Patient–Physician Role Relationships and Patient Activation among Individuals with Chronic Illness

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Objective. To examine whether chronically ill patients' perceptions of their role relationships with their physicians are associated with levels of patient activation.

Data Sources. Random digit dial survey of 8,140 chronically ill patients and the Area Resource File.

Study Design. Cross-sectional, multivariate analysis of the relationship between dimensions of patient–physician role relationships and level of patient activation. The study controlled for variables related to patient demographics, socioeconomic status, health status, and market and family context.

Principal Findings. Higher perceived quality of interpersonal exchange with physicians, greater fairness in the treatment process, and more out-of-office contact with physicians were associated with higher levels of patient activation. Treatment goal setting was not significantly associated with patient activation.

Conclusion. Patient–physician relationships are an important factor in patients taking a more active role in their health and health care. Efforts to increase activation that focus only on individual patients ignore the important fact that the nature of roles and relationships between provider and patient can shape the behaviors and attitudes of patients in ways that support or discourage patient activation.

Key Words. Sociology, chronic disease, patient assessment/satisfaction, racial/ethnic differences in health and health care

Many patients have traditionally assumed a passive role toward physicians and their own care, reflecting general social norms governing professional-client relations, as well as status differences that occur between well-educated, high-status individuals such as physicians, and lower-status members such as racial or ethnic minorities. Because most patients heed their physician's direct or subtle prompts about their role in the care process (Blanquicett et al. 2007; Berry et al. 2008), how patients' experiences with their physicians are

associated with patients' activation in their health and health care is of particular interest. Patient activation occurs when individuals believe they have an important role in their health and health care and have the knowledge, skills, confidence, and emotional commitment to perform this role (Hibbard et al. 2004). Improving and sustaining higher levels of patient activation is desirable because patients who are more activated are more likely to engage in self-management behaviors that can improve health (Hibbard et al. 2007; Becker and Roblin 2008).

This paper examines whether chronically ill patients' reported role relationships with their physicians are associated with levels of patient activation. We define a role relationship as an individual's self-concept vis-à-vis another individual (e.g., professor–student, husband–wife, patient–physician) (Hage and Marwell 1968). Understanding patient–physician role relationships and their association with activation are particularly important for achieving better health and well-being for the chronically ill since this population has diverse and undifferentiated problems that require clinical interventions and behavioral changes during and apart from the office visit (Becker and Roblin 2008).

CONCEPTUAL FRAMEWORK

The power differential between patients and their physicians is deeply engrained in the culture of medicine and is rooted in differences in status and knowledge (Starr 1982) and is expressed and reinforced through the traditional, passive patient role and the dominant, paternalistic physician role enacted during a medical encounter (Charles, Whelan, and Gafni 1999). These traditional roles are inconsistent with activated patient–physician roles. In these new roles, empowered patients are active participants in their care, and their physician encourages and supports this activation by reinforcing a more equitable, collaborative partnership.

We view patient–physician role relationships as a complex, multidimensional construct. Our analysis considers four dimensions of this relationship:

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(1) quality of the interpersonal exchange between the patient and physician, (2) fair and respectful treatment of the patient by physicians, (3) involvement of the patient in treatment goal setting, and (4) frequency of physician communication with the patient outside of the office visit. These dimensions are hypothesized to have independent relationships with the level of patient activation after controlling for personal and contextual factors associated with patient activation.

Interpersonal Exchange

Physicians who actively solicit and listen carefully to patients' concerns, preferences, and questions, and effectively address these needs (e.g., explain things clearly), can establish a supportive context for patients to shift from the traditional passive role to one where they participate more actively in their health and health care (Blanquicett et al. 2007; Berry et al. 2008). High-quality physician communication skills such as listening, coaching, questioning, and explaining have been linked to higher levels of patient compliance with treatment plans, improved self-management of disease, greater recall of important treatment information, and improved mental and physical health status (Ratanawongsa et al. 2008). Thus, we hypothesize that:

> H1: Patients who report higher quality interpersonal exchanges with their personal physicians will have higher levels of activation than patients who report lower quality interpersonal exchanges with their physicians.

