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ABSTRACT

Since the ultimate effectiveness of any health care encounter rests in the provider's ability to gain the compliance of his or her client toward the prescribed medical treatment, a study compared clients' perceptions of the compliance-gaining strategies of both physicians and nurse practitioners, and investigated whether these perceptions were mediated by clients' self-reported health locus of control, or by seriousness of illness. Subjects, 121 students at a large midwestern university who had visited the campus Student Health Center within the last 4 months, rated compliance-gaining strategies for both physicians and nurse practitioners across three health care scenarios. The three scenarios represented the extremes and the median in subjects' severity of illness ratings of 10 health care scenarios. Results indicated that subjects perceived physicians more favorably than nurse practitioners in their use of the "request for feedback" strategy across all three health care scenarios. Nurse practitioners were perceived more favorably than physicians in their use of the "reassurance and empathy" strategy in one of the three scenarios. Perceptions of physician and nurse practitioner use of the remaining four strategies did not differ significantly. In addition, self-reported locus of control did not discriminate subjects' perceptions of health care provider, compliance-gaining strategy, or severity of illness. (Nine tables of data are included; 47 references and three appendixes--containing a list of compliance-gaining strategies, a health locus of control scale, and the 10 medical scenarios--conclude the study.) (SR)

A COMPARISON OF SUBJECTS' PERCEPTIONS OF PHYSICIAN AND NURSE PRACTITIONER COMPLIANCE-GAINING STRATEGIES

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A COMPARISON OF SUBJECTS' PERCEPTIONS OF PHYSICIAN AND NURSE PRACTITIONER COMPLIANCE-GAINING STRATEGIES

ABSTRACT

The rising cost of health care has prompted the search for more cost effective health care administration. Nurse practitioners may assist cost reduction by providing primary care for significantly lower fees than physicians. However, since cost effectiveness rests on the patient's willingness to comply with the health care regimen, perceptions of nurse practitioners' compliance-gaining strategies become a focal point. In this study subjects rated compliance gaining strategies generated inductively in the health care setting by Lane (1983) for both physicians and nurse practitioners across three health care scenarios. The three scenarios represented the extremes and the median in subjects' severity of illness ratings of ten health care scenarios. Results indicated that subjects perceived physicians more favorably than nurse practitioners in their use of the "requests for feedback" strategy across all three health care scenarios. Nurse practitioners were perceived more favorably than physicians in their use of the "reassurance and empathy" strategy in one of the three scenarios. Perceptions of physician and nurse practitioner use of the remaining four strategies did not differ significantly. In addition, self-reported health locus of control did not discriminate subjects' perceptions of health care provider, compliance-gaining strategy, or severity of illness.

The rising cost of health care has prompted the search for more cost effective health care administration. A case study by the Office of Technology Assessment (Health Technology Case Study 37, 1986) indicated that nurse practitioners may assist cost reduction by providing primary care for significantly lower fees than physicians currently charge, thereby lowering costs to third-party reimburser, patients, society, and even physicians themselves. Poirer-Elliot (1984) claimed that the addition of a non-physician health care professional to a physician's office increased total office visits by 40 to 50 percent, while the replacement of a physician with a non-physician health care professional resulted in a savings of $34,000 per year. Mahoney (1985) concluded that nurse practitioners "can stimulate competition and lower overall health costs" (p. 50).

In a survey of several studies examining the differences in the quality of care provided by nurse practitioners and physicians (Health Technology Case Study 37, 1986), the quality of nurse practitioner care exceeded that of physicians in five of six "process" measures (e.g., thoroughness of documentation of diagnosis and treatment information) and in seven of eight "outcome" measures (e.g., level of patient awareness of provider orders). As a result, the OTA Case Study concluded that "within their areas of competence, nurse practitioners . . . provice care whose quality is equilvalent to that of care provided by physicians . . . (and) are more adept than physicians at providing services that depend on communication with patients"

(pp. 5-6, italics ours).

While the productivity and quality of care afforded by nurse practitioners makes them a viable option in the battle against rising health care costs, the ultimate effectiveness of any health care encounter resides in the providers' ability to gain the compliance of his or her client toward the prescribed medical treatment. A client's unwillingness to adhere to a treatment regimen may result in a waste of health resources (Stone, 1979). Indeed, the health care encounter has been depicted as an influence process (Reardon, 1988; Smith & Pettegrew, 1986). Kasch and Knutson (1986) have suggested that nurse practitioners and physicians may have different orientations toward the health care encounter and the exercise of this influence:

> Whereas the physician role has been technical, restorative, and cure-oriented, socialization within nursing has tended to stress more egalitarian relationships, equal access to knowledge and information, and involvement of the patient in self-care decision-making. It may be that the ability of the expanded role nurse to collaborate with the patient represents an important and distinct contribution which nurse practitioners make in primary health care (p. 66).

Indeed, Taylor, Pickens, & Geden (1989) found differences between nurse practitioners' and physicians' interactional styles regarding patient decision-making. Other studies have examined the influence patterns exhibited by physicians and subjects' perceptions of those patterns (e.g., Burgoon, et al., 1987; Lane, 1983; Street & Wiemann, 1987). However, our literature search uncovered no study that compared subjects' perceptions of the

compliance-gaining strategies of both physicians and nurse practitioners. If subjects perceive the influence attempts of physicians and nurse practitioners differentially, those differences and their potential impact on patient compliance must be described and explained. Consequently, we will address the following research question:

> RQ1: Will subjects' perceptions of physicians' compliance-gaining strategies differ from their perceptions of nurse practitioners' compliance-gaining strategies?

COMMUNICATION IN THE HEALTH CARE SETTING

Nursing scholars recognize the centrality of the communication process to the delivery of health. Kasch and his associates (Kasch, 1984; Kasch & Lisnek, 1984; Kasch, 1986; Kasch & Knutson, 1986) have proposed a theory of nursing action grounded in social cognitive and interpersonal communication competence. Social cognitive competence is "a function of the individual's progressive capacity to control the interpretive and attributional processes involved in social perception" (Kasch, 1984, p. 77), while interpersonal or strategic message competence entails the "caregiver(s) capacity to use language strategically in the intervention phase of the nursing process" (Kasch, 1984, p. 79). Kasch and Lisnek (1984) subsequently developed a hierarchally ordered coding system to analyze strategic communication. Their system is based on the assumption that "the ability to adapt communication to different demands requires a high level of interpersonal competence" (p. 64). Kasch (1986) asserts, and Flaskerud (1986) concurs, that the identification of

skills distinct to the practice of nursing will emphasize the contributions the profession can make to the health care field. He advocates viewing communication as a resource in the administration of health care.

