

Trust in the Medical Profession: Conceptual and Measurement Issues

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Objective. To develop and test a multi-item measure for general trust in physicians, in contrast with trust in a specific physician.

Data Sources. Random national telephone survey of 502 adult subjects with a regular physician and source of payment.

Study Design. Based on a multidimensional conceptual model, a large pool of candidate items was generated, tested, and revised using focus groups, expert reviewers, and pilot testing. The scale was analyzed for its factor structure, internal consistency, construct validity, and other psychometric properties.

Principal Findings. The resulting 11-item scale measuring trust in physicians generally is consistent with most aspects of the conceptual model except that it does not include the dimension of confidentiality. This scale has a single-factor structure, good internal consistency ($\alpha = .89$), and good response variability (range = 11–54; mean = 33.5; SD = 6.9). This scale is related to satisfaction with care, trust in one's physician, following doctors' recommendations, having no prior disputes with physicians, not having sought second opinions, and not having changed doctors. No association was found with race/ethnicity. While general trust and interpersonal trust are qualitatively similar, they are only moderately correlated with each other and general trust is substantially lower.

Conclusions. Emerging research on patients' trust has focused on interpersonal trust in a specific, known physician. Trust in physicians in general is also important and differs significantly from interpersonal physician trust. General physician trust potentially has a strong influence on important behaviors and attitudes, and on the formation of interpersonal physician trust.

Key Words. Trust, medical profession, scale development

Owing to the central importance of trust in medical relationships, there have been increasing efforts in recent years to measure patients' trust in their physicians and other care providers (Pearson and Raeke 2000; Hall, Zheng et al. 2002). Trust is seen as important in its own right because it is the attribute that gives medical relationships intrinsic value, but trust is also critical in a more instrumental fashion. Trust is critical to patients' willingness to seek care, reveal sensitive information, submit to treatment, and follow physicians' recommendations (Hall, Dugan et al. 2001). Issues of trust are also central to

ongoing debates about the structure and regulation of health care delivery (Hall in press), and trust measures have been suggested as an important new tool for monitoring the performance of individual providers and health plans (Hall, Dugan et al. 2001).

Over the past decade, five different research teams have developed and validated multi-item scales that quantify the level of patient trust (Anderson and Dedrick 1990; Safran et al. 1998; Kao, Green, Davis et al. 1998; Krupat et al. 2001; Hall, Zheng et al. 2002), and have applied these instruments in a variety of settings (Hall, Dugan et al. 2001). However, this work has focused on specific, identified physicians or care providers within established treatment relationships. Much less effort has been made to measure trust in medical institutions or in the system of medicine. Notable exceptions include a multi-item scale to measure trust in specific health plans (Zheng et al. 2002), a short scale to measure trust in hospitals generally (LaVeist, Nickerson, and Bowie 2000), and a few qualitative studies of trust in the medical profession or the system of medicine more generally (Mechanic and Rosenthal 1999; Thom and Campbell 1997; Thorne and Robinson 1988a). Also, a few surveys use individual items to assess trust or confidence in physicians generally (American Medical Association 1997; Pescosolido, Tuch, and Martin 2001; Schlesinger 2002), in the health care system (Fronstin and Helman 2001), or in “the people in charge of running medicine” (Blendon 1988; Blendon and Benson 2001). However, there are no validated multi-item scales that allow researchers to quantify trust in physicians more rigorously at this general level.¹

To understand trust in physicians, it is essential to study general trust in addition to trust in a specific known physician (Luhmann 1973; Mechanic 1996; Rhodes and Strain 2000). For effective treatment, physicians need to elicit trust almost instantaneously with new patients who know virtually nothing about them (Axelrod and Goold 2000). The ability to do so depends critically on patients’ views of physicians in general, and on the symbolic or archetypal features of being a doctor (Parsons 1951; Mechanic 1996; Govier 1993). Also, as the relationship develops, the ability to build strong and lasting

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bonds of trust, and to withstand threats to trust, plausibly depends on patients' attitudes about physicians generally (Rousseau et al. 1998; Luhmann 1973; Murray, Holmes, and Griffin 1996). Although these attitudes are likely based in part on patients' prior experiences with other physicians, they are also likely based on images of physicians generally conveyed through the media or other avenues of social meaning (Mechanic 1998; Goold 1998). Therefore, we expect to find that general trust behaves and responds somewhat differently than interpersonal trust. Indeed, it is frequently said that, while trust in the medical profession has declined substantially in recent years, patients continue to have remarkably high levels of trust in their personal physicians (Blendon and Benson 2001).

