician	Perceptions of whether or not they felt the doctor was providing adequate follow-up care.
7. Mutual understanding in the doctor-patient relationship[4]	Perceptions of whether or not they felt they were treated as an equal partner in decision regarding their health care.
8. Patients' perceptions of their individuality	Perceptions of whether they were treated as unique individuals or as "yet another" medical complaint.
9. Information transfer[4]	Perceptions of the value of information supplied to them by the doctor and their perceptions of the style with which such transfer of knowledge occurred.
10. Competence-Physical examination	Perceptions of the thoroughness, care, and gentleness with which the physician conducted the examination.

Appendix B: Bales' Interaction Process Analysis Categories[5]

Category	Description
1. Shows solidarity	raises other's status, gives help, rewards
2. Shows tension release	jokes, laughs, shows satisfaction
3. Agrees	shows passive acceptance, understands, concurs, complies
4. Gives suggestion	direction, implies autonomy for other
5. Gives opinion	evaluation, analysis, expresses feeling, wish
6. Gives orientation	information, repeats, clarifies, confirms
7. Asks for orientation	information, repetition, confirmation
8. Asks for opinion	evaluation, analysis, expression of feeling
9. Asks for suggestion	direction, possible ways of action
10. Disagrees	shows passive rejection, formality, withholds help
11. Shows tension	asks for help, withdraws
12. Shows antagonism	deflates other's status, defends or asserts self

Appendix C: Sources of Tension Statements[6]

Source	Description
1. Disease	pain or restriction of activities
2. Treatment	urgent need for specific treatment, no desire for recommended treatment, ineffectiveness of treatment
3. Facility organization	waiting time medication dispensing
4. Other doctors	withholding information, ignoring problems, incompetence
5. This interview	inattentiveness, lack of understanding, demanding behavior of physician
6. Psychosocial	patient's perceptions of self, relationships to friends and family, socioeconomic situation now or in the past

Appendix D: Roter's Modified Interaction Process Analysis Categories[7]

Physician	Patient
1. Personal remarks	1. Personal remarks
2. Shows approval, gives compliment	2. Shows approval, gives compliment
3. Statement, gives information, opinion	3. Statement, gives information, opinion
4. Gives direction, instruction	4. Request for medication
5. Asks questions	5. Bid for clarification
6. Direct request for questions	6. Asks for questions
7. Shows agreement and/or understanding	7. Shows agreement and/or understanding
8. Shows disagreement or criticism	8. Shows disagreement or criticism

ENDNOTES

1. The six test transcripts were obtained courtesy of Dr. Debra Roter at Johns Hopkins University.

2. The transcripts for the full-scale research were obtained from Dr. Nancy Ainsworth-Vaughn of Michigan State University.

3. Reproduced from Feletti, Firman, and Sanson-Fisher, 1986, p. 392.

4. Factors which are directly related to a physician's ability to communicate effectively with the patient.

5. Table reproduced from Inui, Carter, Kukull, and Haigh, 1982, p. 539.

6. Table reproduced from Carter, Inui, Kukull, and Haigh, 1982, p. 562.

7. Table reproduced from Wasserman and Inui, 1983, p. 287.

LIST OF REFERENCES

Anderson, R., Fleming, G.V., Aday, L.A., & Aguirre, M. (1979). *Consumer viewpoint: "What is health care and what do we want?" and a response* (U.S. Department of Health Education and Welfare, DHEW Publication HRA 79-632). Washington DC: Government Printing Office.

Beckman, H., Kaplan, S., & Frankel, R. (1989). Outcome based research on doctor-patient communication: A review. In M. Stewart & D. Roter (Eds.) *Communicating with medical patients.* pp. 223-227. Newbury Park, CA: Sage.

Carter W., Inui, T., Kukull, W., & Haigh, V. (1982). Outcome-based doctor-patient interaction analysis II. Identifying effective provider & patient behavior. *Medical Care*, 20, 6, 5-50-566.

Comstock, L.M., Hooper, E.M., Goodwin, J.M., & Goodwin, J.S. (1982). Physician behaviors that correlate with patient satisfaction. *Journal of Medical Education*, 57, 105-112.

Davis, M.S. (1968). Variations in patients' compliance with doctors' advice: An empirical analysis of patterns of communication. *American Journal of Public Health*, 58, 274.

Davis, M.S. (1971). Variation in patients' compliance with doctors' orders: Medical practice and doctor-patient interaction. *Psychiatry in Medicine*, 2, 31-54.

Donabedian, M.S. (1982). *The Criteria and Standards of Quality.* Ann Arbor, MI: Health Administration Press.

Feletti, G., Firman, D., & Sanson-Fisher, R. (1986). Patient satisfaction with primary-care consultations. *Journal of Behavioral Medicine*, 9, 4, 389-399.

Freemon, B., Negrete, V., Davis, M., & Korsch, B. (1971). Gaps in doctor-patient communication: Doctor-patient interaction analysis. *Pediatric Research*, 5, 298-311.