Instruments developed to measure nurse practitioner-client interaction reflect this orientation. Kasch and Knutson (1986), in explaining the potential benefits to be derived from their Functional Message Behavior Inventory (FMBI), stress that problems arising in the health care encounter "are resolvable primarily through communicative techniques" (p. 66). The FMBI is described as a framework for measuring the primary care process, and encompasses five phases of the nurse practitioner-client encounter: establishment and maintenance of a positive interpersonal bond; taking a comprehensive history and conducting a physical examination; collaboration; strategic communicative nursing action; and terminating the encounter.

Fenton (1987) developed and refined a scale for the measurement of humanistic nursing behaviors based on Howard's (1975) theoretical model of dimensions of humanistic care. A final scale of 70 items measuring four dimensions (shared decision-making responsibility, holistic selves, status equality, andempathy) was derived. Webster-Stratton, Glascock, and McCarthy (1986) used the Interpersonal Behavior Constructs (IBC) system to analyze nurse practitioner-client during well-child visits. They describe the IBC as "a clinically based system of interactional analysis for assessing clinician-patient interactions" (p. 247). The IBC consists of 17 categories of

behavior which are summed to form five verbal dimensions of provider-client interaction. These dimensions include positive and negative affect statements, the process of eliciting information, and giving and responding to information. The specific behaviors referenced by these dimensions focus on the degree of consensus and support engendered by the practitioner.

Taylor, Pickens, and Geden (1989) applied the ethical concepts of paternalism, maternalism, and shared decision-making to videotaped interactions of 85 physicians and 42 nurse practitioners. The ethical concepts were operationalized as command, consequence, and concordance statements, respectively. Results revealed that physicians used more command and fewer consequence statements than nurse practitioners, who used fewer command and more consequence than physicians. Both groups of health care providers used concordance statements significantly less than command or consequence statements, indicating little shared decision-making.

Since the purpose of their study was to describe interactional styles of physicians and nurse practitioners, Taylor et al. did not obtain clients' perceptions of the health care providers' statements. These statements resemble the compliance-gaining strategies assessed in other studies. A review of those studies may assist further interpretation of the Taylor et al. results.

Several researchers have focused on the specific nature of the strategy or tactic employed by the provider to gain patient compliance. For instance, Marston (1970), Schmidt (1977), and

Dembroski, Lasater, and Ramirez (1978) discuss the relative efficacy of "fear communications." Heszen-Klemens (1987) conducted interviews with 63 physicians to determine their attitudes and beliefs toward noncompliance, and then analyzed tape-recorded provider-patient interactions. She found that physicians were most likely to use or indicate they would use the following strategies in response to noncompliance: medical threat; tolerant, indulgent dealing with the patient with eventual reiteration of the physician's regimen; authoritarian tactics; medical information; and physician withdrawal.

Street and Wiemann (1987) applied a "functional" approach to the study of physician-client interaction. According to the authors, a functional approach "entails the effort to group interactants' behavioral patterns according to some purpose or meaning that the pattern has for the interaction and the interactants" (p. 592). They discovered that interpersonal involvement and expressiveness demonstrated strong positive relationships and dominance a strong negative relationship with patient satisfaction. Patient anxiety and sex medicated those relationships.

Client perceptions of provider compliance-gaining strategies have incorporated the relational communication perspective. Relational communication refers to the affective or noncontent level of communication, and provides interactants' definitions of their relationship (Watzlawick, Beavin, & Jackson, 1967). Ben-Sira (1967) has argued that client satisfaction is determined by the relational rather than the content level of communication.

Burgoon, et al. (1987) hypothesized that provider compliance-gaining strategies based on Marwell and Schmitt's (1967) taxonomy would have relational connotations along the dimensions of composure, immediacy, dominance, formality, similarity, and receptivity (Burgoon & Hale, 1984, 1987). Canonical correlation analyses did not reveal a significant relationship between the 17 Marwell and Schmitt strategies and the six relational themes. However, a secondary analysis, in which composites of the similarity/immediacy and receptivity/composure dimensions were analyzed together along with the original dimensions of dominance and formality, did produce a significant canonical correlation.

Specifically, moral appeal, self-feeling, and altruism strategies showed positive associations with the composure dimension. Debt strategies were negatively correlated with both the composure and immediacy dimensions. Self-feeling and negative altercasting strategies conveyed dominance, while negative expertise strategies indicated similarity. Promise, negative expertise, liking, positive and negative moral appeal, and negative altercasting strategies denoted formality. Finally, positive expertise and debt strategies were associated with negative receptivity, which was positively related to negative self-feeling. These findings provide considerable support for the argument that compliance-gaining strategies have both content and relational levels.

Edgar and Fitzpatrick (1988) used the Verbal Interaction Compliance-Gaining Scheme (VICS) of Witteman and Fitzpatrick (1986) as a framework for message strategies sexual partners

might employ when persuading a partner to practice safe sex. they identified three bases of power individuals might use in their influence attempts. Activity and power messages focus on the consequences of compliance or noncompliance; us, direct and search messages reference the interactants' relationship; and me, you, and external messages attempt to invoke the target's values or obligations. While Edgar and Fitzpatrick's application of the VICS involved partners in a relationship, the message themes might easily be applied to the provider-patient encounter.

Lane (1982, 1983) developed and tested a taxonomy of compliance strategies derived inductive from actual provider-patient interaction. She identified three dimensions of strategies: task/informational, personal, and threatening. She predicted that physicians would use a combination of task/infor ational-threatening tactics more than any other combination of strategies. In addition, she hypothesized that providers would employ personal tactics the least, and that patient satisfaction and compliance would be facilitated by the use of task/informational and personal tactics, but hindered by the use of threatening tactics.

