NONVERBAL RESPONSE PATTERNS IN PHYSICIAN-PATIENT INTERACTIONS: A FUNCTIONAL ANALYSIS

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ABSTRACT: In this paper, we examined physician-patient interactions in terms of the communicative functions accomplished during these encounters. Specifically, the nonverbal communicative exchanges of 38 physician-patient interactions in a family practice clinic were investigated. Two distinctive communicative "patterns" characterized these interactions. First, physicians nonverbally exerted greater dominance and control by employing longer speaking turns, more social touch, and more pauses while speaking than did the patients. Secondly, physicians and patients tended to reciprocate nonverbal behaviors signalling affiliation including gaze, response latencies, body orientations, and gestures. Consistent with previous research, there was a strong positive relationship between patients' satisfaction with health care and perceptions of the physicians' affiliativeness. Although there were few significant effects, physicians perceived less affiliative tended to be more vocally and gesturally active relative to the patients' nonverbal behavior styles. Finally, there were positive relationships between patients' perceptions of physicians' dominance and the physicians' use of task touch, and the extent to which physicians produced more interruptions and maintained more indirect body orientations relative to the patients' performances of these behaviors. The results are discussed in terms of the communicative functions of nonverbal behavior in physician-patient interactions and of patients' preferences for physicians' nonverbal expressiveness.

Recently academicians and health care professionals have been concerned about the role of interpersonal communication in health care delivery. This interest has stimulated substantial research particularly on the

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topic of physician-patient interaction and on what relationships exist between physicians' communicative behaviors and patients' characteristics (e.g., age, education, sex), satisfaction with medical care, and compliance with physicians' recommendations (see Pendleton, 1983; Waitzkin, 1984 for review). In this report, we argue that insight into the communicative processes of physician-patient encounters can be gained by examining the interaction from a "functional" perspective.

Rather than focusing upon individual communicative channels (e.g., speech acts, vocalics, or proxemics), a functional approach to communication examines the collectivity of behaviors which perform certain interaction functions such as information exchange, affiliation, dominance, and task completion (Patterson, 1982, 1983). A functional perspective embraces the assumption that outcomes of social interactions, such as person perceptions and communicative satisfaction, are related to the interactants' expectations for and perceptions of the "pattern" of their communicative exchange or, in other words, their responses vis-a-vis those of their partners (Cappella & Street, 1985; Patterson, 1983). We see the advantages of a functional approach to physician-patient communication given the proclivity of previous research to focus solely on the *physicians'* communicative acts without considering how the *patient* is communicating. For example, a physician who holds the floor for periods averaging 30 seconds and who maintains high levels of eye contact with a patient may appear affiliative and responsive to a patient exhibiting similar behaviors but may be viewed as domineering and intimidating by a patient who talks for brief periods and who avoids eye contact. Research in other contexts, such as interviews and social conversation, has frequently demonstrated that interactants' satisfaction with partners and with interaction outcomes are less the result of what interlocutors say or do *per se* and more a function of these responses *relative to the interactants' own communicative behaviors* (Cappella & Greene, 1982; Patterson, 1983; Street, Mulac, & Wiemann, 1988).

The purpose of this article is to report a preliminary study of nonverbal behavior exchanges between resident physician-patient visits in a family practice clinic. To limit the scope of this investigation, we examined vocalic and nonverbal behaviors, rather than linguistic and semantic components of utterances. Specifically, two issues were investigated: (1) what nonverbal behavior "patterns" characterize physician-patient interactions? and (2) are these communicative patterns related to patients' satisfaction with health care and to their perceptions of the physicians' affiliativeness and dominance? Nonverbal behaviors examined included turn durations, response latencies (pauses between speakers'

turns), interruptions, vocal back-channels (e.g., "I see," "uh huh," "is that right?," etc.), body orientation, hand and arm gestures, pauses within a speaking turn, gaze, social touch (i.e., touch for reassurance, comfort, greeting, playfulness, etc.), and task touch (i.e., touch related to the physicial examination of the patient). These behaviors were chosen because they are instrumental to the accomplishment of two communicative functions, affiliation and communicative dominance (Mehrabian, 1972; Patterson, 1983), which impinge upon outcomes of physician-patient interactions. Additionally, these behaviors have been linked to patients' perceptions of doctors, satisfaction with medical care, and cooperativeness with prescribed regimens (Comstock, Hooper, Goodwin, & Goodwin, 1982; Harrigan, Oxman, & Rosenthal, 1985; Larsen & Smith, 1981; Smith, Polis, & Hadac, 1981).

Communicative Patterns Characteristic of Physician-Patient Interactions

Typically, physicians and patients have mutual goals for the medical visit (i.e., information sharing and helping the patient) yet differ in terms of their knowledge of medicine and communicative roles in the interaction (i.e., expert provider-educator vs. client-learner). The similarities between the interactants' desired outcomes for the interaction and the differences between their social roles should be reflected in the pattern of communicative exchange (Stiles, Orth, Scherwitz, Hennrikus, & Vallbona, 1984). We expect two very different nonverbal behavior patterns to emerge during medical visits with each accomplishing a different communicative function, one related to communicative control and dominance and the other to affiliativeness. We will argue that physicians and patients are able to achieve both communicative patterns concurrently in large part because they are accomplished through different nonverbal behaviors (c.f., Street, 1986).