To advance understanding of these issues, this article reports on the development of a scale to measure trust in physicians in general, and it reports on how general trust, measured in this way, relates to a similar measure of trust in a known physician. The article begins by presenting a conceptual model of general trust, then explains how candidate items were generated, tested, and selected, reports on the psychometric properties and validation of the resulting scale, and then examines how general trust relates to interpersonal trust.

A CONCEPTUAL MODEL OF TRUST IN THE MEDICAL PROFESSION

The following conceptual model was developed after a review of the limited theoretical literature on trust in medical settings (Mechanic 1996; Pellegrino, Veatch, and Langan 1991; Mechanic and Schlesinger 1996; Mechanic 1998; Rogers 1994; Johns 1996) and the extensive theoretical and empirical literature on trust in nonmedical settings (Baier 1986; Barber 1983; Kramer and Tyler 1996; Holmes and Rempel 1989; Hardin 1991; Luhmann 1973; Govier 1997; Seligman 1997; Braithwaite and Levi 1998). Trust has been defined as "the willingness of a party to be vulnerable to the actions of another party based on the expectation that the other will perform a particular action important to the trustor, irrespective of the ability to monitor or control that other party" (Mayer, Davis, and Schoorman 1995) or, more succinctly, "accepted vulnerability to another's possible but not expected ill will (or lack of good will)" (Baier 1986). Theorists have distinguished between interpersonal trust, which characterizes a relationship between two individuals, such as a specific doctor-patient relationship, and general, institutional, social,

or system trust, which characterize attitudes toward collective entities or social organizations (Mechanic 1998; Luhmann 1973; Goold 1998; Rousseau et al. 1998). Among the more impersonal objects of trust, one can further distinguish between trust in a specific, known institution, such as a particular hospital, clinic, or health plan, and trust in a broader social or professional system. Here we take the broader perspective by focusing on trust in doctors in general—that is, system trust with respect to the medical profession.²

Based on theoretical and empirical work by others on medical trust (Hall, Dugan et al. 2001; Thom and Campbell 1997; Thorne and Robinson 1988b; Mechanic and Meyer 2000), and on general, social, and institutional trust in other arenas (Luhmann 1973; Rousseau et al. 1998; Govier 1993), we conceptualize general physician trust as having potentially five overlapping domains: (1) fidelity, which is caring and advocating for the patient's interests or welfare and avoiding conflicts of interest; (2) competence, which is having good practice and interpersonal skills, making correct decisions, and avoiding mistakes; (3) honesty, which is telling the truth and avoiding intentional falsehoods; (4) confidentiality, which is proper use of sensitive information; and (5) global trust, which is the irreducible "soul" of trust, or aspects that combine elements from some or all of the separate dimensions.

Our model hypothesizes the association between general physician trust and other constructs. First, general trust in physicians and trust in specific physicians are likely related to each other. General trust depends to some extent on patients' previous experiences with their own doctors. Also, patients who have greater general trust are expected to more readily trust individual physicians they meet for the first time. This is because, early in a treatment relationship, interpersonal trust is likely to be based primarily on general system features, but as the relationship continues, a divergence (either higher or lower) is more likely between general and interpersonal trust, as patients learn more about the particular characteristics of a provider.

Second, our conceptual model predicts that general trust is related to certain patient attitudes and behaviors such as satisfaction with care, willingness to follow doctors' recommendations, desire to seek second opinions, and prior disputes with physicians. Comparing trust to satisfaction further clarifies our conceptual model. Although clearly related, general trust, as we conceive it, is distinct from satisfaction with care because satisfaction is an evaluation of previous experiences, whereas trust is primarily *future-oriented* ("willingness to be vulnerable") (Thom et al. 1999; Murray and Holmes 1997).