Data collected from 121 provider-patient interactions at a podiatric clinic revealed that task/informational-personal tactics were utilized more often than both task/informational-threatening and personal-threatening techniques. Providers also used task/informational tactics significantly more than personal or threatening tactics. Interestingly, multiple regression analyses indicated that the following tactics had small negative

correlations with patient satisfaction: "reviewing and reinforcing information," "personal other," and "encouragement and motivation." Patient compliance, on the other hand, correlated positively with the following tactics: "explanation of treatment side regimen," "name calling," "praise or approval," "explanation of treatment side effects," "reassurance and empathy," "caring, friendship, and social support," "threats," and "reviewing and reinforcing information."

A comparison of Lane's taxonomy with the command, consequence, and concordance categories of Taylor et al. (1989) may shed some light on the findings of the latter study. Command statements (e.g., "You will . . .", "You must . . .") correspond with Lane's authoritarian words strategy, while consequence messages (e.g., "If you don't . . . then . . .") parallel Lane's fear appeals and negative consequences strategy. However, concordance statements (e.g., "What do you think?" "We can talk about . . .") have no clear correspondence with any Lane tactic. Shared decision-making messages appear to focus on getting patients' interpretation of their condition, a perception that would more likely be solicited (or offered) during the establishment or maintenance of the interpersonal bond or collaboration phases of the encounter (see Kasch & Knutson, 1986). We are not arguing that shared decision-making messages are not influence attempts; however, it is an indirect attempt that may be far removed from the strategic message phase (again, see Kasch & Knutson, 1986) of the provider-patient encounter. Moreover, shared decision-making simply may not be a viable

option in some health care encounters.

In any event, it is interesting that Lane and Taylor et al. obtained contradictory findings. Lane found the physicians in her study used task/informational strategies most frequently, while the physicians and nurse practitioners in the Taylor et al. study used threatening strategies more often. Variations in taxonomy specificity, coder idiosyncrasies, provider and patient characteristics, and the nature of the illness involved could all contribute to this disparity. In addition, Taylor et al's. hypothesis that physicians would use paternalistic and nurse practitioners maternalistic strategies raises the issue of the role of gender in the health care setting. Some studies confirm not only that males and females are more likely to select and use different compliance-gaining strategies, but also that people expect males and females to vary in that selection and base their evaluations of strategies on those expectations (Burgoon, Dillard, & Doran, 1983; Burgoon, Dillard, Koper, & Doran, 1984; DeTurck, 1985). Since most physicians are male and most nurse practitioners are female, the gender issue seems especially germane to the study of compliance-gaining strategies in the health care setting.

Mediating Factors

Health Locus of Control. The preceding discussion of compliance-gaining strategies supports the depiction of the health care encounter as an influence process (Arnston, 1985; Jaspars, King, & Pendleton, 1983; Pendleton, 1983; Reardon, 1988; Smith & Pettegrew, 1986). Some scholars have demonstrated how

individuals' expectancies for internal or external control impact their reaction to social influence (Lefcourt, 1982; Sandler, Reese, Spencer, & Harper, 1983). Other researchers have bridged these two views by investigating the relationship between health locus of control and the processing of health related messages (Abella & Heslin, 1984; Albrecht & Adelman, 1987; Arnston & Droge, 1987; Brenders, 1989; Jaspars, King, & Pendleton, 1983; Northouse & Northouse, 1985; Strickland, 1978; Wallston, Maides, & Wallston; Wallston & Wallston, 1978; Wallston, Wallston, Kaplan, & Maides, 1976).

Brenders (1989) emphasizes the importance of adapting health related messages to accomodate the client's control orientations, and suggests that the enthymematic link between these two variables provides the best interpretation of the provider-patient interaction. According to Brenders, "enthymemes, as incomplete arguments, invite the hearer to supply premises from his/her own beliefs in a way that completes the argument and support the conclusion in question" (p.). Researchers in the health care field have recognized the importance of accomodating the patient's psychosocial needs in the health care encounter (Boza, et al., 1987; Matthew & Hingsdon, 1977; Speedling & Rose, 1985; Stone, 1979; Tilden, 1986). Others have suggested that these psychosocial needs have a considerable impact in determining how individuals define their relationships, and assert that the formulation of messages congruent with those needs should enhance the effectiveness of influence attempts (Arnston, 1985; Gillum & Barsky, 1974; Hall, Roter, & Rand, 1981;

Warner, 1981; Weinberger, Greene, & Mamlin, 1982). Jaspars, King, and Pendleton (1983) considered health locus of control a vital component of the consultation process, and incorporated it into their proposed attribution-health belief model. Therefore, we will address a second research question:

> RQ2: Will subjects' perceptions of health care providers compliance-gaining strategies differ as a function of their self-reported locus of control?

The Health Belief Model (Rosenstock, 1974) includes perceived seriousness of illness as a component. Since it has been suggested that the subjective nature of illness increases the saliency of peceptions of control (Arnston & Droges, 1987; Ben-Sira, 1976; Strickland, 1978; Sullivan & Reardon, 1985; Wallston, Maides, & Wallston, 1976), the seriousness of illness may affect perceptions of control and, in turn, the processing of influence attempts, raising the following research question:

> RQ3: Will seriousness of illness affect subjects' perceptions of health care provider's compliance-gaining strategies?

Finally, since it is possible that clients may have different perceptions of physicians' and nurse practitioners' expertise, the seriousness of an illness may affect perceptions of physicians' and nurse practitioners' compliance-gaining strategies. Thus, we addressed the following research question:

> RQ4: Will subjects perceptions of physicians' and nurse practitoners' compliance-gaining strategies differ as a function of seriousness of illness?

METHOD AND PROCEDURES

Data Collection

Data collected in this study will address the following research questions:

RQ1: Will subjects' perceptions of physicians' compliance-gaining strategies differ from their perceptions of nurse practitioners' compliance-gaining strategies?

RQ2: Will subjects' perceptions of health care providers' compliance-gaining strategies differ as a function of their self-reported health locus of control?

