# Effects of continuity of care and patient dispositional factors on the physician-patient relationship

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## Abstract

**Background**—We developed a questionnaire to examine the influence of physician and patient variables on the quality of the physician-patient relationship.

**Methods**—More than 300 family medicine patients completed self-report measures of the physician-patient relationship and variables likely to influence it.

**Results**—The quality of relationship was related to continuity of physician care (having a primary physician, duration of that relationship, and frequency of visits) and to patient dispositional variables (neuroticism, positive and negative affectivity) but not to demographic variables. The regression model included having a primary physician, duration of relationship with that physician, and positive affectivity. Relationship quality was, in turn, associated with outcomes (adherence to care, treatment response, satisfaction with care, and commitment to physician).

**Conclusions**—The quality of physician-patient relationship is influenced by physician continuity and patient dispositional variables. Better understanding of these may contribute to the therapeutic potential of this important relationship.

## Keywords

Physician-patient relationship; satisfaction; continuity; alliance; positive affectivity

## Introduction

The physician-patient relationship is believed to influence medical care in important ways. A positive therapeutic relationship is associated with adherence to treatment, satisfaction with care, even favorable treatment response.[1–3] Reduced utilization and lower costs may be additional societal benefits.[4] Patients in such a relationship may experience better perceived health and less distress and impairment.[5]

Some factors that affect the strength and quality of the physician-patient relationship are intrinsic to the patient and others to the physician. Still other factors have to do with the care itself, such as continuity, frequency of contact, and type of encounter.[6,7] Most studies have assessed satisfaction with care, an indirect measure of relationship quality. Perceived physician warmth, empathy, communication skill, and professional competence have been shown to influence satisfaction.[8] Assessed patient characteristics have included demographic factors such as age, severity of physical illness, psychopathology, and expectations.[5]

The positive physician-patient relationship bears a strong resemblance to the alliance between psychological therapists and their clients. This therapeutic alliance can be reliably measured and is predictive of therapy outcomes, such as symptom reduction and improved functioning.[9] Patient or client factors that contribute to a positive therapeutic alliance include secure attachment style, high extraversion, low neuroticism, less severe psychological problems, low subjective distress, high perceived social support, and active coping style.[10] Some or all of these also may influence the quality of the physician-patient relationship, but these variables have been ignored in studies of satisfaction with care.[11] Certain dispositional characteristics—such as negative and positive affectivity—and personality dimensions—such as neuroticism and extraversion—are related to satisfaction and stability in close relationships.[12] They seem likely to influence the physician-patient relationship as well.

We developed a measure of the physician-patient relationship quality to examine physician and patient variables that may be associated with a therapeutic relationship in family medicine. We hypothesized such a relationship would be related to continuity of care provided by physicians and certain dispositional or personality characteristics of patients.

## Methods

### Participants

This study had Institutional Review Board approval. An investigator (S.L.L.) approached patients of the University of Iowa Family Care Center, described the study, and obtained written informed consent. Patients agreeing to participate were given questionnaires and asked to return them in an envelope provided. We included patients age 18 to 65 who received most of their care at the Center and excluded those who had serious medical or psychiatric conditions or were unable to complete questionnaires. Some who were

approached about participation declined. Approximately two-thirds (65%) of those who agreed to participate returned questionnaires.

Patients returning questionnaires included 230 women and 80 men, with a median age of 36 (TABLE 1). Those who returned questionnaires differed significantly from those who did not in age (mean 38 vs 35 years) and sex (67% women vs 54% men). Participants rated their health problems as not at all serious (29%), not very serious (41%), moderately serious (23%), or very or extremely serious (8%). Most (74%) reported having a primary doctor, defined as one "who handles most of your care and you regard as your personal physician." This doctor had provided care for a median of 1 year. Patients reported a median of 4 physician visits in the past year.

