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Do Medical Homes Reduce Disparities in Receipt of Preventive Services Between Children Living in Immigrant and Non-immigrant Families?

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Abstract

The patient-centered medical home model has the potential to reduce healthcare disparities among immigrant children. The purpose of this study is to examine the relationship between medical home (MH) participation and receipt of preventive services among immigrant children age 0–17. The study employed extant data from the National Survey of Children's Health, 2007 (NSCH). Logistic regression analyses were employed to assess the relationship between receipt of preventive services and MH status among immigrant and non-immigrant children. Due to primarily the lack of family-centered care, only 40% of immigrant children met the medical home criteria versus approximately 62% of non-immigrant children. Immigrant children have decreased odds of receiving preventive care despite MH status. Improving the family-centered care aspect of the MH is necessary to increasing medical home access to immigrant children and the receipt of preventive services for immigrant children who meet the MH criteria.

Keywords

Medical home; Immigrant children; Preventive services; Disparities

Background

Approximately 20% of U.S. children reside in immigrant households [1]. Children of immigrant families experience poor access to medical care and low satisfaction with the healthcare system compared to children from non-immigrant families [2]. Immigrant children from Latino families often experience barriers to access to care and may use emergency care due to lack of health insurance [3, 4].

Immigrant families typically have lower health care expenditures overall; however, cost for pediatric emergency department visits, especially for ambulatory care sensitive conditions, are higher among immigrant children compared to non-immigrant children [2]. Overall, the current state of limited and poor access to health care will contribute to continued disparities in health among immigrant children.

The patient-centered medical home model (PCMHM) has the potential to reduce healthcare disparities experienced by children of immigrant families [5]. The PCMHM has been shown to be effective in decreasing costs and improving the quality of care for children with chronic disease and special health care needs [6–11] and also increases the likelihood of receiving preventive care [12–15].

The purpose of this study is to examine the relation between medical home participation and immigrant status among children age 0–17. Specifically, we examine the relationship between medical home criteria and receipt of preventive health care services among children of immigrant and non-immigrant families to explore whether having a medical home equalizes the playing field for health care access, or do children living in immigrant families still have limitations in care access despite meeting the medical home criteria.

Methods

Data and Participants

This study uses data from the Centers for Disease Control and National Center for Health Statistics, ‘National Survey of Children’s Health, 2007’ (NSCH). This survey is a module of the State and Local Area Integrated Telephone Survey and includes data on physical, emotional, and behavioral health indicators for children ages 0–17 in the US. A total of 91,642 surveys were completed with a response rate of 55.3%. Data were sampled within each of the 50 states. One child was randomly selected from each identified household. Only respondents who indicated that they were the child’s mother or father were included in the analysis. This study has been reviewed and approved by an institutional review board.

Measures

In this study, medical home is characterized according to the American Academy of Pediatrics definition, which identifies seven components: accessible, family-centered, continuous, comprehensive, coordinated, compassionate, and culturally effective care [16]. However, in the NSCH, the compassionate and culturally effective components were part of family-centered care, resulting in the five components below, namely: (1) *Personal Doctor*

or Nurse (2) *Usual Source of Sick or Well Care* (3) *Family-Centered Care* (4) *Problems Getting Needed Referral* and (5) *Coordinated care*.

Components of the Medical Home Measure

1. *Personal Doctor or Nurse* Personal doctor or nurse component is based on the response to the question “Do you have one or more healthcare professionals you think of as your child’s personal doctor or nurse?” A child has a personal doctor or nurse if a parent regards one or more healthcare professionals as the child’s doctor or nurse. If a parent is not able to identify any healthcare professional, then the child has no personal doctor or nurse. Regardless of response to other components, any child who lacks a personal doctor or nurse does not meet the Medical Home criteria.
2. *Usual Source of Sick or Well Care* Usual source of sick or well care was derived from responses to “Is there a place child usually goes when he/she is sick or you need advice about his/her health?” and “What kind of place is it?” or “What kind of place does child go to most often?” A child or youth has a usual source of sick or well care if he/she usually has care in a doctor’s office, hospital outpatient department, clinic or health center, school, friend or relative, some other place, or telephone advice line. A child is regarded as lacking a usual source of sick or well care if he/she has no usual source of care or has care in a hospital emergency room, outside the U.S., or does not go to one place most often.
3. *Family-centered care* Family-centered care is derived from six questions: “During the past 12 months/since birth how often did the child’s doctor or other health care providers do each of the following: spend enough time with child, listen carefully to you, provide needed information about child’s health problems or care, and help you feel like a partner in your child’s care”. Also, “When your child is seen by doctors or other providers how often are they sensitive to your values/culture; how often do they get non-family member to interpret conversations when needed?” A child has family-centered care if “usually” or “always” is the response to all these questions. A response of “never” or “sometimes” to one or more of the questions implies lack of family-centered care. The raw and standardized Cronbach’s alpha coefficient of the composite family-centered care measure is 0.74 and 0.75, respectively.
4. *Problems Getting Needed Referral* This was determined by asking “During the past 12 months/since birth, did your child need a referral to see any doctors or receive any services?” and if yes “Was getting referrals a big problem, a small problem, or not a problem?” Those who encountered “big or small problem” with referral are considered to have “problems with needed referral” and those who had no problem are considered “not to have problems with needed referral.”
5. *Coordinated care* is determined from responses to three questions by children who used two or more services. First, “During the past 12 months/since birth of child, how often did you get as much help as you wanted with arranging or coordinating the child’s care?”; responses are “never, sometimes” or “usually”. Second,

