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Correlates of Physician Trust Among Rural Older Adults with Diabetes

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Abstract

Objectives—To examine the demographic, health and diabetes management correlates of physicians trust in a rural, multi-ethnic population with diabetes.

Methods—563 older (≥60 years) African American, American Indian and White adults completed in-home surveys, including the 11-item General Trust in Physicians Scale.

Results—Higher trust scores were seen among: older (≥75) participants ($p < .01$), those with fewer (<3) chronic health conditions ($p < .01$), and those who adhered to physical activity ($p < .05$) and dilated eye exam ($p < .01$) guidelines; the latter remained significant (eye exam, $p = .019$) or approached significance (physical activity, $p = .051$) after adjustment for potential confounders.

Conclusions—Physician trust may influence patient adherence to diabetes management recommendations. Efforts should be made to build trust in the patient-provider relationship to enhance patient outcomes.

Keywords

physician trust; diabetes self-management; rural older adults; ethnic minority populations

Successful diabetes management requires individuals to initiate and maintain a complex regimen of self-management behaviors (e.g., diet modification, physical activity, blood

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Human Subjects Statement

This study was approved by the Wake Forest School of Medicine Institutional Review Board. Study participants provided written informed consent.

Conflicting of Interest

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glucose self-monitoring, medication adherence, foot checks) and physician-initiated treatments and screenings (e.g., assessment of glycemic, blood pressure and lipid management, screening for retinopathy, neuropathy, nephropathy and cardiovascular disease).[1 – 3] Physicians are one of the most important sources that persons with diabetes use to learn about successful self-management strategies; consequently, the relationship between the patient and the physician is an important element in the successful adoption of preventive health behaviors to avoid the long-term complications associated with diabetes. Similarly, a healthy patient/physician relationship enhances the likelihood that a patient will be compliant in adhering to the appropriate screening regimen necessary to detect diabetes complications in the early subclinical stages to initiate therapy in a timely manner.

One way to assess the patient-physician relationship is through determining the degree to which patients trust their physician and the health care system in general. Health care trust is important to increasing the likelihood that patients will reveal sensitive information to their physician and will adhere to their recommendations. Trust has been shown to be positively associated with patient satisfaction, medication adherence and enhanced continuity of care.[4 – 8] The latter is particularly important in diabetes management given the importance of frequent interaction with physicians for successful patient outcomes.

Studies have not been conducted to examine the relationship between trust in physicians and behaviors recommended for diabetes management. With the significant public health and health care burden associated with diabetes and its complications, particularly among low-income and minority populations, understanding this relationship is critical. Minority populations would be expected to have lower levels of trust with their history of exploitation and mistreatment from the health care system.[9 – 13]

This study examines 2 sets of research questions: (1) what are the demographic and health correlates of physician trust among rural older adults with diabetes; and, (2) is physician trust associated with self- and physician-initiated diabetes management in this population? For the first question, we hypothesize that ethnicity will be associated with trust, such that members of ethnic minority groups will have lower levels of trust compared to the Whites. We also hypothesize that, with the variations in patterns of interactions with physicians and with health care seeking in general by gender and age, with women and older adults being more likely to seek out such interactions,[14 – 16] trust will be higher in women compared to men, and older versus younger patients. For the second question, we hypothesize that those with higher levels of trust will be more likely to engage in diabetes self-management behaviors and report adherence to physician-initiated guidelines.

METHODS

Participants

Data for this analysis are from a larger study of beliefs and attitudes of rural older adults with diabetes.[17] The study was designed to understand the common sense models of older adults with diabetes, and their relation to glycemic control and diabetes complications.[18, 19] A total of 563 African American, American Indian, and White men and women 60 years or older, who had had a diabetes diagnosis for at least 2 years, and were not receiving dialysis treatment were recruited from 8 south central counties (Harnett, Hoke, Montgomery, Moore, Richmond, Robeson, Sampson and Scotland) in North Carolina. The goal of the sampling plan was to recruit 100 participants for each ethnic/gender cell, with each cell having participants spread across educational attainment categories. The study counties were chosen because they contain large minority populations and because a high proportion of the population is below the federal poverty line. They represent variation on the urban-rural continuum (http://www.ers.usda.gov/Data/RuralUrbanContinuumCodes/2003/), such that

one is in a metropolitan area with an urban population of 2,500–19,999, one is a nonmetropolitan county with urban population of 20,000 or more, and one is a nonmetropolitan county with urban population of 2,500–19,999.

