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Disparities in Quality of Healthcare of Children from Immigrant Families in the US

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Abstract

The objective of this study was to examine disparities in quality of pediatric primary care among children from immigrant families in the US. Drawing from a nationally representative sample of 83,528 children ages 0–17 years from the 2007 National Survey of Children’s Health, weighted logistic regression was used to assess the effect of immigrant family type on five indicators of quality of healthcare across children’s racial/ethnic groups. Analyses controlled for indicators of child’s access to care, family socio-economic characteristics, and primary language spoken in the household. Unadjusted estimates revealed a pattern of decreasing disparities from immigrant children to second-generation children, native-born children of immigrant parents, and to third-generation children, native-born children of native-born parents. Controlling for confounders showed that the positive effect of generational status on the quality of healthcare of children from immigrant families varied across indicators and among racial/ethnic groups. Not even third-generation Hispanic and Black children reached parity with third-generation White children on reported amount of time that providers devoted to their care and on providers’ sensitivity to their family’s values and customs. In contrast, disparities in reports of providers listening carefully to caregivers disappeared after adjusting for confounders, and only families headed by immigrant parents reported receiving less specific health-related information than the families of native-born White children. Our study suggests that it is important to develop interventions that help healthcare professionals to learn how different types of immigrant families perceive the interactions with the healthcare system and how to deliver care that increases the satisfaction of children from different racial/ethnic groups.

Keywords

Quality of healthcare; Immigrant families; Race/ethnicity; Disparities; Children

Introduction

Nearly one quarter of children in the US live in an immigrant family and most belong to a racial/ethnic minority, representing not only the most diverse, but the fastest growing cohort of American children [1, 2]. In the US, differential healthcare access and health outcomes have been found for children from immigrant families. Studies have shown that immigrant children and native-born children of immigrant parents are more likely to lack health insurance and access to healthcare than native-born children of native-born parents [3–6]. There is also evidence that immigrant parents are less aware of health and community resources than native-born parents [7], and that children of immigrant parents are more likely to report poor physical health than children of native-born parents [8].

Disparities in healthcare access and health outcomes are likely to influence children's quality of healthcare. This issue deserves attention because children's health depends on their caretakers and there is evidence that parents' perceptions concerning their children's healthcare influence their adherence to pediatric regimens [9], utilization of preventive care [10], and use of the emergency department [11]. High-quality pediatric care is therefore essential not only to ensure healthy outcomes early in life, but also over the life course. However, little is known about the quality of healthcare of children from immigrant families, even though it is considered a critical component to develop interventions and policies that reduce health disparities among the poorest, least insured and least able children to access healthcare in the US [12].

Limited English Proficient (LEP) parents and parents of racial/ethnic minority children have been found to report lower quality of healthcare than English-speaking parents of White children, even after adjusting for language and race/ethnicity and for disparities in structural barriers to healthcare [13–19]. These findings suggest that relational aspects of primary care may be especially salient for the quality of healthcare of children from immigrant families [18, 19].

Important within-group and between-group differences exist among children from immigrant families by language, education, and access to healthcare. Hence, children from immigrant families with LEP parents, especially Hispanics, are more likely to report that health providers do not spend enough time with their child [18, 19]. In contrast, other children from immigrant families, especially Asians, are less likely to report having delayed or foregone care and being discriminated against in the healthcare system [20, 21]. Immigrant families also differ on how long they have been in the US. Evidence shows that generational status increases immigrants' access to healthcare [22], which improves healthcare prevention and contributes positively to the perception of their own health and to their satisfaction with the healthcare system [23]. These differences suggest that children's quality of care may vary among indicators of care and among types of immigrant families.