First, in most out-patient visits, physicians are the medical experts and patients have voluntarily solicited the physician's help (Ben-Sira, 1980). Both parties typically approach the encounter with the expectation that the doctor is the primary problem-solver and will presume to exercise (and the patient will allow) considerable influence regarding the content and structure of the interaction (c.f., Applegate, 1986). Hence, although physicians may be more or less dominant with certain kinds of patients (see, e.g., Waitzkin, 1985; West, 1984), in most medical interactions *we expect physicians and patients to create patterns of communicative exchange reflecting relatively greater dominance and control by the physician and*

relatively less by the patient. Previous research consistently has demonstrated that physicians control interactions with patients by producing more questions, interruptions, topic initiations, and by talking for a greater proportion of the time (Byrne & Long, 1976; Coulthard & Ashby, 1975; Fisher, 1983; Shapiro, Najman, & Chang, 1983; West, 1984). Nonverbally, dominant communicators produce domineering acts (e.g., long floorholdings, interruptions, nonreciprocal touch) or are allowed to exhibit behaviors normally avoided by powerless communicators and interactants concerned about self-presentations (e.g., relative slow speech rates, pauses, relaxed and open postures) (Cappella & Street, 1985; Patterson, 1983).

Given that both parties desire to communicate effectively, to exchange information accurately, and to foster rapport (DiMatteo, 1979; Speedling & Rose, 1985), we also expect physicians and patients to establish mutually acceptable levels of affiliativeness (Cappella, 1983; Mehrabian, 1972). The *intensity* of an interactant's involvement or affiliation with a partner is reflected in the *levels* to which he or she performs certain nonverbal behaviors (e.g., gaze, gestures, touch, body orientation toward a partner, facial expressiveness; Cappella, 1983; LaCrosse, 1975; Mehrabian, 1972), and are contingent upon such factors as personal predilections, nature of the task, relational history between the participants, and communicative roles (Giles & Street, 1985; Patterson, 1983). However, *mutually acceptable expressions of affiliation* typically are characterized by *reciprocal* response patterns as interactants coordinate their behaviors around personal, partner, and situational constraints (Cappella, 1983; Cappella & Greene, 1982; Patterson, 1982, 1983).[1] In other research, nonverbal reciprocity has been related to positive interaction outcomes such as perceived rapport and favorable impressions of partners (La France, 1982; Maurer & Tindall, 1983; Street, 1984).

Thus we expect physicians and patients to reciprocate nonverbal behaviors reflecting affiliation and involvement such as gaze, gestures, body orientation, and vocal back-channels. In their study, Smith and Larsen (1984) observed that physicians and patients indeed tended to display comparable levels of two immediacy behaviors, body orientation and forward leans.

Because they have similar communicative goals and desired outcomes, we expect physicians and patients to achieve "congruence" (Feldstein & Welkowitz, 1978) among behaviors indicative of involvement and affiliation; that is, they will reciprocate or produce these behaviors at relatively similar levels. The role and power differences between physicians and patients should be manifested in asymmetrical patterns of non-

verbal behaviors related to control and dominance. Both functions can emerge concurrently because the behaviors signalling affiliation (i.e., gaze, body position, gestures, vocal back-channels, response latencies) are often different from behaviors accomplishing dominance and control (i.e., unilateral touch, long turn durations, interruptions, and pauses while speaking). We forwarded the following hypothesis:

> H_1: During physician-patient interactions, (a) physicians produce longer turn durations, more interruptions, more touch, and more pauses while speaking than do patients, and (b) physicians and patients display relative congruence among their body orientations gaze behavior, gestures, response latencies, and vocal back-channels.

Affiliation, Dominance, and Patients' Perceptions of Physicians

Numerous studies have reported that physicians who show concern, display interest in the patient, alleviate the patients' anxiety, establish rapport, and who are attentive and responsive are preferred by patients (Ben-Sira, 1976, 1980; Buller & Buller, 1987; Comstock et al., 1982; DiMatteo, Prince, & Taranta, 1979; Korsch & Negrete, 1972; Street & Wiemann, 1987). These characteristics are related to, and indicative of, the construct of affiliation. On the other hand, patients disapprove of domineering and argumentative doctors (Buller & Buller, 1987; Hall, Roter, & Rand, 1981; Street & Wiemann, 1987). Given the evidence above indicating that physicians typically control medical interactions more than do patients and that patients are normally very satisfied with health care (Speedling & Rose, 1985), we can infer that patients tolerate some (but not extreme levels of) communicative dominance from physicians, especially if doctors encourage and are receptive to patients' verbal contributions (Davis, 1968; Pendleton, 1983; Street & Wiemann, 1987). A second prediction was formulated:

> H_2: There is (a) a positive relationship between patients' perceptions of physicians' affiliativeness and patients' satisfaction with medical care and (b) a moderately negative relationship between patients' perceptions of physicians' dominance and patients' satisfaction with medical care.

Finally, we were interested in whether certain patterns of physician-patient nonverbal behavior exchange were related to patients' satisfaction and perceptions of physicians' affiliativeness and dominance. As

mentioned earlier, message-based perceptions of communicators are typically contingent upon interactants' communicative behavior relative to the partners' message features (Cappella & Greene, 1982; Patterson, 1983; Street et al., 1988). For example, a physician who speaks for long durations may be perceived as a "dominant" communicator if the patient holds the floor for relatively brief periods, or the doctor may be viewed "affiliative" if the patient assumes the floor for similar durations. The following general prediction was forwarded:

> H_3: Patients' satisfaction with medical care and perceptions of physicians' affiliativeness and dominance are related to the degree of similarity (and the differences) between physicians' and patients' nonverbal behaviors.

Method

Research Participants

Patients participating in this study were solicited from a family practice clinic of a teaching hospital in the southwestern United States. During a six-week period, 44 English-speaking patients were approached in the waiting area prior to seeing their physician. Patients were told that the researchers were conducting a project which involved video-taping doctors' interactions with patients and that the purpose of the research project was to examine how doctors and patients communicate with one another. The patients were assured that only the researchers and doctors would see the tapes and that, if the patient disrobed, a screen would be pulled over the camera so that audio, but not video, recording would continue. Finally, the patients were asked to complete a brief response form after seeing their physician.

