



RESEARCH ARTICLE

Acculturation, Hispanic ethnicity, and trust: Verifying and explaining racial/ethnic differences in trust in health providers in North Carolina Medicaid

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Abstract

Three North Carolina Medicaid surveys conducted from 2000 to 2012 reported increasing numbers of Hispanic children enrolled in Medicaid and much lower trust in providers expressed by their adult caregiver respondents compared with responses for non-Hispanic Black and White children. To verify and explain this apparent trust chasm, we used bivariate and regression analyses. The variables employed included trust (dependent variable); child's race/ethnicity, age, and sex; satisfaction and health status scales; two utilization measures; respondent's age, sex, and education; geographical region; and population density of county of residence. Race/ethnicity was strongly associated with trust ($p < .001$), controlling for other independent variables. Access, satisfaction, and respondent's age and education were also significant. Our results fit the Behavioral Model for Vulnerable Populations, which maps the role of significant variables in health-seeking behavior. After analyzing the concept of trust, we argue that lower acculturation explains lower Hispanic trust compared with non-Hispanic Blacks. We suggest policies to improve acculturation.

Key words: acculturation; Hispanic; race; ethnicity; trust; Medicaid; Behavioral Model for Vulnerable Populations; federalized Medicaid; navigators; cultural competency

A telephone survey of the adult caregivers of children enrolled in North Carolina's Medicaid program conducted in 2012 contained a battery of questions dealing with the caregivers' trust in health providers. The results of that survey showed mean scores for Hispanics that were far lower than those for either non-Hispanic Blacks or non-Hispanic Whites. The non-Hispanic White and Black means were not so far apart (see [Table 1](#)). The differences between Hispanics and their non-Hispanic counterparts, however, were so great that they called for exploration in detail. Consequently, we sought to determine whether non-racial/ethnic demographic and care-experience variables were closely associated with these racial/ethnic differences in caregiver trust, thereby allowing us to understand the anomaly in terms of variables commonly used in health services research. For example, would the mean values of some set of variables such as age, residence, access to health services, satisfaction with health provider, and health services utilization be so closely associated with the lower trust scores reported by caregivers of Hispanic enrollees that we could claim to know the determinants of the gap between trust responses for Hispanic children and non-Hispanic Blacks and Whites?

During the process of our analyses, we became convinced that what we were witnessing might be better understood through the lens of differences in acculturation between the self-reported racial/ethnic

Table 1. Trust and race/ethnicity: Differences in proportions.

Subgroup comparison	Mean	Standard error	Z-statistic	Probability	95% confidence interval
NHW/NHB					
NHW (<i>n</i> = 551)	0.662	0.020			0.623 0.702
NHB (<i>n</i> = 438)	0.593	0.023			0.548 0.640
			-2.229	0.026	
NHW/H					
NHW (<i>n</i> = 551)	0.662	0.020			0.623 0.702
H (<i>n</i> = 268)	0.280	0.027			0.226 0.334
			-10.303	0.000	
NHB/H					
NHB (<i>n</i> = 438)	0.593	0.023			0.548 0.640
H (<i>n</i> = 268)	0.280	0.027			0.226 0.334
			-8.100	0.000	

Notes: NHW = Non-Hispanic Whites; NHB = Non-Hispanic Blacks; H = Hispanics. *Mean* represents the proportion of the subpopulation reporting the highest trust scores (e.g., 66.2% of Non-Hispanic Whites reported the highest trust scores and 33.8% reported lower trust scores; 59.3% of Non-Hispanic Blacks reported the highest trust scores and 40.7% lower trust scores; 28.0% of Hispanics reported the highest trust scores and 72.0% reported lower trust scores).

identities. Thus, our research evolved to include a second question: Might different levels of acculturation explain that gap? Because well-validated measures of acculturation—a complex, multidimensional concept—are not used in health services research, in the Discussion section, we use several significant, observable first-order variables to construct a plausible argument that variation in average levels of acculturation explains much of the difference in trust between respondents for Hispanic and non-Hispanic children and the relative similarity among respondents for non-Hispanic Black and White children.

Enrollment of significant numbers of Hispanic children in North Carolina Medicaid was a recent phenomenon, which provided some circumstantial support for the acculturation explanation. A series of three stratified random telephone surveys conducted over 12 years by researchers at the University of North Carolina at Charlotte (UNC Charlotte) reflected the growing Hispanic proportion of North Carolina's child Medicaid enrollees (Miles et al., 2010). Among enrollees who met the study's inclusion criteria (see the Methods section), Hispanic children surveyed as a percentage of total surveyed child Medicaid enrollees increased from only 3.8% in the 2000 survey (Brandon et al., 2001) to 15.7% in the 2007 survey and to 35.5% in the 2012 survey (Brandon et al., 2008; Brandon et al., 2014) (see Figure 1). Thus, by 2012, the number of Hispanic children enrolled in North Carolina's Medicaid program allowed researchers to generate a well-balanced race/ethnicity variable (Hispanic, non-Hispanic Black, non-Hispanic White) for use in analyzing this large statewide survey of children enrolled in Medicaid with the child's responsible caregiver providing the responses.

In addition to the race/ethnicity variable, the survey also contained indicators of enrollees' access, satisfaction, and utilization that typically asked the responding caregiver to consider the child's health care experience only over the last six months. Inclusion of some variables registering longer-term or unchanging generalizations and others recording short-term experience with the current delivery system facilitated the investigation of adult caregivers' trust in the care received by their child, which is the focus of this article.

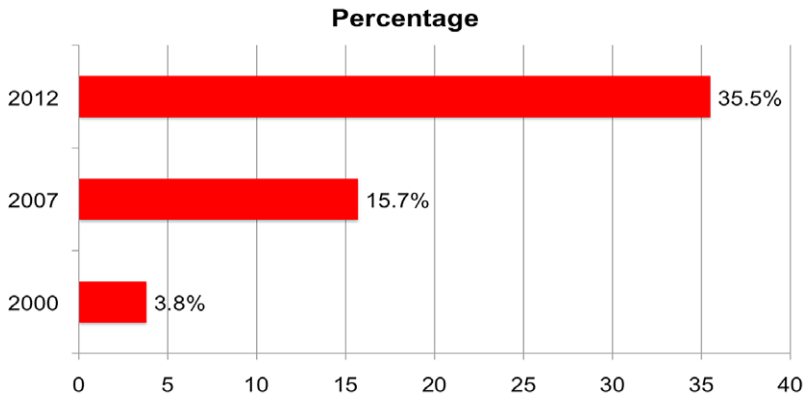


Figure 1. Percentage Hispanic Children, Medicaid CAHPS Surveys Completed, 2000–2012. *Sources:* Brandon *et al.* (2008); Brandon *et al.* (2001); Brandon *et al.* (2014).

Literature review

From a broad philosophical perspective, the concept of trust covers at least three distinguishable types of trust. Following Barber (1983), trust can indicate recognition of the (partially) coherent web of human beliefs and expectations that underlie human action—what Wittgenstein (1958) called a “form of life.” For example, one must have at least some crude understanding of what a bank is and how it works to allow direct deposit of one’s paycheck. (Mandelbaum [1955] used the example of a Trobriand islander whisked from his native culture into a Western bank to argue against methodological individualism.) In current political discussions, it might be natural for a speaker to remark that “I trust in climate science” without subscribing to every claim about global warming. Similarly, without sounding strange, a speaker engaged in a serious discussion in mid-nineteenth-century America might easily declare trust either in what today we could call “scientific” or allopathic medicine or in homeopathy. However, the use of trust to indicate fundamental or general beliefs and consequent behavior was not relevant for our survey respondents, because they were representative of a population using modern Western medicine. (An earlier iteration of our survey instrument did ask about use of alternative healers, but the number of positive responses was so small that the question was eliminated in subsequent surveys; see Brandon *et al.*, 2008).

Trust in the health context

The other two types of trust—technical competence and fiduciary responsibility—are especially relevant in studies of health care and therefore to this article. Technical competence involves whether the individual or institution in which trust is placed is perceived to possess the knowledge and skills necessary to execute a task or procedure. Fiduciary responsibility refers to whether an entrusted individual or institution demonstrates a fiduciary responsibility or financial obligation to act with regard to appropriate other-regarding ends (Barber, 1983; Hall *et al.*, 2001). Typically, a health provider is considered to be the agent responsible for advancing the welfare—both technical and fiduciary—of that provider’s patient, who is the principal. Although technical and fiduciary trust in provider can be measured separately, they are usually combined to create a general index (scale) measure of trust in physician. As we explain in the Discussion section, our analysis uses such a well-validated general index (scale) variable.

The literature describing the role of trust in the physician-patient relationship is robust. Balkrishnan *et al.* (2003) found that trust in physician was related to the amount of contact that patients have had with the physician and the adequacy of patients’ choice in selecting their physicians. Others have examined

the positive relationship between trust in physician and continuity of care (Mainous et al., 2001; Thom et al., 1999) and adherence to therapies or disease state screenings (Safran et al., 1998; Thom et al., 1999; Thompson et al., 2004). Similarly, Kao et al. (1998) reported that “having a choice of physicians, having a longer relationship with [the] physician, and trusting their managed care organization” (p. 681) were all related to a patient’s trust in their physician, while Groenewegen (2006) reported that “people tend to place trust in a personal doctor whom they know and have confided in during previous episodes of care” (p. 3).