DEVELOPMENT OF A SCALE TO MEASURE GENERAL TRUST IN PHYSICIANS

Item Generation and Selection

Following the conceptual model just described, questions were generated for pilot testing through the following steps. First, items from existing scales (noted above) that measure trust in physicians, or from more general social and interpersonal trust scales (Rotter 1967; Yamagishi and Yamagishi 1994; Johnson-George and Swap 1982; Rempel, Holmes, and Zanna 1985; Mishra and Spreitzer 1998), were reviewed and adapted to our conceptual model. To address domains not adequately covered within these existing scales, new items were generated by the study team and suggested by two focus groups and a panel of outside reviewers with relevant expertise in medicine, law, management, psychology, sociology, social science, and health services research.

The focus groups had a total of 21 participants, drawn from general community groups and consisting of 62 percent women and 33 percent African Americans. Opening discussions centered around a general definition of patient trust and the uniqueness of the doctor–patient relationship. Participants were then presented with candidate trust items and asked to discuss whether the items were related to trust in physicians and other care providers, which items best represented their understanding of provider trust, and whether the items were clear and easily understood. A similar process was used in individual, qualitative interviews with eight subjects from the pilot testing phase, who were debriefed following survey completion using open-ended, cognitive interviewing (or “think aloud”) techniques. Information from these focus groups and interviews was used to confirm and refine the conceptual model and to create, modify, or delete candidate items, based on trust-related concerns that subjects expressed that were not captured in the draft items, or based on ambiguities or difficulties subjects expressed in understanding draft items.

The candidate items were field-tested and revised through 8 rounds of piloting, with a total sample of 297 male and female adults from various community groups (e.g., jury pool, health fair participants, airport passengers, university students, and clinic patients), representing a range of socioeconomic backgrounds. Throughout the piloting process, items were modified or deleted if there was a high rate of “don’t knows” or if the responses were concentrated in one or two adjacent categories, indicating lack of discriminatory power. Data from 184 of these subjects, collected during the final three

rounds of piloting, were analyzed to determine preliminary factor structure, internal consistency, and item-to-scale correlations. Items were rejected if they were weakly correlated with the overall scale or the relevant subscale.

Based on these iterations of content review, field-testing, modification, and statistical analysis, 25 candidate items were selected for use in the national telephone survey described below. Table 1 lists the 25 items and their sources. They cover the four dimensions of physician trust: fidelity (items 1–4, 6, 7, 23), competence (items 5, 8–12, 14, 18, 24), confidentiality (item 19), and honesty (items 15, 16, 22), as well as “global trust” items (13, 17, 20, 21, 24, 25).

Sample Selection

The validation sample was selected randomly from a proprietary database of working residential telephone exchanges in the continental United States. A total of 1,891 numbers were dialed, of which 1,239 (66 percent) were residential households. A minimum of 15 attempts were made to those numbers that consistently were not answered. Households with no one over the age of 20 were excluded ($n = 31$). Respondent selection within eligible households was done using the next birthday method (Oldendick et al. 1988).

Because this is part of a larger study that examined trust in a known physician and trust in a health insurer, respondents were screened to see if they had any source of payment for health care within the past year, and whether they had a regular physician or other health professional they had seen at least twice during the past two years.³ Sixty-three individuals did not meet the payment criterion and 117 individuals did not meet the physician visit criterion. Contacts with the 1,028 potentially eligible individuals resulted in the following dispositions: 502 (49 percent) were interviewed; 266 (26 percent) refused; 260 (25 percent) were unable to complete the survey (not home, ill, non-English-speaking, insufficient time). The fielding period for this study was April to June 1999. Telephone interviews lasted approximately 25 minutes. In addition to the general trust questions, data were collected on trust in the subject's regular physician or health care provider, past experiences and satisfaction with health care, demographic characteristics, and physical and mental health (excellent to poor rating of health in general).