Of the 44 patients approached, 38 agreed to participate in the project. Of the 38, 18 were female and 20 were male. Twenty-two were white, eight were black, four were Hispanic, and four were Asian-American. The average age of the patients was 35.6 years with the youngest being 17 and the oldest 72 years of age.[2]

Ten physicians, second and third year residents in family practice, volunteered for the study. All were between the ages of 28–35 and all but one were male. In this study, eight of the ten doctors participated in four interactions each whereas two saw three patients each.

Procedures

The medical examination rooms were equipped with a ceiling-mounted camera in one corner of the room and a small microphone attached to the ceiling. The video monitor and recording unit were located in a separate laboratory room. The camera was tilted at a 45° angle so that it recorded the interview from the perspective of being slightly above the interactants. Given its angle for filming the

room, the camera recorded mostly side views of the physicians and frontal and side views of the patients. Taping began when the patient entered the room and was terminated when the patient exited. The average duration each physician-patient pair actually interacted with one another was 16 minutes with the shortest being nine minutes and the longest 32 minutes.

After the conclusion of the medical visit, the patient met one of the researchers in the waiting area and was escorted to a private room where he or she completed a brief response form.

Vocal and Nonverbal Behavior Measures

Fourteen coders, graduate and undergraduate communication majors, were trained to code the interactants' vocal and nonverbal behaviors from the tape recordings. Working in pairs, four were assigned to code speech behaviors and ten to measure nonverbal behaviors. The speech behaviors were coded with the SPECO program, a software package which enables a microcomputer to serve as an event and duration recorder of several speech behaviors for each interactant (Anderson & Street, 1984). When using SPECO, two coders (one for each interactant) simultaneously but independently code for the presence or absence of speech. The following behaviors were operationalized in a manner consistent with the operationalizations offered by Jaffe and Feldstein (1970) and Matarazzo and Wiens (1972). Because the interactions varied in length, these behaviors were coded as per minute averages.

Turn duration is the amount of time an interactant held the floor during a speaking turn. *Response latency* is the period of time between the partner's termination of a speaking turn and the speaker's assumption of a speaking turn. It is credited to the speaker about to assume the floor. When an interruption occurs, response latency is given the score of zero. Noninterruptive simultaneous speech occurs when both interactants are talking and is bounded before and after by the partner's vocalizing. Noninterruptive simultaneous speech serves as the operational definition of *vocal back-channel responses* which are listeners' vocalizations (e.g., "uh huh," "I see," "really?", etc.) intended to show attentiveness or approval (Duncan & Fiske, 1977). Of course, noninterruptive simultaneous speech could represent unsuccessful interruptions. However, previous research has indicated that this behavior is largely made up of and highly correlated with vocal back-channels (Duncan & Fiske, 1977; Street & Murphy, 1987). *Interruptive simultaneous speech* occurs when both participants are talking and is initially bounded by the onset of simultaneous speech and is concluded to be the partner's vocalization termination. Both interruptive and noninterruptive simultaneous speech are attributed to the participant who began speaking while the partner was already speaking. The *pausing while speaking* index was computed by dividing the total duration of pauses during a speaking turn by the turn duration itself. These behaviors were scored either as a speaker's per turn average durations (i.e., turn duration, response latency, pausing while speaking) or as average frequencies (i.e., interruptive and noninterruptive simultaneous speech) for each minute of the interaction.

Each of the remaining ten coders were trained to code five kinesic, proxemic, and tactile behaviors. For *body orientation*, coders measured the amount of time each interactant held a particular body orientation relative to his or her partner (e.g., directly facing partner, 10–45° angle, 45–90° angle, or 90° + angle away from partner) for each minute of the interaction. The predominant body orientation

was the one coded for that minute of interaction. A *social touch* occurred if the coder judged that one interactant touched another in order to convey reassurance, friendliness, approval, concern, and affection. A *task touch* was defined as any touching of the patient by the doctor which the coder perceived was part of the examination procedures. *Illustrative gestures* were hand and arm gestures used to convey meaning or which were indicative of interest and expressiveness (Friesen, Ekman, & Wallbott, 1979). For gestures, the behavioral category was activated when hand/arm movement commenced and was maintained as long as the hand/arm was in motion or tense. The categorization of the behavior ended when hand/arm became still and relaxed. Hand and arm movements which stemmed from nervousness, anxiety, or physical condition (e.g., fidgeting, self-touches, tremors) were not counted as illustrative gestures.

It was not feasible to measure the amount of time interactants spent gazing at their partners because the angle of the camera frequently filmed the side or back of the doctor thus partially screening his or her face. Thus, *gazes away from partner* were counted in this study. A gaze away was coded if the interactant was talking or listening to the partner and either clearly shifted his or her eyes away from the partner or a head shift occurred which a coder judged likely represented absence of gaze toward the partner. Interactants' scores for social touch, task touch, illustrative gestures, and gazes from partners were quantified as average frequencies per minute of interaction.

Reliabilities for the nonverbal behaviors were established by randomly selecting 50 minutes of interaction from the data set and having the behaviors recoded by coders who did not perform the original coding for that behavior, interactant, and dyad. Using Cohen's Kappa, categorizing reliabilities between the coded and recoded behaviors were sufficient for turn durations (.84), response latency (.84), interruptive speak-overs (.74), vocal back-channels (.69), task touch (.89), illustrative gestures (.86), and body orientation (.92). The reliabilities for gazes from partner (.64) and social touch (.62) were somewhat lower. For durational measures, intraclass correlation coefficients produced the following estimates: turn duration (.92), response latency (.84), and pauses while speaking (.78).