“Overall, are you very satisfied, somewhat satisfied, somewhat dissatisfied, or very dissatisfied with the communication among your child’s doctors and other health care providers?” Third, “Do your child’s doctors or other health care providers need to communicate with [his/her] child care providers, school, or other programs?” And if yes, “Overall, are you very satisfied, somewhat satisfied, somewhat dissatisfied, or very dissatisfied with that communication?” Coordinated care criteria is met if family “usually” gets help coordinating care when needed and child’s parent(s) are “very satisfied” with doctor’s communication with other doctors, as well as with other programs. Both the raw and standardized Cronbach’s alpha coefficient of coordination of care composite measure is 0.76.

In sum, the NSCH operationalization of the medical home criteria considers children or youth as having a Medical Home if they satisfy all three of the following components: personal doctor or nurse, usual source of sick or well care, and family centered care described above. All components are equally weighted. In addition, children who needed a referral or coordination of their health care services must also satisfy the ‘Problems Getting Needed Referral’ and the ‘Coordinated Care components’.

Receipt of Preventive Services—During the past 12 months/since birth, has the child had at least 1 medical visit for preventive services such as a physical exam or well-child check up? (yes or no).

Covariables of Interest—*Immigrant Status* Immigration status was based on parental report of whether the child and his or her parents were born in the United States. Following recommendations from the Institute of Medicine report on immigrant children [17], we defined children living in immigrant families as those born outside of the US., or those born in the US. of at least one immigrant parent, and non-immigrant children as those born of two US.-born parents; this categorization has been used in previous studies [18]. Immigrant was the reference group.

Socio-demographic variables were also included as covariables:

Child’s gender was reported as male or female; child’s race/ethnicity was coded Hispanic, White non-Hispanic, Black non-Hispanic and Other non-Hispanic (including Asian race).

Household poverty level was based on the Department of Health and Human Services (DHHS) Federal Poverty Level (FPL) guidelines for families residing in the United States. FPL is the minimum amount of income that a family needs for food, shelter, clothing, and other necessities and varies by household family size. In this study, poverty level includes 4 levels: <100% FPL, 100–199% FPL, 200–399% FPL, 400% or more FPL.

Indicators of adolescent health include: Number of chronic diseases (0 versus one or more).

Insurance Status was categorized as insured (private, Medicaid/SCHIP/government/military) or uninsured.

Highest Level Educational Attainment by any Member of the Household was categorized as less than high school (reference group), high school, and greater than high school.

Household Structure/Composition Parents reported whether they were: biological or adoptive parents, or a two parent step-family, a single parent, or other.

Statistical Analysis

Means and frequencies were calculated to describe the distribution of all variables among the sample. *T* test and Chi-square tests examined the relation between medical home characteristics and immigration status, health status and socio-demographic variables. For medical home components with multiple measures, Cronbach's alpha was calculated to assess internal consistency reliability of the measure. Binary logistic regression was employed to assess the relation between receipt of preventive health care in the last 12 month, medical home status, and immigration accounting for socio-demographic covariates. To assess whether medical home status moderates the relationship between immigrant status and receipt of preventive services, we examined the medical home by immigration status interaction term. When interaction effects were significant, regression models were stratified by medical home status. All analyses used STATA survey commands (version 9) to account for the complex survey design, including survey weights and stratification by US State.

