

Examining patients' trust in physicians and the VA healthcare system in a prospective cohort followed for six-months after an exacerbation of heart failure

Howard S. Gordon, MD (1*), Oksana Pugach, PhD (2),
Michael L. Berbaum, PhD (2), Marvella E. Ford, PhD (3)

(1) Jesse Brown Veterans Affairs Medical Center, VA Center of Innovation for
Management of Complex Chronic Healthcare, and Department of Medicine, University
of Illinois at Chicago College of Medicine, Chicago, Illinois, USA

(2) Institute for Health Research and Policy, University of Illinois at Chicago, Chicago,
Illinois, USA

(3) Department of Public Health Sciences and Hollings Cancer Center, Medical
University of South Carolina, Charleston, South Carolina, USA

* Corresponding author at: Howard S. Gordon, MD, 820 S. Damen Ave. (151),
Chicago, Illinois 60612, USA;
Phone: 1-312-996-8591; Fax: 1-312-569-8114; Email: hsg@uic.edu

Brief Title: Patients' Trust in Physicians and the VA

ABSTRACT

OBJECTIVE: To examine the associations of several characteristics with patients' trust in physician and the healthcare system.

METHODS: A prospective cohort of patients were followed after an exacerbation of heart failure at one of two Veterans Affairs (VA) hospitals. Patients rated pre-visit and post-visit trust in physician and in the VA healthcare system at follow-up outpatient visits. The associations of trust in physician and VA with covariates were analyzed using multivariate mixed-effects regression.

RESULTS: After adjusting for covariates, post-visit trust in physician was significantly higher than pre-visit trust ($P < .001$), but was not significantly different by race. Trust in VA did not change significantly over time ($P > .20$), but was significantly lower for Black patients ($P < .001$). High self-efficacy to communicate was independently associated with both trust in physician and VA ($P < 0.001$).

CONCLUSIONS: Trust in physician improved over the course of each visit. Trust in VA was not associated with time, but was lower among black patients. Trust was higher when ratings of communication were higher.

PRACTICE IMPLICATIONS: Trust in physician improved at each visit and was independently associated with communication. Interventions designed to improve communication should be tested for their ability to improve trust in physician and trust in the healthcare system.

KEYWORDS: Trust in physician, Trust in healthcare system, Physician-patient relations, Hospital-patient relations, Blacks, Veterans, Longitudinal studies

1. INTRODUCTION

Patients' trust in physicians and patients' trust in healthcare systems are important aspects of successful patient-physician relationships [1, 2]. Trust has been defined as a willingness for one person to accept being vulnerable to the actions of a second person with an expectation that the second person will perform actions desired by the first person [1, 2]. Trust in physicians is essential for patients to accept care from a physician, discuss personal details, adhere to treatment recommendations and return for follow-up visits. Prior studies have shown that trust is associated with patient race, greater patient satisfaction and continuity of care, better doctor-patient communication, greater adherence to physicians' recommendations, and improved health outcomes[3-12], yet most studies that have examined trust are cross-sectional and have not examined change in trust over time.

Trust in one's own physician may be high for the following reasons: high trust in physicians in general (blind trust or general trust), high trust in the hospital or healthcare system where the physician practices (halo effect), or trust may be high because of positive experiences during a visit(s) with that physician (communication, duration of relationship). Interpersonal trust in one's own physician may differ from trust in physicians in general or from trust in the healthcare system because of greater willingness to accept vulnerability in interpersonal relationships compared with less willing attitudes in more collective social relationships [1]. For example, patients may have higher trust in their physician than in physicians in general or in the health care system. Studies that assess trust need to clearly conceptualize whether interpersonal or general trust is measured. Some studies measure trust in physician with telephone or

mailed surveys conducted weeks after the medical encounter [9-14]. Due to the length of time since the visit with the physician, patients may have more difficulty reporting trust related to the interpersonal experiences from that visit and responses could be more reflective of general trust. Few studies have examined the level of trust immediately before and after physician visits to clearly capture interpersonal trust, and few studies have measured trust more than once to examine whether trust in physician varies across visits.[7]

Therefore we examined the association of demographic and visit characteristics with trust in physician and with trust in the VA measured immediately before and after one or two follow-up visits. We hypothesized that interpersonal trust in physician is associated with several demographic and visit characteristics, that trust improves from before the visit to after the visit, and that trust in physician improves across visits, but that (general) trust in the healthcare system would not improve over time.

2. METHODS

Patients with heart failure (HF) were recruited for a prospective cohort study designed to examine the relationship of doctor-patient communication with trust. Patients eligible for the study were 18 years of age or older, had an acute exacerbation or new diagnosis of HF, and were admitted for inpatient treatment or were treated and released from the emergency departments at two large Veterans Health Administration (VA) medical centers (Midwestern and Southwestern US). Conducting the study at VA hospitals with patients with a similar health condition adds to the internal validity of the study. Patients were followed for one or two follow-up visits within six months of discharge. The affiliated institutional review boards approved the study and all participating patients provided informed consent.