Fair Treatment

In the context of patient–physician role relationships, fair treatment is treatment that is perceived to be free of bias based on race/ethnicity, socioeconomic status, gender, or other observable characteristics not related to the patient's actual condition, and that considers the patient as a unique individual whose concerns and preferences are taken into consideration in treatment decisions and interactions with the provider (Blumenthal et al. 2001; Association of American Medical Colleges 2004). Patients who feel they are treated fairly by their physicians, regardless of their backgrounds or personal characteristics, tend to be more motivated to relate to their physician on a coequal basis (Berry et al. 2008). Fair treatment may help patients believe that they have a legitimate and important role in their health and health care and dispel

feelings of being treated categorically, rather than as an individual Thus, we hypothesize that:

H2: Patients who report that their physician treats them more fairly will have higher levels of activation than those who report being treated less fairly by their physician.

Treatment Goal Setting

Treatment goal setting involves joint patient–physician decision making about care plans. At its best, shared decision making and goal setting involves co-equal roles for physicians and patients to assure that care reflects the physician's medical expertise and the patient's preferences, needs, and circumstances (e.g., social support, care skills, financial resources). For example, patients whose physicians used a collaborative approach to encourage and help their patients make healthy lifestyle choices were more likely to adhere to these changes (Blanquicett et al. 2007; Berry et al. 2008). Engaging in shared decisions may legitimize and further empower patients to embrace a more participatory role in their care (Institute of Medicine 2001). Thus, we hypothesize:

H3: Patients who report greater participation in treatment goal setting with their physicians will have higher levels of activation than those who report less participation in treatment goal setting with their physicians.

Out-of-Office Contact

Extending patient–physician communication beyond the practice setting may strengthen the patient's role vis-a-vis their physician because it expands the boundaries of the relationship beyond the office and clinic settings associated with more traditional hierarchical role relationships. The power differential may diminish with more frequent and different kinds of nonclinic contact by physicians because this outreach can reduce perceived social distance and convey a sense of extended partnership that empowers patients. These "outside" contacts can provide additional opportunities to develop patients' knowledge, skills, understanding, and confidence in their role (Roter et al. 2008). Thus, we hypothesize that:

H4: Patients who report receiving more communication from their physician outside of office visits will have higher levels of activation than those who report less outside communication.

METHODS

Study Design, Data Sources, and Analytic Sample

The study was a cross-sectional analysis of the relationship between patient–physician role relationships and level of patient activation in a large random sample of chronically ill individuals. The analytic dataset was built from two data sources. The primary source was a random digit dial telephone survey of chronically ill individuals conducted in 14 Aligning Forces for Quality (AF4Q) study areas and a national comparison group between June 2007 and August 2008. AF4Q is a national initiative funded by the Robert Wood Johnson Foundation to improve chronic disease in communities through the actions of multistakeholder health care collaboratives. The survey asked patients a total of 170 items about their experiences with their physician, the accessibility and use of health information about physicians, as well as their demographic characteristics, socioeconomic status, health status, and health service utilization. The survey was administered in English or Spanish according to a patient's preferred language. Underrepresented racial and ethnic groups were oversampled to improve the power of our analysis for these groups. The overall response rate was 48 percent using the Council of American Survey Research Organization (CASRO) method with 8,140 respondents from the 14 AF4Q communities completing the full survey.

The second data source, the Area Resource File (ARF), provided data to control for contextual characteristics of the market or family of the patient. The ARF data were merged with the patient survey data at the county level. As individuals do not necessarily limit their care seeking to their county, the metropolitan statistical area (MSA) likely provides a more appropriate geographic unit. Thus, ARF data were aggregated from the county level to the MSA level. In cases where respondents resided in a county not already part of an existing MSA, we grouped their county of residence with all contiguous counties to construct area-level variables.

Measures

Patient Activation. Patient activation was measured with an index calculated from 13 survey items (Appendix SA2) assessing patients' knowledge, skills, and confidence for engaging in self-management of their health and chronic condition(s). The measure has been psychometrically validated in several chronically ill adult populations (Hibbard et al. 2004, 2005). All 13 items were 4-point, Likert-type scales with responses ranging from *strongly disagree* (1) to *strongly agree* (4). The items were summed for each patient and then standardized to range from 0 to 100 to create a more intuitive scale. Higher scores indicate higher levels of activation (Hibbard et al. 2004, 2005). Using regression and simulation models to validate the patient activation measure (PAM) against measures of healthy behaviors and disease self-management, previous research has demonstrated a 4–6 point difference on the PAM scale as practically meaningful (Hibbard et al. 2007, 2009; Fowles et al. 2009; Lubetkin, Lu, and Gold 2010). For example, patients with higher PAM scores are more likely to monitor their blood pressure, adhere to medication regimens, complete recommended hemoglobin A1c and low-density lipoprotein cholesterol screenings, exercise 5 days per week, and have fewer hospital admissions (Mosen et al. 2007; Hibbard 2009; Remmers et al. 2009).

