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Factors Associated with Patient Reports of Positive Physician Relational Communication

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Abstract

Objective—To evaluate the patient, physician, and visit-related factors associated with patient ratings of positive physician relational communication.

Methods—Pre- and post-visit surveys were conducted with 485 patients attending a routine periodic health exam with one of 64 participating physicians. The audio-recorded visits were coded for elements of patient-physician communication including assertive responses, partnership building, question asking, supportive talk, and expressions of concern.

Results—Patient reports of positive physician relational communication were associated with patient perceptions of how well the physician understood the patient's health care preferences and values, a patient-physician interaction outside of the exam room, and physician-prompted patient expressions of concern.

Conclusion—In addition to a patient's perception of their relationship with their physician going into the visit, relatively simple acts like extending the interaction beyond the exam room and ensuring that patients feel invited to express concerns they may have during the visit may influence patient perceptions of physician relational communication.

Practice Implications—This study offers preliminary support for the idea that relational communication and its associated benefits may be fostered through simple physician-driven acts such as interacting with patients outside of the exam room and encouraging patients to express concerns within the visit.

1. Introduction

In 2001 the Institute of Medicine named patient centeredness as one of six primary aims for improving the quality of health care received by Americans in the 21st century [1]. A National Cancer Institute-sponsored monograph has subsequently highlighted the role and

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Conflict of Interest

The authors state no actual or potential conflict of interest, including financial, personal or organizational.

importance of patient-centered communication within the provision of patient-centered care [2]. In this monograph, Epstein and Street emphasize that patient-centered communication should not only be committed to the accurate exchange of information, but also to the formation of healthy clinician-patient relationships. As Step and colleagues point out “Relational communication contributes to a climate for interaction that can facilitate or inhibit effective communication outcomes” [3]. In fact, patients have been found to value their clinicians’ relational attributes, such as a sense of caring, trust, and of being known and listened to, more than specific communication techniques [2].

Positive relational communication between physicians and patients has been linked to meaningful health and psychological benefits including lower patient anxiety and depression, fostering hope among cancer patients, improved treatment adherence, greater patient satisfaction, enhanced quality of life, improved quality of care, decreased health care costs, and even improved survival [2,3,4]. On the other hand, negative physician relational communication has been found to be associated with increased psychological distress and patients reporting feeling “dehumanized” [3]. Furthermore, physician relational communication has been shown to increase patient participation in the clinical encounter [5], which has been linked to physicians volunteering more treatment and diagnostic information to patients, thereby leading to better treatment decisions and more patient-centered care [2,6].

Recently a study of colorectal cancer screening decisions in primary care found that patient perceptions of a shared decision making (SDM) process did not correspond with observer-rated SDM content, but was associated with patient perceptions of positive physician relational communication [7]. Similarly, another study combining video-recordings of primary care visits with patient interviews found that when patients experienced SDM, they were also likely to report experiencing partnership with their physician [8]. Thus, as more robust relational communication is associated with both positive outcomes and patient reports of SDM it is critical to understand what factors may foster positive relational communication. The purpose of this study is to evaluate the patient, physician, and visit-related factors associated with patient ratings of positive physician relational communication.

2. Methods

2.1 Participants and setting

Between February 2007 and June 2009, primary care physicians and patients in an integrated health system in southeast Michigan were enrolled in a study to explore patient-physician communication and shared decision making in the context of colorectal cancer screening. Family and internal medicine physicians on staff with the health system’s salaried medical group were eligible for study participation. Study eligible patients were insured via a health system affiliated HMO, aged 50 to 80 years, and due for colorectal cancer screening at the time of a scheduled routine periodic health exam with a study participating physician. Details of the enrollment process and comparisons of patient and physician participants with nonparticipants is described elsewhere [7,9,10]. The research protocol was approved by the Medical Group’s institutional review board and that of the Virginia Commonwealth University.