Patients were judged to be potentially eligible after review of hospital emergency room and admitting log sheets or notification from admitting physicians identified patients with an admitting diagnosis of HF or with other admitting diagnoses (e.g., dyspnea, pulmonary edema). Potentially eligible patients were approached by the study research staff and invited to participate in the study. Those expressing interest in participation were guided through the informed consent process. Eligibility was contingent upon medical chart review after discharge that documented two major criteria or one major and one minor criterion from the modified Framingham criteria for HF [15]. We excluded patients scoring 23 or lower on the Mini Mental Status Exam (MMSE), those discharged to a nursing home, and those whose HF was secondary to another condition (e.g., renal failure).

2.1 Data and Measures

Patients' socio-demographic characteristics (age, race, education, income) were collected by a self-report questionnaire. Heart failure specific functional status was self-reported before each visit using the Kansas City Cardiomyopathy Questionnaire [16] and patients' ratings of physician-patient communication were assessed after each visit with additional questionnaires. We assessed patients' ratings: (i) that the physician provided and explained information (*informativeness*, five items, Cronbach alpha = 0.88), (ii) that the physician values and respects them (*supportiveness*, five items, alpha = 0.79), and (iii) that the patient initiated communication about his or her health care (patient *participation*, five items, alpha=0.77) [17]. Patients' ratings of their own *self-efficacy to communicate* with the doctor was measured with a six-item scale (Cronbach alpha = 0.85). Items were preceded by the stem: "I am confident that," and item text was: (i) "I can understand any treatment options that have been suggested by this doctor;" (ii) "I can ask the right kind of questions to get the information I need about my treatment;" (iii) "I will actively participate in discussing my health and treatment options with this doctor;" (iv) "My input will get me the best care possible;" (v) "I have no problem telling this doctor my concerns and opinions about my options for treatment;" and (vi) "I am capable of carrying through the treatment plan I have chosen." Our self-efficacy scale is aligned with Street's conceptual model of active patient participation in medical visits.[18] The self-efficacy scale showed positive correlation with the patient participation scale, $r=0.19$; $P=0.02$ and $r=0.36$; $P<0.001$, for visit 1 and visit 2, respectively. We assessed patients' experiences of discrimination in health care at the

end of the study with a single item from the Experiences of Discrimination Questionnaire [19].

We assessed trust in physician and trust in the VA healthcare system up to four times. Trust was assessed before and after one or two visits in the general medicine or cardiology outpatient clinic. To perform this assessment we used nine items, modified from previously published trust scales [7, 9, 20, 21]. Five items measure patient trust in physician and four measure trust in the VA health system (Table 1). Items were modified based on cognitive interviews with 5 patients.

Communication and trust items were formatted to a 7-point Likert-type scale with 1 as “completely disagree” and 7 as “completely agree” at the opposite ends. Scale scores were computed as the sum of item scores; negatively phrased items were reverse-scored and scale scores were normalized to 0-100. To reduce missing data entries, all available data on items were used in scale calculation. The mean score for each trust item is listed in Table 1. Patients' trust in physician exhibited high internal reliability (Cronbach's $\alpha = 0.71$), and patients' trust in the VA showed moderate internal reliability ($\alpha = 0.60$; Table 1).

2.2 Analysis

Descriptive statistics were calculated for patients' demographic characteristics. To examine changes in patients' health status and communication characteristics between visit 1 and visit 2 we used paired t-tests. Bivariate relationships of patients' characteristics and doctor/VA trust was explored with mixed-effects models with a random intercept that controls for repeated measurements [22]. We checked the assumption of linear association of continuous explanatory variables and the outcomes

for trust in physician and VA using spline functions and graphical evaluation. Based on this analysis we decided to model self-efficacy as a piecewise linear covariate with one break-point. A piecewise linear regression allows for estimation of local change in the association of an explanatory variable and the dependent variable. The break-point was estimated with the profile log-likelihood method [23].

A mixed-effects linear regression model with a random intercept was used for modeling doctor and VA trust outcomes to adjust for repeated patient measurements of trust and to adjust for patient heterogeneity. All patient characteristics from bivariate analyses were used in a multivariate mixed-effect linear regression model. Manual backward elimination was then used to limit the number of the explanatory variables to those with significance level below $P=0.20$. Based on previous research [7], patient race was retained throughout the modeling process. Analyses to examine patient and physician racial concordance were not conducted because only 90 of 128 physicians self-reported race, resulting in a 28% missing rate for physician race.

