SUPPLEMENT ARTICLE

Consistently Inconsistent: A Snapshot of Across- and Within-State Disparities in the Prevalence of Childhood Overweight and Obesity

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ABSTRACT

BACKGROUND. The epidemic of childhood overweight and obesity is characterized by known disparities. Less is known about how these disparities vary across and within the state in which a child lives.

OBJECTIVE. To examine the magnitude and patterns of across- and within-state differences in the prevalence of childhood overweight and obesity according to children’s insurance type (public versus private), household income level, race (non-Hispanic black versus non-Hispanic white), and ethnicity (Hispanic versus non-Hispanic).

METHODS. State-level overweight and obesity prevalence rates for children aged 10–17 were calculated by using data from the 2003 National Survey of Children’s Health. Statistical significance of across-state variation was assessed. Disparity ratios assessed within-state equity according to children’s insurance type, income, race, and ethnicity. State ranks on overall prevalence and ranks on disparity indices were correlated and regression models were fit to examine within-state consistency, state-level clustering effects and whether the effect of child characteristics varied across key population subgroups.

RESULTS. Prevalence of childhood overweight and obesity varied significantly across states. A total of 31 states had a prevalence lower than the national rate of 30.6% (14 statistically significant), and 20 had higher rates (9 statistically significant). Within-state disparity indices ranged from a low of 1.0 (no disparity) to a high of 3.44 (nearly 3.5 times higher). Correlations between state ranks on overall prevalence and their ranks on disparity indices were not significant for the insurance type, income, or race disparity groups examined. A modest state-clustering effect was found. Compared with non-Hispanic white children, the effect of lower household income and lower household education level education were significantly less for non-Hispanic black and Hispanic children, who were more likely to be overweight or obese regardless of these other factors.

CONCLUSIONS. Disparities in the prevalence of childhood overweight and obesity vary significantly both within and across states. Patterns of variation are inconsistent within states, highlighting the need for states to undertake state- and population-specific analyses and interventions to address the epidemic. Pediatrics 2009;123:S277–S286

CHILDHOOD OVERWEIGHT AND obesity are major public health problems that have the potential to cause enormous medical, psychosocial, and financial costs and are characterized by known disparities.\(^1\)–\(^5\) During the periods 1976–1980, 1988–1994, and 1999–2002, rates of obesity increased for all children regardless of age, race, ethnicity, or gender.\(^6\) The epidemic of childhood overweight and obesity is gaining significant attention from policy makers at the state and federal levels. Although a rich literature is emerging on disparities in childhood obesity,\(^7\)–\(^11\) less is known about the degree to which these disparities exist and vary across and within individual states. Examination of within- and across-state variation in childhood obesity rates is critical to shaping effective national and state-level policy and program responses to prevent and reduce overweight and obesity among children.

This study builds on previous research that outlined state-level prevalence of overweight and obesity\(^16,17\) and the existence of disparities according to demographic characteristics of children.\(^18\) The objective of this study was to examine the magnitude, statistical significance, and patterns of across- and within-state differences in the prevalence of childhood overweight and obesity according to children’s insurance type (public versus private), household...
income level, race (non-Hispanic black versus non-Hispanic white), and ethnicity (Hispanic versus non-Hispanic). We also estimate the presence of a state-clustering effect that may suggest a higher or lower probability of being overweight or obese for children in some states after accounting for child-level characteristics. In addition, we sought to enrich already-published findings regarding the effect of child characteristics by assessing the effect of characteristics such as a child’s age, gender, household income, and education according to different race and ethnicity subgroups. Together, with the analyses presented here, we sought to help determine how the prevalence of overweight and obesity among children and youth aged 10 to 17 years in each state compares to that in other states and if the burden of overweight and obesity within states falls more on particular population subgroups. We also compared the magnitude of disparities between key indicators of disadvantage: income, health insurance coverage, and race/ethnicity. Such information will help program and policy planners, who have limited resources, to address childhood overweight and obesity and target their efforts to the highest-risk subgroups, in addition to the broader child and youth population, thereby increasing the efficiency of their actions to halt this epidemic.