2.2 Data sources

Patient participation consisted of completion of a pre-visit survey, consent to audio-record their office visit, and a post-visit survey. Research assistants administered structured pre-visit surveys to patients via telephone at the time of recruitment. The mean time between the

pre-visit survey and the audio-recorded visit was 17.5 days. These surveys included measures of socio-demographic characteristics and patient-reported interactions with and perceptions of their physician. Additional patient characteristics (e.g., height, weight and comorbidities) were obtained from electronic medical records (EMR).

Patient-physician interactions during the office visit were audio-recorded using a small digital recording device. All recordings were transcribed prior to coding. Four research assistants coded the patient-physician discussions using structured coding worksheets. Details of the coding procedures can be found elsewhere [7,10]. Of interest in the present analyses are measures of patient participation and physician patient-centered responses, which were coded using a system developed by Street and colleagues [11]. Additionally, a research assistant observed the interaction and using a checklist, recorded specific characteristics of the visit (e.g., time the patient was roomed and physician use of the EMR).

Immediately following the office visit, patients completed a brief structured post-visit survey, which included, among other things, 20 items specific to their physician's use of relational communication (RC) [4]. Physician characteristics (i.e., age, gender, race, specialty and location of medical training) were obtained from medical group records.

2.3 Dependent variable: relational communication

The 20 post-visit survey items specific to relational communication asked patients to rate statements such as "My doctor was interested in talking to me" and "My doctor was honest in communicating with me" on a 7-point Likert scale ranging from (1) strongly disagree to (7) strongly agree [4]. Prior to the analysis for the present study, an exploratory factor analysis was used to summarize items from the Relational Communication Scale [7]. This analysis resulted in the identification of one 10-item factor (Table 1). The resulting factor score, representing patient rating of physician relational communication, is used as the outcome variable in all analyses.

2.4 Explanatory variables

Of primary interest to this study is how patient and physician communication behaviors and visit-related factors are associated with patient reports of physician relational communication. Specifically, office visit audio-recordings were used to code for was used to code for 3 patient participation behaviors (asking questions, expressions of concern, and verbally assertive responses) and 2 physician patient-centered responses (partnership building and supportive talk) [11]. Each of these five communication behaviors was characterized as either self-initiated or prompted, resulting in a total of 10 variables. Cohen's kappa (weighted) averaged 0.68 (median = 0.72) for these five items.

Visit characteristics were recorded by a research assistant using the observer checklist and included the amount of time the physician spent with the patient, the amount of time the patient waited for the physician in the exam room, whether the physician and patient interacted outside of the exam room, and whether the physician used the EMR during the visit. Visits were coded as including a patient and physician interaction outside of the exam room if the patient and physician had any kind of face-to-face interaction outside of the exam room during the time of the visit, including interactions in the hallway or waiting room. Visits were coded as including EMR use if the physician consulted or used the EMR at any time in the exam room during the visit. For the portion of visits in which the research assistant was not present in the exam room (n=113), the research assistant waited outside of the room to record physician entry and exit time. EMR use for those visits was obtained from the audio-recordings from verbal cues and/or audible keyboarding.

Additionally, previous experience with the physician was measured during the pre-visit survey with five items from the accumulated knowledge subset of the Components of Primary Care Instrument (CPCI) [12]. The five accumulated knowledge items were measured on a 6-point Likert scale ranging from (1) strongly disagree to (7) strongly agree. The average of the five scores was used as the variable accumulated knowledge as indicated by the CPCI. Accumulated knowledge, a measure of a patient's perceptions of how deeply the physician understands the patient's health care preferences and values, is included because it has been shown that both positive and negative past experiences may influence the way that patients perceive the current interaction with a physician [2,12].

