Eye contact in patient-centered communication ☆

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ABSTRACT

Objective: To understand the relationship between eye contact and patient-centered communication (PC) in physician–elder patient interactions.
Methods: Two instruments—Patient-centered Behavior Coding Instrument (PBCI) and Eurocommunication Global Ratings Scale—were used to measure PC in 22 National Institute of Aging videotapes. Eye contact was measured using a refined eye contact scale in NDEPT. Qualitative observational techniques were used to understand how eye contact can implicate communication.
Results: 'High' eye contact tapes were found to be 'high' in PC using both instruments. However, the majority of 'low' tapes were also found to be 'high' in PC. Physicians' behavior distinctly differed in two ways: (1) high tapes were characterized by more 'sustained' eye contact episodes; low tapes consisted of a greater number of 'brief' episodes; (2) brief episode tapes showed a greater focus on 'charts', i.e. 'listening' was bereft of 'looking'; sustained episodes showed a focus on 'patients', i.e. 'listening' was accompanied by 'looking' indicating patient-centered communication.
Conclusions: A comprehensive understanding of elder patient–physician interaction needs to include both—'listening' and 'looking'—components of patient-centered communication.
Practice implications: Eye contact serves as a salient factor in the expression of PC, making it imperative to incorporate as a nonverbal dimension in PC instruments.

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1. Introduction

Physician–patient communication comprises both verbal and nonverbal dimensions [1]. Thus, any comprehensive understanding of physician–patient interaction needs to include an analysis of verbal as well as nonverbal aspects of communication [2]. While several instruments exist for studying verbal dimensions, the nonverbal dimensions have received limited attention [3]. This is especially true for physician–elderly patient interactions. To address this gap, prior research by the authors proposed an instrument to capture the Nonverbal Dimensions in Doctor–Elderly Patient Transactions (NDEPT) [4]. In this earlier study, we found eye contact to be the most frequently invoked nonverbal dimension in physician–elder patient interaction. Building on this earlier work, the present study seeks to understand the relation-

ship between eye contact and physician–patient interaction in a sample of elder patients (>65 years of age).

Eye contact is defined as the extent to which the physician looks into the patient's face, regardless of what the patient does [5]. Eye contact is salient for understanding physicians' communicative behaviors with older patients for several reasons. Older patients' common functional impairments (e.g. hearing deficits) may limit their ability for effective verbal communication, leading to a greater reliance on nonverbal cues. Further, when verbal and nonverbal aspects are in contradiction, the nonverbal more than the verbal guides individuals' behavior [6]. Most importantly, cognitively and/or verbally impaired older patients perceive the affective climate of their environment to be more important than they did prior to their illness [7]. And, eye contact can be critical for enhancing the affective component of interaction [8,9].

Over the last several decades, patient-centeredness has become a key indicator of the quality of patient care delivered by physicians [10,11]. However, patient-centeredness is recognized as multidimensional, and as of yet there is no universal agreement on the scope of the term or the means to measure it [12,13]. At the core of the varied elements used to describe patient-centeredness is the conception of the patient as an "experiencing individual rather than the object of some disease entity" [12, see also 14,15].

Patient–physician communication is a key to highlighting the individual's experience [16,17]. Therefore, the present paper focuses on elucidating physicians' communicative behaviors during interaction, i.e. facilitating and/or inhibiting behaviors that enable patients to express their perspectives on illness, treatments, and health in general [18,19]. Understanding patient-centered communication (PC) is particularly salient for elderly patients with their unique needs and expectations since physicians' communicative behaviors need to be responsive to their choice of topics and style of communication (instrumental versus affective) to be patient-centered [16].

The main goal of the present paper is to ask the question: does eye contact have any relationship within the narrow construct of PC given above? In this research, eye contact is measured using NDEPT [4] and PC is measured using the Patient-centered Behavior Coding Instrument (PBCI) developed specifically to code facilitating and inhibiting behaviors in the interaction [20]. Since PBCI had used the Eurocommunication Scale [21,22] to assess its validity, we chose to include this instrument as well.