METHODS

Data and Variable Descriptions

Data for this study were drawn from the 2003 National Survey of Children’s Health (NSCH) public-use data file. The 2003 NSCH is the most recent national data allowing state-level estimates of overweight and obesity for children and youth. Data were collected between January 2003 and July 2004. The NSCH is directed and funded by the Maternal and Child Health Bureau (MCHB) of the Health Resources and Services Administration and is administered by the National Center for Health Statistics. The prevalence of overweight and obesity was calculated by using the age- and gender-specific weight-status variable included in the NSCH. This variable classified children and youth as underweight, normal weight, overweight, or obese by using original respondent (primarily mothers) reported information on children’s age, weight, and height and on the basis of the Centers for Disease Control and Prevention BMI-for-age gender-specific growth charts (www.cdc.gov/growthcharts) and recognized guidelines for defining overweight and obesity. Overweight was defined as ≥85th percentile of age- and gender-specific BMI and obesity as ≥95th percentile for age and gender. The MCHB and National Center for Health Statistics have also evaluated data-validity issues and determined that NSCH data for estimating overweight and obesity are valid for children and youth aged 10 to 17 years, especially for purposes of comparing geographic or population subgroups. As such, data from children in the 10- to 17-year age group only are included (unweighted n = 46,707; weighted n = 31,061,473).

In addition to weight status, variables used in multivariate analyses (described below) included child age (10–13 vs 14–17 years), gender, and race/ethnicity (non-Hispanic white, non-Hispanic black, Hispanic, other), household income (<100% of the federal poverty level [FPL], 100%–199% of the FPL, 200%–399% of the FPL, ≥400% of the FPL) and education level (less than high school, high school only, beyond high school), whether the child had public insurance, private insurance, or was uninsured, and whether the child lived in a household in which English is not the primary language. All variables were reported by a parent or guardian per NSCH protocols.

Analytic Methods

First, the statistical significance of differences in the overall overweight/obesity prevalence rates across states for all children aged 10 to 17 years as well as the significance of differences between each state’s prevalence and the national prevalence rate was evaluated using ANOVA and nested t tests, respectively. A .05 level of significance was used in these analyses. In conducting statistical tests, SIs were adjusted to take into account weighting, clustering, stratification, and increased variability that result from the NSCH’s complex sampling design by using the SPSS (SPSS Inc, Chicago, IL) complex sample module. State-level prevalence and results comparing each state to the nation were configured in a map of the United States created with ArcGIS software (ESRI, Redlands, CA) (Fig 1).

Next, 4 rate-ratio disparity indices were calculated for each state, and states were ranked according to their disparity-index score. The 4 disparity indices were (1) an insurance-type disparity index calculated as the ratio of the prevalence for publicly versus privately insured children, (2) a household-income disparity index calculated as the ratio of the prevalence for children living in households with the lowest (<100% of the FPL) versus highest (≥400% of the FPL) incomes, (3) a race disparity index calculated as the ratio of the prevalence for non-Hispanic black and non-Hispanic white children, and (4) an ethnicity disparity index calculated as the ratio of the prevalence for Hispanic versus Non-Hispanic children. Indices for other race and ethnicity groupings were not included because of small state-level sample sizes for these groups. The simple rate-ratio disparity index used here resulted in within- and across-state ranking conclusions identical to those arrived at if the commonly used index-of-disparity formula were used, with the primary difference being that it is expressed as a number below or above 1 (1 being no difference between 2 groups) versus a percentage below or above 0% (0% being no difference between 2 groups). Our simpler index was easier to interpret. However, were more than 2 groups compared or more than 1 measure assessed at 1 time, the more complex index of disparity would have been used. In these analyses, states with a subgroup-specific overweight/obesity prevalence rate that had a relative SE of >30% and/or had fewer than 25 children categorized as overweight/obese were eliminated from the disparity-indices analyses. Using these criteria, 49 states were included in the insurance-type disparity analyses, 39 states were included in the household-income disparity analyses, 23 states were included in the
race disparity analyses, and 21 states were included in the ethnicity disparity analyses. State ranks on each disparity index were correlated with state ranks on overall overweight/obesity prevalence by using Spearman’s \( r \) statistic. In addition, graphs that plot each state’s overweight/obesity rate for each of the 4 index comparison groups were created by using SPSS 15.0 (Figs 2–5).