## Measures

### Quality of patient-physician relationship

We used the Physician-Patient Relationship Scale (PPRS) to assess perceived quality of the physician-patient relationship (Table 2). The PPRS was developed to measure relationship quality in a family medicine setting. Items for the scale were obtained from the literature dealing with therapeutic relationships and with empathy, affective bond, collaboration, and other elements considered important in these relationships.[13,14] We also reviewed scales that focus on aspects of therapeutic relationships (such as trust, reassurance, satisfaction, and alliance).[15,16] We tested our measure to remove redundant or ambiguous items. Those that remained covered the areas of affective bond and commitment, mutual respect and collaboration, reassurance, effective communication, knowledge and skills, and integrity.

The PPRS gave these instructions: "What follows is a list of questions about the relationship you have with your doctor. Please indicate your answer by circling the appropriate number to the right of each one. Your doctor will not see or have access to your response." Responses were obtained using 5-point Likert scales (1 = not at all to 5 = extremely).

### Somatic symptoms

We assessed somatic symptoms with the Somatic Symptom Inventory (SSI).[17] This measure consists of 26 items from the Minnesota Multiphasic Personality Inventory (MMPI) hypochondriasis scale and the Symptom Checklist 90 somatization scale. Responses are obtained on 5-point Likert scales (1 = not at all to 5 = extremely).

### Patient dispositional variables

We measured neuroticism using the Big Five Inventory (BFI) neuroticism scale.[18] The BFI contains 44 items to assess 5 major dimensions of personality. Items are rated on 5-point scales of agreement (1 = very unlike me to 5 = very like me). The 8-item neuroticism subscale is strongly correlated with the neuroticism scale of the NEO Personality Inventory.

Positive affectivity is the tendency to experience positive mood states such as excitement, interest, and enthusiasm. Negative affectivity is the tendency to experience negative mood states such as sadness, fear, and anger. We measured positive and negative affectivity using the Positive and Negative Affect Schedule (PANAS).[19] Two 10-item scales assess positive

and negative affectivity; items are rated on 5-point scales (1 = very slightly or not at all to 5 = extremely).

### Health care variables

The Health Care Evaluation Scale developed for this study consists of items to assess utilization of care, adherence to care, treatment response, satisfaction with care, and attitude toward the physician. Each subscale is represented by 2 to 5 items rated on Likert scales (1 = definitely true to 5 = definitely false). Three of these subscales have been shown to have validity.[20]

## Analyses

### Confirmatory factor analyses

We conducted confirmatory factor analyses of ordinal variables to examine the structure of the PPRS and Health Care Evaluation Scale. We hypothesized a single quality of relationship factor for the PPRS, based on the literature showing a single dimension in most patient ratings of physician qualities (such as skills and personal characteristics). A quality of relationship factor composed of 28 items, with loadings ranging from .58 to .90, was confirmed (Table 2). The confirmatory factor index was .94.

We hypothesized 5 factors for the Health Care Evaluation Scale consistent with item content. These were confirmed by our analysis. Item loadings on individual factors ranged from .53 to .92. The confirmatory factor index was .95, suggesting good fit to the observed item relationships. For each factor, we calculated an approximate score using the unweighted sum of responses to its items.

### Regression analyses

To test the main hypothesis, we fit a linear model to predict patient ratings on the PPRS. We specified the null hypothesis as lack of relationship between physician contact variables (having a primary physician, and duration of relationship with the physician coded on an ordinal scale 0 = no primary physician, 1 = less than 1 year, 2 = 1 year, 3 = 2 years, 4 = 3 years, and 5 = 4 or more years) as well as patient dispositional variables (BFI neuroticism score, and PANAS negative and positive affectivity scores) and the PPRS. The model controlled for potential confounders: age, sex, years of education, severity of health problems, and somatic symptoms.

## Results

Scores on the PPRS scale ranged from 58 to 140, with a mean ($\pm$ SD) of 110.8 $\pm$ 16.9. Physician relationship variables were significantly related to PPRS scores, but demographic variables were not. Patients with a primary physician had higher mean quality-of-relationship scores than those without (114.0 $\pm$ 15.7 vs 101.5 $\pm$ 16.7, $P \pm$ .0001). Also, patients who had been with their primary physicians longer had higher quality-of-relationship scores (Spearman r = .34, $P$ = .0001), as did those who had more visits to their physician in the past year (Spearman r = .34, $P <$ .0001).

