Physician Burnout and Patient-Physician Communication During Primary Care Encounters

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BACKGROUND: Although previous studies suggest an association between provider burnout and suboptimal self-reported communication, no studies relate physician burnout to observed patient-physician communication behaviors.

OBJECTIVE: To investigate the relationship between physician burnout and observed patient-physician communication outcomes in patient-physician encounters.

DESIGN: Longitudinal study of enrollment data from a trial of interventions to improve patient adherence to hypertension treatment.

SETTING: Fifteen urban community-based clinics in Baltimore, MD.

PARTICIPANTS: Forty physicians and 235 of their adult hypertensive patients, with oversampling of ethnic minorities and poor persons. Fifty-three percent of physicians were women, and the average practice experience was 11.2 years. Among the 235 patients, 66% were women, 60% were African-American, and 90% were insured.

MEASUREMENTS: Audiotape analysis of communication during outpatient encounters (one per patient) using the Roter Interaction Analysis System and patients' ratings of satisfaction with and trust and confidence in the physician.

RESULTS: The median time between the physician burnout assessment and the patient encounter was 15.1 months (range 5.6–30). Multivariate analyses revealed no significant differences in physician communication based on physician burnout. However, compared with patients of low-burnout physicians, patients of high-burnout physicians gave twice as many negative rapport-building statements (incident risk ratio 2.06, 95% CI 1.58 – 2.86, p<0.001). Physician burnout was not significantly associated with physician or patient affect, patient-centeredness, verbal dominance, or length of the encounter. Physician burnout was also not significantly associated with patients' ratings of their satisfaction, confidence, or trust.

CONCLUSIONS: Physician burnout was not associated with physician communication behaviors nor with most measures of patient-centered communication. However, patients engaged in more rapport-building behaviors. These findings suggest a complex relationship between physician burnout and patient-physician communication, which should be investigated and linked to patient outcomes in future research.

INTRODUCTION

Evidence from the primary care setting suggests that the quality of patient-provider relationships and communication are related to positive patient outcomes. Studies directly measuring observed patient-provider encounters suggest that higher quality communication influences patient satisfaction, compliance, and recall of information.[1–3] Furthermore, patient-provider communication is linked to improved chronic disease health outcomes, such as emotional health, functioning, symptom resolution, and blood pressure and glucose control.[4–6]

Several studies have suggested that provider factors may affect the quality of patient-provider communication, including age, gender, patient-provider race concordance, and provider attitudes toward patients.[2,7–13] However, fewer studies have investigated how physician well-being may relate to communication behaviors in patient encounters. Physician burnout – a syndrome of depersonalization, emotional exhaustion, and reduced sense of accomplishment[14] – may affect the quality of patient-provider communication. A large survey of primary care physicians and medical subspecialists found that 22% of physicians met criteria for burnout.[15]

Most studies about physician burnout have assessed its relationship with physician self-reported attitudes (such as confidence in communication, empathy, or perceived reciprocity in the patient-physician relationship) and behaviors (such as propensity for medical errors or quality of care delivered).[15–20] Few studies link burnout among health professionals to patient outcomes, such as satisfaction or functional recovery after

hospitalization,[21,22] and we found no studies linking physician burnout to particular healthcare processes. To our knowledge, no study has directly examined the relationship between physician burnout and observable communication behaviors in patient-physician encounters.

The objective of this study was to investigate the relationship between primary care physician burnout and their subsequent communication with hypertensive patients in routine medical visits. Specifically, we hypothesized that professional burnout would diminish physicians' inclination or ability to engage in rapport-building with their patients during routine medical visits. As secondary outcomes, we hypothesized that higher levels of burnout would be associated with less positive affect by physicians and patients, less patient-centeredness, shorter visit lengths, greater verbal dominance by physicians, and more negative patient ratings of satisfaction, trust, and confidence in their physicians.