The growing heterogeneity in the ethnic composition and nativity status (immigrant vs. native-born) of children from immigrant families in the US requires a more nuanced understanding on how these elements contribute to the disparities in the quality of healthcare of children. However, to our knowledge, no previous study has examined disparities across

multiple indicators of quality of healthcare for racial/ethnic minority children from different types of immigrant families in the US. Our study used nationally representative data to investigate disparities in the quality of healthcare of children across these dimensions. Our goal was to assess whether differences exist across five indicators of children's quality of healthcare by immigrant family type across children's racial/ethnic groups after controlling for confounding variables.

Methods

Data Source and Sample

The National Survey of Children's Health (NSCH) is a nationally representative telephone survey on the health and well-being of children aged 0–17 years and their families [24]. Telephone numbers are randomly sampled to find households with children and adolescents from all 50 states and DC. In each household one child who is selected at random and the parent/guardian with the most knowledge about the child's health and healthcare is interviewed. For the 2007 NSCH, 91,642 interviews were conducted between April 2007 and July 2008 in English, Spanish, Mandarin, Cantonese, Vietnamese, and Korean. The overall weighted response rate was 46.7 % [25].

Among the 2007 interviews, this analysis focused on the 87,271 children with known race/ethnicity and country of birth for themselves and at least one parent. We further excluded children from two-parent households or other household types with missing information on country of birth for both parents (2971) and immigrant children whose mother and/or father were native-born (772). The final analytic sample included 83,528 children. The Institutional Review Board of Boston College approved this study.

Measures

Quality of Healthcare—We examined five questions asked to parents related to their children's quality of healthcare: “During the past 12 months (or since his/her birth) how often did the child's doctors and other healthcare providers do each of the following: spend enough time with him/her, listen carefully to you, were sensitive to your family's values and customs, gave specific information you needed about child's health problems or care, or helped you feel like a partner in his/her care.” Responses were categorized as either “never, sometimes, usually” indicating low quality of healthcare or “always” indicating high quality of healthcare.

Immigrant Family Type and Children's Racial/Ethnic Groups—Our main variable of interest combined information on child's race/ethnicity and immigrant family type [8, 22]. Parents reported whether their child was of Hispanic or Latino origin and their race (White, Black, Other, and Multiracial) and, separately, whether the child and his/her parents were immigrants (foreign-born) or native-born (US-born). Based on the latter two questions, we constructed a 12-level composite variable of immigrant family type. The race/ethnicity categories included Hispanic (Hispanic), non-Hispanic White (White), non-Hispanic Black (Black), non-Hispanic Multiracial and Other non-Hispanic ethnic groups (Other, which included Asian, American Indian, Alaska Native, Native Hawaiian, Pacific Islander).

Immigrant family types were comprised of first-generation children, immigrant child with both immigrant parents; second-generation children, native-born child with both immigrant parents and native-born child with one immigrant parent; and third-generation children, native-born child with both native-born parents. For White and Black children, first- and second-generation children were combined due to small sample sizes.

Covariates—Parents provided a range of socio-demographic and health[ISP--]related information about their child and family. Parents reported the child's sex, age (years), whether the child had a place he/she usually goes when sick or needs advice (yes/no), and rated the child's health (excellent, very good, good, and fair/poor). They also indicated the child's type of insurance (none, Medicaid, private), their relationship to the child (referred to as family structure) and the number of children in the household.

For immigrant respondents, information was also collected on how long the parent had been in the US. For all respondents we indicated their length of time in the US and used parental age for native-born parents. For the 930 native-born mothers with missing age information and the 233 mothers with unknown country of birth but that had a native-born partner, we substituted the average age of native-born mothers (37.6 years). For the 108 immigrant mothers with missing information on time in the US, we substituted the average time for each racial/ethnic group (White 22.5 years; Hispanic 13.9 years, Black 16.7 years, Other 15.7 years). Parents also indicated whether the primary language spoken in the home was English or another language. We included separately maternal age as a categorical variable and missing values were coded.

Parents indicated the total combined family income during the past calendar year before taxes. A household's percentage of the Federal Poverty Level was calculated from household size and income based on the US Department of Health and Human Services Federal Poverty Guidelines. For respondents with missing household income, values were singly imputed and provided in the publicly available datasets [25]. Parents also reported the highest grade or year of school for the mother and father and we constructed a variable indicating the highest level of education in the household by comparing education of the mother and father. If one parent was missing, we used the education level of the other parent.