Patient–Physician Role Relationships. The four measures of patient–physician role relationships were based on 13 survey items related to patients' interactions with their physician during and outside of care visits over the past 6–12 months (Appendix SA3). These items were derived from validated instruments used in six previous studies of patients' perceptions of the care experience. The interpersonal exchange measure captures the quality of interpersonal exchange during office visits; for example, whether the physician explains things clearly and spends enough time with the patient (Hays et al. 1999). Fair treatment assesses how equitably physicians treat patients; that is, fairly and with respect, regardless of their personal characteristics (Perez, Sribney, and Rodríguez 2009). Treatment goal setting is an indicator of collaboration between physicians and patients when establishing care plans (Strouse et al. 2009). Out-of-office contact represents contact by physicians via phone, mail, or e-mail, outside of the office visit (Wasserman et al. 2001).

As the 13 survey items were derived from different sources, we conducted a confirmatory factor analysis of these items that supported a four-factor solution consistent with the four theoretical dimensions of

patient–physician role relationships (RMSEA = 0.09, GFI = 0.91).[1] Accordingly, four scales were constructed by averaging the scores for the relevant items in each factor. All items were scored so that higher scale scores reflected more positive patient–physician role relationships. All scales had reliability coefficients in excess of 0.70.

Control Variables. We controlled for five general categories of factors that have been examined in previous research and are likely to affect the patient–physician role relationship and patient activation: patient demographic characteristics, socioeconomic status, health status, access to health care, and contextual characteristics. Patient demographic characteristics reflect cultural attributes that influence an individual's interaction with other actors who play important supporting roles in managing one's chronic illness. These attributes are also correlated with the frequency with which these individuals interact with the health system and the level of trust they have in the health care system (Boulware et al. 2003), both of which are likely to affect a chronically ill patient's interest, willingness, and ability to monitor their health. To account for these factors, we control for a patient's race and ethnicity, gender, age, and primary language.

Socioeconomic status reflects the resources available (e.g., financial, educational) to an individual that are used to identify and seek out appropriate health information and health care services that are needed to maintain a healthy lifestyle and manage one's chronic illness. Previous research has found higher levels of patient activation among individuals of higher socioeconomic status, including employed individuals, individuals of higher income, and individuals with more education (Hibbard et al. 2007; Hibbard and Cunningham 2008; Fowles et al. 2009; Hibbard and Mahoney 2010). We controlled for socioeconomic effects on patient activation with three variables: education level, income, and employment status.

Because health status and access to care reflect an individual's need for and ability to acquire health services, respectively, they are important determinants of an individual's ability to initiate and adhere to prescribed medical regimens necessary for actively managing one's health (Hibbard et al. 2007; Hibbard and Cunningham 2008; Fowles et al. 2009; Hibbard and Mahoney 2010). We used two variables to control for the effects of health status characteristics, self-reported health status and number of chronic conditions, and one variable for access to care, having a regular provider.

Contextual characteristics play an important role in one's ability to maintain health because they determine a patient's social support system and affect a patient's access to health care resources (Becker and Roblin 2008). For example, family support is an important factor for effectively managing chronic disease (Fisher et al. 2000); other research has found general market characteristics, such as size and distance to provider, to be important barriers to effective self-management of health (Jerant, Friederichs-Fitzwater, and Moore 2005). Therefore, we included four area-level, contextual variables in the model: the number of people residing in the household, population density in the market, and two dummy variables reflecting the level of public reporting of provider quality in an individual's market. Measures and descriptive statistics for all study variables are presented in Table 1.

Analysis

The unit of analysis for the study was the individual patient. Visual and statistical inspection of the patient activation scores indicated a normal distribution with a slight positive skew, indicating the use of ordinary least-squares regression. However, because the sampling strategy stratified respondents into 14 geographic areas, respondents within the same stratum or area are more likely to be correlated than respondents between strata, which can bias standard error estimates and result in inaccurate hypothesis tests (Liang and Zeger 1993). Therefore, our analysis used a modified version of ordinary least-squares regression developed for complex sample survey designs that estimates robust standard errors. Data were also weighted to account for oversampling of racial and ethnic group members.

As we view patient–physician role relationships as consisting of multiple, simultaneously occurring dimensions, we estimated the relationship between the four dimensions and patient activation in the same regression model. Therefore, the beta coefficients for patient–physician role relationship variables should be interpreted as the marginal effect of that particular patient–physician role relationship after controlling for the effect of the other three patient–physician role relationship variables.