We used a linear contrast to estimate the mean change in trust from before to after visits. Additional contrasts estimated the difference in trust from before to after visit 1; and the difference in trust measured after visits 1 and 2. In a separate model, additional parameterization of the mixed-effects model was used to estimate the change in trust before visit 1 and before visit 2 and the final model was re-fitted with the set of indicator variables. The linear contrasts were retained in the models regardless of significance level for each contrast. Visit characteristics (e.g., communication variables) were measured at both visit 1 and visit 2. These characteristics were used as time-varying covariates in the model to adjust for change in physician, patients' health status,

communication and other characteristics. Additional analyses were conducted to examine for interactions of race and other co-variates with trust in physician and trust in VA. We considered a two-sided P-value of 0.05 as significant. All analyses were conducted with SAS 9.3 (Cary, North Carolina) and R (version 2.15.0).

3. RESULTS

Patients' (N=159) mean (SD) age was 60.0 (8.9) years, 62.9% were Black, 97% were male, 9.4% were Hispanic, 60.4% completed 12th grade education, 31.5% were married, 59.8% reported annual income less than \$20,000 (low income) and 32.7% were enrolled at the Midwestern site. There were 555 trust measurements at 278 visits with 119 physicians. Out of 159 patients, 119 (74.8%) completed both visits, 30 (18.9%) did not have a second visit in the study period, and 10 (6.3%) completed questionnaire data at the second visit only. Of the 119 patients with two visits 56 (47.1%) saw a different physician at the second visit. The mean number of days between visit 1 and visit 2 was 105.9 (66.6) days. There were no statistically significant differences ($P>0.20$) in heart failure specific functional status, physicians' informativeness, physicians' supportiveness, patients' participation, or patients' self-efficacy to communicate measured at visit 1 compared with visit 2.

Patient reported mean (SD) trust in physician scores were 80.9 (17.6) and 87.9 (16.3) points before and after visit 1, and, 84.1 (18.1) and 88.1 (17.8) points before and after visit 2, respectively. Trust in physician scores are stratified by race in Figure 1a. Patient reported mean (SD) trust in VA scores were 80.4 (18.1) and 83.1 (20.2) points before and after visit 1, and 80.9 (19.1), and 81.1 (21.1) points before and after visit 2, respectively and are shown stratified by race in Figure 1b. Additional mean trust in physician and mean trust in VA stratified according to whether the patient visited with the same or different doctors are shown in Figure panels 1c and 1d, respectively.

3.1 Simple Bivariate Regression Comparisons of Trust with Covariates

In bivariate comparisons, trust in physician was not significantly associated with demographic characteristics or with whether a different physician was seen at visits 1 and 2 (Table 2), but trust in physician was lower (4.3 points; $P=0.05$) when patients reported low income. Trust in physician was 0.09 points higher ($P=0.02$) for each point higher functional status and was 0.48, 0.58, and 0.34 points higher ($P<0.001$) for each point patients rated their physician as informative and supportive, and for each point patients rated themselves as participating in the medical encounter, respectively. Patient self-efficacy to communicate was represented as a piece-wise predictor with one estimated break-point at 75. No association ($P=0.65$) with physician trust was found for lower values (0-75) of self-efficacy. Higher patient self-efficacy (75-100) was positively associated with physician trust (0.79 points, $P<0.001$; Table 2).

In similar bivariate comparisons (Table 2), trust in the VA was not significantly associated with patients' age, education, marital status, race, Hispanic ethnicity, study site or continuity of care with the same physician. Trust in the VA was significantly lower for patients who reported low income ($P=0.05$) and for patients who reported having experiences of discrimination in health care ($P=0.01$). Trust in the VA was significantly higher when patients assigned higher ratings to physicians' communication and when patients gave higher ratings to their self-efficacy to communicate (above 75 points) and to their active participation (Table 2).

3.2 Multiple Regression Results for Trust in Physician

After controlling for covariates with mixed-effects linear regression, post-visit trust in physician was higher than pre-visit trust ($P<0.001$; Table 3); yet, post-visit trust did not

differ between visits ($P=0.96$). Pre-visit trust was significantly higher at visit 2 compared with visit 1 (3.1 points, $P=0.04$). Trust in physician was not significantly different by study site or for patients who were Black ($P>.05$; Table 3), but trust in physician was significantly lower for patients reporting low income. Trust in physician was higher for patients rating their physicians as more supportive, more informative and for patients who rated themselves highly (75-100 points) on self-efficacy to communicate. In analyses stratified by patient race, trust was significantly associated with low income, study site, and physicians' informativeness for Black, but not White patients (Table 3). Moreover, there were no significant ($P>0.05$) interactions between race and covariates for trust in physician, and the relationship between time and whether patients saw the same or a different physician at the visits was not significant ($P=0.14$).