Two other measures of state variation were calculated. A ratio of the highest versus the lowest state overweight/obesity prevalence was calculated for all children and for each of the 8 subgroups used to define the 4 disparity indices. In addition, the coefficient of variation (COV) was calculated to estimate the relative spread (or dispersion) across states. The COV is a normalized measure that allows dispersion to be validly compared across units of analysis with different means and underlying SDs.

A multilevel (or hierarchical) regression model was fit by using the SAS 9.1 (SAS Institute, Inc, Cary, NC) GLIMIX procedure to assess the degree to which child overweight or obesity may be explained by differences between states (called the “clustering effect”) adjusting for individual child-level variables. The presence of a significant clustering effect according to state was estimated by using both the interclass correlation (ICC) and median odds ratio (mOR) statistics.\(^\text{24}\) The ICC was calculated by using the latent-variable (versus simulation) method.\(^\text{24}\) The mOR indicates whether the odds of meeting criteria for being overweight or obese would be higher if a child moved from the state with the lowest to the highest prevalence rate and after taking into account within-state variation on this same measure. These statistics were first calculated on the basis of an “empty model,” which estimated the presence of a state-clustering effect before accounting for child and family characteristics outlined above. Next, child-level characteristics were added, and the ICC and mOR were recalculated. In addition to the multilevel model, separate logistic regression models were fit to assess the adjusted odds of being overweight or obese according to a child’s race or ethnicity. Separate models were fit for non-Hispanic black, non-Hispanic white, and Hispanic children and included age, gender, race, primary household language, household income, and household education as independent variables. Data from all states were included in regression analysis.

RESULTS

Across-All-States Variation

Across the 50 US states and the District of Columbia (termed a state here), the prevalence of childhood overweight and obesity varied significantly from a low of 20.9% (95% confidence interval [CI]: 17.5–24.7) in Utah to a high of 39.5% (95% CI: 35.1–44.2) in the
District of Columbia. A total of 31 states had a prevalence that was lower than the national rate, with 14 that were also statistically different from this national rate. Overall, 20 states had a prevalence that was higher than the national rate, with 9 that were also statistically different from this national rate (Fig 1).

**FIGURE 2**
Prevalence of overweight or obesity for publicly versus privately insured children aged 10 to 17 years according to disparity ratio quartile (n = 49 states).

**FIGURE 3**
Prevalence of overweight or obesity for children aged 10 to 17 years living in households with incomes of <100% FPL versus ≥400% FPL according to disparity ratio quartile (n = 39 states).
The across-state variation in prevalence of overweight or obesity was significant for each of the 8 population subgroups used in the disparity-indices comparisons ($P < .05$). The highest national prevalence of overweight and obesity was observed for non-Hispanic black children at 41.2% (95% CI: 38.5–43.9), and the lowest was for children living in households with income at $>400\%$ of the FPL at 22.9% (95% CI: 21.5–24.2) (Table 1).
Despite the high prevalence rate for non-Hispanic black children, this same group had the lowest high versus low state prevalence ratio (1.52) and the lowest measure of relative spread (COV: 10.1), indicating that this population of children has the most consistently high prevalence rate across states, despite other ways in which states may vary (eg, poverty and education levels, etc). In contrast, non-Hispanic white children had the greatest high versus low state prevalence ratio (2.95) and the highest measure of relative spread (COV: 16.9), indicating that prevalence for this population of children is the most inconsistent across states. Across all states and disparity subgroups, the highest overall prevalence of overweight and obesity was observed for Hispanic children living in Delaware at 56.6% (95% CI: 42.6–69.7). The lowest was observed for non-Hispanic white children living in Delaware at 12.7% (95% CI: 8.3–18.8) (Table 1).