Analysis

Survey sampling weights were used to calculate weighted percentages and included in all analyses. Raw numbers are presented to represent the unweighted sample size. We conducted analyses using Stata statistical software, version 13.1 SE.

We first compared the demographic, socioeconomic, and health characteristics of children from different types of immigrant families. Next, we compared the quality of healthcare measures among children from different racial/ethnic groups and types of immigrant families. Between and within-group proportions were compared using Pearson's Chi squared tests and means were compared using adjusted Wald tests. Using logistic regression we then examined the association between immigrant family type and perceptions of high quality of healthcare for children from different racial/ethnic groups, with third-generation

White children (native-born children of both native-born parents) as the baseline group. Models were conducted separately for all five quality of healthcare measures and adjusted for the following covariates: child's sex, age, usual place of care, child's health status, type of insurance, family structure, number of children in the household, mother's age, time in US, language preference, household income, and highest education in the household. List wise deletion was employed for children with missing covariates or outcome measures. Since models were conducted separately for each quality of healthcare measure, children with missing information were excluded for that model only.

Using adjusted Wald tests we tested for interactions among covariates and children's racial/ethnic groups from different types of immigrant families across indicators of quality of healthcare. We obtained significant results ($F = 3.57, p < 0.001$) for parents' language and reports of providers' time spent with the child, and are presented in stratified analyses.

Results

Table 1 shows the demographic distributions of the sample population by type of immigrant family. Hispanic children were most often born abroad and were most likely to live in families headed by two immigrant parents. In contrast, White children were most often native-born and were most likely to live in families headed by two native-born parents.

Regardless of racial/ethnic group and generational status, immigrant and native-born children with two immigrant parents lived most often in poor, uneducated, large families, in which English was not the primary language. Additionally, children of immigrant parents lacked health insurance and a regular place for healthcare more often, and reported excellent health status less frequently than children with native-born parents.

Table 2 shows the quality of healthcare measures of children by immigrant family type and race/ethnicity. Both Hispanic and Other first-generation children had the lowest percentage of reported "always" across all measures of quality of healthcare, ranging from 22 to 53 % for Hispanic children, and from 26 to 60 % for Other children. In contrast, third-generation White children had the highest percentage of reported "always" across all measures of quality of healthcare, ranging from 66 to 75 %. Among native-born children, second-generation children with two immigrant parents had the lowest percentage of reported "always" across all indicators of quality of healthcare, followed by second-generation children with one immigrant parent, and then by third-generation children.

Table 3 presents the adjusted regression models on the association between immigrant family type and children's race/ethnicity across five indicators of quality of healthcare. Compared with parents of third-generation White children, all parents of Hispanic children and the parents of third-generation Black children were less likely to report that healthcare providers always spend enough time with their child.

Although the parents of first- and second-generation Hispanic children and of children from Other ethnic groups had lower odds of reporting that healthcare providers were always sensitive to their family's values and customs, only the parents of third-generation Black

children did not reach parity with the parents of White children on reporting that healthcare providers were always sensitive to their family's values and customs.

The parents of first- and second-generation Hispanic, Black and of children from Other ethnic groups, had lower odds of reporting that healthcare providers always give specific information about child's health problems or care than the parents of third-generation White children. However, by the third generation, there were no significant differences among racial/ethnic groups.

Only parents of second-generation children from Other racial/ethnic groups were less likely than the parents of third-generation White children to consider that healthcare providers were always partners in care.

There were no differences in parents' reporting that healthcare providers always listen carefully to the caregiver by immigrant family type and children's race/ethnicity.