3.3 Multiple Regression Results for Trust in VA

After adjusting for covariates, trust in VA was not significantly different over time ($P=0.30$), but trust in VA was significantly lower in older patients (0.3 points, $P=0.02$; Table 4), Black patients (8.6 points, $P<0.001$), those reporting low income (5.4 points, $P=0.007$) and those who completed high school (5.1 points, $P=0.01$). There was no significant difference in trust in VA associated with reports of experiences of discrimination in healthcare (-1.7 points; $P=0.13$). Trust in VA was higher when patients rated physicians' communication higher in supportiveness and informativeness and when patients rated their self-efficacy highly ($P<0.01$), but was not significantly associated with patient participation ($P=0.15$; Table 4). In analyses stratified by patient race, Black patients' trust in the VA was significantly lower ($P<0.01$) for patients who were older, reported low income, and did not graduate from high school, and trust was

significantly higher ($P<0.03$) when patients reported more of their own participation and support from their physicians (Table 4). In an analysis examining interactions of race and covariates, the only significant interaction was that Black patients with higher patient participation had higher trust in VA ($P=0.004$).

4. DISCUSSION and CONCLUSION

4.1 DISCUSSION

In this cohort of 159 US Veterans followed for 6 months after hospitalization for heart failure, we found that trust in physician improved over the course of each visit, but that trust in the VA healthcare system did not change over time. Trust in physician increased modestly from before to after each of two visits and trust in physician measured before each visit also increased from visit one to visit two, but post-visit trust in physician did not change over time. On the other hand and as expected, trust in the VA did not change significantly from before to after visits or in the time between two follow-up visits. The finding that trust in physician improved over each visit reflects, in part, patients' favorable judgment of their healthcare providers within 6 months after hospital discharge, while our results that trust in VA did not improve over time may reflect less adaptability to the needs of individual patients and a longer legacy of perceptions and judgments about healthcare systems [24-26].

This study is unique in reporting trust at multiple time points - before and after two visits. Few studies have more than baseline or cross-sectional measures of trust and thus most research on trust could not evaluate changes in trust over time. One study that measured trust at three time points used a single-item measure of trust in physician, and reported no significant change in trust in physician over 6 months [27]. Yet other cross-sectional studies report higher trust in physician scores when patients report longer doctor-patient relationships [4, 13, 14]. Given the increase in pre-visit trust

between visits, our results add modest empirical support to the findings of these cross-sectional studies that trust in physician improves between visits.

Our findings that trust was associated with several demographic and visit characteristics is consistent with previous studies. Black patients' lower trust in the VA is similar to findings reporting Blacks have lower trust in the health care system and may also reflect distrust of medical research among Black persons (e.g., Tuskegee) [24-26]. Yet overall, Black patients' trust in their physician was not significantly different from white patients' trust in physician. Some of the racial/ethnic differences in the current study may have been muted by the fact that veterans may have identified more with veteran culture than with a specific racial or ethnic group. All study participants were Veterans. Veterans who use VA Medical Centers for their health care may identify more strongly with Veteran culture than other Veterans who do not use VA Medical Centers. The sense of a shared identity with Veteran culture may have been just as strong as or stronger than identification with a particular racial group. Thus, the barriers that typically inhibit trust among Blacks in their physicians or in the healthcare system may not have been present to the same extent in our study [28]. Moreover, absence of a disparity by race for trust in physician may reflect patients' blind trust in their physician or patients' actual experience of improvement in their medical condition since their hospitalization for heart failure. The findings are consistent with a generalization that interpersonal trust (e.g., trust in a personal physician) is more likely associated with actual experiences rather than it is with general trust (e.g., trust in any physician or trust in health care systems) that often reflects broader social influences [1].

Our results indicating that trust is associated with doctor-patient communication are an indication that trust is associated with both doctors' and patients' communication behaviors. Patients consistently had higher trust in both physician and VA when they rated their physicians' communication behaviors and their own communication behaviors higher. Patients who rated their doctor as more supportive had higher trust in the doctor and in the VA overall and in analysis stratified by race. Patients who rated their self-efficacy highly also had higher trust in the doctor and the VA. Furthermore, Black patients who gave themselves higher ratings for self-efficacy to communicate with their physician had higher trust in the VA healthcare system. Patients who gave themselves higher ratings for self-efficacy may be more active communicators and thereby may be better able to influence the medical interaction. These more active patients may gain more from their visits than passive patients with lower ratings of self-efficacy. Thus, these results are consistent with prior studies indicating that trust is associated with the doctors' and patients' communication [6, 7, 11, 29] and add the perspective that patients' self-rated communication skills and behaviors are associated with higher trust. Although communication is a teachable skill, changing communication behaviors can be challenging for several reasons (e.g., physicians are set in their style of communication and patients may be passive in their communication) [30]. Also, communication is a two-way street and focusing interventions on only physicians may not be sufficient. For example, one study that tested an intervention to improve trust and focused on physicians' communication did not result in a change in trust [4]. Although we are not aware of studies reporting that patient-oriented interventions can improve trust, communication interventions for patients can improve patients' communication in

medical encounters. For example, research has shown that an intervention to improve patients' self-efficacy can be effective, especially for those with low self-efficacy and low income [31], and a number of studies suggest that interventions can improve patients' communication [32, 33]. Future research should evaluate whether improving both physicians' and patients' communication skills and behaviors and patients' self-efficacy to communicate with physicians improves trust.