Over time, the role of trust in the physician-patient relationship has become more nuanced in terms of its relationship to health outcomes. Mainous et al. (2004) described the relationship between patients’ trust in their physicians and the early detection of cancer, and Thom et al. (2002) examined the association of low levels of trust with lower probability of reporting symptom improvement. Other studies have explored the role of physicians’ communication style in establishing trust (Berrios-Rivera et al. 2006), while others have applied more sophisticated modeling and analytical techniques (e.g., social disorganization theory) to analyze trust (or distrust) in more than one dimension (Shoff & Yang, 2012). Additionally, Guffey and Yang (2012) examined the same data set at different points in time to make comparisons and draw different inferences pertaining to provider trust.

A considerable portion of the provider trust literature has explored various perspectives on trust in physician (and distrust) as experienced in different racial/ethnic subpopulations and the role that these differences may play in race-based health disparities (Armstrong et al., 2007; Berrios-Rivera et al., 2006; Boulware et al., 2003; Corbie-Smith et al., 2002; Doescher et al., 2000; Halbert et al., 2006; Hunt et al., 2005; LaVeist et al., 2000; Morgenstern et al., 2001; Musa et al., 2009; Shelton et al., 2011; Shoff & Yang, 2012). The common theme echoed throughout most of these studies is that trust in health providers is higher among non-Hispanic Whites than it is in the Hispanic and non-Hispanic Black subpopulations and that the lower levels of trust experienced by minority patients are usually associated with race-based disparities and suboptimal health outcomes. These racial/ethnic health care disparities occur within the broader context of historical medical scandals (e.g., the Tuskegee syphilis study, the forced sterilization of Latinas under California’s eugenics laws) that exploited, victimized, and abused these racial/ethnic subgroups (Gamble, 1997; Novak et al., 2018), as well as contemporary social and economic inequalities and discrimination (López-Cevallos et al., 2014). This sad history may have eased the path to current examples of distrust in conventional medical wisdom, such as racial minorities’ reluctance to receive COVID-19 vaccinations, since mention of these horrific medical misadventures is often made by hesitant individuals (Oladele et al., 2022).

Many of the recent studies exploring the relationship between trust and the physician-patient relationship support findings of statistically significant lower trust registered by racial/ethnic minorities compared with Whites. For example, Armstrong et al. (2007) and Richardson et al. (2012) found support for the established notion that Blacks and Hispanics experience lower levels of trust in doctors and other health care professionals than non-Hispanic Whites. Additionally, Shelton et al. (2012) observed that Mexican immigrant women reported less trust in their doctors than other ethnic/racial groups. The aforementioned study conducted by Shoff and Yang (2012) applied social disorganization theory to explore *values distrust* (oriented to values in the health care system such as respect, honesty, caring, dependability, and confidentiality) and *competence distrust* (oriented to the technical skills required for successful health care) and found that African Americans had greater values distrust than Whites but no difference was detected in the racial subgroups in terms of competence distrust. On the other hand, Adegbenbo et al. (2006) reported that eliminating racism from health care could remove the difference observed in health care trust between Blacks and Whites, while Guffey and Yang (2012) reported that even within the same source of data, claims of less trust in doctors among Blacks compared with Whites may be less robust than conventional wisdom would predict.

The patient-provider relationship, influenced by the role of trust in one’s provider, plays an important role in studies of health-related outcomes. In terms of the utilization of health services, for example, utilization among Hispanics was generally lower than utilization among non-Hispanic Whites (Keller et al., 2010; Marton et al., 2016). Immigrants concentrated in enclaves often learn to navigate the

distorted and deprived health care systems of poverty, which may lead to attitudes of mistrust as well as utilization patterns reflecting those in the immigrant's home country. This danger is borne out in literature that has found noticeable disparities between first-generation immigrants and nonimmigrant Hispanics and between those in non-English-speaking households and those in English-speaking households (Avila & Bramlett, 2013). A strong patient-provider relationship grounded in trust can also enhance participatory decision-making, whereby patients are active in their own care, able to ask and have their questions answered, and able to express their concerns and opinions. Thus, parents who reported being able to voice their concerns to their children's physicians reported higher satisfaction (Tataw *et al.*, 2010). In addition to enhancing satisfaction, this increased participation has also been shown to improve access to health care services (Cooper-Patrick *et al.*, 1999).

Acculturation

The literature dedicated to examining the relationship between acculturation (i.e., the adoption of the values, beliefs, and traditions—including language—of the dominant culture) (Roncancio *et al.*, 2011) and health care access and health literacy is relatively well developed, but it is surprisingly sparse in terms of examining the *direct* relationship between acculturation and trust in an individual's health care provider. Researchers have pointed to English proficiency or providers' ability to communicate in Spanish as a major factor in differential race/ethnicity access and health provider responsiveness (Zambrana *et al.*, 2004). Thus, low English proficiency (along with citizenship status, another source of "othering") was identified as an especially pernicious barrier to health access by Pérez-Escamilla *et al.* (2010). Children whose parents had limited English proficiency were less likely to seek medical care and more likely to report dissatisfaction with medical care when they did receive it; they also reported poorer health status and had an increased likelihood of misdiagnoses (Avila & Bramlett, 2013). Ferguson and Candib (2002) highlighted the absence of English proficiency as contributing to less empathy from physicians, the inability to develop rapport with physicians, and less encouragement toward participatory decision-making. Several authors described higher trust levels and improved treatment adherence when health providers and staff spoke Spanish or originate from Hispanic backgrounds (Abraido-Lanza *et al.*, 2011; Cruz-Flores *et al.* 2011; Morano *et al.*, 2013).

The effects of discrimination are well documented in the literature. The Institute of Medicine's *Unequal Treatment: Confronting Racial and Ethnic Disparities in Healthcare* (2003) reported that more than half of Latinos had concerns about being treated unfairly because of their race/ethnicity when seeking health care. Communication difficulties caused by language barriers are associated with increased incidence of perceived discrimination. In turn, this perceived discrimination is associated with an increased likelihood of forgoing necessary care. Racial/ethnic differences in literacy and health literacy are associated—presumably as both cause and effect—with perceptions of discrimination. Consequently, greater literacy and health literacy are pathways to greater acculturation to the institutions and practices of the dominant culture (Zambrana *et al.*, 2004). Kutner *et al.* (2006) reported that Latinos are disproportionately affected by low health literacy, while Williams *et al.* (1995) found that Spanish-speaking Hispanics had a nearly two-fold greater likelihood of weak literacy compared with English-speaking Hispanics. Additionally, the work of Hu and Covell (1986) inferred that higher degrees of acculturation are associated with higher health literacy.

Because a direct relationship between acculturation and provider trust is not well established, a more nuanced, less direct approach linking acculturation to provider trust via health literacy may be warranted. In their adaptation of a model originally presented by Paasche-Orlow and Wolf (2007), White *et al.* (2013) provided such a link in a study ($n = 149$) comparing limited health literacy and adequate health literacy in adult diabetes patients. Specifically, the authors conceptualized factors such as race/ethnicity, culture, and language as direct inputs to health literacy and indirect inputs to the level of acculturation via health literacy. Health literacy did emerge as an important contributor to trust in one's provider. However, the results of their study revealed that individuals with *limited* health literacy

reported greater trust in their physician and those with higher levels of health literacy reported significantly lower levels of physician trust. The authors suggested that this observation might be related to less inclination to question provider recommendations among individuals with low health literacy compared to those with high literacy, or to the fact that length of time with the disease is an important factor for developing provider trust among those with lower health literacy.

Behavioral Model for Vulnerable Populations

The final body of literature employed in this article becomes important in the Discussion section, where the Behavioral Model for Vulnerable Populations—or, more simply, the Behavioral Model—serves as a useful taxonomy to organize the statistically significant findings revealed in our Results section. The Behavioral Model was developed to identify the various roles played by factors that combine to determine medical care utilization; over time, “medical care” has been extended more broadly to include nonmedical health care and practices, but the dependent variable has typically been some form of health care consumption or lack thereof. The origin of the Behavioral Model of Health Services Use (the name used in earlier research) goes back to Ronald Andersen’s Purdue University dissertation, in which family was the unit of analysis because Andersen argued that families are the “decision-making unit” for its members (Andersen, 1968, p. 11). (Later Andersen came to believe that sufficient “important family characteristics” could be incorporated with the more available and plentiful data relating to individuals, thereby allowing the individual to become the unit of analysis; Andersen, 1995, p. 1). We mainly rely upon more recent versions of this widely used model (Gelberg et al., 2000; Stein et al., 2007).

Three aspects of the literature on the model stand out. First, the model is intended to predict or explain a dependent variable that is some measure or measures of utilization, although health care access as a complex independent variable of particular interest—and health policy focus—has received considerable nuanced attention (Aday & Andersen, 1974; Andersen, 1995). Second, a major strength of the model is that it aims to be comprehensive, arranging a large number of independent variables into classes of conditions leading to utilization. Consequently, the model requires a great deal of data in order to operationalize all the potential determinants of utilization. Third, the application in each case of an episode of care is linear, with the metric for utilization temporally subsequent to the independent variables. To be fair, figures illustrating the model do acknowledge feedback loops, presumably registered in successive iterations of utilization by the same individual (Andersen, 1995; Gelberg et al., 2000). Recognition of such feedback loops in sophisticated applications of the model presumably invites further complexity by the use of multiple interaction variables if some form of regression analysis is involved.