Results

The mean age of children in the sample is 8.6. Slightly over half of the children were male (51.1%) and over half were white (55.3%), 20 percent were Hispanic, 14 percent were black and 10.7 percent were classified as other (e.g. Asian, mixed race, unidentified). The majority of children lived in a two-parent home (68.1%) or with a single mother (18.7%). Over 90 percent of the sample completed high school or more (including trade school) and over 60 percent of households lived at or above 200% of the poverty level. Approximately 23 percent of children reside in immigrant families and 13 percent of families speak a language other than English in the home. Almost 40 percent of families lived below 200% of the federal poverty level. Less than 10% of children are uninsured, and only 3.5% of parents rated their child's health as fair or poor.

Notably, children who have a medical home are on average 1 year younger (8.1) than children who do not meet the medical home criteria (9.2, $P < 0.0002$). Children in immigrant households are less likely to meet the medical home criteria (59.7%) compared to children in non-immigrant households (40.3%; $P < 0.0001$). Black children (44.2%) and Hispanic (38.4) children are the least likely to meet the medical home criteria compared to 68% of white children ($P < 0.0001$). Children of parents who completed more than high school (64.6%) were also more likely to meet the medical home criteria versus children whose parents did not receive education beyond high school (35.4%, $P < 0.0001$). Similarly, children living in households 400% of the FPL (70.2%) were most likely to meet the medical home criteria compared to children living below 400% FPL ($P < 0.0001$). Children without medical homes (75.2%) are less likely to have received preventive services in the last 12 months compared to children with a medical home (84.1%), $P < 0.0001$; however, children who do not meet the medical home criteria also have more chronic conditions on

average (0.58) versus children who meet the medical home criteria (0.30; $P < 0.0001$; Table 1).

Immigrant households are less likely to have an adult who completed high school (29.1%) compared to non-immigrant households (7.9%, $P < 0.0001$) and are also more likely to live below 100% the federal poverty level (30.9% versus 14.7% of non-immigrant households; $P < 0.0001$). Immigrant children are also more likely to be uninsured (16.8% versus 6.8% of non-immigrant children, $P < 0.0001$; Table 2).

Immigrant children (76.2%) are less likely to have received preventive services in the last 12 months compared to non-immigrant children (80.7%), $P < 0.0001$, yet on average have more chronic conditions (mean = 0.47) versus non-immigrant children (mean = 0.27, $P < 0.0001$) (Table 3).

Table 3 displays the relationship between child immigrant status and medical home criteria. Only 57.6% of children met the medical home criteria; an even lower percentage of immigrant children had a medical home (40.3%) compared to non-immigrant children (62.7%, $P < 0.0001$). Children living in immigrant households are less likely to meet all aspects of the medical criterion. While over 90 percent of children have access to a personal doctor or nurse and to a regular health care facility, immigrant children have less regular access to health care providers (86.4% versus 95.1% of non immigrant children; $P < 0.0001$) and organizations (87.3% versus 93.7% of non immigrant children; $P < 0.0001$).

The family-centered care medical component is the least likely met component for all children, especially immigrant children. Only 67.4 percent of children receive family centered care. Children living in immigrant families are even less likely to receive family-centered care (49.4%) compared to children living in non-immigrant households (72.6%; $P < 0.0001$). Children living in immigrant families are less likely to require referrals or care coordination but are also less likely to meet the criteria for needed care coordination (12.2%) compared to non-immigrant children (15.1%; $P < 0.001$).

Table 4 displays adjusted odds ratios expressing the relationship between receipt of preventive services and immigrant status and socio-demographic co-variables. Children who have a medical home have 1.3 times the odds of having received preventive care in the past 12 months compared to children with no medical home (adjusting for socio-demographic co-variables; results not shown in table). A significant interaction term exists between medical home and immigration status ($P < 0.0003$). Stratified analysis shows that among children who meet the medical home criteria, non-immigrant children have increased odds of receiving preventive services compared to immigrant children (OR = 1.613, $P < 0.05$). Among children who do not meet the medical home criteria, immigration status showed no relation to receipt of preventive services.

Discussion

The results of this study provides evidence that children living in immigrant families are significantly less likely to meet the medical home criteria compared to children living in non-immigrant households. Coker and colleagues found similar results among children with

specific illnesses and special needs [19]. Compared to non-immigrants, immigrants are more likely to live at an income closer to the poverty level and have lower levels of education, which in effect leads to lower access to full-time employer paid benefits, resulting in higher rates of uninsured and poorer health [20].