Scores on the PPRS were relatively unrelated to patient illness variables but were weakly correlated with dispositional variables. Scores on this measure were not correlated with severity of health problems (r = .04, $P$ = .4826), but were negatively correlated with level of somatic symptoms (r = −14, $P$ = .0185). Scores on the PPRS were negatively correlated with neuroticism (r = −14, $P$ = .0156) and negative affectivity (r = .15, $P$ = .0089) and positively correlated with positive affectivity (r = .23, $P$ < .0001).

Table 3 shows the linear regression model of physician-patient relationship quality. The final model explained 23.6% of the variance in PPRS scores. Significant predictors included 2 relationship variables (having a primary physician and length of relationship) as well as one dispositional variable (positive affectivity).

Table 4 shows partial correlations between the quality of physician-patient relationship and health care variables after controlling for age, sex, education, and race. Relationship scores were not correlated with utilization of care but were positively correlated with adherence to care, satisfaction with care, and commitment to the physician.

## Discussion

The relationship between physician and patient is, by its nature, personal and intense, a relationship with therapeutic potential. We found the quality of this relationship, as perceived by family medicine patients, is unrelated to demographic factors but modestly related to continuity of care with the physician and dispositional characteristics of the patient. Specifically, we showed having a primary physician and having a longer relationship with that physician were related to greater therapeutic quality in the relationship. Having a personal physician who handles most of one's medical care is a reasonable definition of continuity, and the literature shows a strong connection between interpersonal continuity and patient satisfaction.[6,7,21] Our findings appear to support this conclusion, adding that, for our patients, continuity was positively linked to the therapeutic quality of the physician-patient relationship. It makes sense that trust, empathy, compassion, and a hopeful attitude—all elements of a therapeutic relationship—are likely to grow in an enduring relationship, along with the bond between physician and patient. Where a bond such as this exists—even from the beginning—the relationship is likely to endure.[22]

We also showed therapeutic quality of the physician-patient relationship is related to positive, but not negative, affectivity. Positive affectivity is a stable, heritable trait reflecting the tendency to experience positive emotions.[23] Individuals high on this dimension tend to be cheerful, energetic, and confident. They tend to be extroverts who are socially active. This is part of a general behavioral system that directs the person toward situations and experiences that are potentially rewarding.[24] It is associated with relationship satisfaction and better physical as well as mental health.[23,25] This association may be explained in one of several ways. Positive affectivity may contribute to a therapeutic relationship by way of hopeful attitude and sense of trust. Alternatively, it may elicit a caring and empathic response from the physician. Of course, a therapeutic relationship, favorable health, and positive treatment outcome all may heighten positive affectivity.

Although negative affectivity showed a negative correlation with physician-patient relationship quality, it was not a significant factor in the predictive model. Negative affectivity is the tendency to experience negative emotions. This dispositional trait is strongly correlated with the personality dimension of neuroticism (r −.58) and is part of a general behavioral system that helps the person avoid harm.[25] Negative affectivity is associated with greater life and relationship dissatisfaction.[12] Our findings suggest, when it comes to the physician-patient relationship, the behavioral system directed toward obtaining reward is more important than the system aimed at avoiding harm.

This study has several limitations. Because some patients declined participation and others failed to return questionnaires, the sample may have been less than representative of the population studied. Also, we developed the physician-patient relationship questionnaire for this study, and its psychometric properties have yet to be fully evaluated. Nevertheless the association of scores with measures of continuity of care is indicative of validity.

We examined a limited number of potential predictors of relationship quality, and these did not include physician or type of illness variables. The amount of variance in relationship quality explained was relatively small (24%) but might have been increased if we had included those variables. In addition, the extent to which the medical care involved patients' primary physicians likely varied, thereby influencing ratings in unknown ways.