As readers will see in our Discussion section, we use the Behavioral Model simply as an expository device to better understand the relations among those independent variables that were statistically significant in our analysis of factors associated with trust in provider. This use is entirely different from the model’s usual role of identifying variables that determine utilization. We must address issues of temporality that do not arise in the linear Behavioral Model. Moreover, even if we wanted to use our data to predict utilization, it would have been impossible to populate all the many relevant independent variables of the Behavioral Model. The data set used in our secondary analysis was largely dictated by the needs of funders that had different purposes in mind. In particular, our data are especially devoid of information about the family context of our respondents. Yet Andersen (1968, 1995) is very compelling in his emphasis on the importance of capturing the family dimension of decision-making for seeking health care.

Methods

The data used in this study were the product of a combination of Medicaid eligibility files provided by the North Carolina Division of Medical Assistance and responses to a computer-assisted telephone survey administered to the adult caregivers of children enrolled in the program’s managed care

networks. The telephone survey was administered by Clearwater Research, Inc., of Boise, Idaho, under contract with UNC Charlotte in the summer months of 2012. The survey employed a number of items from the Consumer Assessment of Health Providers and Systems Health Plan Survey (CAHPS) 4.0 Medicaid Questionnaires designed to evaluate respondents' perceptions of their child's access to care, their satisfaction with that care, their child's health status, their trust in their child's health provider, their communication with that provider or provider's staff, and their child's utilization of health services.

A randomized stratified sample was obtained from a sampling frame of 484,424 North Carolina Medicaid child enrollees that was derived by applying specific exclusion criteria to the entire Medicaid population. The following exclusion criteria were applied to the population at-large:

1. Enrollees in the Community Alternatives Program
2. Enrollees in Medicaid for Pregnant Women (which might have funded births to recent immigrants)
3. Foster children
4. Qualified Medicare Beneficiaries (QMB), those who are partially eligible because they only receive premium support, as opposed to the "full duals" who are eligible for both Medicare and Medicaid
5. Institutionalized enrollees receiving long-term care and nursing home services
6. Enrollees receiving end-stage renal dialysis
7. Enrollees in the SCHIP (State Children's Health Insurance Program) known in North Carolina as Health Choice
8. Enrollees not continuously enrolled in one of the North Carolina Medicaid managed care networks for at least six months prior to December 31, 2011
9. Enrollees with a date of birth prior to June 30, 1993, to avoid aging out of coverage during administration of the survey

The researchers subsequently applied stratified random sampling techniques to the sampling frame in order to survey the adult caregivers of child Medicaid enrollees about access, satisfaction, health status, utilization of services, trust, and communication in seeking health care for the child (Brandon *et al.*, 2008; Brandon *et al.*, 2014). A target of 200 completed surveys from each of the 14 North Carolina Medicaid managed care networks was selected to allow meaningful comparisons across geographically based care networks and to detect relatively small effect sizes (U.S. Department of Health and Human Services, 2008). To achieve the target of 200 completed surveys from each network, a random sample of 2,000 enrollees from each network was obtained ($n = 28,000$). Ultimately, a total of 3,199 adult caregivers of enrolled children completed the survey, with a survey response rate of 36.6% as measured by American Association for Public Opinion Research (2011) standards. The proportion of the children of these caregivers reported to be Hispanic was 35.5%. The inclusion of only Hispanic, non-Hispanic White, and non-Hispanic Black child enrollees and the application of listwise deletion procedures imposed by the survey's skip pattern reduced the number of participants subject to analysis in our study to $n = 1,257$ (see [Appendix A](#) in the [Supplementary Materials](#) for an explanation of the data truncation steps). The proportion of Hispanic children in this working subset was subsequently reduced to 21.3%. The Institutional Review Board at UNC Charlotte approved the research protocol (#16-04-13).

The variables used in our study were operationalized in accordance with the study's research questions. Our dependent variable was a composite scale variable designed to measure trust in the child's health provider. This variable was created from three of the five possible survey items designated as "trust questions" by the research team. These items were originally included in the Community Tracking Study 1998–1999 Household and Followback Surveys (Center for Studying Health System Change, 1998, 2000, 2002a, 2002b) and replicated by Hunt *et al.* (2005). The items measured respondents' attitudes on a 5-point Likert scale ranging from "strongly agree" to "strongly disagree," depicted as follows:

- I think my child's health provider may not refer him/her to a specialist when needed (q76)
- I sometimes think that my child's health provider might perform unnecessary tests or procedures (q78)
- My child's health provider's medical skills are not as good as they should be (q79)

The three survey items selected for inclusion in the scale demonstrated the highest reliability (0.731 as measured by Cronbach's alpha) among the possible combinations associated with the five trust questions. The trust scale variable was collapsed to a binary variable with specified values of *highest levels of trust* and *lower levels of trust*. Respondents categorized as having lower levels of trust constituted the comparison category (see [Appendix B](#) for a more thorough discussion of the creation of the trust scale variable).

A number of variables were included as independent or context variables in our study. The most important independent variable employed in our study was the *ethnicity* of the enrolled child. This variable consisted of three values—non-Hispanic White (NHW), non-Hispanic Black (NHB), and Hispanic (H)—with the Hispanic subgroup designated as the comparison category. Additionally, *access to care* was operationalized by responses to the survey question asking respondents to indicate how often they got an appointment for their child at their health providers' office as soon as was needed. Possible responses included *never*, *sometimes*, *usually*, and *always*. Those who always got this appointment as soon as they wanted were selected as the comparison group.

A *satisfaction* composite scale and an enrollee *health status* composite scale were also created from several survey items to function as independent variables. Specifically, the satisfaction scale generated a Cronbach's alpha score of 0.750 and was formulated from the following four items:

- In the last 6 months, how often did your child's personal health provider explain things in a way that was easy to understand? (q40)
- In the last 6 months, how often did your child's personal health provider listen carefully to you? (q42)
- In the last 6 months, how often did your child's personal health provider show respect for what you had to say? (q43)
- In the last 6 months, how often did your child's personal health provider spend enough time with your child? (q47)

In order to achieve a more even distribution of satisfaction scale scores, this scale was ultimately collapsed to a binary variable consisting of the values *less satisfied* and *most satisfied*. The less satisfied category served as the comparison category for this variable (see [Appendix B](#) for a more thorough discussion of the creation of the satisfaction scale variable).

The enrollee health status scale with a Cronbach's alpha score of 0.740 was formulated from these five items:

- Other than vitamins, does your child currently need or use medicine prescribed by a doctor, nurse, or physician assistant? (q82)
- Does your child need or use more medical care, more mental health services, or more educational services than is usual for most children of the same age? (q85)
- Is your child limited or prevented in any way in his or her ability to do things most children of the same age can do? (q88)
- Does your child need or get special therapy such as physical, occupational, or speech therapy? (q91)
- Does your child have any kind of emotional, developmental, or behavioral problem for which he or she needs or gets treatment or counseling? (q94)

In a manner similar to the satisfaction scale, enrollee health status was also collapsed into a dummy variable to achieve a more even distribution of enrollee health status scale scores. However, this variable

consisted of three values—*less healthy*, *moderately healthy*, and *most healthy*. The less healthy category was designated as the comparison group for this variable (see [Appendix B](#) for a more thorough discussion of the creation of the health status scale variable).

Two variables related to health service utilization were established as independent variables. *Primary care visits* resulted from the self-reported number of visits to the child's personal health care provider's office or clinic in the six months prior to administration of the survey. In order to achieve a more even distribution of responses among the values associated with this variable, primary care visits were collapsed to two values—*one visit or less* and *greater than one visit*. Child enrollees with one visit or less constituted the comparison category. *Emergency visits* were conceptualized in a similar manner from the number of self-reported visits to the emergency room in the six months prior to survey administration. The distribution of responses was bifurcated to two categories—*one or more emergency visits* and *no emergency visits*, with the latter category serving as the comparison group for the variable.

Two age-related variables were also introduced as independent variables in our analysis. The *enrollee's age* as reported by the adult caregiver respondent was recorded into one of five categories: 0 to less than 2 years of age, 2 to less than 6 years of age, 6 to less than 9 years of age, 9 to less than 13 years of age, and 13 to less than 19 years of age. The 2 to less than 6 years of age category served as the comparison group for this variable. Additionally, the *respondent's age* was conceptualized and operationalized in a similar manner. Responses were categorized into one of the following age groupings: 18–24 years, 25–34 years, 35–44 years, 45–54 years, 55–64 years, and 65 years or older. The 25–34 years category was designated as the comparison group.

Survey respondents also provided information regarding their sex and the sex of their enrolled child. As a result, two variables—the *respondent's sex* and the *enrollee's sex*—were included as independent variables in our analysis. In both cases, females were designated as the comparison group. The survey also prompted respondents to share their familial relationship to the enrolled child. The responses associated with the *relationship status* variable were collapsed to three meaningful values that ensured an adequate number of responses for each value. These values included *parents* (mothers and fathers of the enrolled child), *grandparents*, and *others* (aunts, uncles, siblings, legal guardians, etc.). The parents category served as the comparison group.