RQ3: Will seriousness of illness affect subjects' perceptions of health care providers' compliance-gaining strategies?

RQ4: Will subjects' perceptions of physicians' and nurse practitioners' compliance-gaining strategies differ as a function of seriousness of illness?

Subjects

One hundred twenty-one volunteers from various speech communication classes at a large midwestern university participated in this study. All volunteers had visited the campus' Student Health Service within the past four months. Each subject completed the battery of instruments listed below.

Instrumentation

Compliance-Gaining Strategies. Since Lane's (1982; 1983) taxonomy of compliance-gaining strategies (see Appendix A) was derived inductively in a health care setting, tactics representing these strategies were employed in this study. Specifically, two tactics from each of three strategies--task/informational; personal; and threatening--were selected on the

basis of likelihood-of-use responses of seven physicians, three nurse practitioners, and seven nurses functioning in an expanded role of the student health service at a large midwestern university. Some examples of the tactics were revised to accomodate the medical condition.

General Evaluation Scales. Selection of general evaluation scales was based on the work of Cronkhite (1977). Cronkhite asked 225 subjects from ten subpopulations to rate nine concepts on a set of 39 evaluative semantic differential scales. Nineteen separate factors analyses were conducted to elucidate the concept-scale, rater-scale, concept-rater-scale interactions. Results revealed that six scales comprising a first factor always loade above .60 on that factor regardless of concept, raters, or concept-rater combination. Another nine scales loaded above .50 on the first factor of all analyses. From these fifteen scales we chose the following six a priori on the basis of their suitability to evaluations of health care provider compliance-gaining attempts: foolish-wise; friendly-unfriendly; right-wrong; pleasant-unpleasant; kind-unkind; uncooperative-cooperative. Responses on the six scales were summed to produce one general evaluation score for each tactic.

Locus of Control. Subjects' perceived health locus of control was assessed with Wallston, Wallston, Kaplan, and Maides' (1976) Health Locus of Control (HLC) Scale (see Appendix B). The HLC Scale is "an area-apecific measure of expectancies regarding

locus of control developed for prediction of health-related behavior" (p. 580). It contains five internally-focused and six externally-focused Likert-type items with responses ranging from one (1) for "Strongly Agree" to seven (7) for "Strongly Disagree". Scoring for all the internally worded items was reversed. Subjects were categorized as internally or externally controlled on the basis of a median split.

Medical Scenarios. In order to obtain maximum variability with a limited number of situations, the second author generated ten medical scenarios describing the symptoms, diagnoses, and treatment for the following medical conditions (see Appendix C): depression; mononucleosis; strep throat; corneal abrasion; chlamydia; migraine headache; intestinal flu; broken ankle; appendicitis; concussion. This information was provided to facilitate subjects' understanding and appreciation of the medical condition. These medical conditions were subsequently administered to a sample of 22 subjects, who were asked to indicate their perceptions of the conditions' seriousness on a seven-point Likert scale ranging from one (1) for "very serious" to seven (7) for "not at all serious". Scenarios representing the extremes and midpoint of the continuum were used in the experiment. All scenarios were written with both a physician and a nurse practitioner in the health care provider role.

Data Analysis

A 2 X 3 X 3 X 2 factorial design with repeated measures on three variables was employed. The variables were health care provider (physician, nurse practitioner); compliance-gaining strategy (task/informational; personal; threatening); locus of control (internal-external); and seriousness of illness. Responses on the six general evaluation scales for both the instrumental and expressive dimensions were summed to produce one score for each health care situation. Subjects first rated each strategy in the three medical conditions for both physicians and nurse practitioners. Then they completed the locus of control measures.

RESULTS

Instrumentation

Compliance-Gaining Strategies. On the basis of likelihood-of-use responses by Student Health Service physicians and nurse practitioners, "requests for feedback" (mean = 1.65) and "explanation of side effects" (mean = 1.71) tactics were selected from Lane's (1982; 1983) task/informational strategies; "not interrupting; allowing time for patient expression of concern" (mean = 1.94) and "reassurance and empathy" (mean = 2.12) were chosen from the personal category; and "fear appeals and negative consequences (self)" (mean = 4.18) and "authoritarian words" (mean = 4.59) were selected for the threatening strategies (see Table 1).

Health Locus of Control Scores. Means and standard deviations of

the eleven Health Locus of control scale items are listed in Table 2. The alpha coefficient for the instrument in this study was .6057. Table 3 presents the frequency distribution of subject scores on the HLC, along with descriptive statistics (mean = 36.14; median = 35.00; standard deviation = 7.63). A median split resulted in the delegation of 65 subjects to the "internal" group and 56 subjects to the "external" group.

Medical Scenarios. Results of subjects' perceptions of the seriousness of the ten medical scenarios are listed in Table 4. The medical condition described in scenario four (corneal abrasion) was perceived as the least serious (mean = 4.82). Subjects perceived the medical condition in scenario nine (appendicitis) as most serious (mean = 2.18). Medical scenarios one and three (depression and strep throat, respectively) were perceived as equally serious (mean = 3.91). However, since the standard deviation for the depression (1.42) was smaller than the standard deviation for the strep throat situation (1.89), the depression situation represented the median in the main study.

Analysis of Variance Results

Table 5 presents the ANOVA table for the data collected on subjects' perceptions of physician and nurse practitioner use of the selected strategies in each of the selected situations. A discussion of each research question and other findings follows.

Strategy X Provider (Research Question 1). Subjects in this study perceived physician and nurse practitioner use of the six compliance-gaining strategies differently, $F (5, 595) = 69.30$, $p < .001$. Post hoc comparisons of physician and nurse practitioner means (see Table 6) using Scheffe tests revealed subjects' perceptions differed only in regard to the requests for feedback strategy, $F (5, 595) = 109.35$, $p < .05$. Specifically, physicians were perceived more favorably than nurse practitioners in their use of this strategy. Means for the two providers for the remaining five strategies did not differ significantly.

Strategy X Group (Research Question 2). The HLC scale did not discriminate subjects in this study on the basis of compliance-gaining strategy perceptions. Internally and externally controlled subjects in this sample perceived each of the six compliance-gaining strategies similarly, $F (5, 595) = .75$, ns. Table 7 lists the strategy X group means.