In this context our results that both trust in physician and trust in VA are associated with patient-reported income provide additional insight into social influences on trust. Patients reporting low income reported lower trust in physician and lower trust in VA. Moreover this relationship of trust with income was confounded by race. In analyses stratified by race, trust in physician and trust in VA were both significantly lower for low-income Black patients, but not for White patients. It is possible that Black patients with low income may have needed more assistance in communicating effectively with their physicians and in navigating the VA healthcare system. It could be helpful for patients with lower income to be assigned navigators who could help guide them through the often complex and confusing process of receiving VA healthcare. Future studies could evaluate whether the guidance from navigators leads to increased trust in the system.

Our results are strengthened by the fact that the study was designed to measure trust at multiple points in time – unlike many studies this is not a secondary analysis. The results are further strengthened by the focus on a clinically defined sample that is relatively homogeneous diagnostically, that is, all patients in the cohort had an exacerbation of heart failure, thus improving the internal validity of our study. Moreover, our results are not from a population-based sample, but are based on responses from

actual users of health care. Yet our results should also be evaluated within the context of several limitations. First, this study enrolled a small 2-site cohort of largely male US Veteran patients who kept follow-up visits. Results may not generalize to other patient groups (e.g., women, non-Veterans). Second, our measure of trust in physician was modified from prior instruments and though it is similar to other measures of trust in physician, there is no gold standard for the measurement of trust. Third, because post-visit trust was not significantly different at the two visits, our results do not support a statement that trust improved over time. Yet, pre-visit trust in physician was significantly higher at visit 2 than at visit 1 indicating a change in baseline trust between the visits. Our inability to find a relationship of time and continuity of care with trust in physician may be due in part to our inability to control for the length of doctor-patient relationship. Longer durations of observation will surely be needed to examine the development and persistence of trust in physician over time; nonetheless, our results suggest that physicians can earn trust at each visit.

4.2. CONCLUSION

We found that trust in physician did not differ by patient race. Trust in physician was negatively associated with low income and positively associated with higher ratings of communication in the visits, and trust in physician improved across each visit. Trust in the VA was lower for black and low income patients, and was higher for patients' giving higher ratings of the communication in doctor-patient interactions. Patients with high self-efficacy to communicate with the doctor were more likely to give higher ratings of both trust in physician and trust in VA.

4.3. PRACTICE IMPLICATIONS

The relationship of trust with several measures of the quality of doctors' and patients' communication suggests that future research should test whether interactional skills training for both patients and physicians could improve communication during the clinical visit and thereby be a means to improve trust in physician. Moreover, our finding that patients who had higher trust in the VA rated several measures of communication higher suggests that communication interventions should be assessed for their ability to improve trust in the healthcare system. Research might assess whether interventions such as patient navigators can improve communication and improve trust in healthcare systems.

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Figure Captions

Figure 1a. Trust in Physician before and after visit 1 and visit 2, stratified by race

Figure 1b. Trust in the VA before and after visit 1 and visit 2, stratified by race

Figure 1c. Trust in Physician before and after visit 1 and visit 2, stratified by whether the patient saw the same physician or different physicians.

Figure 1d. Trust in the VA before and after visit 1 and visit 2, stratified by whether the patient saw the same physician or different physicians.

Table 1. Psychometric properties of the trust scales.

Item	Score		Item – Total Correlation
	Mean	SD	
Trust in Physician (Standardized Cronbach Alpha = 0.71)			
To what extent do you believe your doctor:			
1. chose the best medical treatment for you	6.24	1.17	0.57
2.* cared more about what was easier for him/her than about your medical needs	4.94	2.34	0.41
3. was honest with you	6.45	0.98	0.47
4. was thorough and careful	6.32	1.10	0.57
5.* did not pay attention to what you were trying to tell him/her	5.11	2.24	0.38
Trust in the VA (system) (Standardized Cronbach Alpha = 0.60)			
To what extent do you believe that the VA...			
1. put your medical needs above all other things	5.92	1.36	0.46
2.* did not give you the best care possible	5.46	2.11	0.56
3. gave you all the information you need about your treatment	6.01	1.46	0.52
4.* The medical skills of the V.A. doctors and nurses are not as good as they should be	5.75	1.82	0.57
* indicates that reverse scoring is shown VA - Veterans Affairs, SD - Standard Deviation Responses were on a 7-point rating scale with 1="Completely disagree" and 7="completely agree"			

Table 2. Simple Linear Regression Estimates for Trust in Physician and Trust in the VA