METHODS

Study Design and Sample

We conducted a longitudinal study using enrollment data from the Patient-Physician Partnership (PPP) Study, a randomized controlled trial of patient and physician interventions to improve adherence to therapy among hypertensive minority patients.[23] For this analysis, we combined the control and intervention groups into one cohort.

Our sample population was drawn from 15 urban community-based clinics in Baltimore, MD. Physicians who provided primary care to adult patients were eligible for enrollment January 2002–January 2003. Recruitment letters from the principal investigator and clinic medical directors offered physicians CME credit and individualized feedback on their communication styles.

Patients were eligible if their primary care physician was enrolled and if they were at least 18 years of age, English-speaking, and had at least one prior ICD-9 claim for hypertension in the past year. Eligibility was initially determined through claims data and chart reviews. Patients were recruited through mailed invitations followed by telephone calls if a refusal postcard from a particular patient was not received within 2 weeks. This strategy was supplemented with onsite recruitment at participating clinics. Patients were enrolled September 2003-August 2005. The median time between the physician burnout assessment and the patient encounter was 15.1 months (range 5.6–30).

Eligible physicians and patients who participated in a baseline audiotaped medical encounter comprised the sample for this analysis. Of 117 physicians assessed for eligibility, 111 responded to the invitation, with 58 refusing. Of the 53 who agreed to participate, 51 completed baseline questionnaires, and 1 was found to be ineligible. Of the 50 consenting randomized physician participants, 6 physicians in the minimal intervention group left their practice sites. In the intensive intervention group, three physicians withdrew (one for illness), and one did not participate in a baseline audiotaped encounter.

Thus, 40 physicians and 235 patients comprise the sample for this analysis. Compared with non-participants, our participants did not differ significantly by race (p=0.384) or gender (p=0.247).

Data Collection

An institutional review board of the Johns Hopkins Medical Institutions reviewed and approved the study procedures. All participating patients and physicians gave informed consent. Participating clinics received an incentive of $200 per physician, and patients were paid $25 per interview.

Questionnaires. During enrollment physicians completed baseline questionnaires, including demographic information and self-reported attitudes towards their work and patient care. The primary predictor variable – physician burnout – was measured using a six-item scale previously derived from the Maslach Burnout Inventory (MBI) to capture "job-related feelings of stress, lack of enthusiasm, and a reduced sense of accomplishment."[14] Burnout is conceptualized as a lasting state,[24,25] which is indicated by the stability of the MBI over time.[14,26] Our items captured the domains of emotional exhaustion and reduced sense of personal accomplishment,[14] and respondents rated each item on a five-point Likert scale, from strongly disagree (1) to neutral (3) to strongly agree (5). Possible total scores range from 6 to 30, with higher scores representing greater burnout. The scale demonstrated high internal consistency (Cronbach's alpha of 0.85).

At the conclusion of their visits with patients, physicians completed brief questionnaires indicating the degree to which they knew the patient, their attitudes toward the patient in general, and their attitudes regarding that visit.

Interviewers administered baseline questionnaires to patients to obtain information about demographic characteristics and health status, including the Medical Outcomes Study Short Form-12 (SF-12)[27] and self-reported co-morbidities.

Audiotaped Encounters and Analysis. The main outcome variables were rapport-building communication behaviors by physicians and patients during a single medical visit, corresponding to patient enrollment in the PPP Study.

At each enrollment visit, a research assistant set up and turned on an audio recorder in the examination room, leaving the room during the encounter. Physicians and patients could turn off the recorder at any time during the visit.

We analyzed audiotapes with the Roter Interaction Analysis System (RIAS), a widely used coding system for assessment of patient-physician communication.[28–31] The system has established reliability and predictive validity.[2,10,31,32] Two trained raters – blinded to the study hypotheses – assigned each complete thought expressed by patients or physicians to 1 of 37 categories of communication and 8 global affective domains. Interrater reliability on a subset of interviews (n=23) averaged 85% (range 63% - 96%, calculated by Pearson's correlations coefficients) for verbal communication codes with mean count >2.0 and 87–100% agreement for global affect ratings.