Three additional variables round out the discussion of independent and context variables. The survey asked respondents to indicate the level of education that they had completed among six possible categories—eighth grade or less, some high school (without graduation or GED), high school graduate or GED, some college or a two-year degree, attaining a four-year college degree, and attending some college beyond a four-year degree. In order to achieve greater balance in the responses to the education survey item, the variable was recoded to consist of three values—*less than high school graduate*, *high school graduate*, and *greater than a high school graduate*. The high school graduate category was selected as the comparison group.

The geographical regions of North Carolina associated with the enrollee's residence were operationalized in accordance with the template described by Diemer and Bobyarchick (2000). Their model describes the four major regions in North Carolina in geographical terms, which, coincidentally, establishes a reasonable framework for analyzing the state with respect to its economic and cultural diversity. The values associated with the *region* variable include the *Mountains*, *Piedmont*, *Coastal Plain*, and *Tidewater*. The Piedmont region, where the bulk of the state's manufacturing, distribution, banking, education, research, and service sector industries occur, served as the comparison group.

The *urbanicity* variable represents the final independent variable included in our analysis. Urbanicity refers to the rural or urban character of the enrolled child's county of residence. It was derived from the 2003 Rural-Urban Continuum codes and has three possible values—*urban*, *mixed*, and *rural* (U.S. Department of Agriculture, 2004). The urban category was selected as the comparison group.

A combination of bivariate analysis and multivariate regression was used to address our study's research questions. The binary nature of the dependent variable mandated the use of binary logistic regression techniques for our multivariate modeling. A significance level of $p < .05$ was selected as the threshold for statistically significant relationships in our study. Unless otherwise indicated, we employed

the chi-square test of statistical significance as the statistical test of choice for nominal-level data. Two-tailed z -scores were reported to test the statistical significance of our regression coefficients and odds ratios. Stata 17 for Windows was used to conduct the statistical analyses in our study.

Results

The bivariate analysis and multivariate regression revealed a number of interesting findings. A global, bivariate perspective revealed that the relationship between ethnicity and trust scale scores was highly significant ($p < .001$), with lower trust scores much more prevalent in the subpopulation of adult respondents for Hispanic children compared with their non-Hispanic White and non-Hispanic Black counterparts (see Table 1). In fact, the proportions of respondents reporting the highest trust scores and lower trust scores, respectively, approached perfect divergence when comparing the Hispanic and non-Hispanic White subgroups.

When the bivariate relationships between the independent variables in our model and the trust scale were analyzed by the enrollee's ethnicity, several other statistically significant relationships were observed. The age, sex, level of education, and satisfaction scale associated with the adult caregiver respondent were significantly associated with the trust scale scores. In most of these circumstances, the independent variable represented a larger share of the lower trust scores in the Hispanic subgroup compared with the non-Hispanic White and non-Hispanic Black subgroups. The exceptions to this pattern were found among less educated respondents and less satisfied respondents, where these variables represented a larger share of *both* the highest and lower trust scores in the Hispanic subgroup and among female respondents who represented a smaller share of both the lowest and highest trust scores in the non-Hispanic White subgroup compared with the non-Hispanic Black and Hispanic subgroups (see Appendix C).

The access, utilization, region, urbanicity, and health status variables were also significantly associated with trust scores when analyzed by the child's ethnicity. Again, in many of these relationships, the experiences in the Hispanic subgroup differed from those in the non-Hispanic White and non-Hispanic Black subgroups. Especially noteworthy were the *highly* significant observations that children living in the Piedmont region represented a larger share of lower trust scores in the Hispanic subgroup, and that children categorized as "most healthy" represented a larger share of lower trust scores in the Hispanic subgroup. Meanwhile, children living in the Mountain region represented a larger share of the *highest* trust scores in the non-Hispanic White subgroup and children living in urban counties represented a smaller share of the highest trust scores in the non-Hispanic White group (see Appendix C).

The multivariate regression used a logistic model that examined the relationship between the independent variables in our model and the binary dependent variable of trust (see Table 2). In terms of the statistical assumptions associated with this model, all the variables (independent and dependent) are binary variables. This occurred primarily because the survey instrument was not constructed for respondents to provide specific responses to those variables normally expressed as continuous variables (i.e., respondent's age, years of education). Instead, respondents provided responses that aligned with the CAHPS-defined and predetermined grouping associated with these variables. Additionally, a number of variables with discrete (not continuous) values inherent to our data were transformed to binary variables to ensure a more even distribution of the responses (see Methods and Appendix B). Thus, the values of our variables are not normally distributed and will not conform to the typical statistical assumption tests. And, unlike ordinary least squares *linear* regression models, the understanding and resolution of heteroskedasticity (where the variability of a variable is unequal across the range of values of a second variable that predicts it) is a more complex undertaking in *logistic* regression models. Additionally, the likelihood ratio chi-square of 281.33 in our model with a p -value of .0001 and a McFadden pseudo $R^2 = 0.163$ indicate that this model as a whole fits significantly better than an empty model with no predictors (see Appendix E). Finally, the variance inflation factor (VIF) test for multicollinearity indicates a mean

Table 2. Multivariate findings: Independent variables with trust scale.

Variable	Odds ratio	Odds ratio standard error	Coeff.	Coeff. standard error	z	Prob.	95% confidence interval (odds ratio)	
Never appointment*	0.181	0.126	-1.708	0.697	-2.45	0.014	0.046	0.710
Sometimes appointment**	0.571	0.120	-0.561	0.211	-2.66	0.008	0.378	0.863
Usually appointment	1.353	0.261	0.302	0.193	1.56	0.118	0.927	1.976
Highest satisfaction***	3.337	0.466	1.205	0.140	8.64	0.000	2.539	4.387
Moderately healthy	0.927	0.157	-0.076	0.170	-0.45	0.655	0.665	1.293
Excellent health	1.152	0.193	0.141	0.168	0.84	0.399	0.829	1.600
18–25 y.o. (respond.)	1.065	0.295	0.063	0.277	0.23	0.819	0.620	1.832
35–44 y.o. (respond.)	0.924	0.148	-0.079	0.161	-0.49	0.621	0.674	1.266
45–54 y.o. (respond.)	1.116	0.265	0.109	0.238	0.46	0.645	0.700	1.777
55–64 y.o. (respond.)	1.156	0.427	0.145	0.370	0.39	0.695	0.560	2.384
65–74 y.o. (respond.)	2.678	1.557	0.985	0.581	1.69	0.090	0.857	8.368
75 + y.o. (respond.)	3.443	5.396	1.236	1.567	0.79	0.430	0.160	74.309
< 2–6 y.o. (enrollee)	0.897	0.307	-0.109	0.342	-0.32	0.751	0.459	1.753
6–< 9 y.o. (enrollee)	1.179	0.234	0.165	0.199	0.83	0.407	0.799	1.741
9–< 13 y.o. (enrollee)	1.301	0.252	0.262	0.194	1.36	0.175	0.890	1.902
13–19 y.o. (enrollee)	0.927	0.182	-0.076	0.196	-0.39	0.700	0.632	1.361
Male respondent**	0.453	0.119	-0.792	0.263	-3.01	0.003	0.270	0.758
Male enrollee	1.050	0.138	0.048	0.132	0.37	0.713	0.811	1.358
Grandparents	0.701	0.219	-0.355	0.313	-1.14	0.256	0.379	1.295
Other relatives	0.845	0.286	-0.168	0.338	-0.50	0.619	0.435	1.640
< High school***	0.454	0.084	-0.790	0.185	-4.27	0.000	0.316	0.652
> High school	1.133	0.166	0.125	0.146	0.85	0.393	0.851	1.509
Mountain region	0.820	0.161	-0.198	0.196	-1.01	0.313	0.559	1.205
Coastal Plain region	1.170	0.197	0.157	0.168	0.93	0.351	0.842	1.626
Tidewater region	1.020	0.255	0.020	0.250	0.08	0.936	0.625	1.666
Mixed urbanicity	1.049	0.167	0.048	0.159	0.30	0.761	0.769	1.432
Rural	0.915	0.179	-0.089	0.196	-0.45	0.651	0.624	1.343
ER utilization	0.856	0.129	-0.155	0.151	-1.03	0.303	0.637	1.150
PHP utilization	1.161	0.168	0.149	0.145	1.03	0.304	0.874	1.542
NH Blacks***	2.064	0.401	0.725	0.194	3.73	0.000	1.411	3.019
NH Whites***	2.995	0.577	1.097	0.193	5.69	0.000	2.052	4.369

Notes: $n = 1,257$; LR $\chi^2(31) = 281.33$, Prob. = 0.000; McFadden pseudo $R^2 = 0.1630$; percentage of cases correctly classified = 70.49% (see Appendix D); mean trust index (dependent variable) = 0.5569; Coeff. = logistic regression coefficient; Prob. = probability; y.o. = years old; respond. = adult respondent; ER = emergency room; PHP = primary health care provider; NH = non-Hispanic. * $p < .05$; ** $p < .01$; *** $p < .001$.

VIF for the model of 1.33 with a range of 1.06–1.91. The VIF test results indicate that multicollinearity is not a problem with the predictor variables in our model.