Patient characteristics of interest include patient-reported socio-demographic characteristics, health status, and health behaviors (i.e., tobacco and alcohol use). Patient socio-demographic variables included age, gender, race (categorized as white, African American, or other), highest educational level (categorized as less than a high school diploma, a high school diploma, or some college or more), employment status (currently working for pay versus other) and marital status (married or living with a partner versus other). Measures of health status included comorbid health conditions as measured by the Deyo adaptation of the Charlson Comorbidity Index [13], body mass index (calculated from height and weight data available in the EMR), and depressive symptoms (measured using the previously validated Patient Health Questionnaire-2 (PHQ-2) depression screener [14]). Patient reports of tobacco and alcohol use were collected using an adaption of the Behavior Risk Factor Surveillance System Questionnaire [15] and were categorized as either current smoker versus other, and problem drinker versus other.

Physician characteristics were obtained through the medical group's records and included age, race, gender, specialty (either general internal medicine or family medicine), and foreign medical training status (categorized as either trained in the United States or other). Gender concordance between the patient and physician was also included as it has been associated previously with differences in patient-physician communication [16]. Gender concordance was categorized as either concordant or not concordant.

2.5 Statistical analysis

The ten-item factor score representing patient rating of physician relational communication was used as the outcome variable for all analyses. Simple linear regression models were used to determine the bivariate association of each of the patient and physician characteristics, communication behaviors and visit context with patient ratings of physician relational communication. Additionally, a multiple regression model was fit to assess the adjusted relationship between communication behaviors and visit context with relational communication while controlling for patient and physician characteristics. In addition to this full model, a reduced model was fit which included only those variables significant in the bivariate models to protect against over fitting. As the relational communication factor score was negatively skewed (with more patients rating their physician as having positive relational communication), all models were fit using the full information maximum likelihood estimator with robust standard errors using all available data. Furthermore, because of the nesting of patients within physician, we obtained standard error estimates corrected for the non-independence of observations. All models were fit using MPlus statistical software with a predetermined $\alpha = 0.05$.

3. Results

3.1 Characteristics of the patient cohort and their visits

A total of 64 physicians and 500 patients were enrolled in the study, which resulted in 485 audible recordings available for use in the current analyses. Patient, physician, and visit characteristics of the sample are summarized in Table 2. Almost two-thirds of the patient sample were female, and just over a quarter were African American. The mean age was approximately 59 years. The majority of the patients reported being married and employed, and over 70% had attended at least some college or more. The majority of visits were to female physicians, about half to physicians of minority race, and about two thirds to general internists. The mean age of the physician seen was 50 years. 39% of visits were between patients and physicians who had seen each other at least annually for the past 3 years. The average accumulated knowledge score was 6.2 out of 7.0, indicating a high level of positive patient perceptions about previous encounters with the physician. The average length of time that the physicians spent with each patient was just under 27 minutes with physicians arriving to the exam room an average of 23 minutes following the scheduled appointment time. A small number ($n = 30$, 6.2%) of patient and physicians interacted outside of the exam room.

3.2 Factors associated with patient-reported relational communication

Patient ratings of physician communication were largely positive with approximately 40% of patients rating their physician's relational communication at the highest score possible across all 10 items. In the unadjusted, bivariate models (Table 3), several patient, physician communication, and visit context factors were significantly associated with positive ratings of relational communication ($p < 0.05$). Specifically, patients with lower levels of education, those who asked more unprompted questions during the visit, who expressed physician-prompted concerns during the visit, those who interjected more unprompted assertive responses, and who reported higher levels of accumulated knowledge were more likely to rate their physician's relational communication positively. Additionally, a patient and physician interaction outside of the exam room was associated with higher ratings of physician relational communication.

Results from the full and reduced models are also reported in Table 3. Regardless, results indicated that higher levels of accumulated knowledge, a patient-physician interaction outside of the exam room, and an increased number of physician-prompted patient expressions of concern were significantly associated with positive physician relational communication ($p < 0.05$). All other factors evaluated, with the exception of higher educational achievement, were non-significant in both models. In the reduced model only, patients with some college education or more were found to rate their physicians' relational communication significantly lower.