2. Methods

2.1. Sample and methodology

PC and eye contact were measured by viewing videotapes of routine clinical visits. The present study is a secondary analysis of 50 National Institute of Aging (NIA) archived videotapes of physician–elder patient interactions [4]. The NDEPT guidance was used to evaluate and further screen the sample population. Briefly, eye contact was coded based on percent of time physician makes eye contact with patient during the encounter. We found that the measured eye contact followed a standard bell curve, with medium eye contact (35–65% of the time) in the maximum number of tapes ($N = 28$); low eye contact (0–34% of time) in 9 tapes; and high eye contact (66–100% of time) in 13 tapes. For the present analysis only 'high' ($N = 13$) and 'low' ($N = 9$) tapes—for a total of 22—were selected to easily distinguish between PC differences.

As indicated elsewhere, each videotaped clinical visit can be segmented into opening, middle and closing phases [4]. The middle portion comprises the history-taking and post-physical exam discussion. During history-taking, both physician and patient are actively engaged in asking and answering questions. The history taking segment also involves more of 'patient-initiated' and less of 'doctor-initiated' utterances [23] with the physician listening and (likely) displaying attention to the patient's story. Thus, this segment, more than any other, affords the latitude for eye contact and patient-centered communication evaluation. Consequently, in the present study, we used the history-taking portion for elucidating the relationship between eye contact and PC.

2.2. Eye contact instrument (nonverbal dimension)

The 22 tapes identified above were used by one coder (RGB) for measuring eye contact. A focused review of a sample of 'high' (3) and 'low' (2) eye contact tapes highlighted the nuances of the types of eye contact made by physicians. For example, some tapes showed fleeting amounts of eye contact made more frequently, while others showed instances in which physicians made eye contact over a longer duration but with less frequency. These examples underscored the fact that the total length of eye contact as originally proposed in the NDEPT instrument may not capture the gestalt of gaze for fully understanding the implications for PC. Therefore, the eye contact measurement was further refined to incorporate two elements: (1) type of eye contact episodes; (2) frequency of these episodes. Two specific types of eye contact were

identified based on the duration of eye contact: (1) 'Brief' (≤ 10 s) or (2) 'Sustained' (> 10 s).

2.3. Patient-centered communication (verbal dimension)—instruments

As indicated earlier we chose two observation-based instruments to measure PC: (i) PBCI and (ii) Eurocommunication Scale. Initially two tapes were coded with these two instruments by both coders (RGB and MAC); results were identical. Thus, having established reliability between the two coders for both instruments, the 20 remaining tapes were independently coded by the two coders, with each coder using one of two instruments.

2.3.1. Patient-centered Behavior Coding Instrument (PBCI)

PBCI is an interaction behavior coding instrument designed to assess patient-centeredness in medical encounters [18] by tallying physician facilitating and inhibiting behaviors. The inclusion of nonverbal behaviors in the PBCI is limited to gestures, nods or facial expressions and eye contact is not explicitly identified. Thus the focus of PBCI is more on verbal dimensions rather than nonverbal aspects [for details, see 18]. We used PBCI mainly to code, "verbal encouragement to continue talking" (echoing included) to understand the ways in which patient-centered communication manifests in the encounter. This sub-item is operationalized as: physician verbally encouraging the patient to continue their story, expressed as: (a) Explicit encouragement: "go on, yes"; (b) Neutral Expressions: "uh-huh, Mmm"; (c) Interjections: brief conclusions, "so you want…." [20].

The 22 tapes were analyzed using a scoring range from 1 = not at all; 2 = some small degree; 3 = medium degree; 4 = high; and, 5 = to a very high degree, and NA = not applicable. We chose to collapse this 5-point scoring to a 3-point scale to be consistent with the eye contact scoring of "low," "medium," or "high," by collapsing the 1 and 2 into 1 = "low" PC category; 3 = 2 or "medium" PC category; and 4 and 5 into a 3 or "high" PC category.