To account for site-specific factors that might affect patient activation, we also estimated the models using area-level fixed effects corresponding to each of the 14 AF4Q regions. We did not include the fixed effects in our final regression models since these variables did not significantly change the results (results available from the authors).

Table 1:   Sample Descriptive Characteristics

	$N = 8,140$[¶]
Control variables	
Race/ethnicity $N(\%)$	
Caucasian*	5,285 (65)
African American*	2,092 (26)
Hispanic*	547 (7)
Other race/ethnicity*	150 (2)
Primary language $N(\%)$	
English is first language*	7,997 (98)
Gender $N(\%)$	
% Male*	2,617 (32)
Age	
Mean years (SE)*	52.9 (0.12)
Mean years squared (SE)*	3,050 (11.10)
Education $N(\%)$	
Up to college*	3,313 (41)
Some college*	3,584 (44)
Post college*	1,214 (15)
Income $N(\%)$	
Income less than $25,000*	2,750 (38)
Income between $25,000 and $75,000*	3,156 (43)
Income greater than $75,000*	1,379 (19)
Employment status $N(\%)$	
Unemployed*	304 (4)
Employed*	3,298 (40)
Other work arrangement (retired, in-school, keeping house, disabled, other)*	4,520 (56)
Access to health care $N(\%)$	
Have regular physician*	7,575 (93)
Health status	
Self-assessment of health status $N(\%)$*	
Excellent	624 (8)
Very good	2,119 (26)
Good	3,240 (40)
Fair	1,712 (21)
Poor	421 (5)
Mean number of chronic conditions (SE)*	1.48 (0.01)
Contextual characteristics $N(\%)$	
Respondents in markets with high level of hospital public reporting (three or more reports available) in market[†]	4,722 (58)
Respondents in markets with high level of physician public reporting (one or more physician reports publicly available) in market[†]	1,912 (24)
Mean number of people in household (SE)*	2.63 (0.01)
Mean population density/residents per square mile (SE)[†]	2,817 (226)
Patient–physician role relationship variables $N(\%)$*	
Interpersonal exchange (range 1–4)[‡]	

continued

Table 1. *Continued*

	$N = 8,140$[¶]
1–1.99	1,080 (13)
2–2.99	1,690 (21)
3–4	5,284 (66)
Fairness (range 1–4)[‡]	
1–1.99	424 (5)
2–2.99	2,767 (35)
3–4	4,703 (60)
Goal setting (range 0–1)[§]	
0–0.49	1,378 (17)
0.5–1	6,761 (83)
Out-of-office contact (range 0–1)[§]	
0–0.49	4,101 (50)
0.5–1	4,037 (50)
Dependent variable: PAM quartile scores N(%)[*]	
0–53	2,180 (26)
54–60	1,998 (25)
61–75	1,964 (24)
76–100	1,996 (25)

[*]Source: Self-report patient survey.
[†]Source: Area Resource File.
[‡]Composite scale based on average of three items, each measured on 4-point scales (1 = strongly disagree; 2 = disagree; 3 = agree; 4 = strongly agree).
[§] Composite scale based on average of three items, each measured dichotomously (1 = yes; 0 = no).
[¶]Item specific missing values resulted in differences between the number of observations for specific variables and the total number of observations ($N = 8,140$).

Common Method Variance. The use of a single data source or measurement method to assess both predictor variables and outcome variables may introduce issues such as social desirability bias, response consistency bias, item priming, and item scale anchoring, which can be problematic if they introduce systematic measurement error (Podsakoff et al. 2003). We diagnosed if common method variance (CMV) was an issue using Harman's single-factor test (Podsakoff et al. 2003). If CMV is present, then either a single factor will emerge from a factor analysis of all study variables or one factor will account for the majority of the covariance among the measures. Nine factors emerged in our unrotated factor solution and the most variance explained by a single factor was 23 percent, suggesting that CMV was not a significant issue for the study. As a second check, we constructed a summated score for the first factor (i.e., sum of all items that loaded on the first factor) and included it in the regression model to determine if the results changed substantially when we

controlled for this estimate of CMV. Including the factor score in the regression models did not change the direction, magnitude, or significance of the covariates in any substantial way.

