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Demographic and Placement Variables Associated with Overweight and Obesity in Children in Long-Term Foster Care

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Abstract

Objectives—Overweight and obesity is a growing problem for children in foster care. This study describes the prevalence of overweight and obesity in an urban, ethnic minority population of children ages 2–19 in long-term foster care ($N = 312$) in Los Angeles, California. It also investigates whether demographics or placement settings are related to high body mass index.

Methods—The estimates of prevalence of overweight/obesity (< 85th percentile) and obesity (> 95th percentile) were presented for gender, age, ethnicity, and placement type. Multiple logistic regression was used to examine potential associations between demographic and placement variables and weight status.

Results—The prevalence of overweight/obesity was 40% and obesity was 23% for the study population. Children placed in a group home had the highest prevalence of overweight/obesity (60%) and obesity (43%) compared to other types of placement. Within this study, older children (ages 12–19) were more likely to be overweight/obese than normal weight compared to children between 2 and 5 years old when controlling for gender, ethnicity and placement ($OR = 2.10$, $CI = 1.14–3.87$).

Conclusions—These findings suggest that older age and long-term foster care in general may be risk factors for obesity. Child welfare agencies and health care providers need to work together to train caregivers with children in long-term foster care in obesity treatment interventions and obesity prevention strategies.

Keywords

childhood obesity; overweight; long-term foster care; group home

Overweight and obesity rates in children have risen dramatically in recent years (1), and children in these weight categories are at risk for serious health problems in childhood and adulthood (2). Overweight and obesity is beginning to be recognized as a problem for children in foster care. In U.S. and South Korean samples, young children in foster care have been found to be more likely to be overweight (< 85th percentile to < 95th percentile on the Centers for Disease Control and Prevention [CDC] growth chart) and obese (< 95th percentile) than the general population (3–4). Recently, a study found that 18% of children between 3–18 years old entering foster care in Utah were obese and 35% were overweight or obese (< 85th percentile) (5). Foster children who are not reunited with their birth families or adopted are placed in long-term foster placements, and have the highest risk of poor health outcomes (6–7). To our knowledge, no empirical study has investigated the prevalence of high body mass index (BMI) or the demographics associated with high BMI in children in long-term foster care. This study focuses on an urban population of predominately Hispanic children in long term foster care in Los Angeles, California with permanency as their child welfare case goal, and examines whether placement or demographic variables are related to weight status.

Permanency

Under the Adoption and Safe Families Act (ASFA) enacted in 1997, states are required to make reasonable efforts to finalize a permanency plan for children under the supervision of dependency courts (8–9). The goal of finding permanence for foster children is largely motivated by a body of empirical research suggesting that more placement changes may put children at risk for emotional and behavioral problems (e.g., 10–11). Both researchers and people working within the child welfare system have found it difficult to define permanence (12), but within the Los Angeles County Department of Children and Family Services (LACDCFS), permanency is understood to include several options: placement with adoptive parents, kinship guardianship, kinship long-term foster care, unrelated guardianship, unrelated long-term foster care in a family home, or long-term foster care in group homes (13). Long-term foster care as a permanent placement is considered the third-best permanency option for children in foster care, when family reunification or adoption is not possible (14).

In 2008–2009, 33,902 (8%) of the 423,773 children in foster care in the United States had permanency identified as their case goal (15). Although permanent placement for children in long-term foster care is the goal, only about 23% of children in foster care for more than two years in California are placed in permanent homes within the following year (16). Long-term foster care is the default permanency plan, but this may be problematic because children who remain in long-term foster care have few health-promoting behaviors (3) and negative outcomes in adulthood (17). Additionally, LACDCFS discourages long-term foster care, arguing that this type of placement is stigmatizing, leads to feelings of alienation and isolation, and disrupts children's lives (18).

Health Outcomes for Children in Foster Care

Health outcomes for children in foster care have been shown to differ by placement type. A meta-analysis found that children in kinship care experienced better outcomes in terms of adaptive behaviors, behavioral problems, psychiatric disorders, and well-being than children in unrelated foster care (19). Kinship placement was formally recognized as a legitimate placement option by ASFA and has become the fastest-growing placement type in child welfare, including children in long-term foster care (20). Between 7% and 9% of children in the California child welfare system are placed in group homes, and about one third of those children have been in group homes for more than five years (16). The California Legislative

Analyst's Office (21) found that children in group homes may be placed there in part due to significant behavioral or mental health problems and account for 50% of the state's funding for foster care. Children placed in group homes are more likely to have severe behavioral problems, psychiatric disorders, developmental disabilities, and poor physical health (22–24). In Los Angeles, white youth in group homes had worse overall health than white youth in kinship or unrelated foster family homes (25).