Perceptual Measures

The post-examination response form asked demographic information about the patient (age, sex, and education) and solicited the patient's perceptions of the communicative style of the physician and his or her satisfaction with the physician and medical care received. Two dimensions of communication style were assessed, *affiliation* and *dominance*, and were adapted from Norton's (1983) Communication Style measure. Regarding affiliation, the patients responded on five-point Likert scales the degree to which they agreed or disagreed with the following statements: the physician is very friendly, the physician is very relaxed, the physician is extremely open, the physician is very responsive to me, the physician listens very carefully. Using similar scales, dominance was measured with two items: the physician dominates the conversation and the physician is very argumentative. The wording of items in these measures were consistent with previous conceptualizations of affiliation and dominance (Cappella, 1983; Mehrabian, 1972; Patterson, 1983).

Patient's satisfaction was ascertained using Buller and Buller's (1987) measure.

Specifically, the patient responded to the question, "How do you rate the medical care you received from this physician?", on the following five-point scales: (1) satisfied-dissatisfied, (2) well cared for-not well cared for, (3) high quality-low quality, (4) helped my condition-did not help my condition, (5) effective-ineffective, and (6) competent-incompetent.

Alpha reliabilities for patient's satisfaction, and physician's affiliation and dominance were .85, .75, and .56, respectively. Reliability for the dominance measure was somewhat low and results associated with this measure should be interpreted with caution.

Data Analysis

To examine the extent to which physicians and patients achieved congruence among their vocal and nonverbal behavioral levels (H_1), the intraclass correlation (R) was employed. This coefficient compares the variance of scores within dyads to the variance of scores across dyads. For this study, the greater the similarity between a physician's and patient's behavior (i.e., relatively little within-dyad variance) and the more that the scores of each physician-patient differ from other physician-patient pairs (i.e., relatively large across-dyad variance), the larger the R value (Haggard, 1958). A negative R value indicates that there was more variance between scores within dyads than across dyads (i.e., physicians and patients tended to produce these behaviors at different levels). This statistic has been used in other studies of behavioral "congruence" because it assesses similarity of the shapes of distributions and of behavioral means (Feldstein & Welkowitz, 1978; Warner, Kenny, & Stoto, 1979). To verify differences between physicians' and patients' behaviors, t-tests for correlated means were performed for each behavior.

Correlation coefficients were utilized to assess relationships between patients' satisfaction with medical care and patients' perceptions of physicians' affiliativeness and dominance (H_2). To examine H_3, patients' satisfaction and perceptions of physicians' affilativeness and dominance were correlated (a) with the value generated by subtracting patients' performances of these behaviors from the physicians' scores and (b) with the absolute value of the difference between physicians' and patients' performances of these behaviors. Regarding (a), a positive correlation would indicate that perceptions of the physicians' communication were related to the extent to which physicians produced higher levels of that behavior relative to the patients' performances. Regarding (b), a negative coefficient would indicate that perceptions of the physicians' communication were related to the degree to which physicians and patients produced similar levels of that behavior.

Results

Congruence Among Physicians' and Patients' Communicative Behaviors

Table 1 presents the physicians' and patients' nonverbal behavior levels, the degree of physician-patient congruence for each behavior, and whether there were significant differences between these scores. As

TABLE 1

Physicians' and Patients' Nonverbal Behavior Levels and Congruence Scores

Behavior	*Physician*	*Patient*	*t score*[d]	*Congruence Score*[e] *(Intraclass Corr.)*
Turn Duration[a]	9.40	4.58	6.54**	−.62**
Pause/Turn Duration Ratio[a]	.19	.08	7.68**	−.58*
Response Latency[a]	1.24	.94	1.84	.52*
Interruptions[b]	1.31	1.46	1.07	.50*
Vocal Back—Channels[b]	1.08	.76	2.32*	.09
SocialTouch[b]	.13	.05	2.94**	.01
Illustrative Gestures[b]	1.76	1.34	1.42	.47*
Body Orientation[c]	1.23	1.25	.19	.98**
Gaze Away From Partner[b]	3.14	3.15	.01	.96**

*$p<.05$ **$p<.01$

[a]These behaviors were coded in seconds and represent averages per speaking turn.

[b]These scores represent average per minute frequencies.

[c]This behavior was scored as the average predominant body orientation for the interaction.

[d]The degrees of freedom for the t-tests for related measures were 37.

[e]A positive score indicates that physicians and patients tended to perform these behaviors at comparable levels. A negative score indicates that physicians and patients produced these behaviors at different levels.

predicted in the first hypothesis, physicians and patients displayed congruence among their body orientations ($R = .98$, $p < .001$), response latencies ($R = .52$, $p < .02$), frequency of illustrative gestures ($R = .47$, $p < .02$), and gazes away from partners ($R = .96$, $p < .001$). Interestingly, physicians and patients also interrupted one another at comparable rates ($R = .50$, $p < .02$). Contrary to expectations, the interactants tended not to produce similar levels of vocal back-channel behaviors ($R = .09$). Also, as revealed in Table 1, negative R values emerged for turn duration and silence within speaking turns. These values are due to the fact that physicians and patients tended to produce these behaviors (which tend to be correlated with another) at different levels (for turn duration, ($t(37) = 6.54$, $p < .001$); for silence/speech, ($t(37) = 7.68$, $p < .001$); see Table 1). Physicians also used more social touch ($t(37) = 2.94$, $p < .01$) than did patients. The only other difference between physicians and patients was for vocal back-channels as physicians performed more of these than did patients ($t(37) = 2.32$, $p < .05$). In sum, the first hypothesis received substantial support.

Patients' Satisfaction and Physician's Affiliativeness and Dominance

Before discussing relationships between patients' satisfaction and physicians' communicative style, we should note that patients expressed high levels of satisfaction with their physicians. The mean satisfaction rating was 27.7 (on a 30-point scale) with a standard deviation of 3.13.