2.3.2. Eurocommunication Scale

This scale enables measuring global ratings of patient-centered communication on a 3-point scale as "not very often", "moderately" to "very often." The nonverbal dimensions included are: looking, nodding, active attitude, and lean backwards. This instrument allowed for operationalizing global ratings of PC by noting when physicians:

(1) encourage patients to express in their own words their complaints, problems, anxiety and concerns,
(2) encourage patients to decide about their treatment plan, preferences and concerns,
(3) are in general receptive/responsive towards patient, i.e. listen/answer in the right context.

Again, the history taking segments of 22 tapes were analyzed using the above scale.

2.4. Analysis of eye contact and PC

To pursue our goal of gaining qualitative insight into how eye contact gets interwoven with communication, we adapted and followed research methods of conversational organization [24–26] to document how patients monitor doctors' movements and direction of gaze to coordinate their own turns of talk to the physician's level of engagement. Thus, we conducted systematic observations of the organization of observable interaction (including nonverbal and verbal communication) during the history-taking phase of 22 tapes.

3. Results

3.1. Patient-centered communication using PBCI Scale

Using the scoring method described earlier, verbal expressions of physicians in the 22 tapes were found to be distributed on the three sub-items as follows:

(1) Explicit encouragement ('Go on', 'tell')—22 of 22 visits.
(2) Neutral Expressions ('uh-huh', 'Mmm')—15 of 22 visits.
(3) Interjections ('So you want...')—7 of 22 visits.

Using the collapsed 3-point scale, 20 visits were coded as 'high' and two visits were coded 'low' for PC.

3.2. Patient-centered communication using Eurocommunication Scale

The main results from the analysis of the history-taking segment of 22 tapes showed that physicians:

(1) Were generally receptive to the patients in the majority (20 of 22) of visits.
(2) Encouraged patients to express complaints, problems, anxieties and concerns in a little over half (13 of 22) of visits.
(3) Encouraged patients to share in decision-making in about a third (8 of 22) of visits (this particular finding is not a focus of the present study).

3.3. Eye contact

The length of the history taking segment of the visits ranges from 0.30 to 22.98 min. Since the time spent in listening to the patient's history is dependent on their medical condition and the ensuing interaction between patient and physician, eye contact was measured as a percentage of the time spent in history taking rather than as the absolute length of time. Measured in this fashion, eye contact duration varied from 3 to 97% for the 22 tapes. The large variation in length of eye contact is noteworthy. Since it is well-known that 'thin slices' of interaction are widely used in understanding both social life outcomes [27,28] and medical care outcomes [29–31], we accepted even the low tapes as adequate in length for this analysis.

The qualitative description along with characteristics of 'high' and 'low' eye contact tapes (N = 22) are summarized in Table 1. The average length of the history-taking segment in both the 'high' and 'low' eye contact tapes was not significantly different (6.9 and 6.7 min). However, the percentage of time spent in making eye contact in the 'high' tapes was distinctly different from, and more than three times that in the 'low' tapes (80% versus 25%). Further, the dominant type of eye contact in the 'high' and 'low' tapes was also different. Brief episodes occurred more often in 'low' as opposed to 'high' tapes (44 versus 10). In contrast, 'sustained' episodes occurred more frequently in 'high' rather than in 'low' tapes (41 versus 3). Of the 'low' tapes, all (9) exhibited 'brief' eye contact episodes, and only about half (4) of these displayed 'sustained' episodes. Interestingly, in the 13 'high' tapes, all included 'sustained' episodes and less than half (5) included 'brief' episodes.

Visual behavior of physicians and patients was also noted. Patients in both 'high' and 'low' eye contact tapes visually followed the physicians' facial expressions and movements in the exam room. Physicians visual behavior, on the other hand varied. In the 'low' tapes, physicians focused on patients' charts—reading, writing in them, arranging sheets into the folder and such. They made eye contact with patients only when they initiated talk with the patient; and never when the patients initiated talk. On the other hand, physicians in the 'high' tapes focused on patients—they listened attentively to what the patient was saying; their techniques for explaining were conducted in an active and therapeutic manner. Most importantly, they made eye contact with patients' both when they talked and when patients initiated talk.