Table 4 presents the adjusted regression models on the association between immigrant family type and children's race/ethnicity and parents' reports of providers spending enough time with their child, stratified by language preference. Among English speaking parents, there was a gradient of decreasing disparities from first- to third-generation children, although not even third-generation Hispanic and Black children reached parity with third-generation White children on parents' reports concerning the amount of time that providers devoted to the care of their children. In contrast, among non-English speaking parents, only parents of third-generation Hispanic children reported lower odds of providers spending enough time with their child than the parents of third-generation White children.

Discussion

We have shown that racial/ethnic minority children from immigrant families report lower quality of healthcare than native-born White children. However, we found a pattern of decreasing disparities with subsequent immigrant generations. This finding, which is consistent with past research on healthcare disparities among children from immigrant families [3, 22, 26], suggests that generational status may have a positive effect on the perceived quality of care of racial/ethnic minority children from immigrant families.

Disparities persisted across indicators of quality of healthcare even after controlling for families' generational status, indicators of access to healthcare, and parents' English proficiency. Thus, not even third-generation Hispanic and Black children reached parity with third-generation White children on parent's reports on the amount of time that providers devoted to the care of their children. Parents of Black and White children also differed on reports of providers' sensitivity to their family's values and customs. In contrast, disparities on how often healthcare professionals listen carefully disappeared after adjusting for confounders; and among racial/ethnic groups only children in families headed by immigrant parents reported that healthcare professionals provided less specific health-related information to them than to third-generation White children. These findings suggest that the positive effect that generational status may exert on the healthcare quality of children from immigrant families varies across indicators and among racial/ethnic groups.

Dissatisfaction with the amount of time that providers spend with racial/ethnic minority children of LEP immigrant parents has been described previously as a principal element for reported disparities on quality of pediatric primary care [18, 19]. However, the main insight from our analysis of national data is that disparities may not be only driven by parents' language limitations or unfamiliarity with the healthcare system, since even third-generation Hispanic and Black children (native-born children of native-born parents) of English-speaking parents reported that providers spend less time with them than with third-generation White children. Notably, stratifying the analysis by parents' language proficiency revealed that differences were driven by English-speaking parents, and that LEP immigrant parents of Hispanic children did not differ from parents of native-born White children on their reports of time spent with providers of care until the third generation. This finding is consistent with previous observations of deferential behavior towards providers of care by immigrants who have not been assimilated to the US healthcare system [27].

It is unclear whether these findings reflect actual providers' behavior or are driven by other interpersonal processes of primary care such as, parents' expectations, low health literacy, parent-provider ethnic concordance, or institutional patterns of unequal treatment, all of which contribute to lower quality of healthcare. Although immigrant mothers of immigrant children have been found to value the interaction style of the provider over language barriers [28], there is also evidence that racial/ethnic minorities have similar expectations for quality of care than non-minorities and that disparities may be driven by providers' behavior [29]. Low levels of health literacy, which have been shown to influence interactions in the context of healthcare, were not associated with mothers' perceptions of their interactions with pediatric providers in recent studies among low-income Hispanic children [30]. In addition, incipient research on ethnic concordance in pediatric care has shown no association with higher quality of care [31].

It is important to note several limitations to this study. The cross-sectional nature of the data limits our ability to infer causality between children's race/ethnicity, access to healthcare, and how different immigrant families perceive interactions with the healthcare system. Second, the NSCH coded Asian children and American Indian or Alaska Native children as "Other" making them indistinguishable among themselves and from children whose parents chose "Other" as their race/ethnicity. Third, variables that could help to explore differences in quality of care within ethnic groups, such as parents' country of origin, religion, or immigration status were not available in the data. Similarly, additional influences on perceived quality of care, such as patient-provider discrimination or stereotyping were not available. Fourth, interviews were not available in Arabic, which may have excluded an important group of children from immigrant families in the US.

Given the heterogeneity of children from immigrant families, further research and data collection efforts should include variables that may help to explore the unique differences in quality of care among immigrant subgroups. Studies also need to include variables that contribute to the understanding of immigrants' perceptions of the US healthcare system, and the factors associated with highquality pediatric care.