Patient's satisfaction with medical care was strongly correlated with the physicians' affiliativeness ($r = .80$, $p < .001$). Although in the predicted direction and of a moderate magnitude, the relationship between patients' satisfaction and physicians' dominance was nonsignificant ($r = -.22$). Hence, the second hypothesis was supported, but only for affiliativeness.

Nonverbal Behavior Patterns and Physicians' Affiliativeness and Dominance

Table 2 presents correlations between the physician-patient nonverbal behavior differences, patients' satisfaction, and patients' perceptions of physicians' dominance and affiliativeness. The physician's use of task touch ($r = .33$, $p < .05$) and the extent to which physicians maintained a more indirect body orientation relative to the patient's body orientation ($r = .34$, $p < .05$) were significantly correlated with patients' perceptions of the physician's dominance. Also, there was a trend for physicians' perceived more dominant to interrupt patients more than patients interrupted doctors ($r = .27$, $p < .1$). None of the nonverbal exchange patterns significantly correlated with patients' satisfaction and perceptions of the physician's affiliativeness. However, there were trends for physicians perceived less affiliative to gesture ($r = -.27$, $p < .1$) and interrupt ($r = -.29$, $p < .1$) at rates greater than those of the patients. Hence, the third prediction received little support.

Discussion

At the outset, we argued that insight into physician-patient communication processes could be gained examining the interaction from a "functional" perspective (c.f., Patterson, 1982; 1983). The purpose of this research was to describe how physicians and patients communicate nonverbally with one another, to identify communicative functions (dominance and affiliation) served by these "patterns" of nonverbal behavior exchange, and to ascertain whether these responses were related to patients' satisfaction with medical care and judgments of physicians' affiliativeness and dominance.

TABLE 2

Correlations Among Physicians' Behaviors, Physician-Patient Behavioral Patterns, and Patients' Perceptions

	Patients' Satisfaction	*Physicians' Affiliativeness*	*Physicians' Dominance*
Physicians' Behavior			
Task Touch	.04	.07	.33**
Physicians' Behavior Minus Patients' Behavior			
Turn Duration	.04	.01	.03
Pause/Turn Duration	−.19	−.10	−.23
Response Latency	−.09	−.07	−.13
Interruptions	−.18	−.29*	.27*
Vocal Back-Channels	−.22	−.15	−.10
Social Touch	.20	−.01	.13
Illustrative Gestures	−.13	−.27*	.10
Body Orientations	−.21	−.05	.34**
Gaze Away From Partner	.23	.01	.15
Absolute Value of Physicians' Behavior Minus Patients' Behavior			
Turn Duration	.16	.05	−.05
Pause/Turn Duration	.19	.10	.22
Response Latency	.02	.07	−.15
Interruptions	−.05	−.01	−.15
Vocal Back-Channels	−.19	−.24	−.13
Social Touch	.08	.03	.12
Illustrative Gestures	.16	−.21	.18
Body Orientations	.08	.07	.24
Gaze Away From Partner	−.17	.07	−.06

*$1>p>.05$ **$p<.05$

Nonverbal Exchange Patterns in Physician-Patient Interactions

Similar to other communicative contexts in which interactants vary in their social power, social roles, and topical knowledge yet share certain communicative objectives such as information sharing, fostering rapport, and problem-solving (e.g., interviewer-interviewee, teacher-student), physicians and patients in this study created two distinctive patterns of

nonverbal behavior exchange. These patterns reflect the manner in which the interactants established communicative control and acceptable levels of affiliation and involvement. The prominence of these nonverbal exchanges is highlighted by the fact that they emerged in communicative settings which were quite diverse in terms of the interactants' personal characteristics and the nature of the tasks. These functions evolved concurrently in large part because different behaviors accomplished each.

The physicians, as expected, emerged more communicatively dominant relative to the patients by speaking for longer periods of time and using more social touch which was not reciprocated by patients. Also, most partners avoid long pauses while speaking in order to prevent negative impressions or losing a speaking turn (McLaughlin & Cody, 1982). In this study, patients in particular avoided silence within their speaking turns whereas physicians exhibited, and were allowed, substantial within-turn silence which was roughly twice that displayed by patients (see Table 1). In sum, of the two participants, physicians emerged more dominant nonverbally by exercising greater communicative control and displaying more status markers. These findings complement previous research describing the manner in which physicians verbally control interactions with patients (Coulthard & Ashby, 1975; Fisher, 1983; Shapiro et al., 1983; West, 1984).

Contrary to the pattern observed for dominance behaviors, physicians and patients achieved relative congruence among their body orientations, gaze behavior, gestures, and response latencies. These behaviors typically reveal a conversant's affiliation toward and involvement with an interlocutor or topic of interaction. While affiliative *intensity* is reflected in the interactants' behavioral levels, *mutually acceptable* affiliativeness is signalled by the degree of similarity between conversants' nonverbal responses (Cappella & Greene, 1982; Patterson, 1983). For example, although some physician-patient interactions may be characterized by greater nonverbal expressiveness than others (e.g., due to differences in the nature of the task, seriousness of medical conditions, and relational histories of the participants), physician-patient matching of these behaviors likely reflects the joint establishment of acceptable displays of nonverbal involvement.

Findings for two behaviors were contrary to expectations. First, physicians did not interrupt the patient more than the reverse. Though contrary to West's (1984) results, our data could be attributed to the fact that the coding scheme counted any overlapping speech as an interruption and did not discriminate between speak-overs which deny a partner's turn completion (as does West, 1984) and those speech overlaps which are related to fast-paced speaker turn changes (Cappella, 1983; Gallois & Markel, 1975;

Street & Murphy, 1987). The latter appears to be the case in this study. The fact that physicians and patients tended to produce comparable levels of interruptive speak-overs may reflect their efforts to achieve an optimal pace or tempo for the interaction.

