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Glenn Flores, Lynn Olson and Sandra C. Tomany-Korman

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Racial and Ethnic Disparities in Early Childhood Health and Health Care

Glenn Flores, MD*‡§; Lynn Olson, PhD‖; and Sandra C. Tomany-Korman, MS*

ABSTRACT. *Background.* **Racial/ethnic disparities in health care have received much national attention recently, but few studies have focused on disparities among children. We studied disparities in early childhood health and health care.**

Methods. **We analyzed data for 2608 children, 4 to 35 months of age, from the 2000 National Survey of Early Childhood Health, a nationwide household survey. The overall response rate was 65.6%. Survey questions addressed health, health care, and interactions with health care providers.**

Results. **Hispanic and black children were significantly less likely than whites to be in excellent/very good health (72%, 79%, and 90%, respectively) and were more likely to be uninsured (31%, 18%, and 9%, respectively). Only 60% of Hispanic and 77% of black parents would recommend their child's provider to others, compared with 84% of white parents. Minority parents more often reported that providers never or only sometimes understood their child-rearing preferences, and Hispanic parents most often reported that providers never or only sometimes understood their child's needs. Minority parents more often were asked about violence, smoking, drinking, and drug use. Hispanic and black parents averaged significantly fewer telephone calls to doctors' offices than did whites (2.0, 3.1, and 4.3 calls, respectively). Providers significantly less often referred Hispanic and black children to specialists (11% and 17%, respectively, compared with 22% for whites). Most disparities persisted in multivariate analyses, and several disparities were found between children with parents who completed surveys in Spanish and those with parents who completed surveys in English.**

Conclusion. **Young minority children experience multiple disparities in health status, insurance coverage, topics discussed during pediatric visits, parents feeling understood by providers, parental satisfaction, and referrals to specialists.** *Pediatrics* **2005;115:e183–e193. URL: www.pediatrics.org/cgi/doi/10.1542/peds.2004-1474;** ***disparities, minorities, children, race, ethnicity, blacks, Hispanics.***

ABBREVIATIONS. NSECH, National Survey of Early Childhood Health; OR, odds ratio; CI, confidence interval; ED, emergency department.

A recent report from the Institute of Medicine[1] called attention to the tendency for racial and ethnic minorities in the United States to receive lower-quality health care than whites, even after adjustment for access-related factors such as insurance coverage and income. Although multiple studies have documented such racial/ethnic disparities among adults, few studies have examined racial/ethnic disparities in the health care of children. For example, only 5 of 103 studies in the extensive literature review by the Institute of Medicine of health care disparities specifically addressed racial/ethnic disparities in children's health care.[2] In addition, little is known about whether younger children experience racial/ethnic disparities in health care. Therefore, the aim of this study was to examine racial/ethnic disparities in early childhood health and health care using a nationally representative sample.

METHODS

Data Source

The National Survey of Early Childhood Health (NSECH) was designed to characterize preventive pediatric care for young children in the United States.[3] The NSECH was a telephone survey performed in 2000 of a national random-digit-dialed sample of households in all 50 states with children 4 to 35 months of age, with oversampling of households with black and Latino children.[4] The survey was conducted as a module of the State and Local Area Integrated Telephone Survey, which uses the same sampling frame as the Centers for Disease Control and Prevention National Immunization Survey. The parent or guardian most responsible for the child's health care was interviewed. Domains addressed by the survey included sociodemographic features, health care utilization, parental perceptions of pediatric care, and interactions with health care providers. The NSECH did not contain information about parental health or health habits and addressed the occurrence of 4 specific child health diagnoses in the previous 12 months (ie, asthma, ear infections, eczema/skin allergies, and food or digestive allergies). All survey responses were by parental report; parents were asked to consider events occurring in the previous 12 months or since birth for children <12 months of age. A total of 2068 interviews were completed. The interview completion rate (completed interviews among households with age-eligible children) was 79.2% (82.1% for the minority oversample); the Council of American Survey Research Organizations response rate (the product of the interview completion rate, screener completion rate for whether there was an age-eligible child in the household,

From the *Center for the Advancement of Underserved Children, Department of Pediatrics, and ‡Health Policy Institute, Medical College of Wisconsin, Milwaukee, Wisconsin; §Children's Research Institute, Children's Hospital of Wisconsin, Milwaukee, Wisconsin; and ‖Department of Practice and Research, American Academy of Pediatrics, Elk Grove Village, Illinois.

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Reprint requests to (G.F.) Center for the Advancement of Underserved Children, Department of Pediatrics, Medical College of Wisconsin, 8701 Watertown Plank Rd, Milwaukee, WI 53226. E-mail: gflores@mail.mcw.edu

and resolution rate [proportion of telephone numbers positively identified as either residential or nonresidential]) was 65.6% (67.6% for the minority oversample). Detailed information on NSECH methods, including weighting procedures, is presented elsewhere.[4] Estimates based on NSECH sampling weights generalize to the entire US population of children 4 to 35 months of age.[4] Although information is not available to allow comparisons between survey responders and nonresponders, NSECH sampling weights adjusted for nonresponding households at various phases of identification and data collection, as well as for noncoverage of households without telephones.[4]