On a national level, disparities in overweight and obesity were lowest for ethnicity (1.28) and highest for household income (1.74), which suggests that children and adolescents aged 10 to 17 from families with an income below the FPL were 74% more likely to be overweight or obese than those from families with a household income at >400% FPL (39.8% vs 22.9%, respectively). The national race and insurance-type disparity indices were 1.55 and 1.48, respectively.

**Within-State Variations**

Across-state patterns of variation differed from those that emerged when each state was evaluated individually. At a state-specific level, the 4 disparity-index scores ranged from a low of 1.0 (no disparity) to a high of 3.44. For insurance type (public versus private), the within-state disparity index ranged from 1.00 in Nevada to 2.20 in Illinois. For household income, the within-state disparity index ranged from 1.00 in Louisiana to 2.98 in Wisconsin. For race (non-Hispanic black versus non-Hispanic white), the within-state disparity index ranged from 1.14 in Tennessee to 3.44 in the District of Columbia. For ethnicity (Hispanic versus non-Hispanic), the within-state disparity index ranged from 1.16 in the District of Columbia to 2.08 in Idaho (Table 2).

As displayed in Table 2 and Figs 2 through 5, no state ranked among the highest or lowest on its overall overweight/obese prevalence and on each of the disparity-index scores (insurance, income, race, ethnicity). For example, Pennsylvania ranked 23rd in overall prevalence of overweight/obesity but was ranked first (ie, lowest rate or “best”) for prevalence among low-income children (26.7%). Consistent with this, Pennsylvania had the second lowest income disparity index. In contrast, North Carolina ranked 42nd in overall prevalence but was ranked 8th for prevalence among high-income children. Similarly, this is reflected by the fact that North Carolina had the third highest income disparity index (Table 2; Fig 3). In addition, although the District of Columbia had the highest overall rate of childhood overweight and obesity among all states and the highest disparity between non-Hispanic black and non-Hispanic white children, it also had the lowest rate for non-Hispanic white children and the lowest disparity between Hispanic and Non-Hispanic children (Figs 4 and 5). Similarly, Michigan had the fifth highest disparity between lower and higher income children but the fourth lowest disparity between non-Hispanic black and non-Hispanic white children (Table 2; Figs 3 and 4). These observations are supported by the lack of any significant correlation between the overall prevalence rank across states and their rank on 3 of the 4 disparity indices calculated. The exception was a significant correlation between the overall overweight/obese prevalence and income disparity index.

### TABLE 1 Summary of Across- and Within-State Variation in the Prevalence of Obesity/Overweight Among US Children Aged 10–17 Years