3.4. Relationship between PC and eye contact

As indicated earlier, 13 tapes exhibited 'high' eye contact and 9 tapes showed 'low' eye contact ratings. As one would expect, the 13 'high' eye contact tapes were also rated 'high' on PC using the Eurocommunication Rating Scale. However, the 9 'low' eye contact tapes were also rated as 'high' in PC. Similarly, the PBCI showed the 13 'high' eye contact tapes as 'high' in PC. However again, of the 9 tapes 'low' in eye contact only 2 were coded 'low' in PC, and the remainder 7 tapes were coded 'high' in PC. That is, 13 'high' eye contact tapes were concordant on eye contact and PC (using both instruments). However, seven or nine tapes were discordant on eye contact and PC, depending on the PC instrument used. Since, it is logical to assume that tapes 'high' in eye contact would also be 'high' in PC, and those 'low' in eye contact would be 'low' in PC, the discrepant results led us to ask whether they were measuring the same domain conceptualized as "patient-centered communication". We also became cognizant of the possibility that eye contact measurements could lead to discrepancies in how PC is read. This dilemma led us to consider a qualitative examination of what factors go to the making of 'high' and 'low' eye contact tapes. Therefore, our next step entailed a systematic observation

Table 1
Characteristics of high and low eye contact visits; N = 22.

Characteristics	Low eye contact (N = 9)	High eye contact (N = 13)
Average length (range) of history-taking segment	6.7 (0.30–10.96) min	6.9 (2.30–22.98) min
Average duration (range) of eye contact	25 (3–33)%	80 (66–97)%
Type of eye contact		
(a) Total # of brief episodes	44	10
(b) Total # of sustained episodes	3	41
(a) Occurrence of brief episodes	In all 9 visits	In 5 visits
(b) Occurrence of sustained episodes	In 4 visits	In all 13 visits
Patient visual behavior during history-taking segment	Follows physician's facial expressions and movements in exam room	Follows physician's facial expressions, movements, actions in exam room
Physician behavior during History-taking segment	Focuses on chart	Focuses on patient
	Reads, writes, pages through sheets in chart	Listens attentively, discusses, explains (actively, therapeutically)
	Makes eye contact when physician speaks, NEVER when patients initiate talk	Makes eye contact when physician talks AND when patients initiate talk

of videotapes to understand the nuances of eye contact in the medical interaction and consequent implications for PC. Two examples, one each from the high and low tapes are presented as follows.

3.4.1. Examples of 'high' and 'low' eye contact videotapes

3.4.1.1. Example 1—high eye contact. An 89-year-old patient dressed in street clothes is seated on a chair in the exam room, facing an exam table on the left and physicians' desk on the right (such that the physician would have his back to the patient when sitting in the rolling stool and writing at the desk). The physician enters, greets the patient, proceeds to the desk to pick up his chart, *moves the rolling stool so as to face the patient at a comfortable distance, sits down, makes eye contact with the patient and listens attentively* (italics added for emphasis). The patient begins to relate an incident that occurred, for which he now claims that he needs the physician's help. The physician encourages him to relate his story—a good example of the physicians' responsiveness to the patient's verbal clues. Further, he moves his rolling stool to seat himself about two and a half feet from, and facing the patient directly. It becomes apparent that in addition to being verbally supportive, the physician has modified and used existing physical setting attributes to physically structure the setting of the interaction so as to enhance his interaction via eye contact with the patient. The interaction continues with physician 'looking' and 'listening' to patient; and elder-patient 'looking' and 'talking' to physician.

3.4.1.2. Example 2—low eye contact. A patient sits on the width edge of the exam table facing the physician who is reviewing the patient's chart at a counter at the opposite end of the exam room. As the patient begins to tell her story of "not good" events that happened since the last visit, the physician is seen walking across the exam room to a desk, fumbling in drawers, looking for some item, not even once looking towards the patient who continues the story, and visually follows the physician's movements across the room. The patient is intently narrating the two "not good" events that have happened—one, a condition of the femur patella that has gotten aggravated to the point where she may have to undergo surgery:

Patient: ......and if you let it go, and it gets real bad, then they have to do a replacement......
Dr: Hmmm.......(while writing in chart on a counter, and walking to desk searching for some item in a cabinet, all done without any eye contact with patient)
Patient: I got glaucoma ......I went to the eye doctor last month and the pressure was up 38...he (doctor) almost was (stunned)....
Dr: Yeah?....(while continuing to focus on searching for item in cabinet)

While the patient is intently looking for the physician's response as exhibited by her visually following the physician's movements, the physician continues to search for the item, making no eye contact with the patient. The entire history taking segment continues with patient 'looking' and 'talking' to physician, who is 'not looking,' perhaps 'listening,' but definitely busy with searching for something in the chart and in the desk drawers.

The first tape is an example of high PC and high eye contact. However, in the second tape the verbal speech alone indicated that the physician was 'listening' to the patient; and the interaction could thus be categorized as 'high' in PC using either of the two instruments. But, a systematic visual observation of the tape brings forth the nonverbal behavior of the physician including traversing the exam room busily searching for something in drawers, reviewing the patient's chart, and with no eye contact with the patient. Thus, the above two examples show that while the likelihood of a 'high' eye contact tape getting coded as 'high' is great, the possibility of a 'low' eye contact tape getting erroneously coded as 'high' in PC also has a high probability of occurring in the above two instruments.

4. Discussion and conclusions

4.1. Discussion

The characteristics that define physicians' behavior in 'high' and 'low' eye contact tapes were distinctly different. 'High' eye contact tapes (13) were rated 'high' in PC using both scales. Physicians in these visits exhibited PC through using all means to encourage patients to continue talking—explicit encouragement, neutral expressions and interjections in their verbal speech. Further, these tapes were characterized by sustained episodes of eye contact. In other words, 'looking' and 'listening' were occurring harmoniously. Ruusvuori [32] and others [24,26] have described the importance of coordination of speech and gaze for displaying engagement in interaction. As illustrated in Example 1, both participants displayed mutual engagement in interaction with each other. This representation is termed "the patient embodied" [32,26] and equated with 'patient-centered' orientation. Thus, 'listening' can be described as a deliberate and active behavior in which the physician tries to understand, and consciously gives his attention to the patient. And displaying attention to the patients' story by gaze at critical points of narration can be seen as one constituent of a patient-centered consultation [32,33,9]. In other words, 'listening' that is characterized by displaying alignment with the patient and that includes 'looking' as a key component is considered critical for patient-centered communication [34].

In contrast, as evidenced in Example 2, low eye contact tapes were characterized by physicians' focus on medical administrative tasks such as reviewing patients' charts, corroborating what Ruusvuori [32] and Robinson [26] have termed "patient inscribed," and equated with a "doctor-centered" orientation. Recent research also provides further evidence for these findings on the relevance of eye contact at appropriate junctures for the organization of patient-centered communication [35]. Further, in these tapes, physicians' speech behaviors comprised mainly neutral expressions, with limited interjections. Most importantly, these visits were marked by brief episodes of eye contact. In other words, "listening" was taking place with limited (or without) "looking." Eckes [36] would describe our observation in Example 2 as "hearing"—a biological operation of sensory apparatus—sound waves entering our ears and subsequently being transmitted to the brain. And it is known that "hearing" alone is not enough to achieve a patient-centered communication [37,32].

Patients show a preference for 'looking' while 'listening' to their physicians, perhaps trying to absorb information through both visual and auditory channels. Thus, patients not only 'take in' what physicians are saying/doing, but also consciously and actively follow the physician's movements, trying to establish a visual contact with him/her [38]. These finding further support the hypothesis, "within the normative order of conversation, if a gazing recipient is not found, the speaker will engage in certain practices in order to secure the gaze of the intended recipient" [24,25]. Thus, Example 2 presents a case of none or limited eye contact, and demonstrates the way in which patient-centered communication could be inhibited in the interaction.