Study Variables

Bivariate and multivariate analyses were performed to examine racial/ethnic disparities in early childhood health and health care. We hypothesized that there would be disparities for some but not all aspects of health and health care. Variables examined included selected sociodemographic characteristics, health care provider characteristics, use of health services, parental satisfaction with care, and topics discussed with parents by providers. Children's race/ethnicity was defined as non-Hispanic white, non-Hispanic black, or Hispanic, on the basis of parental report (herein we use the terms white, black, and Hispanic because these were the NSECH descriptors). Because of insufficient sample sizes, subjects from other racial/ethnic groups were excluded. The 6 maternal marital status categories were dichotomized as married versus other (widowed, divorced, separated, never married, or deceased). The 5 NSECH child health status variable states (indicated by parental report) were dichotomized as excellent/very good versus good/fair/poor. This health status dichotomization was chosen because we were most interested in children's risk of not receiving the 2 highest health status ratings. This dichotomization is in accordance with previously published work on racial/ethnic disparities in children's health.[5] Parental ratings of child health status generally are considered to be an acceptable proxy for child health status and have been shown to be significantly associated with utilization of a broad array of pediatric health services,[6] and strong agreement between parental reports of child health events and true occurrences has been documented.[7] A child was classified as having no specific well-child provider if the parent replied no to the question, "Is there a particular doctor or other health care provider that you usually take your child to for well-child care?" Data on well-child care provider race/ethnicity, gender, and age pertained only to the subsample of children whose parents reported that the child had a specific well-child care provider. An assigned provider was defined as a health care provider who was assigned to the child by the child's health plan, clinic, or practice (as opposed to the other survey alternatives of the child's provider being "chosen by you from a list of health providers given by your health plan" or "recommended by someone you trust").

Health insurance coverage was classified as private, public, or uninsured (defined as no health insurance at some point in the previous 12 months). In separate analyses, we also examined alternative uninsured definitions (no insurance at the time of the survey or lacking coverage continuously for the past 12 months); because these alternative definitions did not significantly alter the findings, they are not presented. There were 8 NSECH categories for total combined annual family income. Findings were nearly identical whether multivariate analyses were performed with all 8 income categories or with income collapsed into poor versus nonpoor; therefore, we report the results of dichotomizing total combined annual family income as poor ($<$\$17 500) or nonpoor ($\geq$\$17 500), with the cutoff value closest to the 2000 federal poverty threshold for a family of 4.[8] Because income was reported as a categorical range in the NSECH, it was not possible to determine the specific federal poverty level status for each family according to family size. Parents rated the likelihood of recommending their child's health care provider to friends or family as very likely, somewhat likely, somewhat unlikely, or not at all likely, which we dichotomized as very likely versus all others. Children were classified as having made the appropriate number of well-child care visits if their parents reported at least the minimal number of well-child care visits recommended by the American Academy of Pediatrics[9] for children within 1 month of the child's age.

Statistical Analyses

Data were analyzed with Stata software (Stata Corp, College Station, TX) to adjust for the complex survey design of NSECH, which includes household and intrafamilial clustering of observations.[10] We performed power calculations for 1 of the primary outcomes (having no health insurance coverage), which revealed an 82% power to detect a 6% difference between blacks and whites and a 91% power to detect a 6% difference between Hispanics and whites (with $\alpha = .05$ and sample sizes of 718 for whites, 477 for blacks, and 817 for Latinos). For all variables, "don't know" or "refused to answer" responses were set to missing. Distributions of variables according to children's race and ethnicity are presented as means or proportions with 95% confidence intervals. The Pearson's χ^2 test statistic was used to test for independence between racial/ethnic groups and discrete factors. To account for the survey design, the statistic was converted to an F-statistic with noninteger degrees of freedom with a second-order correction, as described by Rao and Scott.[11] The t-statistic was used to compare racial/ethnic differences in the means of continuous variables, with degrees of freedom equal to the total number of primary sampling units minus the total number of strata.

Multivariate logistic and linear regressions were performed to examine racial/ethnic differences after adjustment for insurance coverage (with uninsured being subdivided into sporadically insured and continuously uninsured in the past 12 months), survey language (English or Spanish), health status, poverty, age, usual place for medical care (private/group practice, community health center/public clinic, or other/emergency department [ED]), number of children in the family, maternal age, and parental educational attainment (dichotomized as not a high school graduate versus high school graduate or additional years of higher education). These covariates were chosen because they have been used for multivariate adjustment in prior research[5,12,13] and because they were hypothesized to have the greatest potential for confounding racial/ethnic disparity outcomes. Race/ethnicity of the child's provider could not be entered as a covariate in multivariate analyses because of inadequate sample sizes and missing data (only 1% [$n = 7$] of white children had black providers and data were missing for more than one half of participants), and location of the provider's practice could not be entered as a covariate in multivariate analyses because of missing data for more than one half of participants.

To examine the impact of the language in which the survey was conducted on the selected child health outcomes, we performed multivariate logistic and linear regressions with the same 9 independent variables used in multivariate analyses of racial/ethnic disparities. In this case, the odds ratios (ORs) and means represent the odds or means of a given outcome among children with parents surveyed in Spanish, compared with those with parents surveyed in English, after adjustment for the other 9 covariates, including child race/ethnicity. Of the 399 children whose parents completed surveys in Spanish, the vast majority ($n = 395$) were Latino, but 2 children were white and 2 were black. To investigate more closely the effects of parent survey language on Hispanic children's health, we analyzed child health outcomes with 2 multivariate models, one without parental survey language and the second with adjustment for parental survey language.

Interactions were examined for all multivariate models; because interaction terms did not enter as significant independent variables in the vast majority of analyses, they were not included in the final multivariate models (this was also performed to avoid overfitting). Overfitting of multivariate models also was avoided by including only covariates hypothesized to act as potential confounders of the outcomes of interest. We checked for colinearity in all multiple linear regression analyses but found none.