The access and child ethnicity variables, along with the respondent's sex, education, and satisfaction scale scores, were significantly related to the trust scores in this more rigorous model. It should be noted that unlike the bivariate analysis, the respondent's age, child's health status, region, urbanicity, and utilization variables failed to achieve statistical significance in the more rigorous, multivariate regression.

The practical applications of the findings reported in Table 2 are more neatly summarized as follows: We see that (1) problems with access, (2) respondents' educational attainment, and (3) reporting as a male respondent all significantly reduced the probability of observing the highest trust scores. Additionally, those reporting the highest satisfaction with the child's personal health provider had a greater probability of reporting the highest trust scores. Finally, and most importantly for addressing our study's research questions, the child's ethnicity was strongly associated with the trust score scale with the caregivers of those children categorized as non-Hispanic White having a 23.3% greater probability of reporting the highest trust scores compared to Hispanics (see Appendix F).

Two major themes emerged from the results of our study. First, most of the study findings revealed significant differences between the experiences of the Hispanic subgroup compared with the non-Hispanic White and non-Hispanic Black subgroups. Hispanics usually fared worse than non-Hispanic Whites and non-Hispanic Blacks for most variables, especially among those respondents reporting less trust (a notable exception was self-reported health status). These differences were observed when analyzing access and satisfaction, but not for utilization. The second important theme that emerged was the surprising similarities in the levels of trust observed in the non-Hispanic White and non-Hispanic Black subgroups—a finding that contradicts much of the literature cited earlier.

Discussion

These multivariable results become more illuminating when they are organized with the aid of the Behavioral Model for Vulnerable Populations (Gelberg et al., 2000). The widely used Behavioral Model provides a rational typology that orders aspects of the social and personal environments and health care delivery, which impact patients as possible determinants of health care utilization. The Behavioral Model (depicted in Figure 2) suggests three kinds of population characteristics: those that *predispose* to health-seeking behavior (e.g., health beliefs and attitudes to health services), those that *enable* (e.g., health insurance), and those that suggest *need* (e.g., perceived health). These population characteristics feed into *health behavior*, a personal attribute such as diet and exercise habits but also actual use of health care. Together, the many variables grouped under each of these four broad concepts allow investigators to model *outcomes* (e.g., health status and satisfaction with care). This conceptual framework was developed to model utilization of health services, a sine qua non for outcomes (Andersen, 1968, 1995; Gelberg et al., 2000). However, its use has not been entirely restricted to predicting utilization and outcomes. For example, it was used as an explanatory model to predict not only use of health services but also both individuals' hepatitis B and C virus infection rates and individuals' knowledge of that health status (Stein et al., 2012).

The categories of this widely used conceptual framework (Andersen, 1995; Gelberg et al., 2000) seem tailor-made for understanding relationships among the statistically significant variables emerging from our research, including our dependent variable, trust. Thus, our dependent variable, trust, and child's ethnicity, its strongest bivariate correlate and associated independent variable in the multivariable analysis, are both “predisposing” conditions in the language of this model. Specifically, trust clearly is an important component of “Health Beliefs—attitudes toward health services” and Hispanic (or non-Hispanic Black or White) children is one category of “Social Structure—ethnicity.”

Access, the other significant independent variable relevant to the child's Medicaid care that the multivariate regression generated, is best understood as impacting the “enabling” stage of health-seeking behavior. Access is a specific issue that the Behavioral Model refers to as “Personal Family Resources—

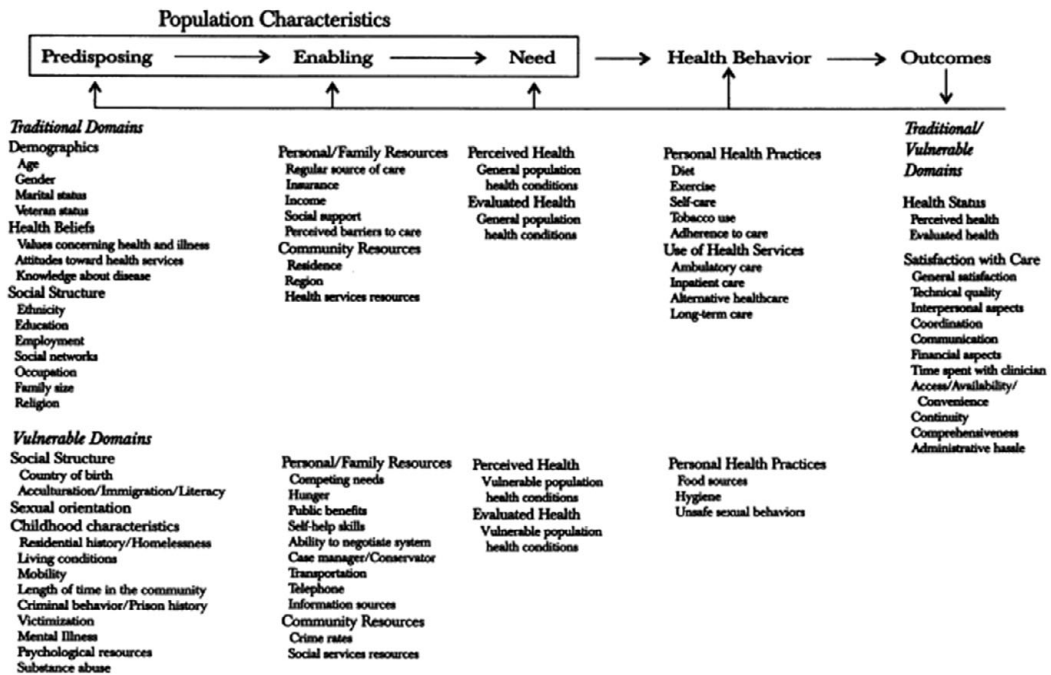


Figure 2. The Behavioral Model for Vulnerable Populations. Source: Gelberg et al. (2000).

perceived barriers to care.” Although the “barrier to care” pertains to care for the Medicaid child, it must be remembered that it is the child’s adult caregiver who is perceiving the barrier (just as it is the caregiver’s trust in the health services received by the child). Gelberg et al.’s (2000) Behavioral Model is explicated by the analysis of surveys of homeless adults, who are also the subjects in several other applications of the model (Stein et al., 2007; Stein et al., 2012). However, the fact that those responding to our survey were knowledgeable caregivers of an enrolled Medicaid child-patient constitutes no problem for our limited use of the Behavioral Model. Both the homeless subjects surveyed by Gelberg et al. (2000) and our respondents were interviewed because they were the decision makers determining whether or not to seek health care.

The remaining three significant variables are all either attributes of, or a judgment by, the adult respondent and are “predisposing” variables in the stages delineated by the Behavioral Model. Clearly, respondent’s sex falls under the domain of “Demographics—gender” and caregiver’s education under “Social Structure—education.” Interpreting satisfaction, the third significant independent variable pertaining to the adult respondent in terms of the Behavior Model, is a bit tricky. We regard “satisfaction with the child’s care,” as a judgment by the adult respondent, in contrast with our variable *access*, which asks the respondent to report objective facts (e.g., appointment availability) about health services provided or not provided to the child. The authors of the Behavioral Model only consider satisfaction as part of the final, fifth stage of the model: “outcomes,” which succeeds “health behavior” (encompassing the domains of “Use of Health Services,” but also “Personal Health Practices”). In considering satisfaction as an outcome, they follow Avedis Donabedian’s (1980) conceptualization of health care evaluation. Donabedian was adamant in regarding patient satisfaction as a critical measurable component of health care outcomes (as distinct from the “outputs” of the care system measured in the “health behavior” stage). Both Donabedian and the authors of the Behavioral Model are thinking about evaluating specific episodes of health care (in Donabedian’s case) or health-seeking behavior (as we dub the model’s “health

behavior”) and focus on achieved “utilization” (Aday & Andersen, 1974; Andersen, 1995). But satisfaction stemming from episode(s) of care feed back into the conditions that lead to health-seeking behavior. Satisfaction easily transforms into expectations of health care not yet sought or received as demonstrated by the association of pain with inoculations or dental care in childhood that make adults loath to seek vaccinations or regular dental care. Because we are not asking for a respondent’s evaluation of a specific episode of caregiving, we believe that satisfaction in our survey is a predetermining condition that, like trust, belongs to the domain of “Health Beliefs—attitudes toward health services.”

The Behavioral Model model’s dependent variable, health behavior, now encompassing both utilization of health services and personal health practices, contrasts with our dependent variable, trust. We did include two separate measures of utilization, primary care and emergency room visits, among the independent variables in our multivariable equation, but we found that neither was statistically significant in the multivariable analysis of determinants of trust. (Primary care visits but not emergency room episodes were weakly associated, $p < .05$, with levels of trust in the bivariate analysis.) Thus, our robust multivariable regression model shows no strong association between trust and health-seeking behavior. Unlike the Behavioral Model (Andersen, 1995), we make no claims that this conceptual framework in itself has explanatory power in our analysis. We adopted it as a taxonomy to help us understand how our several significant findings can relate to each other and to a widely used model for conceptualizing patient behaviors in the U.S. health care system. Our analysis does show how trust and its determinants are related to several determinants that are important independent variables in the Behavioral Model. Later in this discussion, a plausible explanation specific to the observed racial/ethnic differences in trust will be suggested.