4. Discussion and conclusion

4.1 Discussion

In a sample of primary care patients who scheduled a routine well visit with their physician, we found high levels of positive physician relational communication as reported by patients. In fact, 40% of patients rated their physician's relational communication the highest possible for each of the 10 relational communication items considered here. Furthermore, patient ratings of positive physician relational communication were found to be associated with aspects of patient-physician communication behavior, the pre-existing patient-physician relationship, and visit context factors. Specifically, patient expressions of concern prompted by the physician during the visit were associated with positive ratings of physician relational

communication. Additionally, patients' perceptions of higher levels of accumulated knowledge between a patient and physician were associated with positive ratings of relational communication. Finally, patients who interacted with their physician outside of the exam room on the day of their visit were more likely to indicate that their physician had positive relational communication.

Past studies have found that increased levels of patient participation in primary care visits [17] and other contexts [18, 19] are associated with greater patient satisfaction with the consultation and with physicians providing more information during the visit [6]. In our study, only those patient expressions of concern prompted by the physician (and not those that were self-initiated) were associated with higher ratings of relational communication. This may point to the importance of the physician's role in encouraging the patient to be actively involved in communication, especially as it pertains to encouragement to express health-related and other concerns as a means to foster positive relational communication. As we did not find an association between relational communication and the other communication behaviors evaluated, there may be something specific about a physician's invitation for the patient to express a concern that is a particularly salient aspect of relational rapport between a patient and physician.

Patients who, prior to the visit, reported that their physician understood their health care preferences and values (accumulated knowledge) were more likely to report that their physician engaged in positive relational communication during the observed visit. This finding may indicate that patients who have an established relationship with a physician they perceive knows them well have better relational communication when they see their physician than patients who see physicians perceived to know them less well. While a good existing relationship may serve as a strong foundation for positive relational communication, most likely there is a reciprocal relationship at play with positive relational communication also reinforcing the good relationship going forward. Furthermore, although the post-visit survey questions regarding relational communication specifically asked patient participants to rate their physicians' communication during the current visit, we cannot eliminate the possibility that patients who already had a good relationship with their physician may have been rating their physician's relational communication based on more than just the encounter at hand. Thus, there may also be a halo affect at play, with patients being more generous with their ratings of their physician's relational communication if their perception is that this physician already knows their health care preferences and values.

In addition to communication behaviors and prior patient/physician relationship, factors specific to the context of the visit may also influence patient perceptions of physician communication. We found patients who interacted with their physician in some way outside of the exam room were more likely to rate their physician's relational communication positively. Because the observer checklist did not allow for a detailed account of what these interactions entailed, nor did we attempt to audio-record these interactions, we do not know the specific content of these interactions. However, we know that some of the interactions outside the exam room were as simple as the physician giving the patient a prescription or referral. Perhaps patients perceive even simple interactions outside the exam room as the physician extending the bounds of a typical office visit, and thus important to relational rapport. This may indicate that, regardless of its content, any interaction outside of the exam room can improve patient perceptions of physician relational communication. It is also possible, however, that physicians may be more likely to interact with patients outside of the exam room with whom they already have a good rapport. Thus, further investigation of this finding is needed to determine whether and how these interactions could help foster patient perceptions of relational communication.

Perhaps just as interestingly as the factors we found associated with patient perceptions of positive physician relational communication are the factors we found not to be associated with patient perceptions of physician relational communication. Neither the number of minutes the patient spent with the physician, nor the minutes the patient waited in the exam room to be seen by the physician were associated with patient ratings of relational communication. This is likely welcome news to many busy primary care physicians and practices as it likely indicates that even with time constraints and busy physician schedules, it is possible to attain good relational communication. Finally, in the context of routine well visits, the only patient characteristic found to be associated with reports of physician relational communication was the education level of the patient. It may be that patients who have higher levels of education expect more from their physicians, or that those with lower levels of education are more likely, in general, to be satisfied with their care [20]. Nevertheless, this finding was not consistent across models and no other patient characteristics and no physician socio-demographic characteristics were found to be associated with patient reports of physician relational communication, pointing to the possibility that patient perceptions of relational communication may be more influenced by mutable factors within the context and communication of visit itself rather than by individual differences among patients and physicians.