The demographic characteristics of the sample population are summarized in Table 2. The majority of the national sample are non-Hispanic whites (82.3 percent), female (67.5 percent), between 30–60 years old (57.0 percent), and college educated (57.8 percent). Less than half of the subjects

Table 1: Item Sources, Wording, Mean, Standard Deviation, and Item-to-Total Correlation

Items	Source	Mean	SD	Corr
1. Doctors in [general] care about their patients' health just as much or more as their patients do.	Safran (modified)	3.39	.97	.60
2. Doctors [in general] will do whatever it takes to get patients all the care they need.	Study team	3.48	.87	.59
3. Doctors' medical decisions are influenced by how much money they can make.	Study team	2.95	.95	.50
4. Doctors will fight hard to get health insurers to pay for treatment.	Study team	3.47	.82	.31
5. You worry that doctors' medical decisions are sometimes wrong.	Study team	2.63	.94	.53
6. Sometimes doctors care more about what is convenient for them than about their patients' medical needs.	Study team	2.86	.98	.57
7. If a doctor asked you to be in a medical research study, you would worry that the doctor cares more about the research than about what is best for you.	Study team	3.06	.96	.41
8. No matter what health problem a patient has, doctors will always be able to figure out exactly what is wrong.	Study team	2.41	.87	.45
9. Doctors' medical skills are not as good as they should be.	Study team	3.10	.90	.47
10. Doctors can handle any medical situation in their field, even very serious ones.	Study team	3.02	.94	.44
11. Doctors do not always give patients a chance to say everything they need to say.	Study team	2.48	.93	.47
12. Doctors are extremely thorough and careful.	Study team	3.19	.89	.62
13. You completely trust doctors' decisions about which medical treatments are best.	Anderson (modified)	3.00	.92	.67
14. A doctor would never prescribe the wrong medicine for you.	Study team	2.79	.97	.64
15. Doctors are totally honest in telling their patients about <i>all</i> of the different treatment options available for their conditions.	Study team	2.98	.96	.64
16. Sometimes, doctors pretend to know things when they are really not sure.	Safran	2.73	.85	.51
17. Doctors think only about what is best for their patients.	Study team	3.21	.85	.62
18. Sometimes doctors do not pay full attention to what patients are trying to tell them.	Safran (modified)	2.44	.86	.54

continued

Table 1: Continued

Items	Source	Mean	SD	Corr
19. You worry that doctors might share embarrassing information about you with people who have no business knowing it.	Study team	3.54	.83	.37
20. Doctors always use their very best skill and effort on behalf of their patients.	Study team	3.51	.77	.59
21. You have no worries about putting your life in the hands of doctors.	Study team	2.98	1.01	.64
22. A doctor would never mislead you about anything.	Study team	2.99	.93	.62
23. Doctors are the kind of people who will take care of patients even if they cannot afford to pay.	Study team	2.84	.92	.58
24. You sometimes think about getting a second opinion because you are not sure doctors give the best advice.	Study team	2.50	.89	.50
25. All in all, you trust doctors completely.	Safran (modified)	2.96	.95	.65

Bolding indicates items selected for final scale.

Table 2: Demographic Characteristics of National Sample ($N = 502$)

Female	339 (67.5%)
White, non-Hispanic	408 (82.3%)
Mean age (+SD)	51.1 (+18.0)
Some college education	286 (57.8%)
Income greater than \$40,000	201 (40.7%)
Median time with physician	6 yrs.
At least good physical health	427 (85.6%)
At least good mental health	472 (94.6%)

(40.0 percent) have income above \$40,000. Most subjects report good physical (85.1 percent) and mental (94.0 percent) health.

Measures

The variables in the theoretical model were measured in the following way. Interpersonal physician trust was measured by a scale developed by Kao and colleagues (Kao, Green, Zaslavski 1998). Satisfaction with the health care received from all sources over the past few years was measured with a validated 12-item scale (Hall et al. 1990). Other variables thought to be related to general trust were measured as follows: past disagreement or dispute with physicians (yes, no); whether the subject had changed physicians in the past or sought a second opinion due to concerns about care (yes, no); and whether the subject always follows doctors' recommendations (agree, disagree).

Statistical Methods

The response distribution of each trust item was first checked in order to confirm that no items had responses concentrated in one or two categories, indicating low discriminatory power. An exploratory iterated principal factor analysis was then conducted to uncover the latent dimensions among the items. Initial factors were extracted by selecting only those with above average eigenvalues. Unidimensional and multidimensional factor structures were explored using varimax and promax rotations. Additionally, we verified the number of factors by considering a scree plot and the overall root mean square assessing the magnitudes of the residual correlation matrix.