Strategy X Situation (Research Question 3). Situation X strategy means are shown in Table 8. Results indiciated medical condition significantly affects subjects' perceptions of the six strategies, $F (10, 1190) = 3.57$, $p < .001$. Subsequent Scheffe tests revealed that no one strategy was perceived differently across situations. However, differences within each situation across strategies did emerge.

Specifically, in the corneal abrasion situation, requests for feedback were perceived as significantly different from

explanation of side effects and not interrupting strategies, which, along with the reassurance and empathy strategy, were perceived as significantly different from than fear appeals and authoritarian words. In the depression situation, requests for feedback were perceived as significantly different from explanation of side effects, which along with the reassurance and empathy and not interrupting strategies, were perceived as significantly different from fear appeal and authoritarian word strategies. Finally, in the appendicitis situation, requests for feedback were perceived as significantly different from explanation of side effects, reassurance and empathy, and not interrupting strategies, which, in turn, were perceived significantly different than fear appeal and authoritarian word strategies.

Strategy X Provider X Situation (Research Question 4). The three-way interaction involving strategy, provider , and situation was highly significant $F(10,1190) = 2.88$, $p = .001$. Scheffe tests revealed that physicians were perceived more favorably than nurse practitioners in all three situations when they used the requests for feedback strategy, $F(10, 1190) = 95.58$, $p < .05$ in the corneal abrasion situation; $F(10, 1190) = 102.40$, $p < .05$ in the depression situation; and $F(10, 1190) = 248.34$, $p < .05$ in the appendicitis situation. Nurse practitioners, on the other hand, were perceived more favorably in the corneal abrasion situation when they used the reassurance and empathy strategy, $F(10, 1190) = 20.54$, $p < .05$. Means for

the situation X provider X strategy are listed in Table 9. No F test of three-way interactions involving the internal or external groups reached significance (see Table 5).

DISCUSSION

While analysis of variance results revealed a significant difference between subjects' perceptions of physician and nurse practitioner compliance-gaining strategies, subsequent comparisons of means showed that differences involving just one strategy accounted for that significance.

Subjects in this study perceived physician use of the request for feedback strategy more favorably than nurse practitioner use of that strategy. This perception may be attributable to the fact that subjects are accustomed to having physicians perform more physical assessments; therefore, they may feel that physicians have more of need to gather pertinent information about the patient's medical condition.

In addition, although the difference was not statistically significant, physicians were perceived more favorably than nurse practitioners in their use of the fear appeals strategy. Subjects may feel that, due to their expertise, physicians have the power to violate social norms and make fear appeals. The fact that nurse practitioners are perceived more favorably than physicians in using the authoritarian words tacts may not be completely contradictory. While fear appeals may be perceived as an ultimatum, authoritarian words could be interpreted more as a suggestion, making them an indirect, more palatable means of

exercising power. It may also be that subjects feel that nurse practitioners are simply more adept at using the strategy; that is, they may focus on the relational rather than on the content aspects of the strategy.

Nurse practitioners were perceived slightly more favorably than physicians in their use of the explanation of side effects, reassurance and empathy, and not interrupting tactics. The gender of the respective providers emerges as a focal point of explanation for this finding. These three strategies require sensitivity and caring, expressive concerns that subjects may feel nurse practitioners, who are predominantly female, would be more adept at executing than physicians, who are predominantly male. In fact, male nurses' and female physicians' communication styles may be associated as much with their role as with their gender, so that they adopt a cross-sexed communication style. It may also be that this style of communicating actually influences their choice of field. Studies comparing female and male RN and/or male and female physician communication styles would explicate this influence.

Although we did not obtain significant results in any of the interactions involving the internal and external health locus of control groups, there appear to be some plausible explanations for their absence.

First, our population was very homogenous, consisting of primarily white, college-aged students. This may explain why the range of Health Locus of Control scores (15-55; midpoint = 44) was weighted heavily toward the internal end of the scale. Only

18 HLC scores fell on the external side of the midpoint. It may be that, given their youth, these subjects felt internally controlled because they have not encountered any serious health problems, or that they would be able to handle any serious health problems that arose.

Education may also play a role in the range of scores. As individuals become more educated they acquire more knowledge and understanding of the world around them. This knowledge may be transformed into a sense of control over their world. Consequently, they become more confident in their ability to control their fate and less likely to assign responsibility for what happens to them or around them to sources outside themselves.

Third, it is possible that none of the stimulus situations presented a threatening enough medical condition [illegible] subjects. For instance, this population would probably have a more external orientation toward genetic disorders such as hemophilia or sickle cell anemia than they would sexually transmitted diseases.

Finally, the problem may lie in the manner in which internally and externally controlled subjects are identified. The reliability coefficient for the Health Locus of Control scale in this study was .6057, certainly not high enough to generate complete confidence in its use. The Health Locus of Control seems to measure a general orientation toward health behavior, not a situation-specific assessment of the individual's attribution of causality or the way he or she processes

health-related messages.

Each of the six strategies used in this study was perceived similarly in all three medical scenarios. Perhaps the situations did not vary enough in their seriousness to generate any differences. However, several significant findings were obtained within each situation. In the corneal abrasion situation requests for feedback were perceived more favorably than all the other strategies except reassurance and empathy. The similarity in perception for these two strategies is not surprising, since requests for feedback could be perceived as expressions of concern, and therefore acquire an empathic connotation. That the reassurance and empathy strategy was not perceived differently from the explanation of side effects and not interrupting strategies is understandable. Explanations of side effects can be reassuring, since the patient obtains a better understanding of his or her illness. Likewise, not interrupting the patient's expression of concern indicates empathy on the part of the provider. Had the reassurance and empathy strategies been separated into two strategies representing the above connotations, the relationships among strategies in this study may have developed differently. In any event, the words reassurance and empathy may indicate distinguishable provider-to-patient interaction to these subjects, the former involving a more proactive approach to communication, the latter a more reactive approach.