Secondly, although holding the floor for periods roughly twice as long as the patients, physicians also produced significantly *more* vocal back-channel responses as listeners. This phenomenon may reflect a feedback ploy by the physicians. Assuming physicians are interested in the patient, vocal back-channels (e.g., "uh huh," "I see," "is that right?," etc.) may reflect the physicians' genuine concern about what the patient has to say. Physicians may produce more of these responses than do patients because vocal back-channels typically signal reinforcement and supportiveness of the speaker's utterances. Such communicative objectives may be more salient to physicians than to patients. Vocal back-channels also may be habituated and strategic responses that physicians employ to quickly (perhaps because of time demands) signal their interest in and encouragement for what patients are saying.

Patients' Satisfaction and Physicians' Affiliativeness, Dominance, and Nonverbal Communication

Consistent with previous research, patients' satisfaction with medical care was strongly correlated with their perceptions of physicians' affiliativeness ($r = .80$). This finding supports Ben-Sira's (1976, 1980) claim that the physician's affective responsiveness is a major determinant of the patient's satisfaction with health care delivery. Although past investigations have discovered moderately negative associations between patients' satisfaction and perceptions of physicians' dominance or argumentativeness (Buller & Buller, 1987; Hall et al., 1981; Street & Wiemann, 1987), this study failed to support this relationship. The lack of significance could be attributed to the relatively small sample size ($N = 38$) or to a marginally reliable dominance measure (.56). However, an equally if not more plausible explanation is that, while universally preferring affiliative physicians, patients differ in their acceptance of physicians' displays of communicative dominance. For example, patients who are anxious about their medical condition or who are repeat clients may be more tolerant of domineering physicians than are their respective counterparts (see, e.g., Buller & Buller, 1987; Street & Wiemann, 1987).

The degree of similarities and differences between the participants' nonverbal behaviors rarely emerged as significant predictors of patients' satisfaction and judgments of physicians' dominance and affiliativeness. An

inference could be made that the observed patterns of reciprocity among affiliative responses and maintenance of differences among dominance behaviors were favorably received by patients given the indications of satisfaction with their physicians. Speculatively, a promising explanatory construct for these data may be found in various communication theories. Several writers have argued that receivers behaviorally and evaluatively respond to interlocutors in terms of personal "acceptance regions" for partners' expressive behaviors (Burgoon, 1983; Cappella & Greene, 1982; Street & Brady, 1982). These affective-perceptual constructs delimit not only what behaviors are preferred but also the "range" of behavioral variability tolerated. For example, patients want responsive and caring doctors yet may tolerate some, if not substantial variability in physicians' communicative behavior because of the physicians' social power and knowledge (Burgoon, 1983). Thus, a wide array of physicians' communicative styles may be viewed by patients as acceptably controlling, affiliative, and satisfying with negative sanctions occurring only when excessive or insufficient responses are encountered. The empirical upshot of such tolerance for this study is that, although displaying somewhat different communicative styles, these physicians nonverbally behaved in an acceptable manner. Hence, few relationships emerged between physicians' behaviors and patients' judgments.

The notion of nonverbal behavior acceptance ranges may also account for the few behavior-perception correlations which were or approached statistical significance. Most patients expect physicians to behave in a warm, but professional and business-like manner (Burgoon et al., 1987). A few of these young physicians may have *exceeded* some patients' expectancies for physicians' nonverbal and vocal *activity*. Patients tended to perceive physicians as less affiliative to the extent that they gestured and interrupted more than did the patient. Buller and Buller (1987) also reported that patients disfavored high levels of physicians' nonverbal expressiveness. Highly animated or active physicians may appear overly casual, intense, or hurried, and may violate patients' preferences for a doctors' bedside manner. This study and previous investigations clearly indicate that patients' prefer caring, involved, and responsive physicians; yet the possibility that physicians may be "overly" affiliative or expressive warrants further inquiry.

The physicians' frequency of task touch, indirectness of body orientation, and rates of interruption (relative to the patients' rates) correlated with patients' judgments of the physicians' dominance. These findings are consistent with those of other research and indicate that physicians communicate social power by controlling communicative exchanges (West,

1984), having unquestioned access to the patients' body (DiMatteo, 1979), and regulating the degree of interaction involvement (Pendleton, 1983).

Limitations and Implications

As in other naturalistic investigations, this study had several methodological limitations including the relatively small sample of 38 interactions, the heterogeneity of the patients' characteristics, the relative inexperience of the physicians, and the filming restrictions. Secondly, in the case of perceived dominance, the weak behavior-perception relationships could be attributed to ceiling effects (most patients responded very positively to their physicians), the youthfulness of the physicians (thus making dominance less salient perceptually), or to the weakness of the measure itself (a two-item scale with moderately low reliability). Thirdly, the lack of behavioral predictors for perceptions of the physicians' affiliativeness may be due to the fact that affiliation is often signalled through a combination of behaviors—facial expressions, head nods, smiles—which we were not able to code given the camera's angle on the interactions.

These limitations highlight the need for more sophisticated theories and methodologies explicating factors mediating communicative patterns and outcomes of physician-patient interaction (Pendleton, 1983). While Waitzkin (1985) recently has provided insight into personal and situational variables that have an impact on information exchange within physician-patient encounters, researchers remain relatively uncertain about the perceptual and behavioral dynamics undergirding the relationships between communication processes and patients' satisfaction and compliance. We suggest three avenues for future research. First, although the intraclass correlation is a commonly-used index of behavioral congruity (see, e.g., Feldstein & Welkowitz, 1978), we did not ascertain the manner in which the physicians and patients achieved congruence. For example, did one of the participants unilaterally adapt toward the other's nonverbal behaviors or was congruence accomplished mutually? While several of the interactions were too brief (e.g., ten minutes) to generate individual indices of adaptation, researchers could select longer interactions and take advantage of statistical methods such as time series analysis (Cappella & Planalp, 1981; Street, 1984) and lag sequential analysis (Smith & Larsen, 1984).