Partly as a result of the Adverse Childhood Experiences study, which found that a retrospective self-report of childhood maltreatment was related to obesity in adulthood (26), the CDC proposed that maltreatment leads to childhood toxic stress that affects childhood health (27). Children in foster care have more health problems than non-foster care children who are eligible for Medicaid, and also have a high prevalence of chronic health conditions (28–29). Obesity can make treatment of these health conditions, including asthma, more difficult (30). For children in general, demographic predictors of body mass index (BMI) include age, ethnicity, and gender (31). Identifying risk factors, including placement and demographic characteristics, for overweight and obesity among children in long-term foster care will allow child welfare and health care providers to target weight-loss interventions and plan overweight and obesity prevention programs. The specific aims of this study were to examine (1) the prevalence of overweight and obesity among foster children in long-term foster care, (2) whether specific placement type was a risk factor for overweight or obesity, and (3) whether demographic variables were associated with obesity or overweight in a population of children in long-term foster care.

Methods

Setting and Sample

The setting for data collection was the Community-Based Assessment and Treatment Center (CATC), a pediatric clinic directly linked to LACDCFS that only serves children receiving child welfare services. CATC provides initial exams when children enter foster care and primary care to children in foster care living nearby. The subjects in this study were receiving primary care at CATC. Study subjects ($N = 312$) included all children categorized by LACDCFS as having “permanent placement” as their service component goal when the LACDCFS referral was sent to CATC. The permanent placement service goal includes children whose families are no longer eligible for reunification services and who do not have an identified adoptive parent. This category includes children living in a kinship home, an unrelated foster caregiver's home, or a group home. The medical record did not consistently identify whether the caregiver was the legal guardian or not. If a potential adoptive parent is identified for a child in permanent placement, the child's case will move to the adoptions component (and would have adoption as their service goal) and the child was not included in this study.

The subjects in this study were in long-term foster care placements, were aged 2–19 years old, and attended an exam at CATC between May 2006 and February 2010. We excluded 52 subjects who were younger than 2 years old as we did not have their gestational age or birth weight data (32). We also excluded pregnant girls. CATC is located in East Los Angeles, a predominately Hispanic area. Our sample had a greater percentage of Hispanics (67%) compared to LACDCFS's total population (57.6%) (13). We extracted the following data from the computerized medical record entry for the first exam at CATC: date, gender, ethnicity, placement type, exam date, and recorded weight in kilograms and height in centimeters. There were no missing data in the computerized medical record. Some subjects had more than one appointment at CATC, although we used the first appointment for this study. The height and weight was measured at the beginning of the medical exam by trained nursing assistants. Even though the data came from the first exam at CATC, it is likely that

the children in this study had been in temporary foster care for at least a year (while working towards reunification or adoption) prior to being placed in long-term foster care (33). The university Institutional Review Board, LACDCFS, and the County Juvenile Court granted approval (with individual consent exemption) for this retrospective study.

Data Analysis

Gender, age, ethnicity, and placement type of the sample were described. Age categories were formed to reflect the categories reported in national weight statistics: 2–5, 6–11, and 12–19 years old. Analysis of variance, chi-square test, and Fisher's exact test were used to examine the difference in means and proportions of demographic characteristics across placement types. We estimated BMI percentile prevalence for all subjects by age and gender utilizing the CDC 2000 growth chart (34). The weight categories included obese (≥ 95th percentile), overweight/obesity (≥ 85th percentile), and normal weight (< 85th percentile). We also estimated the prevalence of obesity and overweight/obesity by gender, age, ethnicity, and placement type group. Placement types included unrelated foster care, related foster care, and group home.

Multiple logistic regression was used to examine potential associations between demographic and placement variables and weight status. Overweight/obesity (≥ 85th percentile) was compared to children who were normal weight (< 85th percentile). Nine subjects (2.9%) were underweight (< 5th percentile) and were excluded from the regression analysis. The odds ratio and 95% confidence interval for each predictor variable were calculated.

Results

Children between 12 and 19 years old comprised the largest age group in the study, and the majority of children of all ages were Hispanic (see Table 1). Gender was represented relatively evenly. Group homes had the highest proportion of girls ($p<0.05$), children between 12 and 19 years old ($p<0.05$), and blacks ($p<0.05$). Group homes also had children with the highest mean age ($p<0.05$). The prevalence of weight categories of children by gender, age, ethnicity, and placement type is presented in Table 2. Almost 40% of children in the study were overweight/obese and 23% were obese. Children placed in a group home had the highest estimates of prevalence of overweight/obesity (60%) and obesity (43%) compared to other types of placement.