Trust

The two specific concepts of trust that are relevant to this discussion are technical competence and fiduciary responsibility. It is quite possible to display great competence while only serving self-regarding goals. For example, the physicians involved in the Tuskegee syphilis study constitute an example of technical competence that failed horribly to be worthy of the fiduciary trust that their unwitting patients placed in them (Gamble, 1997). Third-party payers of health care for covered patients may be similar to the philanthropist who endows a scholarship at their alma mater. In these cases, the individuals or health institutions paying for a service are not the direct recipients of either the competent performance or the fiduciary responsibility (Hansmann, 1987). Because they are not the beneficiary patient receiving the care or the students eligible for the scholarship, benefactors—whether philanthropists or third-party payers—may have a hard time judging how well the benefit is administered. Both kinds of failure may go unnoticed when little attention is paid to the views and experiences of the beneficiary of a service/benefit in evaluating its provision. In health care, the ability of the patient to choose which provider to trust for service has traditionally been emphasized, with the patient seen as the principal and the provider as the agent. Yet with increasing regulation and at-risk managed care in state Medicaid programs, one can question whether the classic consumerism in competitive markets functions in the health care system. The concern about the increasing distance of the payer from the beneficiary of the service helps explain the emphasis on measures of patient satisfaction as a key outcome variable central to evaluating services in both the Behavioral Model and Donabedian’s work. And trust in provider of both types is closely entwined with satisfaction and its achievement in connection with an episode of care.

Because several of the trust-related items in our survey appear a priori to capture either the fiduciary or the technical dimension of trust, we could have explored the feasibility of disaggregating the analysis in the manner suggested by the theoretical literature. Instead, we chose to measure trust, our dependent variable, by constructing a composite scale from several items in our survey instrument. The decision to combine several individual expressions of trust/distrust, some competence and others fiduciary responsibility, to create our trust variable gave us greater confidence in the validity of our important, central finding: that Hispanic respondents had significantly more overall distrust of care provided to their child

than non-Hispanic Whites and non-Hispanic Blacks ($p < .001$; see Table 1). The difference between Hispanics and non-Hispanic Black respondents exceeded 30% for both values of the trust variable, but Blacks were only 7% below White trust scale scores for both lower and higher trust (a binary variable). In the multivariate regression, the probability that the null hypothesis (i.e., no difference in reported levels of trust between the Hispanic and non-Hispanic White subgroups) was true was very remote ($p < .001$; see Table 2). Thus, the observation that trust was markedly lower in the Hispanic subgroup compared with the non-Hispanic White subgroup was not attributable to chance. Similarly, we contend that trust was lower in the Hispanic subgroup compared with the non-Hispanic Black subgroup. This relationship ($p < .001$) was also highly significant in statistical terms.

The relatively small gap between non-Hispanic Whites and Blacks compared with the chasm separating both races from Hispanics is a noteworthy finding that we did not see reported in other studies. Our conservative methodology did not lead us to expect this result. The significance of our findings is reinforced by the fact that the respondents come only from caregivers who sought appointments in the last six months. The survey skip pattern caused the exclusion of more than 1,000 children without an appointment; over half of the children excluded were Hispanic, and just under a quarter were non-Hispanic Black or non-Hispanic White. By excluding the Hispanic population that did not have an appointment, we selected for Hispanic children whose caregivers had *higher levels* of trust. Comparing the composite trust score for excluded Hispanics (92% lower trust) with Hispanic children included (78% lower trust) shows just how conservative our research strategy was (chi-square $p = .000$). Because respondents for Hispanic children rated their child as much healthier than either non-Hispanic Black or White children and their utilization was lower (data not shown), our inclusion criterion increased the likelihood that the Hispanic cases would have interacted with Medicaid medical care, thereby making them more comparable to the other two racial/ethnic groups.

By choosing to explore the question of trust in general in our Medicaid population rather than fiduciary and competence trust, we are following the bulk of the literature. In the context of patients' trust in physician and its relationship to health and disease, Goold (2002), Hardin (2001), Rothstein (1996), and Rowe and Calnan (2006) underscore the fundamental role played by interpersonal trust. Specifically, the authors note the uncertainty, risk, and vulnerabilities that patients perceive in relation to provider competence and commitment to serve the patient's interests. The information asymmetries associated with the provider-patient relationship, characterized by the health provider's command of medical knowledge, which typically exceeds that of the patient, are also highlighted. The authors contend that these circumstances demand a high level of interpersonal trust, without which patients' incentive to access health services may be suppressed.

However, our study differs from most of the literature that we reviewed in comparing poverty-level Hispanics with similarly low-income non-Hispanic Blacks and Whites. Only 6 of 40 some sources initially reviewed for this article specified that the study population was composed of low-income individuals or families. Moreover, many of the other studies appear to lack sufficient numbers of Hispanics to allow the "minority" category to be disaggregated into Hispanics and non-Hispanic Blacks. We were fortunate in being funded well enough to survey a large number of Medicaid children and to have done so during a period when larger numbers of low-income Hispanic children qualified for Medicaid in North Carolina.

Acculturation: An explanation?

An obvious question is what might explain the large discrepancy between Hispanic and African American respondents? Perhaps some special aspect of their differing experiences as minorities might throw light on their striking differences in trust. Differing levels of acculturation to the dominant non-Hispanic White culture might differentiate between the minority subgroups. Constraints in survey design precluded us from including direct measures of acculturation. Because acculturation is a multidimensional concept, it needs to be measured with a well-validated battery of

survey questions, but no such instrument exists. In the absence of a widely accepted instrument that measures the degree of acculturation (Schumann et al., 2020), investigators often rely on proxies as gross indicators of acculturation, but a proxy is not the same as a well-calibrated measure. Inferences about differences between levels of acculturation can be drawn from primary indicators like preferred language, education, and satisfaction with communication that are used in this article, but such proxies, even used together, are inexact approximations. Thus, our reliance on proxies rather than a purpose-built measure requires us to acknowledge that we cannot claim to *demonstrate* that acculturation is so strongly related to levels of trust as to constitute an explanation for the differences in trust in provider between these two large minorities. Instead, we must use a somewhat nuanced argument showing that varying levels of acculturation are a likely explanation for the difference between average levels of trust expressed by Hispanic respondents and non-Hispanic Black caregivers.

As explained in the introduction, our successive surveys of North Carolina's Medicaid population show that increasing numbers of Hispanic children qualified for Medicaid in the first decade of this century (see Figure 1). Moreover, census data show that the total Hispanic population in the state grew rapidly during the same period, although we cannot determine the proportions of those immigrating from abroad or from other states (Miles et al., 2010; Pew Research Center, 2011; Tippett, 2014; U.S. Census Bureau, 1990, 2011). Our sampling for surveys of the *adult* noninstitutionalized Medicaid population at the same time that we drew the *child* samples showed no increase in Hispanic adults comparable to the increases in enrolled children. The large differences in the proportion of Hispanics in the child and adult samples probably suggests that many Hispanic adult caregivers were Medicaid ineligible, perhaps because they were born in Latin America and or had undocumented status. These population data provide circumstantial evidence that many of the Hispanic children enrolled in Medicaid and the adults responding for them reflected cultures that differ from the dominant U.S. culture. In contrast, much of the low-income non-Hispanic Black population in North Carolina has a long family history in the state and similar nearby states.

Language data gathered by the survey provided direct evidence that these presumptive recent North Carolina Hispanic residents were grounded in a foreign language and culture, unlike the bulk of children and respondents for non-Hispanic Blacks and Whites. With respondents identifying their child as Hispanic in 35.5% of the cases, 29.3% of respondents reported that they mainly spoke Spanish at home, but 22.6% of the children mainly spoke Spanish at home. Presumably, those figures show the classic process of acculturation as immigrant populations are led to understand American culture through their children's absorption into it. Some of the difficulty that respondents and their Hispanic children experience communicating with North Carolina health providers is revealed by responses to the question "What language do you mainly speak when talking with your child's doctor or health provider?" Only 20.4% of respondents—less even than the child's home use of Spanish—tried to talk with their child's provider in Spanish (Brandon et al., 2014). Thus, the survey establishes the differences in language between Hispanic adult caregiver respondents and non-Hispanic respondents. Because language is a major carrier of culture, the data again provide support for a strong presumption that less acculturation can explain much of the gap between the levels of trust among the Hispanic minority and trust expressed by the non-Hispanic Black minority.

Our review of the literature revealed a paucity of studies showing a direct relationship between lower levels of acculturation to the mores and norms of the dominant culture and lower trust scores. Instead, the literature examined the association of citizenship status, English-language proficiency and health literacy with measures of access and utilization. Strangely, one study of a small low-income Spanish-speaking Hispanic population suffering from diabetes that did examine the association of health literacy and trust found that greater health literacy was significantly associated with lower levels of trust in physician and worse treatment compliance; acculturation was not statistically significant, perhaps because there was little variation on this dimension among study subjects, according to the authors (White et al., 2013).

Neither our study nor the ones we examined included a variable for acculturation, a complex relational concept that is difficult and perhaps impossible to study empirically in a direct way

(Schumann *et al.*, 2020). Instead, we were forced to use several proxy variables that can indicate differences in acculturation. In addition to proficiency with the language of the dominant culture, a relevant proxy measure is education, because of its relation to literacy and the more specialized focus on health literacy. Education, which was measured by completion of high school or GED, study beyond high school, and less than high school diploma, proved to be statistically significant in the multivariable regression and to be negatively associated, thereby associating less education with lower trust (lower education presumed to indicate lower literacy, lower probability of high trust scale scores). If our assumption that formal education can be a valid proxy for literacy is accepted, then our finding that lower literacy was associated with lower trust contradicts that of White *et al.* (2013), whose focused study dealt narrowly with diabetes and its care.