Variable	Trust in Physician N=159 subjects and 555 observations		Trust in the VA N=158 subjects and 552 observations	
	Estimate [‡] (se)	P-value	Estimate [‡] (se)	P-value
Age	-0.06 (0.12)	0.59	-0.23 (0.14)	0.14
Black*	2.22 (2.27)	0.33	-4.62 (2.61)	0.08
Hispanic*	-5.04 (3.71)	0.18	-0.81 (4.31)	0.85
High school graduate*	-0.13 (2.24)	0.96	-4.00 (2.57)	0.12
Married*	0.15 (2.37)	0.95	0.66 (2.73)	0.81
Working*	-1.31 (2.83)	0.64	0.50 (3.31)	0.88
Low Income*	-4.30 (2.21)	0.05	-5.14 (2.56)	0.05
Midwest*	4.59 (2.31)	0.05	3.06 (2.70)	0.26
Days between visits	0.02 (0.01)	0.05	0.01(0.01)	0.52
Different doctor at visit 1 and 2*	-0.15 (2.23)	0.95	-0.21 (2.58)	0.93
KCCQ [†] summary score	0.09 (0.04)	0.02	0.10 (0.04)	0.02
Discrimination in Healthcare	-2.50 (1.33)	0.06	-3.90 (1.52)	0.01
Physician Supportiveness	0.58 (0.04)	<0.0001	0.42 (0.05)	<0.0001
Physician Informativeness	0.48 (0.04)	<0.0001	0.42 (0.05)	<0.0001
Communication Self Efficacy (0-75)	0.05 (0.11)	<0.65	0.10 (0.12)	0.39
Communication Self-Efficacy (75-100)	0.79 (0.09)	<0.0001	0.64 (0.10)	<0.0001
Patient Participation	0.34 (0.03)	<0.0001	0.25 (0.04)	<0.0001

* denotes an indicator variable.

[†] KCCQ indicates "Kansas City Cardiomyopathy Questionnaire"

[‡] Estimates represent the number of points on 1-100 scale. Estimates are biased, as they are not adjusted for other predictor variables. Observations are clustered with up to four values from each patient. Clustering is taken into account with simple mixed-effects linear regression.

Table 3. Multiple Regression Model for Trust in Physician

Predictor	All patients		Black Patients		White Patients	
	Estimate (SE)	P-value	Estimate (SE)	P-value	Estimate (SE)	P-value
Post-visit 1 – pre-visit 1	7.1 (1.4)	<0.001	5.6 (1.7)	<0.001	9.9 (2.4)	<0.001
Post-visit 2 – post-visit 1	0.1 (1.4)	0.96	1.1 (1.7)	0.54	1.4 (2.6)	0.58
Mean difference (post-pre)	5.6 (1.0)	<0.001	4.8 (1.2)	<0.001	7.1 (1.8)	<0.001
Black*	-1.2 (1.4)	0.42	--	--	--	--
Midwest*	2.9 (1.5)	0.06	3.9 (1.8)	0.03	-0.7 (3.9)	0.85
Low Income*	-2.7 (1.3)	0.04	-4.5 (1.8)	0.01	0.3 (1.9)	0.87
Physician Supportiveness	0.4 (0.04)	0.0001	0.4 (0.1)	<0.001	0.4 (0.1)	<0.001
Physician Informativeness	0.1 (0.05)	0.03	0.1 (0.1)	0.03	0.1 (0.1)	0.32
Self efficacy (0-75)	0.1 (0.09)	0.53	-0.1 (0.2)	0.81	0.1 (0.1)	0.30
Self efficacy (75-100)	0.4 (0.08)	<0.001	0.4 (0.1)	<0.001	0.5 (0.1)	<0.001

* denotes an indicator variable

Table 4. Multiple Regression Model for Trust in the VA

Predictor	All Patients		Black Patients		White Patients	
	Estimate (SE)	P-value	Estimate (SE)	P-value	Estimate (SE)	P-value
Post-visit 1 – pre-visit 1	2.7 (1.5)	0.09	2.2 (2.1)	0.28	3.5 (2.2)	0.12
Post-visit 2 – post-visit 1	-2.2 (1.6)	0.19	-1.3 (2.2)	0.54	-4.5 (2.5)	0.07
Mean difference (post-pre)	1.4 (1.1)	0.20	1.7 (1.5)	0.27	1.0 (1.7)	0.56
Age	-0.3 (0.1)	0.02	-0.3 (0.1)	0.01	-0.1 (0.2)	0.74
Black*	-8.6 (2.1)	<0.001	--	--	--	--
Low Income*	-5.4 (2.0)	0.007	-7.7 (2.4)	0.002	-2.6 (3.2)	0.42
High school graduate*	-5.1 (1.9)	0.02	-7.0 (2.4)	0.004	-3.9 (3.3)	0.23
Midwest*	4.1 (2.2)	0.06	3.1 (2.3)	0.19	9.3 (6.4)	0.15
Discrimination in Healthcare	-1.7 (1.1)	0.13	-2.0 (1.3)	0.11	-0.4 (2.5)	0.88
Physician Supportiveness	0.2 (0.1)	0.002	0.2 (0.1)	0.02	0.2 (0.1)	0.08
Physician Informativeness	0.2 (0.1)	0.005	0.1 (0.1)	0.06	0.2 (0.1)	0.01
Patient Participation	0.1 (0.1)	0.15	0.2 (0.1)	0.005	-0.1 (0.1)	0.12
Self efficacy (0-75)	-0.1 (0.1)	0.79	-0.1 (0.2)	0.57	-0.1 (0.1)	0.63
Self efficacy (75-100)	0.3 (0.1)	<0.001	0.3 (0.1)	0.03	0.4 (0.2)	0.01