For this study, the main outcome variables consisted of four types of rapport-building in the patient-physician encounter, as follows[33]:

- Positive rapport-building: The physician or patient offers statements characterized as laughter/tells jokes, direct approval, general compliment, or agreement/understanding.
- Negative rapport-building: The physician or patient offers statements characterized as criticism or disagreement.

This includes direct criticism towards or disagreement with the other person (doctor to patient or patient to doctor) or general criticism about people outside of the interaction (e.g., patient complaining about somebody at home). These statements build rapport by allowing honest expressions of differences in opinion or concerns about outside situations.

- Emotional rapport-building: The physician or patient offers statements characterized as empathy, legitimation, concern/worry, reassurance/optimism, partnership, or self-disclosure.
- Social rapport-building: The physician or patient offers personal remarks or engages in chit-chat about matters such as the weather or recent events.

Examples of statements related to each type of rapport-building are presented in Table 1. As demonstrated in these examples, rapport-building statements – even negative rapport-building through direct or general disagreement – are utterances that reflect engagement by patients or physicians in the encounter.[31,33] The validity of rapport-building as a measure of patient-provider communication has been demonstrated in its associations with standardized patients' ratings of communication quality,[31] patients' experience of care as patient-centered,[34] and patient satisfaction.[35]

To investigate any differences between the content and emotional tone of the encounters, we also analyzed global affect ratings. In the RIAS system, these ratings are not associated with the content of the statements, but rather reflect the affect conveyed by the speakers through their vocal intonation and delivery.[33] Using Likert scales (with 1 indicating low or none and 6 indicating high), coders rated (separately) the patients' and physicians' affect as conveyed by their verbal tone on nine dimensions: anger/irritation, emotional distress, dominance/assertiveness, interest/attentiveness, hurried/rushed, friendliness/warmth, responsiveness/engagement, sympathetic/empathetic, and respectfulness.[33] We calculated composite variables to measure physician positive affect (the sum of ratings of interest, friendliness, responsiveness, sympathy, respectfulness, and the reverse coding of hurried/rushed) and patient positive affect (the sum of interest, friendliness, responsiveness, sympathy, and respectfulness).[11,30]

Patient-centeredness in the encounter was calculated by summing codes promoting the socioemotional, psychosocial, and biomedical agenda of the patient and dividing this by the sum of codes related to the biomedical agenda of the physician. A value greater than 1 denotes a more patient-centered encounter and a value less than 1 denotes a more physician-centered, biomedically oriented encounter.[36–38]

To calculate a verbal dominance ratio, we divided the total amount of physician statements by the total amount of patient statements. In this calculation, we did not include utterances such as "mm-hmm" or "uh-huh" ("back channel codes") in which the speaker indicates attentiveness to the other person.[33] Scores greater than 1 indicate more physician statements, and scores less than 1 indicate more patient statements.

During their in-person interviews, patients indicated their agreement (strongly disagree, agree, neither agree nor disagree, agree, or strongly agree) with the following statements:

- Overall, I was satisfied with this visit.
- I have confidence in this doctor's knowledge and skills.
- I trust this doctor to look out for my best interests.

Statistical Analysis

Burnout scores were divided into three categories – low, medium, and high – based on the distribution of the scale scores within the study sample. This decision is consistent with the scoring of the full Maslach Burnout Inventory ("low, average, and high"), as Maslach conceptualized burnout "as a continuous variable…not viewed as a dichotomous variable, which is either present or absent."[26] For three physicians with one to two missing responses to items (1.7% of burnout items), we imputed values using the average of the physician's other responses to the burnout items.