Second, the possibility that patients tolerate substantial variability among physicians' communicative styles (perhaps due to patients' positive experiences with doctors or to socio-cultural norms presuming doctors are competent and correct) poses interesting questions for future investigations. Such tolerance may explain contradictory research findings indicating that

patients' satisfaction has been positively related (Larsen & Smith, 1981) and unrelated (these data; Comstock et al., 1982) to the directness of physicians' body orientations.

Finally, the presumption that relational and affective qualities of relationships are communicated nonverbally (DiMatteo, 1979) is only partly true. An interactant's verbal responsiveness also has relational implications (Davis, 1982; Tracy, 1985). For example, at least two studies have reported that patients' satisfaction with physicians was related more to responsive utterances (e.g., empathic remarks, information giving, answering questions, and providing patients the opportunity to ask questions) than to nonverbal behavior alone (Comstock et al., 1982; Roter, Hall, & Katz, 1987). A truly "functional" perspective would entail examining selective verbal *and* nonverbal behaviors contributing to the accomplishment of communicative functions such as information exchange, affiliation, and control.

Notes

1. For example, in medical situations in which the patient is highly anxious about the medical condition, both physician and patient may display high levels of involvement or intimacy cues such as touch, directness of body orientation, forward body leans, gaze toward partners, and facial expressiveness. In a routine medical exam with no complications, there may be lower levels of affiliative intensity such as less social touch, more gazes away from partners, more indirect body orientations, and less facial expressiveness (c.f., Street & Wiemann, 1987). Nevertheless, in both situations the participants conceivably achieved an acceptable degree of nonverbal involvement which is indexed by their relative behavioral similarity.
2. Admittedly, physicians' and patients' characteristics will impinge upon the communicative structure of medical interactions. However, the sample size was insufficient to include various personal characteristics in the factorial design. Thus, any variance resulting from patients' and physicians' characteristics was treated as error variance in the statistical models applied to these data.

References

Anderson, D. and Street, R.L., Jr. (1984). *SPECO: A microcomputer program for coding speech behavior.* Unpublished. Texas Tech University.

Applegate, W.B. (1986). Physician management of patients with adverse outcomes. *Archives of Internal Medicine,* 146, 2249–2252.

Ben-Sira, Z. (1976). The function of the professional's affective behavior in client satisfaction: A revised approach to social interaction theory. *Journal of Health and Social Behavior,* 17, 3–11.

Ben-Sira, Z. (1980). Affective and instrumental components of the physician-patient relationship: An additional dimension of interaction theory. *Journal of Health and Social Behavior,* 21, 170–180.

Buller, M.K., & Buller, D. (1987). Physicians' communication style and patient satisfaction. *Journal of Health and Social Behavior, 28*, 375–388.

Burgoon, J.K. (1983). Nonverbal violations of expectations. In J.M. Wiemann & R.P. Harrison (Eds.), *Nonverbal interaction* (pp. 72–112). Beverly Hills, CA: Sage.

Burgoon, J.K., Pfau, M., Parrott, R., Birk, T., Coker, R., & Burgoon, M. (1987). Relational communication, satisfaction, compliance-gaining strategies, and compliance in communication between physicians and patients. *Communication Monographs*, 54, 307–324.

Bryne, P.S. & Long, B. (1976). *Doctors talking to patients: A study of the verbal behavior of general practitioners consulting in their surgeries.* London: Her Majesty's Stationary Office.

Cappella, J.N. (1983). Conversational involvement: Approaching and avoiding others. In J.M. Wiemann & R.P. Harrison (Eds.), *Nonverbal interaction* (pp. 113–148). Beverly Hills, CA: Sage.

Cappella, J.N. & Greene, J.O. (1982). A discrepancy-arousal explanation of mutual influence in expressive behavior for adult-adult and infant-adult interaction. *Communication Monographs*, 49, 80–114.

Cappella, J.N. & Planalp, S. (1981). Talk and silence sequences in informal conversation III: Interspeaker influence. *Human Communication Research*, 7, 117–132.

Cappella, J.N. & Street, R.L., Jr. (1985). A functional approach to the structure of communicative behavior. In R.L. Street, Jr. & J.N. Cappella (Eds.), *Sequence and pattern in communicative behavior* (pp. 1–29). London: Edward Arnold.

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.

Coulthard, M. and Ashby, M. (1975). Talking with the doctor. *Journal of Communication*, 25, 140–147.

Davis, D. (1982). Determinants of responsiveness in dyadic interaction. In W.J. Ickes & E.S. Knowles (Eds.), *Personality, roles, and social behavior* (pp. 85–139). New York: Springer-Verlag.

Davis, M. (1968). Variations in patients' compliance with doctors' advice: An empirical analysis of patterns of interaction. *American Journal of Public Health*, 58, 274–288.

DiMatteo, M.R. (1979). A social-psychological analysis of physician-patient rapport: Toward a science of the art of medicine. *Journal of Social Issues*, 35, 12–33.

DiMatteo, M.R., Prince, L.M. & Taranta, A. (1979). Patients' perceptions of physicians' behavior: Determinants of patient commitment to the therapeutic relationship. *Journal of Community Health*, 4, 280–290.

Duncan, S., Jr., & Fiske, D. (1977). *Face-to-face interaction: Research, methods, and theory.* Hillsdale, NJ: Erlbaum.

Fisher, S. (1983). Doctor/patient talk: How treatment decisions are negotiated in doctor/patient communication. In S. Fisher & A. Todd (Eds.), *The social organization of doctor-patient communication* (pp. 135–157). Washington, D.C.: Center for Applied Linguistics.