A site-based sampling procedure was used to recruit study participants[20]. Participants were recruited from sites (places, organizations, or services used by members of the population of interest) that served different ethnic and social groups across the study counties; example sites included congregate meal sites, senior centers, craft groups, churches, and local AARP affiliates. Data collection was completed from June, 2009, through February, 2010. Participants completed an interviewer-administered, fixed response questionnaire and a fingerstick blood draw for Hemoglobin A1C test. Data collection was conducted at the home of the participant, unless they requested to meet elsewhere. Interviewers outlined the project objectives and obtained written informed consent. An incentive ($10) was offered for completing the interview. The study protocol was approved by the research team's Institutional Review Board and signed informed consent was collected from all study participants.

Study Measures

Physician trust was assessed with the 11-item General Trust in Doctors scale (see Table 1).[21] The instrument uses a 5-point response scale for each question ranging from totally disagree (1) to totally agree (5). Items are summed with a total score for each participant ranging from 11 – 55. Higher values indicate greater levels of trust. The instrument showed a reasonably strong internal consistent in our sample, with an alpha of 0.682, but not as high as that observed by Hall and colleagues (0.89).[21]

Demographic and health information was collected by self-report or personal observation, including age (categorized at 60 – 74 or ≥75 years), ethnicity (White, African American, American Indian), sex, education (less than high school, at least a high school diploma), marital status (currently married or not married), number of chronic health conditions from a list of common conditions among older adults (< 3 or ≥3), and migration status (always lived in the South, or lived some portion of their life outside the South). Height was measured using a stadiometer and weight was measured using a digital scale by a trained data collector. Body mass index (BMI) was calculated as weight in kilograms divided by height in meters squared and classified as obese (≥30.0 kg/m^2) or not obese (<30.0 kg/m^2). Glycemic control (A1C) was assessed by collecting a finger stick blood sample and using the procedures for the handheld Bayer A1cNow+ machine.[22] Participants were provided the results of their A1C test, along with a correlarating blood glucose value, and were told to provide this information to their physician. For analysis purposes, the A1C value was dichotomized as <7% or ≥7%, based on the recommendation for glycemic control of the American Diabetes Association.[1]

Diabetes management information was collected using the diabetes module of the Behavioral Risk Factor Surveillance System (BRFSS) developed by the Centers for Disease Control and Prevention.[23] Data collected included self-reported frequency of blood glucose self-monitoring, self-foot checks and health care provider foot checks, A1C tests, eye examinations and attendance in diabetes classes. Three questions from the 11-item Summary of Diabetes Self-Care (SDSC)[24] were used to characterize adherence to diet and physical activity recommendations. All diabetes management variables were dichotomized as yes or no for the following: monitors blood glucose at least once per day; checks own feet for sores at least once per week; eats 5 or more servings of fruits and vegetables a day; adherence to exercise guidelines (30 minutes per day for 5 days a week); participates in a specific exercise session at least 5 times per week; doctor checks feet at least once a year; doctor

performs A1C test at least 4 times a year; doctor performs dilated eye exam at least once a year; and, has participated in a diabetes education class at any time.

Data Analysis

To address the first research question, mean trust scores were tested across demographic and health characteristics using analysis of variance (ANOVA) (Table 2). For the second research question, ANOVA was initially used to assess bivariate associations between self-management characteristics and trust scores (Table 3). To further assess this relationship, logistic regression was used to assess associations of overall trust scores as the independent variable and diabetes self-management behaviors as dependent variables. Each model was adjusted for age, ethnicity, sex, education, marital status, migration status, and number of chronic diseases (Table 4). The Type I error rate was fixed at .05. All computations were performed with SAS 9.2 software (SAS Institute, Cary, NC).

RESULTS

Table 2 shows demographic and health characteristics of the sample, and mean (SD) trust scores overall and according to demographic and health characteristics. By design, the sample was nearly equally distributed across the 3 ethnic groups. Almost three-quarters of the sample (72%) was between the ages of 60 – 74 years of age. Nearly two-thirds of the sample (62%) was female and about half (46%) was currently married. Slightly more than one-third (36%) had less than a high school education. More than two-thirds (69%) had lived some time outside of the South. Regarding health characteristics, 45% were classified as obese, 27% had 3 or more chronic health conditions, and 49% had an A1C level of 7% or more.

The mean overall trust score was 34.6 (standard deviation = 7.5). In bivariate analyses, trust scores were higher among older (≥75 years) versus younger (60 – 74 years) participants (36.0 vs 34.1, p<.01), and among those with fewer (<3 vs ≥3) chronic health conditions (35.2 vs 33.1, p<.01). There were no other statistically significant differences across the demographic and health characteristics.

Table 3 presents mean trust scores according to dichotomous measures of diabetes management. Trust scores were higher for those reporting adhering to guidelines for physical activity (36.2 vs 34.3, p <.05) and those reporting receiving a dilated eye exam (35.1 vs 33.2, p <.01) in the past year compared to those who did not comply with these recommendations. These associations remained significant (eye exam, Odd Ratios 1.03, 95% CI 1.01 – 1.06, p = .019) or approached significance (physical activity, Odds Ratio 1.03, 95% CI 1.00 – 1.06, p=.051) after adjustment for potential confounders (Table 4).