As one would expect, the fear appeal and authoritarian words strategies were perceived as significantly less favorably than

the other four strategies. However, the means for these strategies (26.24 and 26.66, respectively) fell only slightly to the unfavorable side of the scale (midpoint = 24). In fact, this phenomenon hold true for these two strategies in the depression and appendicitis situations. The subjects in this study may feel that, if timed properly and expressed appropriately, threatening strategies are not totally undesirable. It is possible that some subjects may feel that such tactics are backhanded ways of expressing concern, or that these tactics are simply necessary with unmotivated patients.

Once again, the request for feedback strategy was perceived most favorably in the depression situation. However, in this situation the not interrupting tactic as well as the reassurance and empathy strategy were not perceived differently from the request for feedback strategy. The expressive nature of these tactics apparently makes them especially desirable when one is depressed. That the explanation of side effects tactic was not perceived differently from the reassurance and empathy and not interrupting tactics may also stem from the nature of the illness. A depressed patient may require medication, necessitating an explanation of its side effects. Also, feelings (or side effects) that accompany depression may be novel or confusing to the patient, who may be reassured when the provider offers some explanations for his or her symptoms.

In the appendicitis situation, the request for feedback tactic was perceived more favorably than all five of the other strategies. This exclusiveness may be attributable to the nature

of the situation. It is quite likely, due to the more acute nature of appendicitis in comparison to the other two medical conditions, the request for feedback tactic takes on a more instrumental connotation in this situation. Understandably, the patient may be more concerned with being treated than in being comforted; therfore, the explanation of side effects, reassurance and empathy, and not interrupting strategies assume less importance. This might also explain why the fear appeals and authoritarian words tactics are perceived relatively less unfavorably in this situation than in the other two situations: sensitivity is simply not at a premium.

The interpretations above are offered tentatively. Because we were interested primarily in differences between subjects' perceptions of physicians' and nurse practitioners' compliance-gaining strategies, and focused our methodology toward such ends, we cannot be as definitive as we would like regarding perceptions of the descriptive nature of the strategies. We can suggest, however, that future work focus on such descriptions, since individuals may make similar judgments for different reasons, and vice versa. Future studies can provide such descriptions by using more descriptive scales (i.e., important/not important, effective/ineffective, appropriate/inappropriate, competent/incompetent) or by eliciting open-ended responses to determine why subjects perceive a tactic favorably or unfavorably. It is quite likely that the two approaches will complement one another. Future work might also focus on explicating and describing any differences between physician and nurse practitioner

communication. Immediate assessment of clients' perceptions of their interaction with health care providers may also clarify differences in researcher's "objective" accounts of client-provider interaction and subjects' perceptions of that interaction.

In addition, the situation-strategy fit in this study may have been more efficacious had we had subjects rate the medical scenarios first, then had the health care providers rate the strategies on the basis of their likelihood-of-use in those situations. For example, the explanation of side effects may not have a great deal of relevance in the three conditions, depending on how the strategy was interpreted. Increased sample sizes for both situation and strategy selection may have provided stronger evidence for their relevance and importance.

The significant three-way interaction involving strategy, seriousness of illness, and health care provider was offset by the absence of any significant differences among means for physicians and nurse practitioners. Evidently, these subjects are saying that they would just as soon interact with a nurse practitioner as with a physician in these situations. An interesting trend in the means is worth noting. As the perception of the severity of the illness increases, physicians are perceived more favorably and nurse practitioners less favorably. It would be interesting to see if this trend became more pronounced as the severity of the illness become more acute.

Thus far we have been focusing on the minute differences between means. However, our most significant finding is that

found few differences in subjects' perceptions of physician and nurse practitioner use of these compliance-gaining strategies in these situations. Subjects' perceptions of nurse practitioner and physician use of explanation of side effects, not interrupting-showing concern, fear appeals, and authoritarian words compliance-gaining strategies did not differ. In fact, nurse practitioners were perceived more favorably than physicians when they used the reassurance and empathy strategy in the corneal abrasion situation.Only for the request for feedback strategy across the three conditions were physicians rated superior to nurse practitioners. It is reasonable to suggest that this superiority stems from the subjects' limited encounters with nurse practitioners in the physical assessment role. As patients become more accustomed to nurse practitioners functioning in this role, it is possible that even this difference in perception could narrow.

Subjects in this study, then, seem to be saying that nurse practitioners handle themselves as well as physicians in the medical scenarios used in this study. In some cases, such as in the corneal abrasion situation using the reassurance and empathy strategy, they are perceived more favorably than are physicians. We are not suggesting that nurse practitioners are perceived to be as competent technically as physicians in these conditions. Likewise, we are not claiming that subjects would comply more readily with nurse practitioners than physicians. However, we can assert that subjects in this study were just as satisfied with nurse practitioner use of compliance-gaining strategies in

these stimulus situations.

Since patient satisfaction with medical care may derive from any number of factors, it may be that nurses' communication skills may compensate for any perceived technical limitations. Since the patient-provider interaction is perceived in some cases as more important than technical competence (see Ben-Sira, 1976), our findings have promising ramifications for nurse practitioners in the clinical setting. As patients' interactions with nurse practitioners in the clinical setting become more common, evidence of the degree of their technical competence should become more apparent, and some patients may actually prefer encountering a nurse practitioner in some situations. And because, ideally, physicians and nurse practitioners should work together to provide the most efficient health care possible, future studies might focus on determining the circumstances under which the skills of nurse practitioners may be employed most efficaciously.