Our multivariable regression also demonstrated that satisfaction was significantly associated with the level of trust in the way that one would expect (higher satisfaction scale score, higher trust score). This finding may reflect the connection between language proficiency and measures of access and utilization because the scale variable measuring satisfaction in our study was constructed from several survey items relating to talking and listening as explained in the discussion of methods section. Only one of four survey questions—an item about the adequacy of the amount of time spent with the child by the personal health provider—is not closely related to communication. Thus, our satisfaction variable may reflect the literature's emphasis on the importance of language proficiency for acculturation by capturing the difficulties faced by patients or children's caregivers who are grounded in a culture different from the dominant society.

The argument so far has built a plausible case based on language use, lower education, and satisfaction with communication: (1) when compared with the non-Hispanic Black minority, the new immigrants to North Carolina are less acculturated to the mores and norms of the dominant society; therefore, (2) this implied deficit in acculturation can go a long way toward explaining the lower trust registered by respondents for Hispanic Medicaid children. Because no standard battery of questions is normally used in health care surveys to measure acculturation (Schumann *et al.*, 2020), a slippery concept, the case has rested on the finding of statistical significance of both education as a proxy for literacy and the satisfaction/communication variable as a functional equivalent for language in the multivariable analysis. The argument is buttressed—strongly, we believe—by the empirical data about the role of Spanish in the lives of these new Hispanic immigrants to North Carolina.

The skeptical positivist would not be illogical in suggesting that previous experience with Medicaid—perhaps associated with anti-Hispanic prejudice experienced in Medicaid offices or just bad health care—are just as likely to explain lower Hispanic trust as acculturation. Fortunately, this counterargument can be evaluated with reference to time markers contained in the survey instrument. Most of the questions in the lengthy survey explicitly asked respondents to consider only the last six months. That limited lookback is typical of high-quality health surveys because research has determined that six months is about the limit of respondents' reliable memory of details of their health care (Bhandari & Wagner, 2006; Hargraves *et al.*, 2019; Mathiowetz & Dipko, 2000). Given the recent influx of Hispanics into North Carolina and their recent appearance on child Medicaid rolls compared with the long familiarity of non-Hispanic low-income Whites and Blacks with Medicaid, it is unlikely that significant bad experiences with North Carolina Medicaid would explain the low levels of trust: adult Hispanic respondents have had much less experience with Medicaid than the well-established non-Hispanic Black population. This observation is further supported by literature that finds Hispanics use less health care than non-Hispanics (Keller *et al.*, 2010; Marton *et al.*, 2016). If earlier experiences of allopathic medicine either in Latin America or after immigrating to the United States constitute the basis for lower trust of Hispanics, those experiences simply become part of the problem of acculturation experienced by this population to a greater degree than by other races or ethnicities in Medicaid.

Our argument against an alternative explanation follows a persuasive positive case for thinking that lower acculturation of respondents for Hispanic children enrolled in Medicaid is how best to understand their lower levels of trust. Together, the positive case and the refutation of an alternative constitute an interpretation of our results that can claim to be explanatory. Following recent trends in interpreting quantitative research, our results transcend mere “association” and such timid euphemisms as

“correlation,” “pattern,” “link,” and so on (Hernán, 2018, p. 616). Glymour and Hamad (2018) and Hernán (2018) challenge conventional wisdom by maintaining that science is fundamentally an explanatory enterprise. Admittedly, observational studies are useful when they call attention to “association” of phenomena that otherwise would be overlooked—like the much lower trust in provider expressed by responders for Hispanic children in successive CAHPS Medicaid surveys that our analysis discovered. But unexpected findings should goad us to look for explanation, in order to advance appropriate policy responses. Even more recently, two of the leading health journals—*Health Affairs* and *JAMA*—have attacked the notion that health services researchers have finished their task when they have conclusively demonstrated the existence of some racial/ethnic disparity (Boyd et al., 2020; Rivara et al., 2021; Zambrana & Williams, 2022). The danger of such research is that it may invite the reader to think of biological, often genetic, grounding for the putatively “objective” findings of the empirical research, when in truth race is only a socially constructed variable (Boyd et al., 2020). Boyd et al. (2020) urge investigators to consider racism, a sociopolitical concept, as the explanation for many observed racial disparities. Although distinct concepts, both racism and acculturation are explanations. In our research, racism might well explain the comparatively narrow gap between non-Hispanic Black’s trust in physicians and that of non-Hispanic Whites, but it is not as convincing as differing levels of acculturation in explaining the gap between Hispanics and non-Hispanic Blacks.

We do not want to claim too much for our explanation. The lack of trust may be particular to the Hispanic population that has immigrated to North Carolina; other immigrant populations with low levels of acculturation may display higher trust in the medical providers who treat them. If the Hispanic population follows the path of most previous immigrant groups (e.g., Irish, Italians, Vietnamese), acculturation will increase, and over time, trust may be expected to resemble that of the general population. Of course, such evolution is not inevitable, as the plight of the Romani people in Europe and North America demonstrates (Kingsley & Dzhambazova, 2020) or the choice of the Hassidim in New York (Shapiro, 2022).

Limitations

Several factors may limit the utility of our study’s findings. Foremost among these is that the subjects surveyed included only Medicaid enrollees in North Carolina, which makes generalizing study findings to other populations potentially problematic. A second limitation is that the study employed a cross-sectional, observational design, which in the past has often been regarded as incompatible with causal explanations. Additionally, Hispanic children were underrepresented in the truncated data set that was used in our analysis. The proportion of Hispanic children represented in the truncated data set (20.4%) was considerably smaller than that observed among all subjects who responded to the survey in the untruncated data set (35.5%). On the other hand, the proportion of Hispanic children reported in the truncated data set (20.4%) may more closely align with the proportion of 23% reported for the state’s entire Medicaid population as cited by Miles et al. (2010). Our very conservative methodology excluded many Hispanic cases with low trust scores, thereby making a very compelling argument for the robustness of our findings of differences in trust. Striking statistically significant differences between Hispanic respondents and the other racial/ethnic groups survived our erosion of those differences by the application of our exclusion criterion.

Another possible limitation is that the survey response rate was 36.6% as measured by American Association for Public Opinion Research (2011) standards. At first glance, this appears to be a liability. However, it should be noted that this response rate approaches what some deem an acceptable threshold for participation by Medicaid recipients (U.S. Department of Health and Human Services, 2002). It is also worth noting that the responses offered by survey respondents were self-reported responses, susceptible to possible recall bias and not verified by claims data. In terms of explained variance of the dependent variable (i.e., the trust scale), the absence of interaction variables as predictors may have suppressed the value of the model’s R^2 . Finally, the Cronbach’s alpha reliability measure scores for the

scale measures (trust, satisfaction, and health status) were approximately 0.75, falling short of the ideal threshold of 0.8 or greater.

Partially offsetting these limitations are two strengths of our study. Because our geographically stratified random sample was drawn from selected programs of the noninstitutionalized Medicaid population, the study only includes children in low-income families. The sample was drawn before implementation of the Affordable Care Act (ACA), which allowed Medicaid enrollment of children in families with somewhat higher incomes in many states. (Children in North Carolina's child health insurance program, which covers children in families with higher incomes, were not included.) The other strength of our study lies in the unusually large number of telephone interviews that were conducted and the relatively large number of respondents in both of the minority groups and in the non-Hispanic White majority.

Policy implications

Our diagnosis that lower levels of acculturation among adult respondents for Hispanic children enrolled in North Carolina Medicaid accounts for much of their low trust in providers makes it incumbent upon us to suggest policy interventions to improve their acculturation and reduce their distrust. Both individual and structural factors are important, but major systemic changes in the U.S. health care system might go a long way toward improving the structural constraints that too often doom local initiatives to alter specific individual experiences and behaviors. Therefore, this subsection will suggest a number of ideas for reducing the gap between what low-income Hispanic residents in the United States receive and the health care experienced by patients belonging to other, more established population groups.

Repeated experience with specific efforts to improve individual-level interactions in some sustainable and replicable manner has shown that it is almost impossible without attention to structural impediments. Creative administrators and clinicians in our health care system have continually developed and tested specific interventions, pilot projects, demonstration programs, and so on, focused on helping individuals receive high-quality care at reasonable cost in local or even statewide evaluations. Some, perhaps many, have shown positive results. These local health delivery interventions often receive some publicity but then fade from collective memory as attention moves on to the next innovation. Few receive the support necessary to bring them to scale. Thus, these organizational improvements are in stark contrast to successful new clinical therapies that have the weight of federal and professional society regulatory pressure and the clout of insurance company and Medicare "best practices" financing behind them. Critical to scalability is financing. For example, HMOs pattered along for decades in various cities and metro areas as prepaid group practices until the 1970s, when the federal government provided both funding and its preemptory legal power in the Health Maintenance Organization Act of 1973 (P.L. 92-222) to force states and professional medicine to accept this suddenly fashionable union of health delivery and finance (Brown, 1983; Kingdon, 2011).