DISCUSSION

The successful management of diabetes, with the goal of avoiding the myriad of complications associated with diabetes and improving quality of life, involves considerable interaction between the patient and their physician as well as others on the health care team.[1 – 3] With the high level of interaction between patient and physicians in the treatment of diabetes, the degree to which adherence to these guidelines can be successfully achieved may rely on the trust that patients have in the medical care system. Despite the importance of this aspect of the relationship, there has not been a study of the association between trust in physicians and diabetes management.

Data from this analysis were drawn from a larger study designed to assess the common sense models[18, 19] of rural older adults with diabetes, and to determine whether these models

vary by gender, ethnicity or health-related characteristics. Drawn from the Self-Regulatory Model, Leventhal suggests that the development of common sense models of disease occurs through five domains: the identity or label of the condition, its timeline or duration, the consequences or expected outcomes, the cause, and control or treatment efficacy.[18] Applied to diabetes and its management, an individual's common sense model may consist of the identity they assign to diabetes as a disease, their beliefs regarding the cause of diabetes, beliefs about how well their diabetes can be controlled, anticipated sequelae associated with diabetes, and awareness of alternatives for medical management.[17] Trust in physicians, and the health care system in general, may be one component in the constellation of factors which influence the common sense models established by patients with diabetes, and, thus, influence the degree to which they uptake self-management advice provided by their physician and adhere to medical regimens recommended by their physicians.

Our study is unique in that it was conducted among rural, ethnically diverse older adults, a population at high risk for diabetes and its complications that has historically had limited access to health care in general specialty health care in particular.[25 – 27] Furthermore, there is a long-standing mistrust of the health care system among many racial and ethnic minority populations,[9 – 13] presenting additional challenges to the delivery of diabetes care to this highly vulnerable population.

We found only one demographic and one health characteristic that were associated with physician trust. Older participants (≥75 years) had significantly higher scores than those in the 60 – 74 year age group. This finding might be due to older adults coming from a cohort that gives greater deference to health care providers than younger cohorts of older adults ("budding baby boomers"), who are more consumeristic in their interactions with the health care system. This finding might also be due to older adults having more interaction with health care providers due to the management of multiple chronic conditions, allowing for greater capacity to build a trusting relationship. However, this somewhat contradicts our other finding that those with less than three chronic health conditions having a higher trust score than those with three or more chronic conditions. Older adults with multiple chronic health conditions may be more likely to have a sense of fatalism and be more likely to be distrustful of the impact that medical care can have on their overall health. Further exploration of the relationship between overall health and physician trust could elucidate this association.

The lack of an association between physician trust and ethnicity or education warrants some consideration. Given the history of exploitation by the medical profession experienced by ethnic minorities, we had hypothesized that physician trust scores would be lower for African Americans and American Indians compared to whites. A recent analysis of data from the REGARDS study by Durant and colleagues[28] showed that African Americans in their study had lower levels of trust of their physicians than did whites.

A possible reason for the lack of ethnic differences in trust in our study is that our previous work in these rural communities indicates a shared experience related to health concerns across the three ethnic groups despite higher levels of poverty and lower levels of formal education among African Americans and American Indians. Additional research is needed to understand the role of physician trust among rural adults with chronic conditions, particularly those of ethnic minority groups.

We found that physician trust was positively associated with adhering to guidelines for physical activity and dilated eye exams. Other studies have shown a positive association between physician trust and receipt of recommended levels of preventive care and treatment of chronic conditions.[4 – 7] However, previous studies have not examined this association as

it relates to diabetes management. We were able to examine the association between physician trust and self-management behaviors and physician-initiated treatment. It is not entirely clear why these 2 behaviors were associated with physician trust. It is possible that those who engage in physical activity and the receipt of dilated eye exams represent the most highly motivated of the diabetes patients; therefore they are more likely to be receptive to their physician's instructions. It might also reflect a more affluent group of patients who are better able to access the highest quality of care available in the area. Further investigation is needed to elucidate these associations.

Our study has a number of limitations that must be considered. The analysis was cross-sectional, so we are not able to apply causal inference to these associations. Second, our study was conducted in a rural, ethnically diverse population, so we are not able to generalize to urban populations. Finally, the instrument used to assess trust in physicians may not be the best way to assess this construct in this population. Nonetheless, this is the first study to examine the association between physician trust and diabetes management. Given the significant public health burden of diabetes and the physician and economic burden of this disease, especially among ethnic minority groups, it is important to understand the role that physician trust plays in achieving the goals of successful diabetes management. Further research is needed to more fully understand this relationship and provide avenues to enhance physician trust among patients.