Conclusion

We found evidence that racial/ethnic minority children from immigrant families in the US are more likely to report lower quality of healthcare than White children from nonimmigrant families, but that time in the US increases the perceived quality of care of children from immigrant families. However, some disparities persisted even by the third generation and the indicators of quality of healthcare that contributed to the disparities varied between racial/ethnic groups. Hence, perceptions of time spent with providers, and of providers' understanding of their family values and customs were particularly salient for the quality of healthcare of Hispanic and Black children.

These findings support the idea that providing access to healthcare for minority children from immigrant families, although critical, is not enough and that relational aspects of primary care are essential to ensure high-quality pediatric care. Therefore, the importance of developing interventions that help healthcare professionals to learn how different types of immigrant families perceive interactions with the healthcare system and how to deliver care that increases the satisfaction of racial/ethnic minority children cannot be overemphasized.

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Table 1

Characteristics of children (0–17) and families, by immigrant family type

	Immigrant family type			p value	
	First-generation	Second-generation			Third-generation
	Immigrant child/ both immigrant parents (n = 1668) (% ^a)	Native-born child/both immigrant parents (n = 4566) (% ^a)	Native-born child/one immigrant parent (n = 7076) (% ^a)	Native-born child/both native-born parents (n = 70,218) (% ^a)	
Child's race/ethnicity					<0.001***
Hispanic	62.4	65.3	47.6	8.8	
Non-Hispanic White	9.6	5.5	30.2	69.8	
Non-Hispanic Black	11.4	6.8	8.2	15.1	
Non-Hispanic multiracial	0.8	0.7	8.1	4.3	
Non-Hispanic other	15.9	21.7	5.9	2.1	
Child's sex					0.85
Male	49.8	51.5	52.3	51.0	
Child's mean age, years (SE)	11.5 (0.2)	7.0 (0.2)	7.9 (0.2)	8.6 (0.1)	<0.001***
Child's usual place of care					
No	21.7	11.4	5.9	3.1	<0.001***
Child's health status					<0.001***
Excellent	35.3	45.9	58.9	65.8	
Very good	22.5	23.5	19.6	23.1	
Good	29.6	25.2	15.3	8.8	
Fair	12.4	5.2	4.8	2.0	
Poor	0.1	0.2	1.3	0.4	
Child's type of insurance					<0.001***
None	44.6	12.6	11.1	6.5	
Medicaid	20.8	49.0	29.5	25.0	
Private	34.7	38.4	59.4	68.5	
Family structure					<0.001***
Two parents	80.5	99.8	72.8	77.8	
Single mother	19.3	–	24.3	22.0	
Other family types	0.1	0.2	2.9	0.3	
Number of children in the household					<0.001***
1	21.5	16.4	21.1	23.3	
2	33.3	36.7	41.4	39.8	
3 or 4	45.2	46.9	37.5	36.9	
Mother's age					<0.001***
20–29 years	12.7	20.3	16.4	16.5	
30–39 years	43.2	46.0	40.4	41.4	

	Immigrant family type				p value
	First-generation	Second-generation		Third-generation	
	Immigrant child/ both immigrant parents (n = 1668) (% ^a)	Native-born child/both immigrant parents (n = 4566) (% ^a)	Native-born child/one immigrant parent (n = 7076) (% ^a)	Native-born child/both native-born parents (n = 70,218) (% ^a)	
40–49 years	36.1	28.5	30.9	34.2	
50–59 years	6.9	4.0	6.5	6.9	
Missing coded	1.1	1.2	5.8	1.1	
Parent’s mean time in US ^a , years (SE)	7.1 (0.3)	15.1 (0.3)	27.4 (0.4)	37.6 (0.1)	<0.001 ***
English is primary language	25.3	27.6	70.6	99.3	<0.001 ***
Household income					<0.001 ***
0–99 % FPL	45.8	35.6	22.1	14.0	
100–199 % FPL	23.9	26.4	21.1	19.8	
200–299 % FPL	11.8	12.3	14.8	18.7	
300–399 % FPL	5.6	7.5	11.9	15.1	
400 % + FPL	13.0	18.3	30.2	32.4	
Highest education in household					<0.001 ***
Less than high school	27.9	28.9	14.1	4.7	
High school graduate	20.8	28.1	23.8	22.2	
More than high school	51.2	43.0	62.1	73.1	