We performed regression analyses using generalized estimating equations (GEE) to assess the presence and strength of relationships between physician burnout as the predictor and our primary outcomes of rapport-building by physicians and patients. Communication behaviors are likely to be similar in different encounters by the same physician. GEE adjusts the standard errors to account for within-physician correlations. For our models, we assumed an exchangeable correlation structure to allow for valid and robust estimates.[39] Because the rapport-building outcomes were positively skewed counts with variances that exceeded their means, we analyzed the data using negative binomial distributions.[40]

Table 1. Examples of Rapport-building Statements from a Study of 40 Physicians and 235 of their Patients During Outpatient Visits, as Coded by the Roter Interaction Analysis System[33]

Category of rapport-building	Physician	Patient
Positive	◆ "That's a great question." (approval)	◆ "I came to this office 'cause you came here. It was worth traveling." (approval)
	◆ "You usually keep good records." (compliment)	◆ "You did a very good job." (compliment)
Negative	◆ "No, you are taking it once a day." (disagreement)	◆ "No, my cholesterol was down, sir." (disagreement)
	◆ (On hearing a patient ate eggs and bacon) "No, no, no (sigh)!" (criticism)	◆ "They don't understand that you've got aches and pains. They just look at you and say, "Well, you're getting older." (complaint)
Emotional	◆ "I'll keep my eye on that." (reassurance)	◆ "Those headaches – they've become worse." (concern)
	◆ "All right, I'm sorry." (empathy)	◆ "As far as my pressure's concerned, it's reasonably good." (optimism)
Social	◆ "The flowers are trying to come up, and every time they do, we get one of those cold nights." (chit-chat)	◆ "Yeah, it was cold." (chit-chat)
		◆ "How do you like the new place?" (personal remark)

First, we examined bivariate associations among several potential confounding variables and physician burnout. We chose *a priori* variables with empiric or strong theoretical relationships with patient-physician communication and physician well-being (see Fig. 1).[41] These variables included: physician gender,[2,7–9,42,43] race,[10] age,[2,44] practice site,[15,45] years of practice, history of communication skills training, and whether the physician graduated from US or international medical school (IMG);[46,47] patient gender, race,[9] age,[2] educational attainment, income,[2] disease burden,[2,7] SF-12 scores,[2,7] and health insurance status; and the relationship variables of gender concordance (male-male, female-female, non-concordant),[7,8] race concordance (yes or no),[10] and physicians' ratings of how well they knew patients on their post-visit questionnaires.

In our multivariate model, we retained variables with significance of p ≤ 0.10 in bivariate analyses (patient health insurance status and provider gender) and one variable (physician IMG status) that had a significant interaction with burnout. We also controlled for visit length. Physicians' ratings of how well they knew each patient had no statistical relationship to burnout or IMG status and were not included in the final model. Patient and physician intervention status were not included in the multivariate model, as these had no significant relationships with either physician burnout or rapport-building behaviors during the baseline encounter.

We conducted bivariate and multivariate analyses of the relationship between the independent variable physician burnout and the secondary outcomes. We used GEE, with a continuous outcome distribution for patient-centeredness, positive affect, verbal dominance, and visit length, and a binomial distribution for patient ratings dichotomized as "strongly agree" vs. all other. The adjusted analyses again controlled for patient health insurance status, visit length, physician gender, physician IMG status, and interaction between IMG status and physician burnout.

We report outcomes with a significance level of p ≤ 0.001, to account for multiple comparisons. All analyses were performed using STATA Intercooled version 10.0 (Stata Statistical Software: Release 10.0, Stata Corporation, College Station, TX, 2007)

RESULTS

Recruitment and Sample Characteristics

Among the 40 physicians, most were internists, 53% were women, and 30% were African-American. On average, physicians had practiced 11.2 years (see Table 2).

Among the 235 patients, two-thirds were women, and 60% were African-American. Although two-thirds reported incomes less than $35,000. Ninety percent of patients had health care insurance, 29% through Medicaid, 39% through Medicare, and 53% through private or work insurance (categories not mutually exclusive) (see Table 3).

The median number of patient encounters per physician was five. The median visit length was 14.7 min, and 39% of dyads were female gender concordant. Across the 235 encounters, the median number of coded verbal statements was 346 (interquartile range 243–484, total range 61–1,214).