RESULTS

Sociodemographic Characteristics, Insurance Coverage, and Health Status

No significant differences were found among white, black, and Hispanic children with respect to mean age, gender, or difficulties paying for children's medical expenses or child care (Table 1). The mean age of minority mothers was somewhat lower than that of white mothers. The mean number of

TABLE 1. Selected Sociodemographic, Health Insurance Coverage, and Health Status Characteristics of White, Black, and Hispanic Children 4 to 35 Months of Age and Their Parents in the United States in 2000

Characteristic	Proportion or Mean (95% CI)			*P* Value
	White (N = 718)	Black (N = 477)	Hispanic (N = 817)	
Mean age, mo	19.5 (18.7–20.3)	19.5 (18.4–20.6)	18.7 (17.9–19.5)	.22
Male gender, %	53 (49–57)	48 (42–54)	51 (47–56)	.34
Mean mother's age, y	30.0 (29.5–30.6)	26.8 (26.0–27.5)	27.0 (26.5–27.5)	<.001
Mean no. of children in household	2.09 (2.01–2.17)	2.32 (2.19–2.45)	2.34 (2.24–2.44)	<.001
Mean no. of adults in household	2.06 (2.02–2.11)	1.95 (1.84–2.05)	2.40 (2.30–2.50)	<.001
Mother's highest level of education, %				<.001
Less than 12th grade	11 (8–14)	26 (20–32)	49 (44–53)	
High school graduate	34 (30–38)	40 (34–46)	30 (26–34)	
At least 1 year of college	55 (51–60)	34 (29–39)	22 (18–25)	
Mother married, %*	81 (78–85)	32 (27–37)	58 (53–62)	<.001
Mother not employed, %	45 (40–49)	39 (33–45)	53 (49–57)	<.001
Annual combined family income, %				<.001
$0–$7500	4 (2–5)	16 (11–21)	13 (9–16)	
$7501–$17 500	9 (7–12)	33 (26–39)	35 (30–39)	
$17 501–$35 000	28 (21–33)	27 (19–35)	34 (27–40)	
$35 001–$60 000	29 (23–35)	14 (9–20)	12 (8–16)	
$60 001–$75 000	11 (8–14)	4 (2–6)	4 (2–5)	
>$75 000	20 (17–23)	6 (4–8)	3 (2–4)	
No trouble paying for child's medical expenses, %	87 (84–90)	89 (86–93)	84 (81–88)	.09
No trouble paying for food, diapers, and other supplies for child, %	79 (75–83)	77 (72–82)	71 (67–76)	.01
No trouble paying for child care, %	84 (80–87)	82 (77–87)	86 (83–89)	.68
Health insurance coverage, %				<.001
None†	9 (7–12)	18 (14–23)	31 (27–36)	
Private	72 (67–76)	32 (27–37)	29 (25–33)	
Public	19 (16–23)	50 (44–56)	40 (36–44)	
Child is in excellent/very good health, %‡	90 (87–92)	79 (73–84)	72 (67–76)	<.001

Data are from the 2000 NSECH. Numbers of children are the numbers for whom responses were available. Percentages are weighted to represent US children 4 to 35 months of age.
* But not divorced, separated, or widowed.
† Uninsured at any time in the past 12 months or since birth for children <12 months of age.
‡ By parental report.

children and adults per household differed slightly. Hispanic mothers were more likely to have not graduated from high school and to not be employed, whereas black mothers were least likely to be married. Minorities had substantially lower combined family incomes, but only Hispanic mothers reported greater difficulty paying for supplies for their children. Substantial differences were found in the proportion without health insurance coverage at any time in the past 12 months, with Hispanics being most likely to be uninsured (31%), followed by blacks (18%) and whites (9%). Minority parents were significantly less likely to report that their child was in excellent or very good health (Hispanics, 72%; blacks, 79%; whites, 90%).

Health Care Provider Characteristics

White children were more likely to receive well-child care in private or group practices and in suburban or rural locations, whereas minority children more often received care in community health centers/public clinics and in urban areas (Table 2). Minority children were more likely to have an assigned provider and no specific well-child care provider. Health care provider age did not differ among racial/ethnic groups, but white children received care from male providers slightly more often. Black children were more likely to have black health care providers and Hispanic children were more likely to have Hispanic providers, but a plurality of black children (45%) and the majority of Hispanic children (53%) had white providers.

Parental Satisfaction, Interactions With Health Care Providers, and Use of Services

Hispanic parents more often reported that their health care provider never or only sometimes took time to understand their child's specific needs (Table 3). Minority parents more frequently reported that their child's provider never or only sometimes respected the parent as the expert on the child and never or only sometimes understood the parents' child-rearing preferences. Only slight racial/ethnic differences were found for parental reports of providers never or sometimes asking how the parent felt as a parent.

Hispanic parents were most likely to report that providers did not spend enough time with their children during the last checkup (Table 3). There were small differences in parents' estimates of the time the provider spent with the child in the last checkup, with minority parents reporting a slightly longer mean visit duration. No differences were found in the proportions of parents who asked the child's

TABLE 2. Characteristics of Regular Health Care Providers for White, Black, and Hispanic Children 4 to 35 Months of Age in the United States in 2000