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TABLE 1

PHYSICAN, NURSE STRATEGY
LIKELIHOOD OF USE
(The lower the mean, the greater the likelihood of use)

	Mean
requests for feedback	1.65
treatment regimen instructions	1.71
explanation of illness, disease, or problem	1.94
explanantion of the treatment; what doctor is doing/will do; how it works	1.94
explanation of treatment side effects	1.71
encouragement and motivation	2.29
caring, friendship, and social support	3.53
reassurance and empathy	2.12
praise and approval	2.20
calming communication	2.29
not interrupting; allowing time for patient expression of concern	1.94
fear appeals and negative consequences (self)	4.18
fear appeals and negative consequences (other)	5.53
threats	6.65
admonitions and altercasting	6.76
name calling	7.00
authoritarian words	4.59

TABLE 2

HEALTH LOCUS OF CONTROL
ITEM MEANS, STANDARD DEVIATIONS

Item Number	Mean	SD
1. If I take care of myself, I can avoid illness. (I)	2.49	1.39
2. Whenever I get sick it is because of something I've done or not done. (I)	4.05	1.68
3. Good health is largely a matter of good fortune. (E)	2.74	1.59
4. No matter what I do, if I am going to get sick I will get sick. (E)	2.80	1.64
5. Most people do not realize the extent to which their illnesses are controlled by accidental happenings. (E)	3.75	1.63
6. I can only do what my doctor tells me to do. (E)	2.44	1.51
7. There are so many strange diseases around that you can never know how or when you might pick one up. (E)	4.05	1.63
8. When I feel ill, know it is because I have not been getting the proper exercise or eating right. (I)	4.16	1.52
9. People who never get sick are just plain lucky. (E)	2.88	1.68
10. People's ill health results from their own carelessness. (I)	4.12	1.44
11. I am directly responsible for my health. (I)	2.66	1.19

Reliability coefficient: .6057

(I) indicates internally worded item
(E) indicates externally worded item
* Responses to the externally worded items have been reversed

TABLE 3

FREQUENCY DISTRIBUTION
OF HEALTH LOCUS OF CONTROL SCORES

Score	Frequency	Score	Frequency
15	1	38	1
17	1	39	3
22	1	40	4
23	1	41	7
25	3	42	3
26	1	43	5
27	1	44	6
28	4	45	5
29	4	46	2
30	6	47	2
31	7	48	1
32	8	49	3
33	6	50	2
34	8	52	1
35	8	53	1
36	4	55	1
37	5		

Mean: 36.14 Median: 35.00 Standard Deviation: 7.63

TABLE 4

SUBJECTS' PERCEPTIONS OF MEDICAL SCENARIOS
(The lower the mean, the more serious the illness)

	Mean	SD		Mean	SD
Scenario One	3.91	1.42	Scenario Six	4.77	1.90
Scenario Two	3.41	2.25	Scenario Seven	4.68	3.37
Scenario Three	3.91	1.89	Scenario Eight	3.68	2.61
Scenario Four	4.82	2.73	Scenario Nine	2.18	1.87
Scenario Five	3.50	4.45	Scenario Ten	3.09	3.89

Range: 48-106 Mean: 83.5 Median: 83.5 Mode: 86

TABLE 5

ANOVA TABLE

Source	SS	df	MS	F	Sig. of F
Between subjects					
Within cells	16755.47	119	140.80		
Groups	80.81	1	80.81	.57	.45
Within subjects					
Within cells	5662.23	238	23.79		
Situation	9.81	2	4.91	.21	.814
Group X situation	16.57	2	8.29	.35	.706
Within cells	2912.29	119	24.51		
Provider	133.60	1	133.60	5.45	.021*
Group X provider	3.34	1	3.34	.14	.713
Within cells	19657.90	595	33.04		
Strategy	25384.77	5	5076.95	153.67	.000*
Group X strategy	125.33	5	25.07	.76	.580
Within cells	3069.30	238	12.90		
Situation X provider	90.65	2	45.32	3.51	.031*
Group X situation X provider	21.19	2	10.60	.82	.441
Within Cells	14023.11	1190	11.78		
Situation X strategy	420.59	10	42.06	3.57	.000*
Group X situation X strategy	91.99	10	9.20	.78	.648
Within cells	6702.12	595	11.26		
Provider X strategy	3903.08	5	780.62	69.30	.000*
Group X provider X strategy	45.78	5	9.16	.81	.541
Within cells	10369.47	1190	8.71		
Situation X provider X strategy	251.18	10	25.12	2.88	.001*
Group X situation X X provider X strategy	93.22	10	9.32	1.07	.313

TABLE 6

STRATEGY BY PROVIDER MEANS

STRATEGY	Physician	Nurse Practitioner
Requests for feedback	17.29a	21.80b
Explanation of side effects	22.63b	22.08b
Reassurance and empathy	21.68b	20.80b
Not interrupting, showing concern	21.86b	20.97b
Fear appeals	25.63c	25.92c
Authoritarian words	26.36c	25.96c

Means that share a common subscript are not significantly different.

TABLE 7

STRATEGY BY LOCUS OF CONTROL MEANS

STRATEGY	LOCUS OF CONTROL Internal	External
Requests for feedback	19.52a	19.56a
Explanation of side effects	22.40c	22.30c
Reassurance and empathy	21.59bc	20.83ab
Not interrupting, showing concern	21.37bc	21.46bc
Fear appeals	25.88d	25.66d
Authoritarian words	26.48d	25.78d

Means that share a common subscript are not significantly different.

TABLE 8

STRATEGY BY SITUATION MEANS

STRATEGY	SITUATION Cornea Abrasion	Depression	Appendicitis
Requests for feedback	19.41a	19.86a	19.36a
Explanation of side effects	22.08b	22.13b	22.84b
Reassurance and empathy	20.97ab	21.30ab	21.45b
Not interrupting	21.43b	21.22ab	21.60b
Fear appeals	26.24c	25.75c	25.33c
Authoritarian words	26.66c	26.26c	25.55c

Means that share a common subscript are not significantly different.

TABLE 9

STRATEGY BY PROVIDER BY SITUATION MEANS

STRATEGY/SITUATION	PROVIDER	
	Physician	Nurse Practitioner
Requests for feedback		
Cornea abrasion	17.55a	21.26bc
Depression	17.94a	21.78bc
Appendicitis	16.37a	22.35c
Explanation of side effects		
Cornea abrasion	22.61c	21.55bc
Depression	22.21c	22.04bc
Appendicitis	22.75c	22.61c
Reassurance and empathy		
Cornea abrasion	21.83c	20.11b
Depression	21.62bc	20.98b
Appendicitis	21.60bc	21.31bc
Not interrupting, showing concern		
Cornea abrason	22.17c	20.68bc
Depression	21.37bc	21.07bc
Appendicitis	22.03c	21.17bc
Fear appeals		
Cornea abrasion	26.05d	26.43d
Depression	25.59d	25.94d
Appendicitis	25.27d	25.40d
Authoritarian words		
Cornea abrasion	26.72d	26.61d
Depression	26.55d	25.97d
Appendicitis	25.81d	25.29d

Means that share a common subscript are not significantly different.