RESULTS

Descriptive Results

We first present selected results on the sample characteristics (Table 1) and bivariate associations between our model covariates and patient activation score (Table 2). Across all respondents, the mean level of patient activation was 64.05 (range 0–100), with a median of 60. Slightly more than one-fifth (21.6 percent) of all respondents had patient activation scores of 75 or higher, whereas the scores of less than 1 percent (0.01 percent) of all respondents fell below 25. These results are consistent with the results of other studies that have examined patient activation among adults with chronic illnesses (Hibbard et al. 2005; Hibbard and Cunningham 2008).

The average respondent age was 53 years. The sample had a lower representation of males (32 percent) relative to females (68 percent), although both had similar patient activation scores (64.8 versus 65.3, respectively; $F = 1.32$, $p = .25$). Respondents were predominantly Caucasian (65 percent), followed by African Americans (26 percent), Hispanics (7 percent), and other races or ethnicities (2 percent). On average, Caucasians reported significantly higher patient activation scores (65.8) than African Americans (64.5) and Hispanics (62.0). Most respondents were employed (41 percent) or indicated being out of the work force but not seeking employment (e.g., retired, in-school, disabled; 56 percent). Only 4 percent of respondents were unemployed. Employed respondents reported significantly higher average patient activation scores (66.4) than respondents who were out of the workforce (64.4) or unemployed (61.4). On average, respondents had an average of 1.48 chronic conditions and 93 percent of all respondents reported having a regular physician. Although, having a regular physician was associated with significantly higher patient activation scores, number of chronic conditions was not. Among the contextual variables, sample patients were much more likely to live in markets with hospital public reporting relative to physician public reporting (58 versus 24 percent of respondents). However, whereas public reporting of physician quality was significantly associated with higher patient activation scores, no significant association with patient activation was found for public reporting of hospital quality.

Table 2:   Bivariate Results for Patient Activation

	Average Patient Activation Score	Bivariate Statistic[‡]	Comments
Control variables			
Race/ethnicity			
Caucasian*	65.75	$F = 11.99, p < .001$	All pairwise comparisons
African American*	64.48		statistically significant at
Hispanic*	62.02		$p < .05$, except Caucasian
Other race/ethnicity*	64.60		versus other and African
			American versus other
Primary language			
English is first language*	65.21	$F = 18.72, p < .001$	
English is not first language*	59.55		
Gender			
Male*	64.83	$F = 1.32, p = .25$	
Female*	65.25		
Age			
Age*	n/a	$r = 0.01, p = .67$	
Age squared*	n/a	$r = -0.01, p = .40$	
Education			
Up to college*	63.04	$F = 67.23, p < .001$	All pairwise comparisons
Some college*	65.87		statistically significant at
Post college*	68.71		$p < .05$
Income			
Income less than $25,000*	62.64	$F = 68.73, p < .001$	All pairwise comparisons
Income between $25,000 and $75,000*	66.09		statistically significant at $p < .05$
Income greater than $75,000*	68.17		
Employment status			
Unemployed*	61.35	$F = 25.76, p < .001$	All pairwise comparisons
Employed*	66.44		statistically significant at
Other work arrangement (retired, in-school, keeping house, disabled, other)*	64.41		$p < .05$
Access to health care			
Have regular physician*	65.37	$F = 30.40, p < .001$	
Do not have regular physician*	61.63		
Health status			

Table 2. *Continued*

	Average Patient Activation Score	Bivariate Statistic[‡]	Comments
Self-assessment of health status*	n/a	$\rho = 0.22, p < .001$	Spearman correlation coefficient (ρ) reported because control variable was ordinal
Number of chronic conditions*	n/a	$r = -0.01, p = .48$	
Contextual characteristics			
Respondents in markets with high level of hospital public reporting (three or more reports available) in market[†]	65.30	$F = 1.52, p = .22$	
Respondents in markets without high level of hospital public reporting (three or more reports available) in market[†]	64.87		
Respondents in markets with high level of physician public reporting (one or more physician reports publicly available) in market[†]	65.98	$F = 7.78, p < .01$	
Respondents in markets without high level of physician public reporting (one or more physician reports publicly available) in market[†]	64.85		
Number of people in household*	n/a	$r = -0.02, p = .06$	
Population density (residents per square mile)[†]	n/a	$r = -0.03, p < .01$	
Patient–physician role relationship variables			
Interpersonal exchange*	n/a	$r = 0.38, p < .001$	
Fairness*	n/a	$r = 0.10, p < .001$	
Goal setting*	n/a	$r = 0.33, p < .001$	
Out-of-office contact*	n/a	$r = 0.13, p < .001$	

*Source: Self-report patient survey.
[†]Source: Area Resource File.
[‡]*F*-tests from one-way ANOVAs reported for dichotomous variables; zero-order correlation coefficients reported for continuous variables.