First, items with the lowest absolute loadings on the main factor and the lowest item-to-total correlations were deleted. Second, items ranked by their absolute loadings were successively deleted until the main factor could explain close to 100 percent of the estimated common variance. Third, additional

items were deleted in a manner that strikes a balance between achieving parsimony, maintaining internal consistency, and covering important components of the conceptual model. The scale's construct validity was tested by the Pearson correlation with interpersonal physician trust and satisfaction with care. Validity was further assessed by the concurrent association between general trust and the causes or outcomes that theory predicts should be related. Specifically, the Spearman correlation was used for whether doctors' recommendations are always followed, and a two-sample t-test was used for those variables with a binary response format, such as prior disputes with physicians, having sought a second opinion, and changing doctors or seeking second opinions because of concerns about care.

VALIDATION OF THE GENERAL TRUST IN PHYSICIANS SCALE

Factor Structure and Item Selection

Table 1 presents the 25 candidate items with their mean, standard deviation, and item-to-total correlations. No general trust items had missing responses from more than 1.6 percent of subjects, and all items had acceptable response patterns, with standard deviations ranging from .77 to 1.01, item means ranging from 2.44 to 3.51 on a 5-point scale, and no items with responses concentrated in only one or two categories.

Squared multiple correlations (between .20 and .76) were used as the initial communality estimates. Four factors had eigenvalues above the average and together accounted for 100 percent of the estimated common variance. The scree plot showed a large break between the first factor (eigenvalue 8.2, explaining 78 percent of variance) and second factor (eigenvalue .95, explaining 9 percent of variance). Catell's subjective scree test suggested that at most three factors should be retained. However, the overall root mean square for two factors was .05, equal to a recommended rule-of-thumb cutoff suggested by Khattree and Niak (2000).

Based on these results, we selected only two factors. A principal factor analysis using two factors showed that, together, both explained 100 percent of the estimated common variance, with the main factor explaining 90 percent of the variance. To provide alternative interpretations, varimax and promax rotations were performed. Visual inspection of the varimax rotated factor loadings did not provide clear support for simple structure; item loadings did not concentrate on either factor axis. The promax rotation yielded two factors

with a .65 intercorrelation. Items worded in a positive direction loaded exclusively on one oblique factor, while items worded in a negative direction loaded exclusively on the other, suggesting the difference between these two factors was primarily due to reverse scoring. Given the high correlation between the oblique factors, their artifactual interpretation, and the large eigenvalue of the initial main factor, we concluded that the items are best explained by a unidimensional construct instead of a two-dimensional one.

In order to develop the emergent unidimensional structure, we deleted from the scale the 12 items that had the lowest absolute loadings on the main factor and lowest item–total correlation. Under both these criteria, items 3, 4, 5, 7, 8, 9, 10, 11, 14, 16, 19, and 24 shown in Table 1 were deleted. In addition, we deleted two of the four next lower ranked items (2 and 23), to obtain a clear one-factor structure. However, items 6 and 18 were preserved despite somewhat lower rankings in order to minimize acquiescence bias (Ware 1978), since they are worded in a different direction than the other items remaining in the scale.

The final remaining 11 items exhibited a single-factor structure with Cronbach alpha = .89 and with the main factor’s eigenvalue of 4.6 explaining 100 percent of the estimated common variance. These items represent four of the domains of general trust: fidelity = 1 (caring) and 6 (conflict of interest); competence = 12 (technical) and 18 (interpersonal); honesty = 15 and 22; global = 13, 17, 20, 21, and 25.

Deletion of any additional items would omit important content and reduce internal consistency, so we retained the 11-item scale. General trust is measured by the sum of the 11 item scores (reverse-scored for negative items), ranging from 11 to 55, with a higher score indicating more trust. If there were more than 2 missing items out of the 11, the score was set to missing, else the missing values were imputed with the average score. In this sample, the scale had a mean of 33.5, standard deviation of 6.9, and a range of 11 to 54. The scale distribution is symmetric and bell shaped (Shapiro Wilkes test for normality yields a p value of .0186), though presenting a slight skewness and negative kurtosis indicating a flatter than normal shape.