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Table 1

Questions from the general trust in physicians scale

1. Doctors in general care about their patients' health just as much or more as their patients do.
2. Sometimes doctors care more about what is convenient for them than about their patients' medical needs.
3. Doctors are extremely thorough and careful.
4. You completely trust doctors' decisions about which medical treatments are best.
5. Doctors are totally honest in telling their patients about all of the different treatment options available for their conditions.
6. Doctors think only about what is best for their patients.
7. Sometimes doctors do not pay full attention to what patients are trying to tell them.
8. Doctors always use their very best skill and effort on behalf of their patients.
9. You have no worries about putting your life in the hands of doctors.
10. A doctor would never mislead you about anything.
11. All in all, you trust doctors completely.

From Reference 21

Table 2

General trust in physicians scores overall and according to demographic and health characteristics among older rural adults with diabetes

Characteristic	N, %	Trust in Physicians Score (Mean ± SD)
Overall	563 (100%)	34.6 ±7.5
Age		
60 – 74 Years	407, 72%	34.1 ± 7.6**
75 Years and Older	156, 28%	36.0 ± 7.3
Sex		
Female	348, 62%	34.4 ± 7.6
Male	215, 38%	34.9 ± 7.5
Ethnicity		
White	205, 36%	34.5 ± 7.6
African American	190, 34%	34.9 ± 7.6
American Indian	168, 30%	34.4 ± 7.6
Formal Education		
< High School Graduate	205, 36%	34.4 ± 7.5
≥High School Graduate	357, 64%	34.7 ± 7.6
Marital Status		
Currently Married	261, 46%	34.3 ± 7.5
Currently Not Married	302, 54%	34.9 ± 7.6
Migration Status		
Always Lived in the South	174, 31%	35.0 ± 7.9
Lived Some Time Outside the South	386, 69%	34.5 ± 7.4
Obese		
Yes	255, 45%	35.0 ± 7.7
No	308, 55%	34.3 ± 7.5
Chronic Health Conditions		
< 3	410, 73%	35.2 ± 7.5**
≥3	151, 27%	33.1 ± 7.8
Glycemic Control		
<7%	285, 51%	35.0 ± 7.3
≥7%	278, 49%	34.2 ± 7.9

* p < .05;

** p < .01

Table 3

Bivariate associations between general trust in physicians scores and participation in diabetes management among rural older adults

Diabetes Management Characteristics	N, %	Trust in Physicians Score (Mean ± SD)
Personal Care		
Blood Glucose Self-Monitoring		
At Least Once per Day	428, 79%	34.49 ± 7.72
Less than Once per Day	114, 21%	35.04 ± 7.30
Self-Foot Checks		
At Least Once per Day	414, 80%	34.65 ± 7.62
Less than Once per Day	106, 20%	35.04 ± 7.69
Fruit and Vegetable Consumption		
At Least Five Servings per Day Five or More Times per Week	299, 53%	35.16 ± 7.47
Less than Five Servings per Day Five Times per Week	262, 47%	33.96 ± 7.66
Exercise Participation		
Five or More Times per Week	101, 18%	36.22 ± 7.39 *
Less than Five Times per Week	454, 82%	34.26 ± 7.56
Medical Care		
Physician Checks Feet		
At Least Twice in Past Year	450, 80%	34.85 ± 7.48
Less than Twice in Past Year	110, 20%	33.62 ± 7.92
Physician Checks A1c		
At Least Twice in Past Year	499, 90%	34.79 ± 7.47
Less than Twice in Past Year	55, 10%	32.82 ± 7.88
Physician Performs Dilated Eye Exam		
At Least Once in Past Year	431, 77%	35.08 ± 7.48 *
Less than Once in Past Year	130, 23%	33.16 ± 7.56
Participates in Medically Provided Diabetes Education Class		
Yes	235, 42%	34.75 ± 7.63
No	328, 58%	34.48 ± 7.53

* $p < .05$

Table 4

Logistic regression analyses* examining the independent effect of general trust in physicians on diabetes management characteristics

Diabetes Management Characteristics	Odds Ratio	Confidence Interval
Personal Care		
Blood Glucose Self-Monitoring	0.99	0.96 – 1.02
Self-Foot Checks	0.99	0.97 – 1.02
Fruit and Vegetable Consumption	1.02	0.99 – 1.04
Exercise Participation	1.03	1.00 – 1.06
Medical Care		
Physician Checks Feet	1.02	0.99 – 1.05
Physician Checks A1c	1.03	0.99 – 1.07
Physician Performs Dilated Eye Exam	1.03	1.01 – 1.06
Participates in Diabetes Education Class	1.00	0.98 – 1.03

* Analyses adjusted for age, gender, ethnicity, education, marital status, migration status and number of chronic conditions.