Relationship Between Physician Burnout and Physician, Patient, and Relationship Characteristics

The mean burnout scale score was 14.0, with a range of 6 to 22. Fifteen physicians were in the high burnout category (score ≥17), 11 were in the medium burnout category (score ≥13 but <17), and 14 were in the low burnout category (score <13). There were no significant differences in burnout between the intervention and control group physicians.
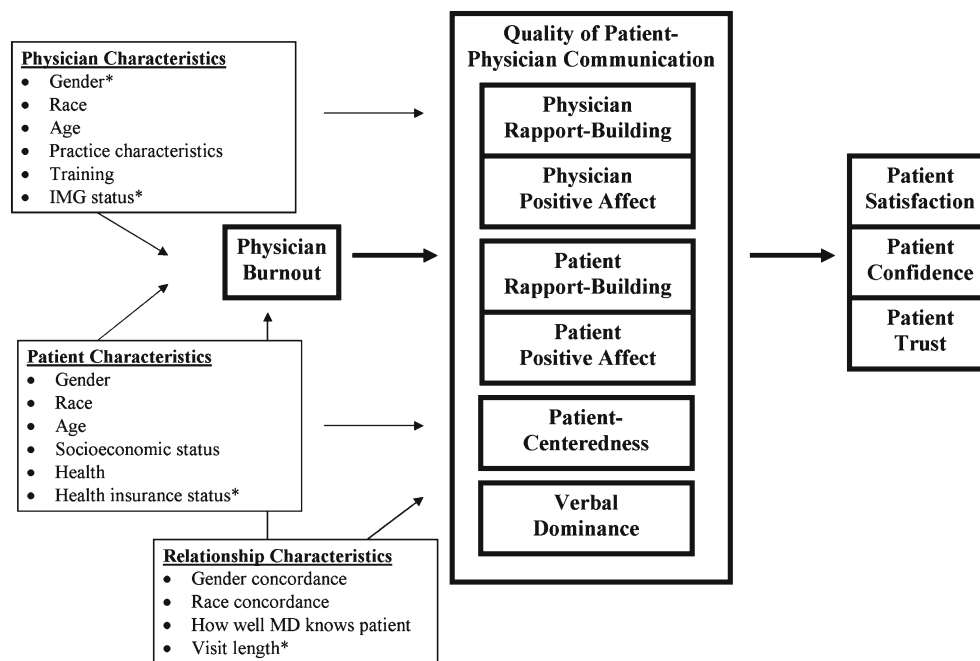

Figure 1. Conceptual model of the relationship between physician burnout and patient-physician communication. *Variables included in final multivariate model. US vs. international medical school status was included as an effect modification variable.

Table 2. Characteristics of 40 Physicians in Patient-Physician Partnership Study to Improve Hypertension Adherence

Characteristic	
Mean age, years (SD)	41.9 (8.7)
Mean years of practice experience (SD)	11.2 (7.7)
Women, n (%)	21 (53)
Specialty, n (%)	
Internal medicine	33 (83)
Family practice	5 (15)
General practice	1 (2)
Race/Ethnicity, n (%)	
African-American	12 (30)
White	17 (42)
Asian	10 (25)
Hispanic	1 (2)
International medical graduates, n (%)	10 (25)
South-Asian	6 (15)
African	1 (2)
Not specified	3 (8)
Speaking a language other than English at home	5 (13)
Burnout, mean score (SD)	14.0 (4.9)
Burnout categories, n (%)	
High: total score ≥17	15 (38)
Medium: 13 ≤ total score <17	11 (27)
Low: total score <13	14 (35)

Women physicians had higher burnout scores than male physicians (2.84, 95% CI -0.11 – 5.79, p=0.06), as did US medical graduates compared with IMG physicians (3.02, 95% CI -0.56 – 6.60, p=0.10), but these did not reach statistical significance. Other physician characteristics were not associated with burnout (data not shown).