<table>
<thead>
<tr>
<th>Population</th>
<th>All children, aged 10–17 y</th>
<th>Children according to type of health insurancea</th>
<th>Public-sector insurance</th>
<th>39.6 (37.4–41.8)</th>
<th>NV: 25.9 (17.6–36.4)</th>
<th>IL: 55.6 (43.2–67.3)</th>
<th>2.15</th>
<th>16.2</th>
<th>1.48</th>
<th>1.00 (NV) to 2.20 (IL)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Private-sector insurance</td>
<td>26.7 (25.8–27.7)</td>
<td>WY: 20.2 (17.1–23.7)</td>
<td>LA: 33.9 (29.8–38.3)</td>
<td>1.68</td>
<td>13.0</td>
<td>---</td>
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</tr>
<tr>
<td>Children according to family incomeb</td>
<td>&lt;100% FPL</td>
<td>39.8 (36.9–42.8)</td>
<td>PA: 26.7 (18.3–37.1)</td>
<td>IL: 54.3 (41.2–66.7)</td>
<td>2.03</td>
<td>15.2</td>
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<tr>
<td></td>
<td>&gt;400% FPL</td>
<td>22.9 (21.5–24.2)</td>
<td>SD: 15.6 (10.8–21.9)</td>
<td>LA: 36.6 (30.6–43.0)</td>
<td>2.35</td>
<td>16.1</td>
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<td></td>
</tr>
<tr>
<td>Children according to raceb</td>
<td>Non-Hispanic black</td>
<td>41.2 (38.5–43.9)</td>
<td>MI: 35.6 (27.3–44.9)</td>
<td>NJ: 54.0 (42.8–64.9)</td>
<td>1.52</td>
<td>10.1</td>
<td>1.55</td>
<td>1.14 (TN) to 3.44 (DC)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Non-Hispanic white</td>
<td>26.6 (25.7–27.6)</td>
<td>CO: 19.9 (16.4–24.0)</td>
<td>DC: 39.0 (34.3–43.9)</td>
<td>1.96</td>
<td>14.6</td>
<td>---</td>
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</tr>
<tr>
<td></td>
<td>Hispanic children according to type of health insuranceb</td>
<td>7.7 (7.4–8.0)</td>
<td>UT: 20.9 (17.4–25.7)</td>
<td>DC: 39.5 (35.1–44.2)</td>
<td>1.89</td>
<td>14.0</td>
<td>---</td>
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<tr>
<td></td>
<td>Private-sector insurance</td>
<td>12.7 (8.3–18.8)</td>
<td>KY: 37.5 (33.5–41.6)</td>
<td>KY: 37.5 (33.5–41.6)</td>
<td>2.95</td>
<td>16.9</td>
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</tr>
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</table>
TABLE 2 States With the Highest and Lowest Disparity Indices Compared With Their Overall National Rank

<table>
<thead>
<tr>
<th>State</th>
<th>Prevalence of Overweight or Obesity: Children Aged 10–17 y, % (95% CI)</th>
<th>State-Level Disparity Index</th>
<th>State’s Overall Rank Nationally*</th>
</tr>
</thead>
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<tr>
<td>Nevada</td>
<td>26.6 (23.4–30.1)</td>
<td>1.00</td>
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<tr>
<td>Arkansas</td>
<td>32.9 (29.2–36.8)</td>
<td>1.07</td>
<td>40</td>
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<tr>
<td>Pennsylvania</td>
<td>29.3 (26.1–32.6)</td>
<td>1.08</td>
<td>23</td>
</tr>
<tr>
<td>Louisiana</td>
<td>35.6 (32.1–39.3)</td>
<td>1.13</td>
<td>46</td>
</tr>
<tr>
<td>South Carolina</td>
<td>36.1 (32.6–39.8)</td>
<td>1.16</td>
<td>47</td>
</tr>
<tr>
<td>North Carolina</td>
<td>33.9 (30.3–37.7)</td>
<td>1.87</td>
<td>42</td>
</tr>
<tr>
<td>Nebraska</td>
<td>26.3 (22.9–30.1)</td>
<td>1.91</td>
<td>10</td>
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<td>North Dakota</td>
<td>26.9 (23.5–30.6)</td>
<td>1.93</td>
<td>14</td>
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<td>Georgia</td>
<td>31.7 (27.8–35.9)</td>
<td>1.98</td>
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<td>2.20</td>
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<td>29.3 (26.1–32.6)</td>
<td>1.18</td>
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<td>Arkansas</td>
<td>32.9 (29.2–36.8)</td>
<td>1.28</td>
<td>40</td>
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<tr>
<td>California</td>
<td>30.0 (26.4–34.0)</td>
<td>1.32</td>
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<tr>
<td>Alabama</td>
<td>34.6 (31.0–38.3)</td>
<td>1.37</td>
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<td>Michigan</td>
<td>28.8 (25.6–32.2)</td>
<td>2.36</td>
<td>20</td>
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<td>South Dakota</td>
<td>25.8 (22.3–29.7)</td>
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<td>North Carolina</td>
<td>33.9 (30.3–37.7)</td>
<td>2.43</td>
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<td>New Mexico</td>
<td>28.9 (25.2–32.9)</td>
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<td>Wisconsin</td>
<td>29.4 (25.8–33.2)</td>
<td>2.98</td>
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<td>Tennessee</td>
<td>35.3 (31.5–39.3)</td>
<td>1.14</td>
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<td>Kentucky</td>
<td>38.2 (34.5–42.1)</td>
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<td>New Jersey</td>
<td>31.5 (27.9–35.3)</td>
<td>2.14</td>
<td>36</td>
</tr>
<tr>
<td>District of Columbia</td>
<td>39.5 (35.1–44.2)</td>
<td>3.44</td>
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<td>26.5 (23.3–29.9)</td>
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<td>30.5 (27.1–34.1)</td>
<td>1.65</td>
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<td>Delaware</td>
<td>35.5 (31.9–39.2)</td>
<td>1.67</td>
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<td>Massachusetts</td>
<td>28.9 (25.5–32.6)</td>
<td>1.67</td>
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<tr>
<td>Idaho</td>
<td>25.6 (22.3–29.2)</td>
<td>2.08</td>
<td>7</td>
</tr>
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</table>