We observed positive correlations between a therapeutic physician-patient relationship and favorable outcomes, namely adherence to treatment, perceived treatment response, satisfaction with care, and commitment to the physician. Previous work has documented the relationship between satisfaction with medical care and adherence to treatment and favorable outcomes. These findings would seem to demonstrate the value of a therapeutic relationship among medical outpatients, although more than one causal interpretation is possible. For instance, patients who respond well to treatment and enjoy relatively good health may, as a consequence, view the relationship they have with their physician more favorably than those who respond less well. Even so, these results suggest the physician-patient relationship has healing potential apart from the actual treatments administered.

## Conclusions

Our findings suggest dispositional characteristics of the patient may contribute to the quality of the physician-patient relationship and any explanatory model should include them. Factors that contribute to the satisfaction and stability of relationships in general appear likely to influence the special relationship that exists between physician and patient. Studies of new patients who are followed over a period of time could predict physician-relationship quality, continuity of care, satisfaction with care, and various outcomes. Brief self-rated measures of dimensions such as positive and negative affectivity, extraversion, and neuroticism are available, making prospective investigations feasible.[19] Of course, major dispositional features may be identified clinically and, once identified, may assist physicians in predicting relationship quality and applying enhancing measures as needed.[26]

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**TABLE 1**

Demographic profile of patients who returned questionnaires (N = 310)

| Age (median) | 36 yr |
|---|---|
| **Sex** | 74.2% women |
| **Education (median)** | 16 yr |
| **Annual income (median)** | $20,000 to $40,000 |
| **Marital status** | |
| Married | 48.1% |
| Single | 36.5% |
| Divorced/widowed | 15.5% |
| **Race** | 93.5% white |

**TABLE 2**

Factor loadings for representative items[a] on the Physician-Patient Relationship Scale (PPRS)

| Item | Loading |
|---|---|
| 1. How well does your doctor understand the concerns you have? | .90 |
| 2. How carefully does your doctor listen to you? | .89 |
| 3. How much do you trust your doctor? | .87 |
| 4. How knowledgeable is your doctor? | .87 |
| 5. How seriously does your doctor take your health problems? | .85 |
| 6. How completely does your doctor understand your health problems? | .83 |
| 7. How respectful is your doctor of you? | .82 |
| 8. How reassuring is your doctor? | .80 |
| 9. How skilled is your doctor in his or her area of practice? | .80 |
| 10. How freely can you speak to your doctor about personal matters? | .77 |

[a]Factor analysis of ordinal variables of the PPRS confirmed a quality of relationship factor composed of 28 items, with loadings ranging from .58 to .90.

**TABLE 3**

Regression model for physician-patient relationship quality

| Parameter | Degrees of freedom | *P* | Partial R$^{2a}$ |
|---|---|---|---|
| Age | 1 | .264 | 0.004 |
| Sex | 1 | .151 | 0.007 |
| Education | 1 | .963 | 0.000 |
| Income | 1 | .966 | 0.000 |
| Marital status | 2 | .171 | 0.012 |
| Race | 1 | .867 | 0.000 |
| Severity of health problems | 3 | .057 | 0.026 |
| Somatic symptoms | 1 | .059 | 0.012 |
| Neuroticism | 1 | .570 | 0.001 |
| Positive affectivity | 1 | .001 | 0.038 |
| Negative affectivity | 1 | .648 | 0.001 |
| Primary physician (yes/no) | 1 | .003 | 0.030 |
| Length of relationship | 1 | .007 | 0.025 |
| Frequency of visits | 1 | .115 | 0.009 |

[a]Partial R$^2$ is the proportion of variance in physician-patient relationship quality explained by each variable after first controlling for all other explanatory variables in the model.

**TABLE 4**

Correlations between health care variables and quality of physician-patient relationship

| | Quality of physician-patient relationship | P |
|---|---|---|
| Utilization of care | .04 | .5334 |
| Adherence to care | .26 | <.0001 |
| Treatment response | .46 | <.0001 |
| Satisfaction with care | .62 | <.0001 |
| Commitment to physician | .69 | <.0001 |