Parents of immigrant children were least likely to report receiving family-centered care. This medical home component measures the degree to which parents feel their interactions with their provider were attentive, inclusive, and sensitive. For example, parents are asked whether the provider listened carefully, included them as a partner in their child's care, and was culturally sensitive, all of which are particularly salient to immigrant families. In this sample, 71% of those without a medical home use a language other than English at home, which may explain why family-centered care is the least met medical home criterion. While the measure of family-centered care includes the availability of interpreter services, interpreters are often other family members or staff present during care and not necessarily professional interpreters [21, 22], which may reduce the likelihood that important medical matters are translated properly.

Recent nationally-based findings from studies with Latino immigrants underscored the importance of physicians speaking the same language as patients for quality healthcare experiences, even beyond the importance of a patient's own English proficiency [1]. Programs and policies that encourage physicians to become proficient in languages reflecting the demographic shifts in neighborhoods in which they serve and loan forgiveness or medical education programs that encourage individuals from immigrant communities to return to their neighborhoods after medical school may serve to improve family centered care. Standards for culturally-competent care were introduced by the Liaison Committee on Medical Education in 2005 [23, 24] which outlines the need for faculty and students to develop an understanding of diverse cultures and belief systems that guide health behavior and inform decisions about health care.

In addition, identifying ways in which immigrant parents can become active participants in their child's health care and strategies for health care providers and organizations to improve communication and interactions with immigrant families is essential to improving family-centered care.

While having a medical home increased the odds that a child would receive preventative services in the past 12 months, immigrant status was unrelated to receipt of preventive services among children with no medical home. These results held constant even after controlling for factors known to influence the receipt of preventive services, including parent education, employment, and insurance status.

Medical homes have the potential to reduce disparities in the receipt of necessary health care services. This is evident by the findings that parents in this sample reported a greater number of chronic conditions in children who did not have a medical home. Still, immigrant children who have medical homes appear not as likely to receive necessary preventive services compared to non-immigrant children. In addition, immigrant children are in general less likely to have a medical home, and are reported to have greater chronic conditions than non-

immigrant children. It is possible that while the family-centered medical care component is met among immigrant children who have a medical home, it is only met to minimal levels.

This study has several limitations. Due to the cross-sectional nature of the data, inferring causality between immigration status and medical home status is limited. Selection bias is an issue as immigrant families who meet the medical home criteria are likely inherently different from (e.g. on variables such as insurance status, motivation, and need) non-immigrant families, potentially biasing parameter estimates toward the null. While we controlled for observable factors that may confound the relationship between immigrant and medical home status and receipt of preventive services, unobservable variables remain uncontrolled, and observable factors remain unbalanced. However, achieving a propensity match on both treatment factors, immigrant status and medical home status, is not feasible.

Second, variables that could shed light on the absence of family-centered care are not present in the data. For example, the language of the primary health care provider and information about satisfaction with medical home utilization are not available. Additionally, all data is self-reported and parent documentation status is unknown. Finally, for some immigrant populations, defining care outside of the US. as “lacking” a usual source of care may create a conservative estimate for the usual source of care criterion, as it is not unusual for Mexican immigrants who live in the U.S.-Mexico border region to return to Mexico for healthcare services.

Future research and data collection efforts should include the exploration of variables that may explain issues specific to family-centered care, particularly communication issues and cultural competence from both the patient and provider perspective. These components of the medical home are critical to improving medical home status among all children, especially those in immigrant families. Furthermore, the concept of a ‘health home’ [25] might be more appropriate to describe the health care needs of immigrant and all children, as health encompasses more than just the receipt of medical care and may better embody concepts such as family centeredness.

New Contribution to the Literature

This study adds to the current literature by evaluating the relationship between immigration and medical home status.