* denotes an indicator variable

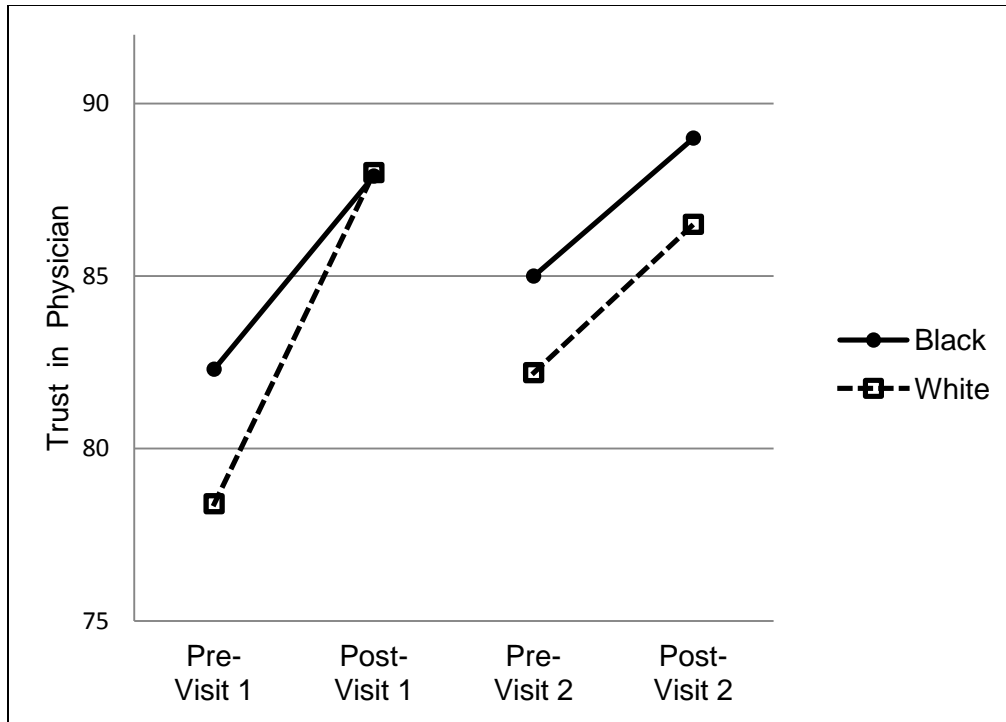


Figure 1a

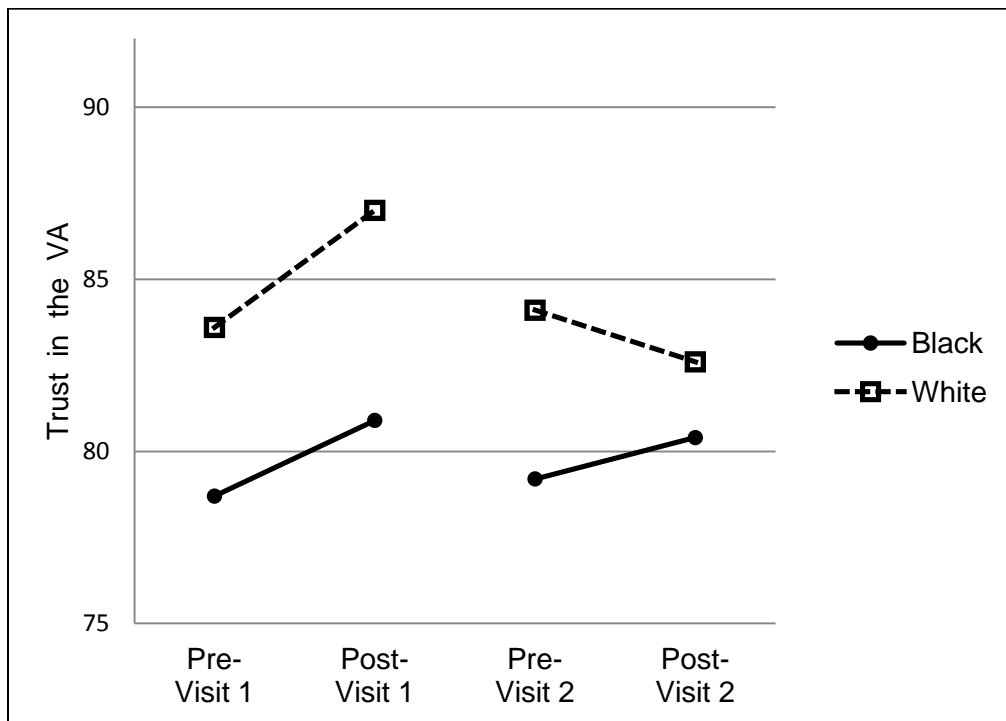