Hypotheses Results

Our analysis provides strong support for three of the four hypotheses (Table 3). Hypothesis 1 predicted that patients who experience higher quality interpersonal exchanges with their personal physician will be more activated. Controlling for patient attributes, sociodemographic, and contextual characteristics, we found patients who reported higher quality interpersonal exchanges with their physicians had higher scores on the measure of patient activation ($\beta = 9.81$, $p < .001$). These results indicate that, on average, a one unit increase in the quality of the interpersonal exchange was associated with a 9.81 unit increase in a patient's reported level of activation. Hypothesis 2 predicted that patients who report that their physician treats them more fairly and respectfully will have higher levels of activation. In support of this hypothesis, we found that patients who reported that their physicians treat them more fairly and respectfully were significantly more likely to have higher patient activation scores ($\beta = 5.55$, $p < .001$), indicating that a one unit increase in the level of fair and respectful treatment, on average, was associated with a 5.55 unit increase in a patient's reported level of activation. Consistent with hypothesis 4, more frequent communication by physicians outside of office visits was positively and significantly associated with patient activation ($\beta = 4.13$, $p < .001$), indicating that a one unit increase in the frequency of out-of-office communication was associated with a 4.13 unit increase in a patient's reported level of patient activation. Although the direction of the effect was consistent with our prediction in hypothesis 3, the coefficient for treatment goal setting was not statistically significant ($\beta = 0.91$, $p < .10$).

As previously discussed, prior studies have found a 4–6 point difference in PAM scores between patients as practically meaningful. For example, the mean PAM score of patients who exercise fewer than 3 days per week was found to be 66 compared to an average score of 73 for those who exercise more than four times per week. Patients who eat breakfast every day exhibited a PAM score of 72 relative to a score of 66 for those who do not (Fowles et al. 2009; Hibbard, Greene, and Tusler 2009). Given the effect sizes for patient–physician role relationship variables shown in our analysis, results can therefore be considered both statistically and practically significant.

Other Results

Relative to Caucasians, African American ($\beta = -2.38$, $p < .001$), and Hispanic ($\beta = -0.43$, $p < .01$) respondents were significantly more likely to

Table 3:   Multivariate Regression Results: Patient–Physician Role Relationships and Patient Activation

	β	*Std Error*
Demographic characteristics		
Caucasian (referent)	–	–
African American	−2.38***	0.25
Hispanic	−0.43**	0.13
Other race	2.50**	0.84
English is not first language (1=not first language)	−2.54***	0.20
Female (referent)	–	–
Male	−0.31	0.18
Age	0.19**	0.06
Age-squared	−1.8E-03**	5.3E-04
Socioeconomic characteristics		
Up to college (referent)	–	–
Some college	−0.34†	0.17
Post college	−0.70†	0.39
Income <$25,000 (referent)	–	–
Income between $25,000 and $75,000	0.38	0.39
Income >$75,000	2.22***	0.23
Job status: unemployed (referent)	–	–
Job status: full or part time	3.11***	0.61
Job status: other	0.77	0.60
Access to health		
Have regular doctor (1=yes)	−2.71***	0.42
Health status		
Self-assessment of health (higher=better)	1.75***	0.09
Number of chronic conditions	1.68***	0.06
Contextual characteristics		
Number of people in household	−1.16***	0.04
Population density	−4.3E-05***	6.4E-06
Number of hospital public reports >3 (1=yes)‡	−0.17	0.42
Number of physician public reports >0 (1=yes)§	0.21	0.75
Patient–physician role relationship		
Interpersonal exchange (hypothesis 1)	9.81***	0.44
Fairness (hypothesis 2)	5.55***	0.46
Goal setting (hypothesis 3)	0.91†	0.50
Out-of-office contact (hypothesis 4)	4.13***	0.41
Intercept	12.26***	2.16
N	6,961	
Adjusted R^2	0.23	

†$p < .10$;
*$p < .05$;
**$p < .01$;
***$p < .001$.
‡Respondents in markets with a high level of hospital public reporting.
§Respondents in markets with a high level of physician public reporting.