4.1.1 Limitations—The results of this study should be evaluated in light of several limitations. First, it is possible that the research assistance's presence at the appointment may have affected the way that patients and physicians communicated. However, this effect should be minimal as direct observation has been shown to have little effect on patient and physician behavior [21]. Second, the data come from a single health care organization where physicians are salaried. Furthermore, the patient sample was largely healthy, well educated, and insured. The results, therefore, may not be generalizable to other settings or groups of patients. Nonetheless, this is the first study to explore multiple levels of influence on patient perceptions of physician relational communication in primary care and therefore provides a starting point for looking at patient perceptions of relational communication among other groups. Finally, the high percentage of patients rating their physician as having positive relational communication may indicate a social desirability effect, particularly in light of the surveys being conducted directly after the medical encounter in the physician's office. It is also possible that patients in this study may have already self-selected to physicians whom they perceive to have positive relational communication and therefore do not represent the full range of patient experiences. However, the sample provided a wide range of relational communication scores, with patients rating their physician anywhere from the highest possible score to the lowest possible score.

4.2 Conclusion

Positive relational communication between patients and physicians has previously been shown to be associated with important patient outcomes [2,3,4] as well as patient-perceived use of shared decision making [7]. This study provides an important first step at exploring the patient, physician, and visit-specific factors associated with patient reports of positive relational communication. Our findings not only support the importance of the patient's perception of the relationship that exists with their physician going into the visit, but also to the importance of relatively simple acts like extending the interaction beyond the exam room and ensuring that patients feel invited to express concerns they may have during the visit.

4.3 Practice Implications

This study offers preliminary support for the idea that relational communication and its associated benefits may be fostered within primary care visits through simple physician-driven acts such as interacting with patients outside of the exam room and encouraging

patients to express concerns within the visit. Future studies should be conducted to better understand what type of interactions and specific communication prompts are most likely to improve patient perceptions of physician relational communication.

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Table 1
Relational Communication Scale Items Used in the Factor Score

-
1. My doctor was interested in talking to me.
 2. My doctor seemed to care if I liked him/her.
 3. My doctor was sincere.
 4. My doctor wanted me to trust him/her.
 5. My doctor was willing to listen to me.
 6. My doctor was open to my ideas.
 7. My doctor was honest in communicating with me.
 8. My doctor seemed nervous in my presence.⁺
 9. My doctor was comfortable interacting with me.
 10. My doctor wanted to cooperate with me.
-

* Patients rated the above items during their post-visit survey on a 7-point Likert scale ranging from (1) strongly disagree to (7) strongly agree.

⁺ reverse coded for analyses

Table 2

Characteristics of the Cohort and Their Visits

Characteristic	%	N
Relational communication factor score (mean, SD)	0 (1.1)	485
Patient Socio-demographics		
Age (mean, SD)	59.2 (8.2)	485
Female	65.4	485
Race		485
White	65.8	
African American	27.2	
Other	7.0	
Education		482
Less than a high school diploma	3.7	
High school diploma	24.3	
Some college or more	72.0	
Employed	60.8	482
Currently married	67.9	483
Patient Health Status & Risk Factors		
Charlson comorbidity index (mean, SD)	0.7 (1.2)	485
Depressive symptoms	19.1	482
Body Mass Index (mean, SD)	31.0 (7.2)	485
Current smoker	18.9	465
Problem Drinker	15.6	462
Physician Characteristics		
Age (mean, SD)	49.8 (7.9)	485
Female	56.5	485
Race		485
White	51.1	
African American	14.6	
Other	34.2	
Specialty: General Internal Medicine	67.4	485
U.S. Medical Training	70.1	455
Patient Communication Behavior		470
Question asking - self initiated	1.0 (1.5)	
Question asking - prompted by MD	2.9 (3.2)	
Expressions of concern - self initiated	0.1 (0.3)	
Expressions of concern - prompted by MD	0.2 (0.5)	
Verbally assertive responses - self initiated	1.7 (2.1)	
Verbally assertive responses - prompted by MD	0.9 (1.5)	
Physician Communication Behavior		470
Partnership building -self initiated	2.3 (1.6)	
Partnership building -prompted by patient	0.8 (1.2)	