Validation

Table 3 displays the Pearson (r) and Spearman (s) correlations among our measure of general trust and various continuous variables of interest. At the $p = 0.001$ significance level, general trust is associated in the predicted directions with each of these variables, as follows: interpersonal physician trust

Table 3: Correlations of General Trust with Interpersonal Physician Trust Scale, Satisfaction, and Following Doctors' Recommendations

Variable	Rho/S
Interpersonal physician trust	$r = 0.31^{***}$
Satisfaction with care	$r = 0.48^{***}$
Follow doctors' recommendations	$s = 0.46^{***}$

*** $p < 0.001$

Table 4: Sample Size, Mean, and Standard Deviation of General Trust for Binary Variables

		<i>n</i>	<i>SD</i>	
<i>Changed Doctors</i>	Yes	239	30.80+6.40	***
	No	257	36.10+6.20	
<i>Sought Second Opinion</i>	Yes	186	30.60+6	***
	No	310	35.22+6.46	
<i>Dispute with Physician</i>	Yes	147	29.80+6.77	***
	No	349	35.07+6.29	

*** $p < .001$

scale ($r = .31$), satisfaction with health care ($r = .48$), and always following doctors' recommendations ($s = .46$). Table 4 displays the group mean of general trust for the binary variables, again with consistent significant associations in the predicted directions in each sample (p -value at or below .001). Lower general trust is associated with prior disputes with physicians (mean = 29.8 for yes versus 35.1 for no), having sought a second opinion (mean = 30.6 for yes versus 35.2 for no), and having changed doctors because of being dissatisfied with care (mean = 30.8 for yes versus 36.1 for no).⁴

We also explored whether our measure of general physician trust relates to and contrasts with interpersonal physician trust in ways predicted by theory. First, we modified the general trust items to refer to each respondent's personal physician, and compared the resulting scale means. In this population, the mean value for interpersonal trust in specific physicians (42.7) is 27.5 percent higher than for the matching version of general trust (33.5, $p = .0001$). This confirms that the general trust scale taps different attitudes than a physician-specific scale and that, on average, patients have greater trust in their own physicians than they do in physicians in general.

Second, we hypothesized that the difference between general and specific physician trust will be greater for subjects who know their current

doctor better; in other words, that general trust plays a greater role in determining interpersonal trust for newly formed treatment relationships. To test this hypothesis, we grouped the differences between the trust scores from the two parallel scales, using a dichotomized variable measuring the number of lifetime visits to the current physician (2 to 10 visits versus 11 or more visits). Using a Bartlett Test ($\chi^2 = 2.91$, 3 *df*, $p = .088$) and Folded F-test ($F = 1.25$, $df = 275, 216$, $p = .089$), we tested whether the population variances differ between those with more or less than 10 visits. Neither test is significant at the $p < .05$ level, but both tests indicate differences in the predicted direction. Because our sample was limited to subjects with a regular physician they had seen at least twice, and because we used a rather coarse measure of the number of visits, it may be possible to verify the hypothesis using different measures in a sample, including more newly formed treatment relationships.

DISCUSSION

Social theorists have long understood that diffused trust in broad social and professional systems is critical to the functioning of modern, complex societies (Luhmann 1973; Barber 1983; Zucker 1986; Fukuyama 1995). Stronger system-level trust facilitates the formation of vulnerable interpersonal relationships without extensive knowledge about individual personal characteristics. This form of trust has assumed tremendous significance in the medical policy arena, owing in part to the complexities of medical care delivery, and changes in health care financing, which require patients frequently to form new treatment relationships with providers they do not know (Little and Fearnside 1997; Mechanic 1996). It is this more generalized form of trust, however, that may be a greatest risk. Frequent observations that trust is diminishing in physicians usually refer to trust at a broader system level rather than trust in a specific known physician (Blendon and Benson 2001; Pescosolido, Tuch, and Martin 2001; Schlesinger 2002).