Results from logistic regression models did not indicate any ethnic, gender, or placement differences in overweight/obesity compared to normal weight (see Table 3). Older youth (12–19 years old) were more likely than younger children (2–5 years old) to be overweight/obese ($OR = 2.10$, $CI = 1.14–3.87$) compared to normal weight.

Discussion

The estimate of prevalence of obesity among children in long-term foster care in this study was higher than studies of children when they initially entered foster care (5,35). The high prevalence of overweight and obesity in this population may be due to the circumstances of children who end up in long-term foster care as well as the ethnicity of our sample. Most of the attention given to issues of obesity in the adoption literature focuses on discrimination against obese adoptive parents (36), but since childhood obesity is also stigmatized in our society (37), it is possible that more non-obese children are adopted than obese children. Also, 67% of the study population was Hispanic, a population that is more likely to have overweight and obesity problems compared to black or white youth (38). Additionally,

national data from 2007–2008 indicated that Hispanic boys had significantly higher odds of having high BMI than non-Hispanic white boys (39).

Overweight/obesity and obesity for the total population of primarily Hispanic children in long-term foster care placements in this study was higher than the nationally representative sample of children in the National Health and Nutrition Examination Survey (NHANES) from 2007–2008 (obesity: 23.4% in our sample vs. 16.9% in the NHANES sample; overweight/obesity: 39.7% in our sample vs. 31.7 in the NHANES sample) (39). The NHANES is a national study of nutrition and health of children and adults using examinations and surveys. When comparing weight categories by age group of our sample to the sample in NHANES, we found that children age 2–5 and 12–19 had higher obesity and overweight/obesity estimates of prevalence than NHANES, but children ages 6–11 had a lower prevalence of both obesity and overweight/obesity than NHANES. Hispanic children in our sample had higher obesity and overweight/obesity estimates of prevalence than Hispanic children in NHANES, but Black children had a higher obesity estimate of prevalence and not a higher overweight/obesity prevalence rate than Black children in NHANES. In general, the prevalence rates of overweight and obesity were high in our sample, although it is unclear why Black children had higher obesity rates and not overweight/obesity rates compared to the NHANES sample. Also, it is unclear why children between 6–11 years old in our sample had a lower prevalence of obesity and overweight than the NHANES sample. This could be the result of exposure to exercise and nutritional school-based programs, which have proliferated in the United States (40). School-age children respond better to school-based interventions than adolescents and most school-based interventions to prevent obesity are aimed at 6- to 12-year-olds (41).

The high prevalence of overweight and obesity in the study population may be related to mental health problems and/or psychotropic drug use. More than 50% of children in long-term foster care in Washington were functionally impaired and needed more intensive mental health services than available in outpatient settings (42). Depression and anxiety in children are related to obesity (43–45). Psychotropic medications are frequently prescribed for mental health problems in children in foster care (46), and these medications are associated with weight gain (47–48). Older youth (ages 12–19) in this study were more than two times more likely to be overweight/obese than children between 2 and 5 years old when controlling for ethnicity, gender, and placement. In general, older youth in foster care are prescribed psychotropic medication more often than younger foster children (49). Also, a higher proportion of older youth were placed in group homes in this study and children in group homes are more frequently placed on psychotropic medications compared to children in other placements (50).

This study suggests the most important children in long-term foster care to target for weight reduction are those between the ages of 12 and 19. Barth argued that group homes (which in general have a higher percentage of older children) have a greater capacity to provide specialized services to youth in need compared to single-family home placements (51). This may be true for obesity interventions, as group homes may be able to employ dietitians or organize exercise opportunities for children. Pediatric clinicians and child welfare departments need to identify children in long-term foster care who need obesity interventions, provide caregivers who are trained in lifestyle interventions, assess caregivers for ability to adhere to interventions, monitor weight loss through regular medical appointments, and set incremental goals for weight normalization for overweight and obese children (52). Although interventions for weight loss in children are not universally effective, the U.S. Preventive Services Task Force found a decrease of between 7% to 26% in the mean percentage of overweight children who undergo intensive treatment with evidence-based intervention models (53).

Limitations

The primary limitation of this study was the use of existing medical records, which limited the type of data collected. We were unable to include maltreatment type as a variable since many medical records did not include this data. We also could not identify guardian status for kinship or unrelated caregivers. The small sample size in group homes may have limited our ability to statistically test the relationship of placement to obesity. Data on the length of time in a particular placement or length of time in foster care were not available in the medical record. Additionally, we were unable to control for parental weight status, a predictor of child and adolescent obesity (32). Information about the BMI percentile of participants when they entered foster care was not available. Generalizability is limited due to the dense, urban, minority sample population and results cannot be extended to nonurban populations. No comparable local sample of children not in child welfare was available.