Characteristic	Proportion or Mean (95% CI)			*P* Value
	White (*N* = 718)	Black (*N* = 477)	Hispanic (*N* = 817)	
Usual place for medical care, %*				<.001
Private or group practice	80 (76–84)	68 (63–73)	58 (53–62)	
Community health center/public clinic	18 (15–22)	30 (25–35)	41 (36–45)	
Other/ED	2 (1–3)	2 (1–4)	2 (1–3)	
Specific well-child care provider, %*				<.001
No specific provider	52 (47–56)	61 (55–66)	63 (59–67)	
Pediatrician	36 (32–40)	32 (27–38)	30 (26–34)	
Family practitioner	10 (7–12)	3 (1–4)	4 (3–6)	
Other	3 (1–4)	4 (1–7)	3 (1–4)	
Location of health care provider's practice, %*				<.001
Urban	50 (44–56)	66 (58–74)	76 (70–81)	
Suburban	36 (30–42)	24 (18–31)	18 (13–23)	
Rural/other	14 (9–18)	10 (4–16)	7 (3–10)	
Male gender of well-child care provider, %	63 (58–69)	51 (42–60)	56 (49–62)	.03
Age of well-child care provider, y	42 (41–43)	41 (40–43)	41 (40–43)	.16
Race/ethnicity of well-child care provider, %				<.001
White	82 (58–69)	45 (36–54)	53 (46–60)	
Black	1 (0.2–2)	23 (15–32)	5 (2–9)	
Hispanic	3 (0.6–5)	6 (2–9)	16 (12–21)	
American Indian	3 (0.4–5)	4 (0.8–8)	3 (0.5–5)	
Asian/Pacific Islander	5 (3–7)	9 (4–13)	13 (9–18)	
Other	7 (4–10)	13 (7–20)	9 (6–13)	
Well-child care provider assigned to child, %	7 (4–11)	14 (8–20)	19 (14–24)	.01

Data are from the 2000 NSECH. Numbers of children are the numbers for whom responses were available and applicable. Percentages are weighted to represent US children 4 to 35 months of age.
* Total may exceed 100% because of rounding.

provider all of the questions they had or in overall parental ratings of children's well-child care providers. In contrast, minority parents were significantly less likely to recommend their child's provider to their friends or family, with only 60% of Hispanics and 77% of blacks, compared with 84% of whites ($P < .001$), being very likely to recommend their child's provider.

Minority parents were more likely than white parents to report that their child's provider discussed community violence, household smoking, household use of alcohol or illicit drugs, trouble paying for the child's basic needs, and spouse/partner support of the primary caretaker's parenting efforts (Table 3). For example, the unadjusted odds of providers discussing community violence was quadruple for Hispanics (OR: 4.27; 95% confidence interval [CI]: 2.66–6.86) and almost triple for blacks (OR: 2.62; 95% CI: 1.50–4.60), compared with whites, and the unadjusted odds of providers discussing household alcohol or drug use was approximately triple for both Hispanics (OR: 3.53; 95% CI: 2.71–4.60) and blacks (OR: 2.64; 95% CI: 1.95–3.54), compared with whites. Indeed, blacks and Hispanics were asked about household alcohol and drug use significantly more often than whites among families with an annual combined income of more than $45 000 (47%, 42%, and 29%, respectively; $P = .004$) and even among families with an annual combined income of more than $75 000 (46%, 33%, and 26%, respectively; $P = .04$). Similarly, among uninsured children, black and Hispanic parents were asked about household alcohol and drug use significantly more often than white parents (52%, 72%, and 44%, respectively; $P = .002$). Available emotional support, car seats, child care, and reading to children also were discussed by providers somewhat more often with minority parents. Black parents were less likely to be told by providers that a developmental assessment was performed. No differences were found in the frequency of provider discussions about the remaining issues.

Minority parents made significantly fewer telephone calls to their child's doctor's office, with blacks averaging 1 fewer and Hispanics 2 fewer calls per year (Table 3). Minority children were more likely to have had ED visits and black children to have had hospital stays in the past year. No differences were found in the proportions of age-appropriate well-child care visits made.

Racial/ethnic disparities were observed for referrals by providers to any specialist in the prior year (Table 3). Only 11% of Hispanic children and 17% of black children were referred to specialists, compared with 22% of white children.

Multivariate Analyses

Multiple racial/ethnic disparities persisted after multivariate adjustment (Table 4). Compared with white children, Hispanic children had more than twice the odds of being uninsured. Black children were twice as likely to not be in excellent or very good health, compared with white children. Hispanic parents had double the odds of white parents of not being very likely to recommend the child's well-child care provider and of reporting that their child's provider never or only sometimes understood their child's specific needs. Minority parents were more likely than white parents to report that their child's provider never or only sometimes understood the parents' child-rearing preferences. Minority chil-

TABLE 3. Parental Satisfaction and Interactions With Health Care Providers for White, Black, and Hispanic Children 4 to 35 Months of Age in the United States in 2000