Characteristic	%	N
Supportive talk -self initiated	0.3 (0.6)	
Supportive talk -prompted by patient	0.4 (0.9)	
Visit Context		
Accumulated Knowledge	<u>6.2 (1.0)</u>	485
Gender concordance	72.9	485
Minutes spent with MD	26.9 (9.8)	485
Minutes MD arrived after scheduled appt	22.9 (18.1)	485
Patient and MD interact outside of exam room	6.2	485
EMR used during visit	81.4	469

Table 3

Patient and Visit Characteristics Associated with Patient Reports of Physician Relational Communication

Characteristic	Bivariate Models		Full Model		Reduced Model	
	Estimate	p-value	Estimate	p-value	Estimate	p-value
Patient Socio-demographics						
Age (mean, SD)	0.02	0.53	-0.04	0.41		
Male	-0.01	0.76	-0.03	0.64		
Race						
White	1.00		1.00			
African American	-0.09	0.08	-0.07	0.22		
Other	-0.04	0.40	-0.04	0.44		
Education						
Less than a high school diploma	1.00		1.00		1.00	
High school diploma	-0.11	0.02*	-0.08	0.15	-0.10	0.06
Some college or more	-0.10	<0.01*	-0.08	0.10	-0.08	0.02*
Employed	-0.01	0.92	0.00	0.97		
Currently married	0.00	0.96	-0.03	0.54		
Patient Health Status & Risk Factors						
Charlson comorbidity score	0.00	0.93	-0.01	0.82		
Depressive symptoms	-0.06	0.32	-0.07	0.19		
Body Mass Index	-0.03	0.58	-0.04	0.48		
Smoker	-0.08	0.21	-0.07	0.20		
Problem Drinker	0.02	0.61	0.01	0.83		
Physician Characteristics						
Age (mean, SD)	0.08	0.17	0.02	0.67		
Male	0.02	0.64	-0.01	0.86		
Race						
White	1.00		1.00			
African American	-0.06	0.23	-0.06	0.22		
Other	-0.11	0.06	-0.08	0.07		
Specialty: General Internal Medicine	-0.04	0.43	0.01	0.90		

Characteristic	Bivariate Models		Full Model		Reduced Model	
	Estimate	p-value	Estimate	p-value	Estimate	p-value
U.S. medical training	0.08	0.22	0.01	0.86		
Patient Communication Behavior						
Question asking - self initiated	0.10	<0.01*	0.04	0.25	0.07	0.06
Question asking - prompted by MD	0.02	0.65	-0.01	0.92		
Expressions of concern - self initiated	0.04	0.27	0.07	0.08		
Expressions of concern - prompted by MD	0.06	0.02*	0.07	0.02*	0.06	<0.01*
Verbally assertive responses - self initiated	0.08	0.01*	0.04	0.39	0.04	0.32
Verbally assertive responses - prompted by MD	0.00	0.88	-0.01	0.89		
Physician Communication Behavior						
Partnership building -self initiated	-0.05	0.27	-0.02	0.51		
Partnership building -prompted by patient	-0.05	0.36	-0.07	0.25		
Supportive talk -self initiated	0.00	0.98	-0.03	0.59		
Supportive talk -prompted by patient	0.03	0.36	0.01	0.80		
Visit Context						
Accumulated Knowledge	0.20	<0.01*	0.20	<0.01*	0.19	<0.01*
Gender concordance	-0.01	0.86	0.01	0.91		
Minutes spent with MD	0.04	0.35	-0.04	0.54		
Minutes MD arrived after scheduled appt	0.07	0.08	0.07	0.16		
Patient and MD interact outside of exam room	0.06	<0.01*	0.05	0.01*	0.06	<0.01
EMR used in the exam room	0.06	0.27	0.05	0.42		

Standardized estimates are reported for all models.