To facilitate more rigorous study of these issues, we developed a multidimensional conceptual model of trust, which guided our development and validation of an 11-item scale to measure patients' trust in physicians in general. This is the first reported multi-item scale to measure trust in the medical profession. Previous measures of trust in the medical profession have consisted of nonvalidated single-item measures. Validated, multi-item scales assessing various aspects of the medical institutions and health care delivery

systems have focused on satisfaction rather than trust. While satisfaction is undeniably an important attribute and is related to trust, trust is a distinct attribute and may prove to be a fundamental force in shaping other attitudes, behaviors, and outcomes. A general trust scale could be a useful tool for deepening our understanding of the basis for trust, measuring the performance of health care systems and institutions, and assessing the impact of organizational, operational, and regulatory initiatives.

The instrument presented here covers all the important domains of trust except confidentiality, and has good psychometric properties when used in both a general, nationally representative population of people with sources of payment and established treatment relationships. The instrument has good reliability and response patterns. Consistent with findings from studies of trust in individual physicians (Kao, Green, Zaslavski et al. 1998; Thom et al. 1999; Safran et al. 1998; Hall, Zheng et al. 2002), factor analyses showed that general trust is unidimensional, contrary to our starting assumption and somewhat in contrast with trust in other settings (interpersonal and business) (Mishra and Spreitzer 1998; Johnson-George and Swap 1982; Larzelere and Huston 1980; Corazzini 1977). This means that people do not appear to distinguish trust in the medical profession among the dimensions of fidelity, competence, and honesty. This unidimensional conceptual model is further confirmed by the fact that the two items with the highest correlations to the overall scale (.67 and .65) are items 13 and 25, which are the two most global items and the only two items that use the word "trust" ("you completely trust doctors' decisions about which medical treatments are best" and "all in all, you have complete trust in doctors").

It is notable, however, that items measuring the domain of confidentiality were not retained in the final scale. The confidentiality items that were pilot tested all performed too poorly to be included in the national survey except for item 19, and it was not included in the final scale because it had among the lowest item-to-scale correlations (.37). Also, this confidentiality item had the highest item mean (3.54) of all tested items, even though it is negatively worded, which tends to produce lower means due to acquiescence bias (Ware 1978). (The means for the other nine negative items ranged from 2.44–3.10 and averaged 2.75.) This indicates that most of our subjects were not concerned about how doctors in general protect confidentiality and the variation in concern that exists is poorly correlated with responses to other trust questions. This finding is consistent with findings from studies of trust in individual physicians (Mechanic and Meyer 2000; Kao, Green, Davis et al. 1998; Thom et al. 1999; Hall, Zheng et al. 2001). However, this may not bear

out in minority groups or in specialized populations such as HIV patients or patients with mental illness or with some genetic conditions.

General trust exhibits a strong positive association with satisfaction, trust in one's physician, and following doctors' recommendations, and a strong negative association with prior disputes with physicians, having sought second opinions, and having changed physicians. These correlations are all consistent with our conceptual model. It is important to note, however, that these validation measures are self-reported attitudes, events, and predicted behaviors. Objective measures in a longitudinal study design would provide a more rigorous validation.

In exploratory analyses, we failed to find any relationship between trust and various demographic characteristics, other than age. This is especially notable for race and ethnicity. Others report that members of minority groups have lower levels of trust in the medical profession (LaVeist, Nickerson, and Bowie 2000; Gamble 1997). Our failure to confirm this may indicate (consistent with Pescosolido, Tuch, and Martin 2001) that distrust in the personal characteristics of physicians is not as great among disadvantaged groups as is often assumed, or this may be due to a deficiency in the scale or limitations in our survey and sampling methods. For instance, lower general trust could be masked by a reluctance to give critical responses, which is discussed more below. Also, although our piloting and focus group samples included members from minority groups, items were not separately assessed within minority groups, and our sampling of minority groups in the general survey was not adequate to explore racial differences in trust. It is likely that trust-related concerns among some minority groups are sufficiently different that psychometric development on a general population would fail to include some items of special relevance for minorities (for instance, item 7 relating to conflicts of interest in research was not retained). Future research should address this important concern. Similarly, because this study was based on a general population mostly in good health, the scale may perform differently in populations with particular health conditions of interest, such as mental illness, chronic disease, or life-threatening acute conditions.