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Table 1

Sociodemographic variables by medical home status

Variable unweighted N = 91,642	All, %, se (n)	Medical home % (se) (N = 52,785) 57.6%	No medical home % (se) (N = 38,838) 42.4%
<i>Demographic measures</i>			
Age in years (mean)***	8.6 (0.04)	8.1 (0.06)	9.1 (0.07)
Male (%)	51.1 (0.42)	50.6 (0.53)	52.1 (0.70)
Race/ethnicity (%)***			
Non-hispanic white	55.3 (0.42)	68.0 (0.45)	32.0 (0.45)
Non-hispanic black	14.0 (0.27)	44.2 (1.05)	55.8 (1.05)
Hispanic	20.1 (0.41)	38.4 (1.25)	61.5 (1.25)
Other	10.7 (0.28)	55.4 (1.42)	44.6 (1.42)
Family structure (%)***			
Two biological/adopted parents	68.1 (0.40)	62.2 (0.52)	37.8 (0.52)
Two-parent step home	7.6 (0.24)	51.5 (1.62)	48.5 (1.62)
Single mother	18.7 (0.33)	46.5 (0.94)	53.4 (0.94)
Other	5.6 (0.20)	45.9 (1.77)	54.1 (1.77)
Immigrant parent (%)***			
Yes	22.8 (0.42)	40.3 (1.12)	59.7 (1.12)
No	77.2 (0.42)	62.7 (0.43)	37.3 (0.43)
Language use at home (%)***			
English	86.6 (0.36)	61.7 (0.43)	38.3 (0.43)
Non-english	13.3 (0.36)	28.8 (1.49)	71.2 (1.49)
<i>Socioeconomic measures</i>			
Family SES: parental educational level (%)***			
More than high school	66.5 (0.42)	64.6 (0.48)	35.4 (0.48)
High school or equivalent	23.1 (0.38)	47.4 (0.98)	52.6 (0.98)
Less than high school	10.4 (0.29)	33.8 (1.39)	66.2 (1.39)
Family poverty level (FPL) (%)***			
0–99% FPL	17.8 (0.36)	39.1 (1.11)	60.9 (1.11)
100–199% FPL	21.2 (0.38)	49.1 (1.03)	50.9 (1.03)
200–399% FPL	31.4 (0.40)	63.3 (0.76)	36.7 (0.76)
400% FPL	29.5 (0.38)	70.2 (0.70)	29.8 (0.70)
Health insurance status (%)***			
Insured	90.9 (0.26)	59.7 (0.44)	40.3 (0.44)
Not-insured	9.1 (0.26)	35.7 (1.50)	64.3 (1.50)
Number of chronic conditions (mean)***	0.42 (0.01)	0.30 (0.01)	0.58 (0.02)
<i>Service utilization measures</i>			
Had at least 1 preventive medical visit in the past 12 months***			
Yes	79.7 (.44)	84.1 (0.47)	75.2 (0.81)

Implies significant ($P = 0.0001$) association between designated variable and medical home status

Table 2

Sociodemographic variables by immigrant status

Variable unweighted <i>N</i> = 91,642	All, %, se(n)	Children in immigrant families % (se) (<i>n</i> = 14,131)	Children in non-immigrant families % (se) (<i>n</i> = 76,543)
<i>Demographic measures</i>			
Age in years (mean) 8.6 (0.04)###	8.6 (0.04)	8.1 (0.12)	8.7 (0.05)
Male (%)	51.1 (0.42)	51.5 (1.12)	51.0 (0.44)
Race/ethnicity (%)###			
Non-hispanic white	55.3 (0.42)	17.04 (0.71)	68.15 (0.44)
Non-hispanic black	14.0 (0.27)	8.28 (0.53)	16.02 (0.32)
Hispanic	20.1 (0.41)	56.94 (1.09)	9.33 (0.35)
Other	10.7 (0.28)	17.75 (0.87)	6.49 (0.22)
Family structure (%)###			
Two biological or adopted parents	68.1 (0.40)	77.8 (0.93)	64.7 (0.42)
Two-parent step home	7.6 (0.24)	6.5 (0.61)	7.9 (0.24)
Single mother	18.7 (0.33)	12.9 (0.73)	20.4 (0.36)
Other	5.6 (0.20)	2.6 (0.34)	6.9 (0.23)
Language use at home (%)###			
English	86.6 (0.36)	46.5 (1.10)	99.2 (0.08)
Non-english	13.3 (0.36)	53.5 (1.10)	0.8 (0.08)
<i>Socioeconomic measures</i>			
Family SES: parental educational level (%)###			
More than high school	66.5 (0.42)	47.3 (1.11)	65.8 (0.42)
High school or equivalent	23.1 (0.38)	23.6 (0.99)	26.4 (0.39)
Less than high school	10.4 (0.29)	29.1 (1.09)	7.9 (0.23)
Family poverty level (FPL) (%)###			
0–99% FPL	17.8 (0.36)	30.9 (1.09)	14.7 (0.30)
100–199% FPL	21.2 (0.38)	23.9 (0.98)	20.1 (0.36)
200–399% FPL	31.4 (0.40)	22.4 (0.92)	33.8 (0.41)
400% FPL	29.5 (0.38)	22.7 (0.83)	31.4 (0.40)
Health insurance status (%)###			
Insured	90.9 (0.26)	83.2 (0.82)	93.2 (0.24)
Not-insured	9.1 (0.26)	16.8 (0.82)	6.8 (0.24)
Number of chronic conditions### (mean)	0.42 (0.01)	0.25 (0.02)	0.47 (0.01)
<i>Service utilization measures</i>			
Had at least 1 preventive medical visit in the past 12 months####			
Yes	79.7 (.44)	76.2 (1.32)	80.7 (0.44)