Missing: Child’s sex (81), child’s usual place of care (136), child’s health status (19), child’s type of insurance (726), family structure (47), language preference (41), highest education in household (124)

FPL federal poverty level

* <0.05;

** <0.01;

*** <0.001

^aWeighted percent

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Table 2
Quality of healthcare measures of children in immigrant families, by immigrant family type and race/ethnicity

	N	Healthcare providers always spend enough time with child <i>P</i> values between groups	Healthcare providers always listen carefully to caregiver	Healthcare providers are always sensitive to family's values and customs	Healthcare providers always give specific information	Healthcare providers are always partners in care
		<0.001*** Weighted %	<0.001*** Weighted %	<0.001*** Weighted %	<0.001*** Weighted %	<0.001*** Weighted %
Hispanic						
First-generation	1021	22.8	50.7	42.3	37.5	53.5
Second-generation/both immigrant parents	2648	33.9	60.5	56.9	54.9	65.7
Second-generation/one immigrant parent	2594	43.2	67.2	60.9	56.1	64.5
Third-generation	4411	55.5	69.0	70.3	63.9	68.5
<i>P</i> values within groups		<0.001***	<0.001***	<0.001***	<0.001***	<0.05*
Non-Hispanic White						
First and second-generations	3608	60.5	68.2	72.8	61.9	66.9
Third-generation	54,042	66.4	72.7	75.5	67.1	72.9
<i>P</i> values within groups		<0.001***	<0.05*	0.13	<0.05*	<0.01**
Non-Hispanic Black						
First and second-generations	877	50.8	63.9	62.9	53.6	63.4
Third-generation	6795	52.9	71.9	66.3	63.5	70.3
<i>P</i> values within groups		0.55	<0.05*	0.33	<0.01**	<0.05*
Non-Hispanic Other						
First-generation	315	39.0	60.5	47.4	26.5	34.9
Second-generation/both immigrant parents	1116	45.8	66.9	58.5	46.8	55.6
Second-generation/one immigrant parent	1131	55.9	68.8	71.9	51.5	67.4
Third-generation	4970	64.0	71.7	71.3	63.6	70.3
<i>P</i> values within groups		<0.001***	0.27	<0.001***	<0.001***	<0.001***

Missing: Spend enough time (2700), listen carefully (2545), sensitive to family's values (2773), give specific information (2618), partners in care (2528)

* <0.05;

** <0.01;

1000>

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Table 3

Adjusted odds of quality of healthcare by immigrant family type and race/ethnicity