APPENDIX A

COMPLIANCE-GAINING STRATEGIES
(Lane, 1982)

I. Task/Informational Strategies
   A. requests for feedback
   ("Does this hurt?" "Do you have diabetes?")
   B. treatment regiment instructions
   ("Take this twice daily on an empty stomach")
   C. explanantion of illness, disease, or problem
   ("You have a neroma, and a neroma is . . .")
   D. explanantion of the treatment; what doctor is doing/will do; how it works
   ("I'm going to test your reflexes." "This will increase your circulation."
   E. explanation of treatment side effects
   ("This may make you feel a little weak")

II. Personal
   A. encouragement and motivation
   ("You can do it.")
   B. caring, friendship, and social support
   ("I care about you.")
   C. reassurance and empathy
   ("I understand")
   D. praise and approval
   ("You did the right thing")
   E. calming communication
   ("Don't worry; you're going to be OK")
   F. not interrupting; allowing time for patient expression of concern
   ("Yes, uh-uh, go on . . .")

III. Threatening
   A. fear appeals and negative consequences (self)
   ("If you don't soak your foot, it will become much worse.")
   B. fear appeals and negative consequences (other)
   ("Your family (spouse) will suffer.")
   C. threats
   ("I won't treat you if you don't follow these instructions")
   D. admonitions and altercasting
   (Only a noncaring person would not follow instructions.")
   E. name calling
   ("You are what we call a 'problem patient.'")
   F. authoritarian words
   ("You must . . ." "You should . . ." "You have to . . .")

APPENDIX B
HEALTH LOCUS OF CONTROL SCALE
(Wallston, Wallston, Kaplan, & Maides, 1976)

1. If I take care of myself, I can avoid illness. (I)

2. Whenever I get sick it is because of something I've done or not done. (I)

3. Good health is largely a matter of good fortune. (E)

4. No matter what I do, if I am going to get sick I will get sick. (E)

5. Most people do not realize the extent to which their illnesses are controlled by accidental happenings. (E)

6. I can only do what my doctor tells me to do. (E)

7. There are so many strange diseases around that you can never know how or when you might pick one up. (E)

8. When I feel ill, know it is because I have not been getting the proper exercise or eating right. (I)

9. People who never get sick are just plain lucky. (E)

10. People's ill health results from their own carelessness. (I)

11. I am directly responsible for my health. (I)

(I) indicates internally worded item
(E) indicates externally worded item

APPENDIX C

MEDICAL SCENARIOS

Scenario One

You've come to the health center because you have felt tired since September. It is now January. You sleep about 8 hours a night, but wake up frequently. You are very worried about all the assignments you have due soon. Your boyfriend/girlfriend recently broke-up with you. A physical examination and lab work is done, and the results are normal. Your doctor suggests that you may be suffering from depression. Arrangements are made for you to begin counseling.

Scenario Two

You've come to the health center because you have a sore throat and very swollen glands. It hurts to swallow, and you are tired all the time. After lab work and a physical examination, your doctor makes the diagnosis of mononucleosis. S/he indicates that your spleen is slightly enlarged. You are instructed to take medication to reduce your swollen glands, to eat a balanced diet, and to get plenty of rest.

Scenario Three

You've come to the health center because you have a very sore throat. It hurts to swallow. Your temperature is 101 degrees. After lab work and a physical examination your doctor confirms a diagnosis of strep throat. Your treatment plan is to take an antibiotic and get plenty of rest.

Scenario Four

You've come to the health center because you left your contract lens in longer than the prescribed time. Your right eye is read and painful. After an examination of your eye by the doctoryou are told that you have an "abrasion of the cornea" (scratch on the eye). You are instructed to leave your contacts out, apply an antibiotic eye drop into the eye and return the next day for a reexamination.

Scenario Five

Your boyfriend/girlfriend tells you that they have just found out that they have a sexually transmitted disease. They suggest you go to the health center for an examination. After an examination and lab work your doctor tells you that you have a sexually transmitted disease called chlamydia, a disease tht could cause severe abdominal pain and infertility if left untreated. You are given antibiotics, and told to refrain from sexual intercourse until you have finished the antibiotic (a period of 10 days).

Scenario Six

You've come to the health center because you have a migraine headache. You have a prescription to take when the migraine begins, but it has run out. After examination your doctor renews your medication. You are given an injection for the severe pain. After a twenty minute observation period, your headache is less intense, and your friend comes to pick you up. Your doctor instructs you to remain in bed the rest of the day.

Scenario Seven

You have been vomiting all night. You come to the health center, and after an examination and lab work, you are told you have gastroenteritis or intestinal flu. You are given an injection to slow down your vomiting, and put on a clear liquid diet. You are also given some oral medication to take when the vomiting has subsided to decrease your nausea and diarrhea. Your doctor instructs you to go home and rest until your symptoms subside (about 24 hours).

Scenario Eight

You've come to the health center because you've injured your ankle. It is very painful and swollen, and you can't put any weight on it. Your ankle is examined and x-rayed; the results indicate you have a broken ankle. Your doctor applies an ace bandage to the ankle and places it in an air cast. You are provided a pair of crutches and instructions on how to use them. Your doctor makes an appointment for you to see an orthopaedic surgeon in the morning after the swelling has gone down, and you will undergo a surgical procedure to repair the fracture.

Scenario Nine

You've come to the health center because you have severe abdominal pain. Your right side is very tender. After a complete workup your doctor tells you that you have appendicitis. You are referred to a surgeon, who schedules surgery for you within the next couple of hours.

Scenario Ten

You've come to the health center because you fell out of your loft last night and bumped your head. You have been vomiting and are very lightheaded when you stand up. You have been examined and diagnosed. Your doctor tells you that you have a concussion. You are referred to a neurologist for further evaluation and treatment.

In the RN condition the word "doctor" was replaced with "nurse practitioner"