Implies significant ($P = 0.0001$) association between designated variable and child immigrant status

Table 3

Medical home component by immigration status

Variables unweighted <i>N</i> = 91,642	All cases	Children in immigrant non-families %, (se) 77.2%	Children in immigrant families %, (se) 22.8%
Met medical home criteria (%yes) ***	57.6 (0.43)	62.7 (0.43)	40.3 (1.1)
Has a personal doctor or nurse (%yes) ***	93.1 (0.25)	95.1 (0.42)	86.4 (0.42)
Accessible health facility	92.2 (0.23)	93.7 (0.21)	87.3 (0.71)
Received family-centered care (%yes) ***	67.35 (0.42)	72.6 (0.43)	49.4 (0.33)
Need for and problems getting health care referrals (%) ***			
No referral needed	84.1 (0.30)	82.9 (0.34)	87.9 (0.65)
No problem	13.1 (0.28)	14.2 (0.32)	9.5 (0.63)
Big or small problem	2.8 (0.13)	2.9 (0.16)	2.5 (0.22)
Effective care coordination among health care providers and between health care providers and other programs (%) **			
Did not need care coordination or less than 2 services	58.7 (0.41)	58.4 (0.55)	59.7 (0.55)
Met all needed components of coordination	28.3 (0.37)	29.3 (0.78)	25.1 (0.78)
Did not meet 1 or more elements of coordination	12.9 (0.29)	12.2 (1.23)	15.1 (1.21)

**
 $P < 0.01$ according to Chi-square test,

 $P < 0.0001$ according to Chi-square test

Table 4

Logistic regression: modeling the probability of receipt of preventive services in the last 12 months given socio-demographic variables; stratified by medical home status

Variables (unweighted <i>N</i> = 91,642)	Children with medical home OR (CI)	Children without medical home OR (CI)
Age in years	0.89 (0.88, 0.91) **	0.91 (0.89, 0.92) **
Gender		
Male versus females	1.15 (0.95, 1.37)	1.08 (0.94, 1.24)
Immigrant parent		
No versus Yes	1.61 (1.14, 2.29) **	0.81 (0.57, 1.18)
Race/ethnicity		
Non-hispanic white (ref)		
Non-hispanic black	1.80 (1.41, 2.30) **	1.85 (1.38, 2.48) **
Hispanic	0.99 (0.68, 1.44)	1.14 (0.84, 1.54)
Other	0.73 (0.31, 1.73)	1.69 (0.70, 4.05)
Family structure		
Two biological/adopted parents (ref)	–	–
Two-parent step home	0.95 (0.64, 1.43)	1.01 (0.67, 1.51)
Single mother	0.78 (0.48, 1.25)	0.75 (0.45, 1.25)
Other	0.95 (0.64, 1.43)	1.07 (0.70, 1.66)
Language use at home		
Non-English (referent)	–	–
English	1.09 (0.71, 1.68)	0.92 (0.53, 1.59)
Parental educational level		
Less than high school (referent)	–	–
High school or equivalent	1.18 (0.86, 1.60)	1.72 (1.17, 2.53)
More than high school	1.37 (1.02, 1.85)	2.02 (1.41, 2.89)
Family poverty level		
0–99%	0.71 (0.51, 1.00)	0.65 (0.48, 0.88)
100–199%	0.76 (0.56, 1.05) **	0.56 (0.45, 0.69) **
200–399%	0.67 (0.50, 0.89) **	0.68 (0.59, 0.81) **
400% (referent)	–	–
Health insurance status		
Uninsured versus Insured	0.28 (0.23, 0.36) ***	0.34 (0.26, 0.43) ***
Number of chronic diseases		
None versus one or more	0.62 (0.50, 0.78) ***	0.68 (0.56, 0.84) ***

**
P < 0.01,

P < 0.0001