*1 = “best” or lowest rate.
negative correlation in state overall prevalence ranks and their Hispanic/non-Hispanic disparity index ($r = -0.32; P = .04$).

State Clustering and Consistency of Effects Across Race and Ethnicity Groups

In multilevel analyses, a small state-clustering effect was observed after accounting for within-state variation in overweight/obesity prevalence. The mOR was 1.17 (ICC: 0.9%) before taking individual child characteristics into account and decreased only modestly to 1.13 (ICC: 0.5%) after these characteristics were considered. Individual-level variables significantly associated with increased odds of overweight/obesity included male gender with an adjusted odds ratio (aOR) of 1.55 (95% CI: 1.44–1.68), non-Hispanic black race with an aOR of 1.65 (95% CI: 1.48–1.85), Hispanic race/ethnicity with an aOR of 1.34 (95% CI: 1.14–1.57), and lower household income with an aOR of 1.38 (95% CI: 1.18–1.62) for <100% of the FPL, an aOR of 1.45 (95% CI: 1.29–1.64) for 100% to 299% of the FPL, and an aOR of 1.24 (95% CI: 1.14–1.36) for 300% to 399% of the FPL. Odds were also higher for children living in households with high school only as the highest level of education in the household (aOR: 1.38 [95% CI: 1.26–1.51]). Odds decreased for each increase in year of age (aOR: 0.96 [95% CI: .85–.88]) and were not significant for the primary-household-language or insurance-type variables.

When separate models were run for different race/ethnicity groups, differences in the effect of household income and education did emerge. Specifically, the positive effect of lower household income and education level on the probability of being overweight or obese was substantially higher and significant for non-Hispanic white children compared with non-Hispanic black and Hispanic children, where income effects were not statistically significant and education effects were minimal after accounting for other factors. This indicates that these 2 race/ethnicity subgroups were more likely to be overweight or obese regardless of these other factors. Information on state-by-state results and more details from the hierarchical linear models (HLM) and logistic regression analyses are available from Dr Bethell.

LIMITATIONS

The findings presented here are limited in that not all states were possible to include in the disparity analyses because of small NSCH sample sizes for 1 or more of the disparity subgroups. It is important to point out that those states not included in 1 or more of the disparity-index calculations were disproportionately those with significantly lower prevalence overall and, as would be expected, are more demographically homogenous, with relatively fewer children represented among disadvantaged subgroups. In addition, for simplicity and as a beginning step, only 2 comparison groups for each disparity variable of interest were evaluated. More detailed analyses of each of these dimensions of disadvantage would be useful. Also, analyses related to state-clustering effects were preliminary and further work to fully develop robust multilevel models that include salient state-level policy variables and information about state-level programs. Parent-reported height and weight data were used and are known to err on the side of underestimating their child’s weight.25 As such, prevalence results may be somewhat lower than if more objective measures of height and weight were used.