Measure	Percentage or Mean (95% CI)			*P* Value
	White (N = 718)	Black (N = 477)	Hispanic (N = 817)	
Parental satisfaction with care				
Parental reports of health care provider qualities*				
Never or only sometimes takes time to understand child's specific needs	10 (8–13)	15 (11–19)	30 (26–34)	<.001
Never or only sometimes respects parent as expert on child	14 (11–17)	22 (18–27)	25 (21–29)	<.001
Never or only sometimes understands how parent prefers to rear child	35 (31–39)	45 (40–51)	46 (41–50)	<.001
Never or only sometimes asks how parent is feeling as parent	55 (50–59)	53 (47–59)	61 (56–65)	<.001
Adequacy of time health care provider spent with child during last check-up†				.02
Not enough time	11 (8–13)	10 (6–14)	17 (13–20)	
Just the right amount of time	89 (86–92)	89 (84–93)	81 (78–85)	
Too much time	0.4 (0.01–1)	2 (0.01–4)	2 (0.2–4)	
Estimated time health care provider spent with child during last check-up, min†	21.1 (19.3–23.0)	25.2 (22.6–27.7)	23.3 (21.6–25.1)	.03
Parents asked health care provider all questions they had	95 (93–97)	95 (93–97)	92 (88–95)	.07
Parent very likely to recommend well-child care provider‡	84 (79–88)	77 (70–84)	60 (63–66)	<.001
Parental rating of well-child care provider (scale of 1–10)§	8.8 (8.6–8.9)	8.5 (8.3–8.7)	8.6 (8.5–8.8)	.09
Topics discussed with parent by regular health care provider‖¶				
Violence in community	6 (3–8)	14 (10–18)	20 (17–24)	<.001
Smoking in household	72 (68–76)	86 (83–90)	85 (82–88)	<.001
Use of alcohol or drugs in household	35 (30–39)	58 (52–64)	65 (61–69)	<.001
Trouble paying for child's needs	10 (7–12)	18 (13–22)	14 (12–17)	.001
Spouse/partner supportive of parenting style	34 (30–38)	46 (40–52)	46 (41–50)	<.001
Immunizations	97 (95–98)	96 (93–98)	94 (92–96)	.16
Emotional support available to parent	30 (25–33)	39 (33–45)	33 (29–37)	.01
Parent's physical health	38 (33–42)	45 (40–51)	39 (34–43)	.07
Use of a car seat	69 (64–73)	77 (72–82)	77 (74–81)	.001
Child care arrangements	30 (26–34)	43 (38–49)	38 (34–42)	<.001
Importance of reading to child	59 (55–64)	69 (64–75)	64 (61–69)	.006
Food/feeding issues	83 (79–86)	83 (78–87)	85 (81–88)	.78
Night waking, fussing, and bedtime routines	58 (54–63)	55 (49–61)	53 (49–58)	.25
Child's communication and speech issues	71 (67–75)	76 (71–80)	70 (66–74)	.26
Told parent developmental assessment performed	47 (43–52)	34 (29–40)	43 (39–48)	.001
Use of health services‖				
Made age-appropriate number of well-child care visits#	68 (64–72)	70 (65–75)	66 (62–70)	.55
Mean no. of calls to doctor's office in past year	4.28 (3.80–3.11)	3.11 (2.59–3.62)	2.00 (1.70–2.31)	<.001
≥1 ED visits in past year	32 (28–37)	47 (42–53)	41 (37–45)	<.001
≥1 hospital stay in past year	9 (7–12)	17 (12–23)	12 (10–16)	.005
Provider referred child to any specialist	22 (18–26)	17 (13–21)	11 (9–14)	<.001

Data are from the 2000 NSECH. Numbers of children are the numbers for whom responses were available. Percentages are weighted to represent US children 4 to 35 months of age.

* Parents' Likert scale response choices for each of these 4 questions consisted of the following: always, usually, sometimes, or never.

† By parental report.

‡ Based on a subsample of 894 children with a specific well-child care provider.

§ Where 1 indicates the worst health care possible and 10 indicates the best health care possible.

‖ Within the past 12 months, or since birth for children <12 months of age.

¶ Different questions were asked depending on the child's age (0–9 months, 10–18 months, and 19–35 months), but similar topics were covered for all age groups. For each topic, data were combined for all 3 age groups and analyzed as "yes, the topic was covered" versus "no, the topic was not covered."

Parent reported at least the minimal number of well-child care visits recommended by the American Academy of Pediatrics[9] for children within 1 month of the child's age.

dren were more than twice as likely as white children to have an assigned health care provider. During office visits for minority children, providers were more likely to discuss community violence and household alcohol and drug use; during office visits for black children, providers were more likely to discuss household smoking, trouble paying for the child's needs, spouse/partner support of parenting, child care, and reading to children. Minority parents made significantly fewer calls to their child's pro-

TABLE 4. Adjusted ORs and Mean Differences for Racial/Ethnic Disparities in Health, Health Care, and Interactions With Health Care Providers for Black and Hispanic Children 4 to 35 Months of Age in the United States in 2000

Measure	OR or Mean Difference (95% CI)	
	Black	Hispanic
Health status		
Uninsured*	1.57 (0.94–2.63)	2.16 (1.32–3.52)
Child's health not excellent or very good†	1.95 (1.23–3.10)	1.19 (0.70–2.01)
Parental satisfaction with child's health care provider		
Parent not very likely to recommend child's well-child care provider	1.21 (0.65–2.23)	1.87 (1.05–3.35)
Health care provider never or only sometimes understands child's specific needs	1.45 (0.90–2.35)	2.34 (1.45–3.78)
Health care provider never or only sometimes understands how parent prefers to rear child	1.56 (1.09–2.22)	1.50 (1.05–2.15)
Child assigned regular care provider‡	2.70 (1.08–6.76)	2.33 (1.02–5.32)
Topics discussed with parent by child's health care provider		
Violence in community	2.13 (1.08–4.18)	2.17 (1.13–4.16)
Smoking in household	1.82 (1.19–2.79)	1.37 (0.87–2.17)
Use of alcohol or drugs in household	1.88 (1.31–2.69)	1.49 (1.02–2.16)
Trouble paying for child's needs	1.66 (1.01–2.73)	1.20 (0.72–2.00)
Spouse/partner supportive of parenting efforts	1.59 (1.12–2.26)	1.38 (0.96–1.99)
Child care arrangements	2.01 (1.41–2.87)	1.26 (0.86–1.84)
Importance of reading to child	1.60 (1.11–2.29)	1.17 (0.81–1.67)
Use of health services§		
Mean no. of calls to doctor's office in past year‖	−1.03 (−1.76 to −0.30)	−1.00 (−1.79 to −0.21)
≥1 ED visits in past year	1.47 (1.02–2.13)	1.34 (0.91–1.96)
Child not referred to specialist by health care provider	1.70 (1.04–2.75)	1.67 (1.03–2.71)

Data are from the 2000 NSECH. Racial/ethnic differences are expressed as the adjusted OR or mean difference for each outcome, compared with white children. All ORs and mean differences are adjusted for health insurance (except when health insurance is the dependent variable), survey language (English versus Spanish), child's health status (by parental report), poverty, child's age, mother's educational attainment and age, number of children in the household, and usual place for medical care. Only racial/ethnic disparities that persisted as statistically significant after adjustment in multivariate analyses are listed.