Feldstein, S. & Welkowitz, J. (1978). A chronography of conversation: In defense of an objective approach. In A.W. Siegman & S. Feldstein (Eds.), *Nonverbal behavior and communication* (pp. 329–378). Hillsdale, NJ: Erlbaum.

Friesen, W.V., Ekman, P., & Wallbott, H. (1979). Measuring hand movements. *Journal of Nonverbal Behavior*, 4, 97–113.

Gallois, C. & Markel, N.N. (1975). Turn taking: Social personality and conversational style. *Journal of Personality and Social Psychology*, 31, 1134–1140.

Giles, H. & Street, R.L., Jr. (1985). Communicator characteristics and behavior. In M.L. Knapp & G.R. Miller (Eds.), *Handbook of interpersonal communication* (pp. 205–262). Beverly Hills, CA: Sage.

Haggard, E.A. (1958). *Intraclass correlation and the analysis of variance.* New York: Dryden.

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.

Harrigan, J.A., Oxman, T.E., & Rosenthal, R. (1985). Rapport expressed through nonverbal behavior. *Journal of Nonverbal Behavior*, 9, 95–110.

Jaffe, J. & Feldstein, S. (1970). *Rhythms of dialogue*. New York: Academic Press.

Korsch, B. & Negrete, V.F. (1972). Doctor-patient communication. *Scientific American*, 227, 66–70.

LaCrosse, M.B. (1975). Nonverbal behavior and perceived counselor attractiveness and persuasiveness. *Journal of Counseling Psychology*, 22, 563–566.

LaFrance, M. (1982). Posture mirroring and rapport. In M. Davis (Ed.), *Interaction rhythms: Periodicity in communicative behavior* (pp. 279–297). New York: Human Sciences.

Larsen, K. & Smith, C.K. (1981). Assessment of nonverbal communication in the patient-physician interview. *The Journal of Family Practice*, 12, 481–488.

Matarazzo, J. & Wiens, A.N. (1972). *The interview: Research on its anatomy and structure*. Chicago: Aldine.

Maurer, R.E. & Tindall, J.H. (1983). Effects of postural congruence on clients' perceptions of counselor empathy. *Journal of Counseling Psychology*, 30, 158–163.

McLaughlin, M.L. & Cody, M.J. (1982). Awkward silences: Behavioral antecedents and consequences of the conversational lapse. *Human Communication Research*, 8, 299–316.

Mehrabian, A. (1972). *Nonverbal communication*. Chicago: Aldine-Atherton.

Norton, R. (1983). *Communicator style: Theory, application, and measures*. Beverly Hills, CA: Sage.

Patterson, M.L. (1982). A sequential-functional model of nonverbal exchange. *Psychological Review*, 89, 231–249.

Patterson, M.L. (1983). *Nonverbal behavior: A functional perspective*. New York: Springer-Verlag.

Pendleton, D. (1983). Doctor-patient communication: A review. In D. Pendleton & J. Hasler (Eds.), *Doctor-patient communication* (pp. 5–56). New York: Academic Press.

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

Shapiro, M.C., Najman, J.M., & Chang, A. (1983). Information control and the exercise of power in the obstetrical encounter. *Social Science and Medicine*, 17, 139–146.

Smith, C.K. & Larsen, K.M. (1984). Sequential nonverbal behavior in the physician-patient interview. *The Journal of Family Practice*, 18, 257–261.

Smith, C.K., Polis, E., & Hadac, R.R. (1981). Characteristics of the initial medical interview associated with patient satisfaction and understanding. *The Journal of Family Practice*, 12, 283–288.

Speedling, E.J. & Rose, D.N. (1985). Building an effective doctor-patient relationship: From patient satisfaction to patient participation. *Social Science and Medicine*, 21, 115–120.

Stiles, W.B., Orth, J.E., Scherwitz, L., Hennrikus, D., & Vallbona, C. (1984). Role behaviors in routine medical interviews with patients: A repertoire of verbal exchanges. *Social Psychology Quarterly*, 47, 244–254.

Street, R.L., Jr. (1984). Speech convergence and speech evaluation in fact-finding interviews. *Human Communication Research*, 11, 139–169.

Street, R.L., Jr. (1986). Interaction processes and outcomes in interviews. *Communication Yearbook*, 9, 215–250.

Street, R.L., Jr. & Brady, R.M. (1982). Speech rate acceptance ranges as a function of evaluative domain, listener speech rate, and communication context. *Communication Monographs*, 49, 290–308.

Street, R.L., Jr., Mulac, A., & Wiemann, J. (1988). Speech evaluation differences as a function of perspective (participant vs. observer) and presentational medium. *Human Communication Research*, 14, 333–363.

Street, R.L., Jr. & Murphy, T.L. (1987). Interpersonal orientation and speech behavior. *Communication Monographs*, 54, 42–62.

Street, R.L., Jr. & Wiemann, J. (1987). Patients' satisfaction with physicians' interpersonal involvement, expressiveness, and dominance. *Communication Yearbook*, 10, 591–612.

Tracy, K. (1985). Conversational coherence: A cognitively grounded rules approach. In R.L.

Street, Jr. & J.N. Cappella (Eds.), *Sequence and pattern in communicative behavior* (pp. 30–49). London: Edward Arnold.

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

Waitzkin, H. (1985). Information giving in medical care. *Journal of Health and Social Behavior, 26*, 81–101.

Warner, R.M., Kenny, D.A., & Stoto, M. (1979). A new round-robin analysis of variance of social interaction data. *Journal of Personality and Social Psychology, 37*, 1742–1757.

West, C. (1984). *Routine complications: Troubles with talk between doctors and patients*. Bloomington, IN: Indiana University Press.