Figure 1b

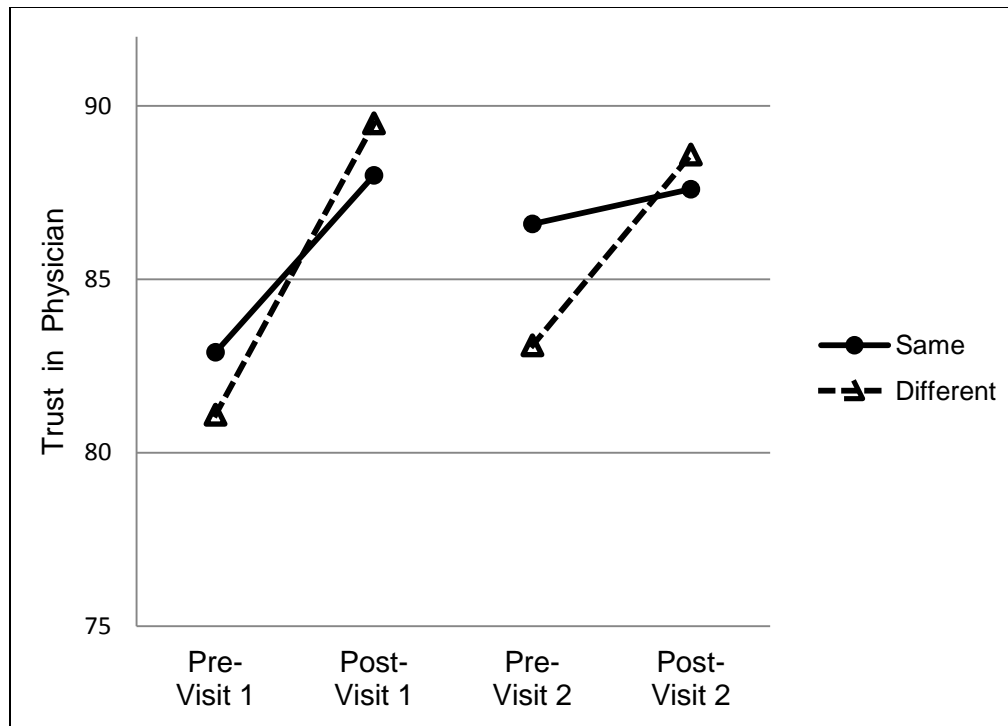


Figure 1c

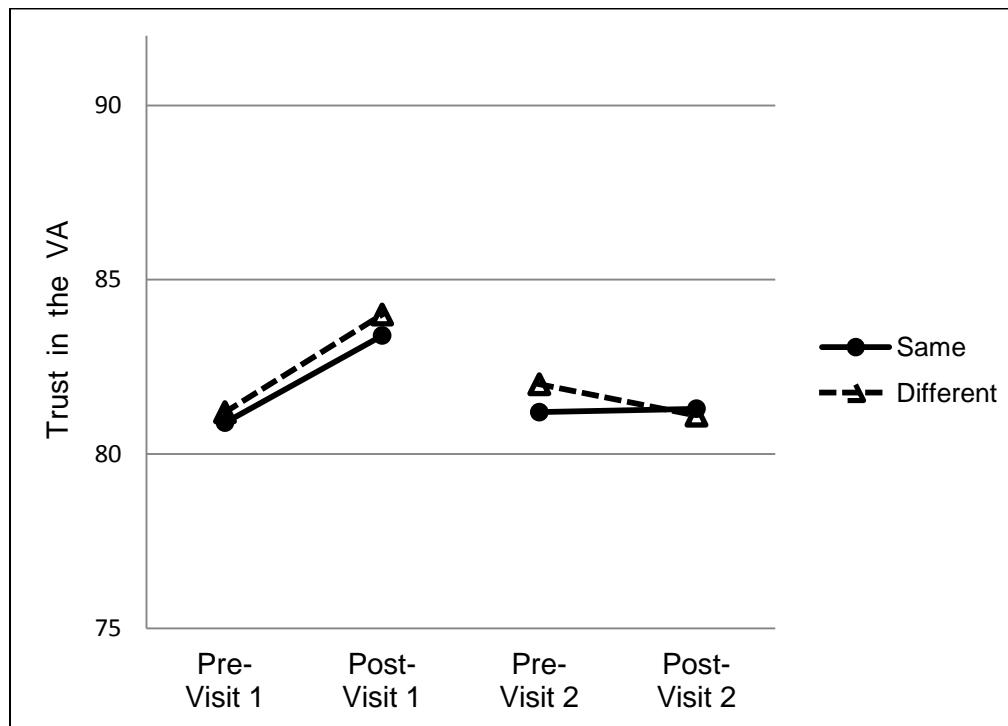


Figure 1d