* At any time in the past 12 months.

† By parental report.

‡ Applies only to children (n = 930) whose parents affirmatively answered the question, "Is there a particular doctor or other health care provider that you usually take your child to for well-child care?"

§ Within the past 12 months, or since birth for children <12 months of age.

‖ Expressed as mean difference in the number of calls made in the past year (or since birth for children <12 months of age), compared with whites.

vider, and black children were more likely to have made ED visits. Compared with white children, both black and Hispanic children had almost double the odds of not being referred to a specialist by their provider. Significant racial/ethnic disparities in bivariate analyses that were no longer significant after multivariate adjustment included the usual place for medical care, specific well-child provider type, provider practice location, provider gender, adequacy of and estimated time that the provider spent with the child, parents asking all of the questions they had for the provider, the provider discussing immunizations with parents, parental emotional support, parents' physical health, car seat use, and hospital stays in the past year.

Children whose parents completed surveys in Spanish also experienced several disparities, in comparison with children whose parents completed surveys in English (Table 5), including greater odds of being uninsured, not being in excellent or very good health, parents reporting that the provider never or only sometimes understood the child's specific needs, provider discussion of community violence and household drinking and drug use, informing parents of developmental assessments, fewer calls to the child's provider, and no specialty referrals. Survey language also was an important covariate in multivariate analyses of disparities. In multivariate models without adjustment for survey language (Table 6), Hispanic children were more likely than white children to not be in excellent or very good health, to have health care providers who never or only sometimes respected the parent as the expert on the child, and to have had household smoking, child care, and spouse/partner parenting support discussed by providers. These disparities, however, were eliminated after adjustment for survey language. Adjustment for survey language also reduced the magnitude of

TABLE 5. Adjusted ORs and Mean Differences for Disparities in Health, Health Care, and Interactions With Health Care Providers for Children 4 to 35 Months of Age With Spanish-Speaking Parents (N = 399) in the United States in 2000

Measure	Completed Surveys in Spanish, OR or Mean Difference (95% CI)
Insurance coverage and health status	
Uninsured*	2.12 (1.31–3.42)
Child's health not excellent or very good†	2.91 (1.72–4.93)
Provider never or only sometimes understands child's specific needs	1.77 (1.05–2.99)
Topics discussed with parent by child's health care provider‡	
Violence in community	2.34 (1.39–3.95)
Use of alcohol or drugs in household	2.94 (1.84–4.69)
Parent told developmental assessment performed by provider	2.29 (1.45–3.61)
Mean no. of calls to doctor's office in past year§	−1.65 (−2.39 to −0.90)
Child not referred to specialist by health care provider	2.72 (1.40–5.25)

Data are from the 2000 NSECH. Of the 399 children whose parents completed surveys in Spanish, 395 were Latino, 2 were white, and 2 were black. Differences are expressed as the adjusted OR or mean difference for each outcome for children with parents who completed surveys in Spanish, compared with children with parents who completed surveys in English. All ORs and mean differences are adjusted for health insurance (except when health insurance is the dependent variable), race/ethnicity, health status (by parental report), poverty, age, mother's educational attainment and age, number of children in the household, and usual place for medical care. Because the independent variable of interest in this table (parental survey language) differed from the independent variable of interest in Table 4 (race/ethnicity), outcomes with significant ORs or means are not identical in Tables 4 and 5.

* At any time in the past 12 months.

† By parental report.

‡ Within the past 12 months, or since birth for children <12 months of age.

§ Expressed as mean difference in the number of calls made in the past year (or since birth for children <12 months of age), compared with parents who completed surveys in Spanish.

all 9 significant ORs and mean differences for disparities among Hispanic children (Table 6). For example, in multivariate models without survey language adjustment, Hispanic children had 3.03 times the odds (95% CI: 1.96–4.67) of being uninsured (compared with white children); after survey language adjustment, these odds were reduced to 2.16 (95% CI: 1.32–3.52).

DISCUSSION

Racial/ethnic disparities in insurance coverage, health status, and parental satisfaction with health care were found for young children in the United States. Our finding that Hispanic children were more likely to be uninsured is consistent with studies of children of all ages spanning 3 decades.[14–17] Data showing that young black children were more likely than young white children to have poorer reported health status are consistent with prior research demonstrating poorer health for black children of all ages.[5,17,18] Previous research documented racial/ethnic disparities in overall parental satisfaction with pediatric care,[19,20] but prior work did not focus specifically on racial/ethnic disparities in parental satisfaction with care for young children and in parental reports of health care providers' understanding of children's needs and parental child-rearing preferences.

The child's race/ethnicity was associated with the likelihood of pediatric providers discussing 7 topics during office visits. Providers were more than twice as likely to discuss community violence and household alcohol and drug use during minority children's office visits, and more often discussed household smoking, trouble paying for children's needs, spouse/partner parenting support, child care, and reading to children during black children's visits. This possible "overdiscussion" of certain topics with minority families, particularly black families, raises potential concerns regarding conscious or unconscious stereotyping of minorities, such as viewing minorities as being at greater risk for violence and alcohol and illicit drug use. For instance, a national survey revealed that 51% of whites think that blacks are prone to violence, whereas only 16% of whites think that whites are prone to violence.[21] The possibility of stereotyping by pediatric providers regarding selected anticipatory guidance topics would be concerning because of the potential for minority families to interpret this stereotyping as a form of discrimination,[22] which might lead to decreased satisfaction with care and impaired patient-provider communication. Also of concern is the possible "underdiscussion" of certain anticipatory guidance topics with white families, which could be to their detriment and could be attributable to "positive stereotyping." Discussions between pediatric providers and families about such important topics as household alcohol use and smoking, family violence, and child care ideally should approach 100% for the entire population. Additional study is needed regarding why racial/ethnic disparities occur in pediatric providers' discussions of selected topics.