	Healthcare providers always spend enough time with child Adjusted OR (95 % CI) (N = 79,809)	Healthcare providers always listen carefully to caregiver Adjusted OR (95 % CI) (N = 79,960)	Healthcare providers are always sensitive to family's values and customs Adjusted OR (95 % CI) (N = 79,740)	Healthcare providers always give specific information Adjusted OR (95 % CI) (N = 79,874)	Healthcare providers are always partners in care Adjusted OR (95 % CI) (N = 79,962)
Hispanic					
First-generation	0.53 (0.30, 0.93)*	0.76 (0.48, 1.20)	0.58 (0.37, 0.92)*	0.58 (0.38, 0.89)*	0.81 (0.51, 1.28)
Second-generation/both immigrant parents	0.59 (0.42, 0.82)**	0.76 (0.54, 1.07)	0.71 (0.51, 0.99)*	0.75 (0.53, 1.05)	0.88 (0.63, 1.23)
Second-generation/one immigrant parent	0.66 (0.51, 0.86)**	0.98 (0.76, 1.27)	0.74 (0.57, 0.96)*	0.80 (0.62, 1.03)	0.83 (0.64, 1.07)
Third-generation	0.73 (0.61, 0.89)**	0.91 (0.74, 1.12)	0.86 (0.70, 1.04)	0.94 (0.78, 1.14)	0.86 (0.71, 1.05)
Non-Hispanic White					
First and second-generations	0.87 (0.71, 1.06)	0.88 (0.71, 1.08)	0.87 (0.70, 1.08)	0.81 (0.67, 0.99)*	0.83 (0.67, 1.03)
Third-generation	1	1	1	1	1
Non-Hispanic Black					
First and second-generations	0.81 (0.59, 1.13)	0.96 (0.69, 1.33)	0.72 (0.53, 0.98)*	0.69 (0.51, 0.94)*	0.91 (0.67, 1.25)
Third-generation	0.73 (0.65, 0.81)***	1.14 (1.00, 1.29)	0.77 (0.68, 0.87)***	0.98 (0.87, 1.11)	0.99 (0.87, 1.12)
Non-Hispanic other					
First-generation	0.75 (0.39, 1.44)	1.02 (0.54, 1.92)	0.47 (0.25, 0.87)*	0.25 (0.13, 0.47)***	0.33 (0.18, 0.61)***
Second-generation/both immigrant parents	0.60 (0.40, 0.88)**	0.87 (0.58, 1.32)	0.58 (0.39, 0.85)**	0.48 (0.32, 0.74)**	0.60 (0.40, 0.89)*
Second-generation/one immigrant parent	0.68 (0.45, 1.01)	0.89 (0.63, 1.26)	0.85 (0.57, 1.26)	0.50 (0.34, 0.74)***	0.85 (0.61, 1.18)
Third-generation	0.97 (0.84, 1.12)	0.99 (0.85, 1.16)	0.86 (0.74, 1.01)	0.89 (0.76, 1.04)	0.93 (0.79, 1.08)

Adjusted for: Child's sex, child's age, usual place of care, child's health status, child's type of insurance, family structure, number of children in the household, mother's age, mother's time in US, language preference, household income, highest education in household

* <0.05;

** <0.01;

*** <0.001

Table 4

Adjusted odds of mothers' perceptions of health providers spending enough time with child stratified by language preference

	English Adjusted OR (95 % CI) (N = 74,477)	Non-English Adjusted OR (95 % CI) (N = 5332)
Hispanic		
First-generation	0.12 (0.03, 0.39)***	0.53 (0.16, 1.80)
Second-generation/both immigrant parents	0.56 (0.30, 1.05)	0.58 (0.20, 1.64)
Second-generation/one immigrant parent	0.70 (0.52, 0.96)*	0.58 (0.21, 1.60)
Third-generation	0.78 (0.63, 0.94)**	0.21 (0.07, 0.65)**
Non-Hispanic White		
First and second-generations	0.89 (0.72, 1.10)	0.85 (0.28, 2.57)
Third-generation	1	1
Non-Hispanic Black		
First and second-generations	0.80 (0.51, 1.11)	1.41 (0.34, 5.82)
Third-generation	0.73 (0.66, 0.82)***	0.64 (0.03, 12.71)
Non-Hispanic other		
First-generation	0.27 (0.12, 0.60)***	1.14 (0.31, 4.09)
Second-generation/both immigrant parents	0.68 (0.40, 1.13)**	0.52 (0.16, 1.62)
Second-generation/one immigrant parent	0.65 (0.43, 1.01)	1.24 (0.35, 4.35)
Third-generation	0.98 (0.84, 1.13)	0.33 (0.09, 1.22)

Adjusted for: Child's sex, child's age, usual place of care, child's health status, child's type of insurance, family structure, number of children in the household, mother's age, mother's time in US, language preference, household income, highest education in household

* <0.05;

** <0.01;

*** <0.001