We compared general trust with trust in specific physicians to determine their similarities and differences. When general and interpersonal trust are measured with parallel items in the same population, interpersonal trust is approximately one-fourth higher on average (42.7 versus 33.5). There are several different possible explanations for this disparity. First, it has been observed in other fields, such as politics, that people typically have stronger trust in individuals than in professional systems (Blendon et al. 1997). The

personalization that occurs when an individual relationship is formed may give an immediate boost to the level of trust that one has in the general profession. Higher interpersonal trust also could reflect the fact that people are generally inclined to have an optimistic view of themselves and their relations. As in Garrison Keillor's fictional Lake Wobegone, most everyone's doctor is better than average. This general tendency may be heightened in medicine by the need to resolve the cognitive dissonance that would otherwise exist if people believed, in a situation with such great anxiety and vulnerability, that their physician is not better than average (Hall and Dornan 1988).

Similarly, but somewhat differently, Hays and Ware (1986) demonstrate that higher response rates for provider-specific questions indicate a form of social desirability bias (tending to skew responses toward the socially accepted response). To test for this bias, we examined the relationship between socioeconomic indicators and the specific/general physician trust differential, following Hays and Ware's finding that this bias is stronger among lower socioeconomic groups in their study of satisfaction measures. We found no indication of a socioeconomic relationship in our study, other than a somewhat greater differential among those with higher education, which is contrary to the predicted direction of the bias. This suggests that the social desirability bias in our trust survey is not especially strong, although it is possible the bias may exist at some level but is masked by other tendencies, such as an overall lower level of general trust by people in minority groups. Indeed, our failure to find lower trust among minority groups may itself be the result of an undetected and counteracting social desirability bias.

In addition to a positive bias that might arise from general social norms, we also considered a form of biased response that might arise from a personal desire to be liked by one's physician, or the fear that conveying displeasure to one's physician will harm the relationship. Since this tendency would not apply to general trust, it might magnify the observed difference between physician and general trust. To guard against this, interviewers stressed that we have no connection with subjects' physicians, and subjects were not required to identify their physicians.

Finally, higher trust ratings for individual physicians could simply be a type of selection bias that arises from the fact that, as people encounter a range of different providers, they naturally choose to remain with those in whom they have the most trust. Therefore, any side-by-side assessment of physicians in general and one's current physician is likely to produce higher ratings for the latter.

This initial assessment of trust in physicians in general has a number of limitations that merit further investigation. Our findings are based on a cross-sectional telephone survey of 502 adults that included only a small sampling of populations with specialized characteristics and that relied on self-reported attitudes and behaviors. To learn more about this form of trust, future studies should have a longitudinal or controlled intervention design, they should use more objectively assessed or independently observed measures of the correlates of trust, and they should include a larger and more diverse sample. Trust in physicians and medical institutions deserve this deeper and more rigorous study, for it is a vital aspect of health care relationships that may mediate many important behaviors and outcomes.

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NOTES

1. The instruments that come closest to meeting these criteria are two short scales (four and three items) measuring positive and negative attitudes about doctors in general, which were used in the 1998 General Social Survey (Pescosolido, Tuch, and Martin 2001). However, these scales are not conceptualized as measuring trust in a fashion that is distinct from satisfaction or other general attitudes or evaluations, and they have not yet been validated beyond internal consistency (Chronbach's $\alpha = .651$ and $.718$) (Pescosolido, Tuch, and Martin 2001).
2. This brief, introductory discussion glosses over subtle but important differences among the system of medicine, the organized medical profession, and practicing physicians in general. To be more precise, we are addressing only the latter construct, and so we do not include aspects of trust that may be uniquely relevant to the other, related conceptualizations. For instance, we do not inquire here about trust in science generally, or about medical education, medical ethics, professional organizations, and oversight mechanisms—all of which might be relevant to trust in the system of medicine or the organized medical profession. Instead, we focus on aspects of treatment relationships, generalized to physicians at large rather than with respect to a particular physician.
3. Sources of payment included indigent care clinics and programs as well as public and private insurance. The precise source of payment was not identified, however.

4. In exploratory analyses not shown, race, ethnicity, and gender were not significant. However, age was significantly correlated with trust.

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