The absence of disparities in certain components of the pediatric care of minority children highlights where health care providers are doing an excellent job of providing equitable care. After multivariate adjustment, there were no racial/ethnic disparities in

TABLE 6. Effects of Adding Parental Survey Language (English Versus Spanish) on Adjusted ORs and Mean Differences for Racial/Ethnic Disparities in Health, Health Care, and Interactions With Health Care Providers for Hispanic Children 4 to 35 Months of Age in the United States in 2000

Measure	OR (95% CI)	
	Without Parental Survey Language in Model	With Parental Survey Language in Model
Insurance coverage and health status		
Uninsured*	3.03 (1.96–4.67)	2.16 (1.32–3.52)
Child's health not excellent or very good†	2.03 (1.33–3.10)	1.19 (0.70–2.01)
Parental satisfaction with child's health care provider		
Parent not very likely to recommend child's well-child care provider	2.22 (1.31–3.74)	1.87 (1.05–3.35)
Provider never or only sometimes understands child's specific needs	3.02 (2.01–4.55)	2.34 (1.45–3.78)
Provider never or only sometimes understands how parent prefers to rear child	1.56 (1.13–2.17)	1.50 (1.05–2.15)
Provider never or only sometimes respects parent as expert on child	1.58 (1.03–2.43)	1.50 (0.93–2.42)
Child assigned regular care provider	2.67 (1.13–6.34)	2.33 (1.02–5.32)
Topics discussed with parent by child's health care provider‡		
Violence in community	3.25 (1.83–5.77)	2.17 (1.13–4.16)
Smoking in household	1.53 (1.00–2.35)	1.37 (0.87–2.17)
Use of alcohol or drugs in household	2.22 (1.58–3.13)	1.49 (1.02–2.16)
Spouse/partner supportive of parenting efforts	1.57 (1.13–2.20)	1.38 (0.96–1.99)
Child care arrangements	1.49 (1.05–2.10)	1.26 (0.86–1.84)
Mean no. of calls to doctor's office in past year§	−1.66 (−2.34 to −0.98)	−1.00 (−1.79 to −0.21)
Child not referred to specialist by health care provider	2.39 (1.51–3.79)	1.67 (1.03–2.71)

Data are from the 2000 NSECH. Racial/ethnic differences are expressed as the adjusted OR or mean difference for each outcome, compared with white children. All ORs and mean differences are adjusted for health insurance (except when health insurance is the dependent variable), child's health status (by parental report), poverty, child's age, mother's educational attainment and age, number of children in the household, and usual place for medical care.

* At any time in the past 12 months.

† By parental report.

‡ Within the past 12 months, or since birth for children <12 months of age.

§ Expressed as mean difference in the number of calls made in the past year (or since birth for children <12 months of age), compared with whites.

parental reports that providers asked how the parent felt as a parent or that providers respected the parent as the expert on the child. No disparities were observed after adjustment in parental reports of the adequacy of time or the estimated time the provider spent with the child in the last check-up, parents asking the provider all of the questions they had, or overall ratings of the well-child care provider. The child's race/ethnicity was not associated with the likelihood of pediatric providers discussing 7 topics during office visits (immunizations, emotional support available to parents, parents' physical health, use of car seats, food/feeding issues, night waking/fussing/bedtime routines, and children's communication and speech issues) or informing parents of developmental assessments. Indeed, parents who completed surveys in Spanish were significantly more likely to report that their child's provider informed them that a developmental assessment was performed. Therefore, as we hypothesized, national data on young children's health and health care reveal that in some areas there are racial/ethnic disparities, whereas in other areas there are no disparities.

This study is the first (to our knowledge) to report racial/ethnic disparities in children being assigned to their regular health care provider. The finding that black and Hispanic children are significantly more likely, after adjustment, than white children to have an assigned provider (and are significantly less likely to have a provider chosen by their parents or recommended by someone the parents trust) indicates additional issues in need of investigation. For example, additional study is warranted regarding whether having an assigned provider is associated with reduced parental satisfaction with care or provider understanding of the child's and family's needs.

Parents surveyed in Spanish averaged 2 fewer calls per year to their child's physician's office, compared with parents surveyed in English, and black parents averaged 1 fewer call per year to their child's physician's office, compared with white parents. Data suggest that the significantly lower number of calls by parents surveyed in Spanish may be related in part to language barriers, because the multivariate model without parental survey language revealed that Hispanic parents had a mean of almost 2 fewer calls than

white parents, but the mean call difference was reduced to 1 call with adjustment for survey language. Spanish-speaking parents with limited English proficiency who encounter monolingual English-speaking clinical staff members or automated telephone systems in pediatric practices may be discouraged or frustrated by communication barriers and choose not to make future telephone contacts. For example, Hispanic parents cite language problems as the greatest barrier to health care for their children.[23] It is not clear why black parents averaged fewer telephone calls to their child's physician's office. Recent research may provide 1 possible explanation: black patients in race-discordant relationships rated their physicians as having a significantly less participatory decision-making style, which indicates that racial/ethnic and cultural differences can be barriers to effective communication and partnership for black patients and families.[24] Such differences might cause misunderstanding and a reduced likelihood of black parents telephoning their child's provider. It is clear that additional study of this issue is needed.