Conclusion

This study found that the prevalence of overweight and obesity in a sample of primarily Hispanic children in long-term foster care was higher than a nationally representative sample and also higher compared to a study of children at their initial entry into foster care. It is not clear why this population has such high levels of overweight or obesity, and further investigation of nutrition, physical activity participation, stress, and environmental factors is needed.

Specifically, it is important to identify what factors are different among children between the ages of 6 and 11 in long-term foster care to explore possible explanations for their lower rates of overweight and obesity. Also, further research is needed to determine whether mental health status and/or use of psychotropic drugs are related to obesity in the long-term foster care population. The Fostering Connections to Success and Increasing Adoptions Act requires states to develop a plan for the ongoing oversight and coordination of health care services for children in foster care (54). Special attention by states and local child welfare agencies is needed to address the overweight and obesity of children in long-term foster care. Obese children and adolescents are at a high risk of becoming overweight adults unless they change their patterns of eating and exercise (55–56). Older obese children in long-term foster care need specialized interventions to normalize their weight to assure a better, healthier transition to independence when they exit foster care.

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Table 1

Participant Demographics

Variable	Placement type			Overall
	Kinship foster care (<i>n</i> = 69)	Unrelated foster care (<i>n</i> = 203)	Group home (<i>n</i> = 40)	
Average age (<i>SD</i>)	9.2 (5.3)	10.1 (5.5)	14.8 (2.6)	10.2 (5.4)
Gender (%)				
Male	39 (56.5)	111 (54.7)	14 (35.0)	164 (52.6)
Female	30 (43.5)	92 (45.3)	26 (65.0)	148(47.4)
Age group (%)				
2–5	22 (31.9)	61 (30.1)	0	83 (26.6)
6–11	20 (29.0)	48 (23.6)	5 (12.5)	73 (23.4)
12–19	27 (39.1)	94 (46.3)	35 (87.5)	156 (50.0)
Race/ethnicity				
Black	18 (26.1)	34 (16.8)	19 (47.5)	71 (22.8)
Hispanic	46 (66.7)	146 (71.9)	17 (42.5)	209 (67.0)
White/other	5 (7.2)	23 (11.3)	4 (10.0)	32 (10.3)

Note. Analysis of variance, chi-square test, and Fisher's exact test were used to examine the difference of means and proportions. Statistically significant differences in average age, gender, age groups, and race/ethnicity were found across placement type at $p < .05$.

Table 2

Prevalence of High Body Mass Index Categories by Demographics and Placement

Variable	Total	Study Subjects	
		Obese ^a	Overweight/obese ^b
N (%)	312	73 (23.4)	124 (39.7)
Gender (%)			
Male	164	41 (25.0)	60 (36.6)
Female	148	32 (21.6)	64 (43.2)
Age group (%)			
2–5	83	12 (14.5)	23 (27.7)
6–11	73	13 (17.8)	23 (31.5)
12–19	156	48 (30.8)	78 (50.0)
Race/ethnicity (%)			
Black	71	16 (22.5)	21 (29.6)
Hispanic	209	47 (22.5)	90 (43.1)
White/others	32	10 (31.3)	13 (40.6)
Placement type (%)			
Kinship foster care	69	11 (15.9)	27 (39.1)
Unrelated foster care	203	45 (22.2)	73 (36.0)
Group home	40	17 (42.5)	24 (60.0)

^aBMI > 95th percentile^bBMI ≥ 85th percentile (includes both children who are overweight and children who are obese)

Table 3

Odds Ratios Obtained from Multiple Logistic Regression Modeling

Variable	Obese/overweight vs. normal	
	<i>n/n</i>	<i>OR (CI)</i>
Gender		
Male	60/98	Reference
Female	64/81	1.12 (0.68–1.83)
Age		
2–5	23/56	Reference
6–11	23/47	1.02 (0.50–2.08)
12–19	78/76	2.10 (1.14–3.87) *
Race/ethnicity		
Black	21/48	0.42 (0.16–1.09)
Hispanic	90/115	1.02 (0.45–2.34)
White/other	13/16	Reference
Placement type		
Kinship foster care	27/40	Reference
Unrelated foster care	73/123	0.78 (0.43–1.40)
Group home	24/16	1.98 (0.82–4.77)

Note. *OR* = odds ratio, *CI* = confidence interval, obese/overweight = BMI ≥ 85th percentile, normal = BMI < 85th percentile and ≥ 5th percentile. Nine subjects (2.9%) were underweight (< 5th percentile) and were excluded from the regression analysis.

*
p < .05