In terms of patient-level characteristics, higher burnout scores were associated with insured patients (p=0.02). Other patient or relationship characteristics were not associated with burnout (data not shown).

Association of Physician Burnout with Rapport-Building Behaviors by Physicians and Patients

No differences were evident in the rapport-building behaviors of physicians relative to their burnout scores (Table 4). However,

Table 3. Characteristics of 235 Patients with Baseline Audiotaped Patient-doctor Encounters in Patient-physician Partnership Study to Improve Hypertension Adherence

Characteristic	
Mean age, years (SD)	58.8 (13.2)
Mean education, years (SD)	11.8 (2.4)
Women, n (%)	155 (66.0)
Income less than $35,000, n (%)	141 (68.5)
Health insurance, n (%)	211 (89.8)
Medicaid insurance, n (%)	68 (29.1)
Medicare insurance, n (%)	91 (39.1)
Other insurance (private or workplace), n (%)	124 (53.2)
Race/ethnicity, n (%)	
African-American	140 (59.6)
White	90 (38.3)
Native American	2 (0.9)
Asian	3 (1.3)
Co-morbid diabetes, n (%)	102 (43.8)
Co-morbid depression, n (%)	53 (22.6)
Physical Component Score SF-12, mean (SD)	39.7 (12.2)
Mental Component Score SF-12, mean (SD)	50.2 (10.9)

Table 4. Physician and Patient Rapport-building in Encounters with Medium- and High-burnout Physicians, Compared with Low-burnout Physicians*

Outcome	Group compared with low burnout	Incident Risk Ratio (95% CI)	P-value
Physician rapport-building			
Total	Medium	1.00 (1.00 – 1.01)	0.21
	High	1.01 (1.00 – 1.01)	0.07
Positive	Medium	1.01 (1.00 – 1.02)	0.05
	High	1.01 (1.00 – 1.03)	0.06
Negative	Medium	0.92 (0.62 – 1.35)	0.66
	High	1.11 (0.82 – 1.51)	0.47
Emotional	Medium	1.01 (0.97 – 1.05)	0.69
	High	1.01 (0.98 – 1.05)	0.32
Social	Medium	0.96 (0.80 – 1.14)	0.61
	High	1.12 (0.96 – 1.30)	0.14
Patient rapport-building			
Total	Medium	1.01 (1.00 – 1.01)	0.04
	High	1.01 (1.00 – 1.01)	0.06
Positive	Medium	1.01 (1.00 – 1.02)	0.10
	High	1.01 (0.99 – 1.02)	0.23
Negative	Medium	1.85 (1.31 – 2.61)	0.001[†]
	High	2.06 (1.58 – 2.86)	<0.001[†]
Emotional	Medium	1.04 (1.01 – 1.07)	0.01
	High	1.02 (0.99 – 1.06)	0.17
Social	Medium	1.02 (0.85 – 1.23)	0.82
	High	1.21 (1.04 – 1.43)	0.02

*Controlling for patient health insurance status, visit length, physician gender, physician IMG status, and interaction between IMG status and physician burnout

[†]Result meets level of significance for multiple comparisons (p ≤ 0.001)

patient communication during visits was related to physician burnout. Compared with patients of low-burnout physicians, patients of higher burnout physicians used nearly twice as many negative rapport-building statements (medium burnout incident risk ratio (IRR) 1.85, 95% CI 1.30 – 2.61, p=0.001, and high burnout 2.06, 95% CI 1.48 – 2.86, p<0.001) (see Table 4). Patients of high-burnout physicians were also 52% more likely to use reassurance/optimism statements (95% CI 1.40 – 1.66, p<0.001), a type of emotional rapport-building behavior.