Gottman, J.M. (1979). *Marital Interaction: Experimental Investigations.* New York: Academic Press.

Hall, J.A., Roter, D.L., & Rand, C.S. (1981). Communication of affect between patient and physician. *Journal of Health and Social Behavior*, 22, 18-30.

Hulka, B., Kupper, L., Cassel, J., & Mayo, F. (1975). Doctor-patient communication and outcomes among diabetic patients. *Journal of Community Health*, 1, 1, 15-27.

Inui, T.S., & Carter, W.B. (1985). Problems and prospects for health services research on provider-patient communication. *Medical Care*, 23, 5, 521-532.

Inui, T., Carter, W., Kukull, W., & Haigh, V. (1982). Outcome-based doctor-patient interaction analysis I: Comparison of Techniques. *Medical Care*, 20, 6, 535-549.

Lane, S.D. (1983). Compliance, satisfaction, and physician-patient communication. In R. Bostrom (Ed.), *Communication Yearbook 7*, 772-799. Beverly Hills, CA: Sage.

Ley, P., Bradshaw, P., Kincey J., & Atherton, S. (1976). Increasing patients' satisfaction with communications. *British Journal of Social and Clinical Psychology*, 15, 403-413.

Mishler, E., Clark, J., Ingelfinger, J., & Simon, M. (1989). The language of attentive patient care: A comparison of two medical interviews. *Journal of General Internal Medicine*, 4, 325-335.

Oksenberg, L., & Cannell, C. (1977). Some factors underlying the validity of response in self report. *Bull. Int. Stat. Inst., XLVII*, 3, 325-346.

Roter, Debra. (1989). Which facets of communication have strong effects on outcome: A meta-analysis. In M. Stewart & D. Roter (Eds.) *Communicating with medical patients.* pp. 183-196. Newbury Park, CA: Sage.

Roter, D.L., & Hall, J.A. (1987). Physicians' interviewing styles and medical information obtained from patients. *Journal of General Internal Medicine*, 2, 325-329.

Roter, D., Hall, J., & Katz, N. (1987). Relations between physicians' behaviors and analogue patients' satisfaction, recall, and impressions. *Medical Care*, 25, 5, 437-451.

Roter, D., Hall, J., & Katz, N. (1988). Patient-physician communication: A descriptive summary of the literature. *Patient Education and Counseling*, 12, 99-119.

Rowland-Morin, P.A., & Carroll, J.G. (1990). Verbal communication skills and patient satisfaction: A study of doctor-patient interviews. *Evaluation and The Health Professions*, 13, 2, 168-185.

Smith, R., Osborn, G., Hoppe, R., Lyles, J., Van Egeren, L., Henry, R., Sego, D., Alguire, P., & Stoffelmayr, B. (1991). Efficacy of a one-month training block in psychosocial medicine for residents: A controlled study. *Journal of General Internal Medicine*, 6, 535-543.

Smith, R.C., & Hoppe, R.B. (1991). The patient's story: Integrating the patient- and physician-centered approaches to interviewing. *Annals Internal Medicine*, 115, 470-477.

Stewart, Moira A. (1984). What is a successful doctor-patient interview? A study of interactions and outcomes. *Social Science Medicine*, 19, 2, 167-175.

Stiles, W.B. (1979). Discourse analysis and the doctor-patient relationship. *International Journal of Psychiatry in Medicine*, 9, 3, 263-273.

Stiles, W.B., Putnam, S.M., & Jacob, M. C. (1982). Verbal exchange structure of initial medical interviews. *Health Psychology*, 1, 4, 315-336.

Stiles, W.B., Putnam, S.M., Wolf, M.H., & James, S.A. (1979). Interaction exchange structure and patient satisfaction with medical interviews. *Medical Care*, 17, 667-681.

Stone, G. (1979). Patient compliance and the role of the expert. *Journal of Social Issues*, 35, 1, 34-59.

Waitzkin, Howard. (1984). Doctor-patient communication: Clinical implications of social scientific research. *Journal of the American Medical Association*, 252, 17, 2441-2446.

Ware, J., Davies-Avery, A., & Stewart, A. (1977). *The measurement and meaning of patient satisfaction: A review of the literature.* Santa Monica, CA: Rand Corporation.

Wasserman, R.C., & Inui, T.S. (1983). Systematic analysis of clinician-patient interactions: A critique of recent approaches with suggestions for future research. *Medical Care*, 21, 3, 279-293.

Wolf, M., Putnam, S., James, S.A., & Stiles, W. (1978). The medical interview satisfaction scale: Development of a scale to measure patient perceptions of physician behaviour. *Journal of Behavioural Medicine*, 1, 4, 391-401.

Woolley, F.R., Kane, R.L., Hughes, C.C., & Wright, D.D. (1978). The effects of doctor-patient communication on satisfaction and outcome of care. *Social Science and Medicine,* 12, 123-128.