In bivariate analyses, black and Hispanic children were significantly more likely than white children to have made an ED visit in the past year, and black children were significantly more likely than white children to have been hospitalized in the past year. After multivariate adjustment, however, the only persistent finding was black children having higher odds than white children of having made an ED visit in the prior year. It can be speculated that the disappearance of certain significant findings after adjustment may be related to controlling for children's health status, because sicker children are more likely to require ED visits and hospitalization. It is unclear, however, why black children continue to have higher odds of ED visits after adjustment, and additional study of this issue is warranted. A topic that was not examined in this study that merits additional research is whether children's use of health services, such as ED visits, is influenced by racial/ethnic disparities in parental satisfaction.

Multiple disparities were noted for children whose parents completed surveys in Spanish. These data, together with changes in the significance and magnitude of ORs after adjustment for survey language, indicate the importance of language issues in analyses of racial/ethnic disparities in health care. Prior studies of children of all ages found that parental completion of surveys in Spanish was associated with poorer health status and decreased odds of a usual source of care.[13,25] A study of children with special health care needs found that children whose parents completed surveys in a language other than English had higher risks of access barriers to care and certain adverse consequences, and among Hispanic children, the addition of survey language to multivariate models changed the significance and magnitude of findings regarding access and adverse consequences.[26] A parent's choice of survey language does not necessarily reflect a language barrier, because bilingual parents who are fluent in English may still prefer to be surveyed in Spanish. The NSECH did not examine limited English proficiency, and additional study of the relationship of this more precise measure of language barriers to racial/ethnic disparities in health care is needed.

Certain study limitations should be noted. NSECH sample sizes were insufficient to permit analysis of racial/ethnic disparities for Asian/Pacific Islander or Native American children. Although Latino subgroups can differ substantially in children's health and use of services,[27] NSECH samples sizes were inadequate for Latino subgroup analysis. The NSECH did not collect data on whether parents were limited in English proficiency, which is a variable known to influence children's health outcomes.[28] Spanish was the only non-English survey language offered, so additional study is needed of parents' choice to complete surveys in other non-English languages and the effects on children's health outcomes. NSECH data are based on parental reports and thus may be subject to recall bias and possible racial/ethnic differences in recall. Independent verification of parental reports through chart abstraction and provider reports was not available in NSECH (although prior work indicated strong agreement between parental reports of child health events and true occurrences[7]). The absence of information from households that did not respond to NSECH inquiries or lacked telephones might have biased the final NSECH dataset, although NSECH sampling weights adjusted for potential bias attributable to both nonresponding households and households without telephones at the time of the survey.[4] The health literacy of respondents might have influenced survey responses and outcomes, but health literacy information was not collected as part of the NSECH. The wording of the same question might be interpreted differently and elicit different responses from members of different racial/ethnic and cultural groups, especially for questions about providers' discussion of emotional support or partners being supportive of parenting styles.

It is concerning that nonwhite children were almost twice as likely not to be referred to specialists by health care providers, even after adjustment for insurance coverage, health status, and other relevant covariates. The reasons for these disparities are unclear and merit additional study. Prior research consistent with these findings includes a study that showed a lower likelihood of specialty consultation for managed care-covered black children with special health care needs.[29]

The causes of the racial/ethnic disparities noted in this study are not clear and could not be examined with NSECH data. Certain disparities, such as a lack of insurance coverage, are probably rooted in health care system issues at the federal, state, and institutional levels, such as eligibility, parental understanding of programs, outreach, and enrollment in Medicaid and the State Children's Health Insurance Program. Some disparities may originate from cultural differences in perceptions, such as discrepancies in the perspectives of health care providers and minority parents regarding whether the provider understands the child's specific health care needs and

parental preferences in child rearing. Selected disparities, such as those for specialty referrals and possible overdiscussion of community violence and household drug/alcohol use, may be attributable to overt or covert health care provider bias or stereotyping. Examination of provider characteristics that might play a role in these disparities, including racial/ethnic provider-patient concordance, gender, and provider practice setting (private office versus public clinic), is beyond the scope of this study and will be addressed in a separate article.

Greater insight is needed into why multiple racial/disparities exist in the health and health care of young American children and how such disparities can be reduced or eliminated. Targeted education and training in cultural competency might be one possible mechanism for reducing or eliminating racial/ethnic disparities in specialty referrals, perceived provider understanding of children's needs and parental child-rearing preferences, satisfaction with health care providers, and possible provider overdiscussion of violence and substance abuse. As pointed out in the Institute of Medicine report on health care disparities,[1] cross-cultural education offers promise as a tool to improve providers' ability to provide quality care to diverse populations, thereby reducing disparities. Recent data indicate, however, that few US or Canadian medical schools offer separate cultural competency courses, and most offer no instruction regarding the largest minority groups in their regions.[30] Our study findings also suggest priority areas for monitoring, quality assurance, and provider and system performance evaluations for health plans and systems that provide health care to diverse pediatric populations. The data indicate that relevant disparity benchmarks for the care of diverse populations of young children might include health status, parental satisfaction with health care providers and providers' understanding of children's specific needs and parents' child-rearing preferences, provider discussions of pediatric topics with parents, differences in parents' telephone calls to providers' offices, and specialty referrals.

The United States is experiencing a demographic surge in minority children, particularly among the youngest age groups. Estimates indicate that, by 2030, there will be more minority children than non-Hispanic white children 0 to 18 years of age, and minorities will outnumber non-Hispanic whites by 1.1 million among 0- to 5-year-old children.[31] Our study documents multiple racial/ethnic disparities in the health and health care of young black and Hispanic children in America. As the numbers and proportions of minority US children grow and pediatric providers care for increasingly diverse patient populations, racial/ethnic disparities will take on even greater importance. Elimination of such inequities may require more research regarding possible root causes of disparities, additional education for health care providers, and ongoing monitoring for disparities by health plans, the State Children's Health Insurance Program, Medicaid, and other health care systems.

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