Associations Between Burnout and Other Communication Outcomes

Table 5 depicts additional bivariate analyses between physician burnout and the secondary communication outcomes. Individual global affect ratings did not differ significantly for physicians or patients across physician burnout categories (all p>0.001, results not shown). The composite physician positive affect and patient positive affect scores did not differ significantly by physician burnout. Physician burnout was also not associated with significant differences in patient-centeredness, verbal dominance, or visit length.

Physician burnout was not associated with differences in the patients' satisfaction with those particular visits, confidence in their physicians' knowledge and skills, or trust in the physicians to look out for their best interests (Table 5).

DISCUSSION

Contrary to our hypothesis, physician burnout was not associated with differences in their own communication behaviors

Table 5. Additional Physician and Patient Communication Outcomes in Encounters with High-burnout Physicians, Compared with Low-burnout Physicians

Behaviors	Burnout category	Average	Difference in outcome, high vs. low burnout (95% CI)	P-value	Difference in outcome, high vs. low burnout* (95% CI)	P-value
Physician positive affect	Low	3.27	+0.18 (-0.00 – 0.36)	0.06	+0.22 (0.03 – 0.40)	0.03
	High	3.52				
Patient positive affect	Low	3.18	+0.11 (-0.03 – 0.25)	0.11	+0.13 (-0.01 – 0.28)	0.07
	High	3.30				
Patient centeredness	Low	0.57	+0.05 (-0.08 – 0.17)	0.48	-0.001 (-0.16 – 0.16)	0.99
	High	0.63				
Verbal dominance	Low	1.80	-0.06 (-0.53 – 0.41)	0.80	-0.04 (-0.75 – 0.68)	0.92
	High	1.67				
Visit length, minutes	Low	15.37	+1.91 (-3.66 – 7.47)	0.50	0.37 (-3.92 – 4.66)	0.87
	High	17.27				

Patient ratings	Burnout category	% Strongly agree	Odds ratio, high vs. low burnout (95% CI)	P-value	Adjusted odds ratio, high vs. low burnout* (95% CI)	P-value
Satisfaction	Low	50%	0.79 (0.36 – 1.72)	0.55	0.44 (0.18 – 1.08)	0.07
	High	44%				
Confidence in physician	Low	70%	2.11 (1.00 – 4.44)	0.05	2.17 (0.85 – 5.55)	0.11
	High	83%				
Trust in physician	Low	63%	2.52 (1.31 – 4.84)	0.01	2.46 (1.14 – 5.31)	0.02
	High	81%				

*Controlling for patient health insurance status, visit length, physician gender, physician IMG status, and interaction between IMG status and physician burnout

during medical visits. However, physician burnout was related to patient communication. Patients demonstrated more rapport-building of certain types in interactions with high burnout physicians.

Rapport-building exchanges serve an important function within the patient-physician encounter. Even disagreements with the physician or criticism directed toward others (the most frequent elements included in the negative rapport composite) may be seen as reflecting openness in the medical dialogue and solidarity with the physician. Higher patient engagement and participation in the medical encounter, including both positive and negative exchanges, are associated with patient's experience of care as patient-centered[34] and patient satisfaction.[35]

By other measures, higher burnout was not associated with lower quality physician communication. We found no evidence of poorer affective tone, less patient-centeredness, verbal dominance, shorter visits, or lower patient ratings. Our findings differ from previous studies, which have suggested that high burnout physicians have lower confidence in their communication skills, lower capacities for empathy, and suboptimal self-reported communication behaviors with patients.[16,19,20]

Several explanations may account for the difference between our findings and others. First, physicians with burnout may have unreasonably high expectations for themselves and may judge their performance more severely than other physicians or their patients. A prior study suggests that physicians significantly underestimate their patients' positive attitudes towards them.[48] Because of their reduced sense of personal accomplishment, physicians with burnout may be more likely to perceive suboptimal interactions with patients. As a result, physicians with burnout may actually perform as well as or better than their counterparts in their observed encounters, despite rating themselves as worse on self-reported questionnaires.[19] A concerning implication of this explanation is the risk that excellent physicians could enter a vicious cycle where burnout leads to faulty perceptions of suboptimal performance, which then predisposes to worsening burnout. In a

longitudinal study of physicians-in-training, West et al. found that physicians with self-perceived medical errors had increased odds of subsequent burnout and depression.[49]