DISCUSSION

This study demonstrates significant variation across and within states in the prevalence and disparities in childhood overweight and obesity among populations of children in 2003. Although a pattern of disparities was shown across states, the magnitude and patterns of disparity were inconsistent when each state was examined separately. Often, a single state was both among the highest and lowest in its disparity-index score depending on which disparity group was examined (eg, Michigan: 4th lowest race disparity index and 5th highest income disparity index). These inconsistencies were reflected in the modest, but potentially important, state-clustering effect that was found. The clustering effect indicates that children with similar individual-level characteristics vary in their probability of being overweight or obese depending on the state in which they live. These findings point to opportunities for states to learn from each other and to identify policies, programs, or other factors that contribute to both lower overweight and obesity rates and higher equity in some states and population groups.

Our findings are consistent with those reported in the study by Singh et al,17 who used the NSCH data that indicate that the child-level characteristics similar to those considered here account for only a portion of overall variation in overweight/obesity.18 As such, further studies are needed to assess additional child-, community-, and state-level factors that contribute to higher or lower prevalence of overweight or obesity within and across states. This study adds a layer of depth to the previous analyses by assessing within-state comparisons and through its focus on disparities. Of particular interest was the finding that some states that have an overall lower prevalence also have higher disparity indices. For instance, Oregon and South Dakota rank 11th and 9th in overall prevalence nationally, respectively, but are among the states with the highest ethnicity and income disparities index scores. This suggests that these states would benefit from targeted obesity interventions. On the other hand, states such as Louisiana, which has 1 of the higher prevalence rates overall but some of the lowest disparity indices, would benefit from generalized interventions across the state. States should examine their specific profile of overweight and obesity prevalence to develop the most effective antiobesity campaigns at the state level.

It is widely understood that public health and environmental strategies, such as those in schools, neighborhoods, and recreational settings, are fundamental to addressing the childhood overweight and obesity epidemic.26 In addition, the development and adoption of effective approaches for minority children and youth or children from low-income communities will not occur
unless front-line providers serving those communities are engaged, tools are customized for these settings, and policies supporting their use are promulgated. The first step in addressing overweight and obesity is appropriately identifying and preventing its development. This is often done in the context of a preventive care visit. However, Perry and Kenney\(^3\) found that, overall, only 41.1% of all children had a preventive visit in the previous year. Authors of this and other studies have examined providers’ delivery of obesity-related services, including BMI percentile measurement and counseling on nutrition and physical activity, and found extremely low rates, especially among minority and non–English-speaking and lower-income children.\(^{17,29,30}\) The role of health services and health policy in addressing childhood disparities is now well recognized, and research and practice over the last decade have yielded important lessons about approaches that are likely to be successful in overcoming disparities in other areas. Similarly, national efforts are being made to integrate a focus on disparities into all quality-improvement efforts. Specific to overweight and obesity, the National Initiative for Children’s Healthcare Quality—led Childhood Obesity Action Network will connect health care providers with national clinical leaders and up-to-date research to gain the skills necessary to combat this epidemic.\(^31\)

Since 2003, when the data used in this study were collected, states have moved ahead and implemented a number of policies and programs to address the epidemic. Release of the 2007 NSCH in 2009 will allow a comparison of rates across the 2 years, as well as examination of whether state actions are at all associated with the direction of the epidemic overall and in individual states. These national and state-level data, along with already available findings from the 2003 NSCH, are expected to be available for easy searching on the Data Resource Center for Child and Adolescent Health Web site by Spring 2009 (www.childhealthdata.org).\(^32\) Although the repeated NSCH surveillance data are useful, such data do not allow for in-depth within-state studies. Such longitudinal data, such as those being collected in Arkansas under the auspices of Act 1220 of 2003, will be necessary to fully evaluate the efficacy of policy and community-level interventions.

CONCLUSIONS
This study demonstrates variation within and across states according to population subgroups in the prevalence of childhood overweight and obesity. These patterns are not consistent across the nation and indicate that specific state-level responses will be necessary to effectively combat the obesity epidemic. As state policy and program leaders wrestle with the task of deciding whether to focus their efforts on high-risk groups or the population as a whole, the data presented here can assist decision-makers in determining whether to allocate resources by targeting children and families who are disproportionately affected by the epidemic or developing more population-wide interventions.

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