Thus, it is important to envision changes in the principal health care structures that can help Hispanic families adjust to the U.S. ways of providing health care, starting with Medicaid, the chosen instrument for addressing the health care needs of low-income individuals and families. The ACA was a major step in the evolution of Medicaid, because when fully implemented, it transforms categorical programs into a universal entitlement for low-income persons (Brandon, 2012). (By the end of 2022, only 11 states had failed to accept unrestricted Medicaid eligibility for those in families with incomes less than 138% of the federal poverty level and no other health coverage; see Kaiser Family Foundation, 2022.) To fully realize this mission, Medicaid eligibility needs to include residents of the United States without regard to how long they have resided in the country and perhaps their legal status. One of the authors has argued for cutting Medicaid's Gordian knot by federalizing Medicaid—making it a single program run by the Centers for Medicare and Medicaid Services (Brandon, 2021a; Brandon, 2021b). Currently, Medicaid is effectively 51 programs (Washington, DC, counts as a state for Medicaid but not self-government!) that maintains

some uniformity because the federal government regulates *state* compliance with federal regulations and laws (when federal attention ought to focus on improving quality of care and efficiency in delivering care to patients). A unitary Medicaid program would simultaneously overcome two injustices and achieve two important policy objectives. First, a federal takeover of Medicaid would end recalcitrant states' ability to escape the ACA's intended expansion of Medicaid at federal expense into a universal entitlement for Americans with family incomes at 138% of the federal poverty level or less. Second, it will also end the geographical injustice of a federal program that differs in eligibility, coverage benefits, and provider reimbursement rates depending on where beneficiaries live or health providers practice. (As some states become increasingly aggressive in policing clinical judgment and procedures such as interventions for gender dysphoria, obstetrical issues, and reproductive decision-making, federalized Medicaid might also become a shield for professional medical societies and patients trying to preserve traditional clinical and personal autonomy.) The 51 state Medicaid programs treat Hispanic populations and their health care needs very differently, depending on state political and social cultures. A unified federal structure could provide U.S.-born Hispanic children and federally eligible immigrants financial support and regulatory encouragement that would help creative health care administrators and providers innovate to improve the health care of new immigrants *and their understanding of the health care system*. With a national Medicaid program administered by the Centers for Medicare and Medicaid Services, coverage could be expanded to all migrants whose status is still being determined (an adjudication that can take years).

We can now turn to programmatic innovations—the individual-level interventions that Medicaid, with its entitlement funding, could nourish. An intervention designed to facilitate enrollment in the ACA developed trained “navigators.” Initially intended to help uncovered individuals and families make sound decisions among many options and “doors” within and beyond the ACA health insurance marketplaces (or “insurance exchanges”), navigators constitute an important patient-centered addition to the health delivery system that can serve as coaches to guide patients in utilizing care after enrollment. Research has shown that these individuals and the network of nonprofit corporations that organized them often go beyond helping families enroll in the appropriate health plan by helping newly covered families *use* their new coverage after enrollment (Tripp, 2015; van Eijk et al., 2022). Too often, low-income families who have had little or no experience with health insurance coverage fail to take full advantage of comprehensive coverage such as Medicaid when they first receive it. Recognition of this expanded role for navigators justifies funding to maintain contact with families for the first year after enrollment or until new health care consumption habits are established. As van Eijk and colleagues (2022) demonstrate, assured recurring federal funding is one of the keys to building such a system of health system coaches. Funding tied to the entitlement aspect of Medicaid means that unlike navigator dollars in the ACA annual appropriation is not required. (The Donald Trump administration cut ACA funding for navigators and for public communication; see van Eijk et al., 2022.) These needed services should at least be available in areas—many rural—where there are concentrations of newly arrived populations and those with little understanding or even the ability to comprehend the complex, fragmented web of health services and financing that constitutes the U.S. health care system.

The brave efforts at a student-run free clinic at Eastern Virginia Medical School that apparently enjoyed at least temporary success echoes the national attempt to organize effective cadres of knowledgeable guides using ACA funding. The medical students involved in the clinic developed their own system similar to navigators to help many of the patients at their student-run free clinic into a regular source of care once funding for coverage became available to some low-income patients (Taylor-Fishwick et al., 2021). While admiring the intelligence and energy of these students, from the perspective of a national health care system with its many problems, one must ask whether such ad hoc, voluntary solutions are scalable or even sustainable. Indeed, the many different kinds of free clinics from which this particular innovation emerged often seem precarious, depending as they do principally on volunteers, philanthropy, and local oversupply (often temporary) of medicines, technology, and supplies.

Finally, the issue of language and cultural competency looms large in discussions of immigrant populations. Modern technology and improved connectivity have enabled many medical practices to meet the challenge of securing reliable basic interpretation services and professional standards for

interpreters have improved as recognition of the necessity of such services for quality health care has become more widespread. Remote interpretation is usually focused on clinical interactions. Yet with new influxes of immigrants and vetted refugees from Afghanistan, the Middle East, and other non-Spanish-speaking areas, on-the-ground guides to health care provided locally would also help such families in transition. In particular, anecdotes suggest that nonprofits that receive public short-term funding to settle legal refugees granted political asylum and their families need to work more closely with established health providers and patient advocates. Of course, the health care system must also provide care to large numbers of undocumented immigrants. The health care system (with its Medicaid funding and Health Resources and Services Administration grants) and local agencies charged with settling legal immigrants could usefully collaborate to provide English-language instruction that could be infused with health care concepts, which are universally useful to new immigrants. In more rural areas where many Hispanics live, responsibility for providing such courses to facilitate acculturation is likely to fall entirely on institutional health providers (hospitals, nursing homes, managed care organizations, etc.), especially where local government lacks funding or political will to sponsor such programs.

Of course, it goes without saying that providers should be well educated in terms of cultural sensitivity and competency and adhere to best practices or standards (Barr, 2019). Recruiting more qualified Hispanic health providers is also an important agenda item. Specifically, health providers serving Medicaid eligible children should engage in participatory decision-making processes with patients and their parents, encourage parents to voice their concerns and ask questions, and then provide additional information and feedback based on those questions and concerns.

Language competency should also be emphasized as part of professional preparation. Fifty years ago, undergraduates at most U.S. colleges took at least one foreign language through the intermediate level (typically four semesters). Even when students failed to achieve proficiency, good language training was accompanied with some degree of enhanced cultural competency. If nothing else, struggling to communicate in a foreign tongue when others seem to jabber on with ease teaches humility and the need to speak slowly, simply, and clearly. In light of our new era of global population exchanges, it may be time to reinstitute the expectation that anyone with a bachelor's degree—at least anyone aspiring to enter one of the helping professions—should have had exposure to a modern foreign language, a category that includes American Sign Language, through the intermediate level. If medical schools were able to make sure that applicants take organic chemistry, over time, they ought to be able to induce aspiring college students to enroll in a modern non-English language.

Conclusion

This article was motivated by the need to better understand the much lower levels of Hispanic respondents' trust in health care providers compared with non-Hispanic Blacks and non-Hispanic Whites. These differences between responses of adult caregivers reporting on care received by their Medicaid-enrolled child persisted over several statewide cross-sectional telephone surveys; the data in this article came from a survey fielded in 2012.

The discussion of our results showed how the independent variables that proved to be significant fit into a complex chain leading to health-seeking behavior—the widely accepted Behavioral Model for Vulnerable Populations. Following that effort to recapitulate our findings in terms of this useful framework for understanding how they contribute to efficient and effective health care delivery, we explored the concept of trust, the dependent variable in our study.

The next part of the discussion developed an argument for understanding *why* Hispanic ethnicity registered such low levels of trust compared with other demographic groups. The case that the process of acculturation can best explain the much lower levels of trust displayed by Hispanics compared with the other principal minority group was based on several data points (language of children and respondents, the statistically significant variables education and satisfaction, and the temporality implicit in the survey). We believe that we provided a plausible, even persuasive, explanation of the differences between

Hispanic respondents' trust levels and that of non-Hispanic Blacks based on data that the conventional taboo maintains can only yield "association." Our achievement also meets the challenge to explain, not just record, the existence of racial/ethnic health and health care disparities by proposing that differing levels of acculturation are likely to explain much of the anomaly we studied.

Finally, we propose policy innovations to address the need for greater acculturation of the Hispanic population and immigrants generally. The issues suggested included significant institutional changes—federalizing Medicaid and expanding its coverage, support for navigators or health system coaches to help low-income families find their way through the U.S. health care system, and multipronged efforts to improve communication through cultural and linguistic competencies.

Supplementary materials. To view supplementary material for this article, please visit <http://doi.org/10.1017/pls.2023.3>.

Conflict of interest statement. The authors hereby report that to the best of our knowledge, information, and belief, no situation in which we are involved personally or professionally could be construed as a violation of the conflict of interest policy, or as placing us in a position of having a conflict of interest.

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Cite this article: Smith III, G. H., Hampton, C., Tripp, H. L. & Brandon, W. P. (2023). Acculturation, Hispanic ethnicity, and trust: Verifying and explaining racial/ethnic differences in trust in health providers in North Carolina Medicaid. *Politics and the Life Sciences*, *42*, 120–145. <https://doi.org/10.1017/pls.2023.3>