exhibit lower levels of patient activation, whereas "other race" patients were associated with higher levels of patient activation ($\beta = 2.50$, $p < .01$). Respondents who reported English as a second language were significantly more likely to have lower scores on patient activation, relative to patients who reported English as their first language ($\beta = -2.54$, $p < .001$). Relative to the unemployed and those with income less than \$25,000, the employed ($\beta = 3.11$, $p < .001$) and those with income greater than \$75,000 ($\beta = 2.22$, $p < .001$) exhibited higher levels of patient activation, respectively. Age exhibited a nonlinear relationship with patient activation, as shown by the main effects age coefficient ($\beta = 0.19$, $p < .01$) and age-squared term ($\beta = -0.002$, $p < .01$). These results indicate that patient activation initially increases as a patient gets older, up to approximately 53 years of age, but begins to decline thereafter. Both health status control variables were significantly and positively associated with patient activation: self-assessed health status ($\beta = 1.75$, $p < .001$) and number of chronic conditions ($\beta = 1.68$, $p < .001$). Relative to respondents without a regular physician, respondents with a regular physician were negatively associated with patient activation ($\beta = -2.71$, $p < .001$). Two contextual characteristics were significantly associated with patient activation: the number of people in a respondent's household ($\beta = -1.16$, $p < .001$) and population density ($\beta = -4.3\text{E}05$, $p < .001$).

DISCUSSION

Results of our study indicate that, in general, patient role relationships with their physician are associated with their level of activation. These findings are important in several respects. First, they point to the importance of the relationship between the physician and patient as a leverage point for changing patient behaviors and attitudes toward their care. Current policy efforts to promote higher value health care through consumer choice and patient self-management of chronic conditions will achieve greater success if patients are highly activated (Boyer and Lutfey 2010). The traditional, passive patient role is largely incompatible with strategies to introduce more market-based efficiencies in health care. For such policies to succeed, it may be necessary to promote patient activation and change the traditional patient–physician role from one dominated by professionals to a more equitable partnership between the physician and patient (Hibbard and Cunningham 2008). The challenges of changing these role relationships, however, are formidable as they have been deeply engrained in the U.S. culture (Starr 1982). Our findings, however,

offer some indication that departures from the traditional patient–physician roles will be associated with changes in behaviors and attitudes (i.e., higher activation) among patients.

Ultimately, high-quality patient–physician exchanges inside and outside of the office visit are about relationship building, building rapport and trust, and establishing a constructive working dynamic (Blanquicett et al. 2007; Berry et al. 2008; Lubetkin, Lu, and Gold 2010) . Indeed, establishing complementary patient–physician roles may help patients recognize that there is room to improve their health and that they have an important role in doing so, and in turn begin to seek out, or be receptive to, information about this role and the actions that must be performed to maintain their health and well-being (Lubetkin, Lu, and Gold 2010). Physicians can be instrumental in this process by redefining their role in relation to the patient by listening carefully, treating patients with respect, and developing a partnership with patients to improve their health. Because both of these perspectives are departures from the socially established roles of patient and physician, interventions aimed at changing the patient–physician relationship may provide an important foundation for improving health care quality.

The one notable exception to our general pattern of findings was that treatment goal setting was not significantly associated with patient activation. Relative to the other dimensions of the patient–physician relationship examined in this study, treatment goal setting may be the farthest removed from traditional role relationships between the physician and patient. This is because treatment goal setting places considerable onus on patients to work with the physician in defining treatment objectives, and patients must understand the specifics of their condition and alternative approaches to care (Brown, Bartholomew, and Niak 2007). Intuitively, one might argue that more equitable role relationships would foster greater activation. However, it may also be the case that more radical departures from the traditional patient–physician role takes patients out of their "comfort zone," thus making it less likely that they would become activated. It also should be noted that our measure focused on whether goal setting occurred between a physician and a patient. It did not, however, assess the quality of those goal-setting activities. It is possible that respondents had other aspects of goal setting in mind when answering these questions (e.g., were the goals realistic?, did I understand the goals?), which also could explain why we did not observe significant results.

There were also several unexpected findings with respect to the control variables. For instance, one of our measures of health status—the number of chronic conditions—was positively associated with patient activation,

suggesting that individuals with lower health status were more activated patients. One explanation for this result is provided by Hibbard and Cunningham (2008), who found similar results. According to these researchers, individuals with multiple chronic conditions may have higher levels of activation because having multiple chronic conditions may require greater self-management of their health. These researchers also hypothesize that health care providers may be more proactive about teaching self-management to individuals with multiple chronic conditions.