Systematic observations of the 22 tapes repeatedly show that "looking" is a central component of "listening." In elder patient–physician interaction, "looking" (eye contact) is a complex function

of the static, dynamic and kinesic attributes of the exam room [4]. For example, our earlier research has shown that average eye contact increased in the visit:

(1) by 18% when physician's desk was NOT included in the interaction;
(2) by 16% when physicians maintained NO height difference between themselves and their patients, and
(3) by 15–22% when physicians adjusted the static and dynamic attributes into a spatial configuration that facilitated physicians' affective expressions.

Thus it is possible to appropriately modify the spatial configurations of exam rooms to enhance eye contact that in turn generates an affective climate [see also 9,33].

Beyond eye contact, other kinesic attributes, e.g. nodding [1,39]; postural orientation [32,40,41,26]; gesturing [24,25]; facial expression [31] have been shown to play a role in the expression of PC in the medical interaction. Therefore, future work in integrating nonverbal dimensions for a patient-centered communication would entail developing a systematic taxonomy of specific nonverbal dimensions influencing various domains of PC, and understanding how these relationships unfold in the medical interaction.

The present secondary analysis relied on videotaped interactions recorded in an earlier project and archived for use by researchers of doctor–elder patient communication [41]. Since no patient estimations were obtained in the initial study, they have not been part of the present study either. Our method for including the patient perspective was to document patient gaze, e.g. patient following the physician as the physician moved around the room. This is a limitation of the current study and future studies should include a means of measuring patients' estimation of patient-centered communication.

4.2. Relevance and application of qualitative methodology in health communication research

The greatest advantage of using qualitative methods is the latitude it offers researchers for unearthing reasons for the occurrence of a phenomenon, rather than providing numbers to illustrate associations [42–45]. Therefore, this methodology was deemed to be most appropriate for understanding the ways in which eye contact can implicate patient-centered communication in the visit. While, a number of nonverbal dimensions have been mentioned in the literature as facilitating/inhibiting PC, there is, to our knowledge, no systematic research on how exactly these unfold in the interaction, and how they are responded to by participants, thus lacking a precise means to enable researchers to draw inferences about patient-centered communication in clinical encounters. At such a stage, qualitative methodologies that emphasize field observations, documentation and interpretation techniques drawing from conversational organization are invaluable [24,46]. These methods helped generate insights and hypotheses about the reasons for, and mechanisms through which observed relationships between eye contact and PC become manifest.

4.3. Conclusions

Based on a qualitative analysis of 22 videotapes of physician elder–patient interaction, the major findings of the present research are:

a. The total duration of eye contact may not adequately capture details of interaction. We refined NDEPT to include type of eye contact (sustained or brief) and the frequency of occurrence to capture the subtle nuances in medical interactions.
b. Associating eye contact with two observation-based PC instruments (Eurocommunication Scale and PBCI), we found:
  (i) 'High' eye contact tapes showed 'high' PC measurements. However,
  (ii) 'Low' eye contact tapes also showed 'high' PC measurements.
c. Systematic observational techniques showed that high and low eye contact tapes were distinctly different from each other. High tapes were characterized by more sustained episodes of eye contact, in contrast to low tapes that consisted of a greater number of brief episodes.
d. Eye contact is an integral component of patient-centered communication that becomes interwoven with verbal communication at critical junctures over the duration of the clinical visit.

4.4. Practice implications

1. Research on implications of nonverbal dimensions for communication is still in its nascent stages. Therefore, the most efficacious way to highlight these processes is through qualitative methodologies of observation, documentation, and interpretation in a sequential organization of observable interaction.
2. The refined eye contact measure would need integration into the NDEPT tool, and it would be necessary to subsequently check the validity.
3. It is recommended that existing and future instruments designed to measure PC: (a) integrate eye contact and the refined means to measure it as part of the tool, and (b) simultaneously measure verbal and nonverbal dimensions occurring in the interaction.

"I confirm all patient/personal identifiers have been removed or disguised so the patient/person(s) described are not identifiable and cannot be identified through the details of the story."

Conflict of interest statement

This is to confirm that we, the authors of this manuscript, have no actual or potential conflict of interest including any financial, personal or other relationships with other people or organizations within three years of beginning the submitted work that could inappropriately influence, or be perceived to influence, their work.

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