Alternatively, physicians reporting burnout may be more sensitive to high patient expectations that they feel they cannot meet. Although our physicians completed the burnout scale prior to the specific patient encounter analyzed, these findings may suggest that high-burnout physicians have patient panels characterized by high patient engagement. Satisfaction with the patient-doctor relationship is associated with physicians' global satisfaction,[50] but physicians with high burnout may not perceive patient rapport-building as satisfying or successful. The higher-burnout physicians in our sample may tend to perceive patient rapport-building statements as placing demands on them. An et al. found that providers who perceive they have a higher proportion of "difficult" relationships are more likely to have symptoms of burnout.[51] The "social exchange model of burnout" suggests that patients bring both demands and resources that may affect physician well-being and that physicians who perceive a lack of reciprocity in the patient-doctor relationship may be susceptible to burnout.[52] Thus, although we measured burnout before assessing communication behaviors, the relationship could extend in the other direction, with patient-provider relationships affecting physician well-being.

Our findings may also relate to the balance between empathy and boundary-setting in the patient-provider encounter. Huggard termed this phenomenon "compassion fatigue," in which physicians who engage empathically with their patients experience secondary traumatic stress and develop burnout.[53] Gender effects may play a role in this as well. Shanafelt et al. found that women residents scored higher in empathy despite having lower well-being compared with men.[42] This may suggest that – even early in their training – physicians are learning to put their patients' well-being ahead of their own.[54]

Finally, patients may perceive unmeasured nonverbal cues from physicians with burnout that elicit an empathic response to these physicians. Patients' overtures of rapport-building –

such as reassurance/optimism statements – could represent patients' efforts to demonstrate empathy or support for their physicians. We did not find any significant differences in the emotional tone of physicians relative to burnout; however, these cues may have been communicated through facial expressions or body language — a channel not rated by the coders.

The limitations of this study should be considered. First, we did not administer the complete MBI or include items from all three domains of burnout, and so our scale and categories may not represent clinically meaningful differences in the level of burnout among physicians. However, our questions demonstrated high internal consistency. Second, our sample included only a subset of patients from each physician's panel, and we may have obtained different results with a larger or a randomly selected sample. Third, our sample of physicians and patients may not be representative of primary care encounters in other settings, particularly outside of urban, minority community clinics. Compared with a 2001 statewide random sample of Maryland physicians, our study physicians were younger, more likely to be women, and more likely to be an ethnic minority.[55] Fourth, our communication analyses were limited to data from audiotaped encounters, and we were unable to assess the role of other cues – such as body language – in the interactions. Fifth, with only one visit recorded for each patient, our study cannot assess the directionality or causality in the relationship between burnout and communication outcomes. Finally, during the interval between the measurement of physician burnout and the measurement of communication behaviors in the patient encounters, burnout may have changed for some physicians. The MBI has demonstrated stability for up to 1 year, capturing the enduring state of burnout in diverse populations – including nurses.[14,26,56–59] However, if burnout did change over time, we may have underestimated or overestimated the associations between burnout and communication behaviors. For example, we may have found a stronger relationship with patient rapport-building or ratings had we measured burnout closer to the time of the encounters.

More research is needed to understand the potential strength and mechanisms of a relationship between physician well-being and patient-physician communication. Our study focused on only one aspect of physician well-being: burnout. This analysis did not address other aspects of physician well-being – such as career satisfaction, coping strategies, or acute stressors – which could mediate or modify the relationship between burnout and communication.

In conclusion, our study found that higher physician burnout may be associated with more patient rapport-building behaviors and patients' experiences of confidence and trust in their physicians. Future studies should investigate the complex links among clinician well-being, quality of medical visit communication, and patient outcomes.

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