Also unexpected was our finding that respondents reporting a regular source of care displayed significantly lower levels of patient activation, despite other research indicating that better access to care is generally associated with higher levels of activation (Hibbard and Cunningham 2008). Interestingly, our descriptive statistics were consistent with this research, showing respondents with a regular source of care having significantly higher patient activation scores than respondents without a regular source of care ($F = 30.40$, $p < .001$). Together, these results suggest that, controlling for sociodemographic, contextual, and patient–provider relationship characteristics, better access to care is associated with lower levels of patient activation. One possible explanation is that respondents with a regular physician are more likely to take a passive, deferential role in their care, believing their health care needs are being met by their provider(s). Alternatively, it is possible that more activated patients seek out and obtain information and health services from a broad range of providers, thereby reducing their need for and dependence on a single, regular source of care. Nevertheless, given the importance attributed to patients having a regular source of care, especially in emerging primary care frameworks, additional research on its relationship is warranted.

Several limitations of our study may temper the interpretations presented. First, the cross-sectional design precludes making causal inferences about the relationship between patient–physician role relationships and patient activation. We assumed in our analysis that physicians and physician role relationships are instrumental in increasing patient activation. While the relative power and status between physicians and patients would suggest that such roles are established and reinforced by physicians rather than patients, the observational nature of our research design requires that we consider other explanations for our findings. For example, it is possible that more activated patients select physicians that are more "relationship" oriented and less controlling in their relationships with patients. While plausible, such explanations are partially mitigated by controlling for related individual and contextual

characteristics, including respondent education, income, employment status, and age.

A second issue involves the temporal ordering of role acquisition and role change. Consistent with the self-concept literature (Hage and Marwell 1968), our study assumes that physicians change their role behavior and patients subsequently change theirs in response. Although data limitations do not allow us to definitively ascertain such temporal ordering, it is conceivable that patients also play a role in changing physician behavior during patient–physician encounters. For example, more activated patients may be more likely to insist on physicians treating them as equal partners in the care process, resulting in a shift in physician behavior away from traditional dominant roles (as reported by the patient).

Third, although we believe our measures of patient–physician role relationships are reasonably comprehensive, they do not capture the dyadic aspects of these relationships, particularly from the physician's perspective. Measures based on directly observed care processes may be more revealing for purposes of understanding the relative roles of physician and patient in the care process.

Finally, the study population for this investigation is individuals suffering from one or more chronic illnesses. Although we believe that this population is of particular interest given the long-term nature typical of the patient–physician relationship for the chronically ill and the importance of activation in self-management of chronic illness, it is unclear whether the strong associations between the dimensions of patient–physician role relationships and patient activation would obtain for other groups. For example, individuals suffering from acute illness could be less responsive to differences in how power is enacted given the infrequent contact with their providers.

Several current national efforts to reform health care, such as expanding hospital- and physician-level public reporting, introducing the chronic care model, and implementing the patient-centered medical home, all rely on activated, informed patients (Boyer and Lutfey 2010). However, many individuals are unlikely to become fully activated as a consequence of personal decisions or a sudden realization that they are empowered consumers of health care (Hibbard et al. 2007). Individuals may not believe that they need to be involved in managing their health, especially when under the care of physicians who reinforce a traditional passive patient role. This study has provided initial evidence that patient–physician relationships are an important factor in patients taking a more active role in their health and health care. Efforts to increase activation that focus only on individual patients ignore the important

fact that the nature of roles and relationships between physician and patient can shape the behaviors and attitudes of patients in ways that support or discourage patient activation.

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NOTE

1. We conducted two additional sensitivity analyses to assess whether our factor analysis results were affected by the different response options for the patient–physician role relationship items (e.g., 4-point Likert versus Yes/No; time frame references). First, we conducted two separate factor analyses—one for the dichotomously scaled items that assessed relationship attributes over the past 12 months and one for the ordinal-scaled items that assessed relationship attributes over the past 6 months—to confirm that the items loaded on distinct factors. A four-factor solution was supported by this analysis, two for the dichotomous items and two for the ordinal items. For our second supplemental analysis, we first dichotomized the 4-point scales by changing "strongly agree" and "agree" to "1" and "disagree" and "strongly disagree" to "0." Next, we used the 13 dichotomous items to create a tetrachoric correlation matrix and performed a factor analysis on this correlation matrix. A four-factor solution was once again supported by this analysis, with all items loading on the same factors as in the original analysis.

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SUPPORTING INFORMATION

Additional supporting information may be found in the online version of this article:

Appendix SA1: Author Matrix.

Appendix SA2: Survey Item Components of Patient Activation Measure ($N = 8,140$).

Appendix SA3: Survey Item Components of Patient–Physician Relationship Scales.

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