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Oral Health Needs Among Youth with a History of Foster Care: A Population-Based Study

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Abstract

Background.—Children and youth in foster care are considered to have special health care needs, including oral health needs. This study compares the self-identified oral health needs and access to dental care among youth who have and have not experienced foster care.

Materials and Methods.—Data were drawn from the 2019 Minnesota Student Survey, a statewide survey of public-school students in fifth, eighth, ninth, and eleventh grades (N = 169,484). Youth with a history of foster care (3%) were compared to youth with no history of foster care on seven oral health indicators.

Results.—Youth with a history of foster care reported more oral health problems and less access to care compared to their peers with no experience of foster care. Using logistic regression controlling for key covariates, the odds of an oral health problem for youth with a history of foster care were 1.54 higher (95% CI: 1.44–1.65) than their peers.

Conclusions.—Youth with a history of foster care report more oral health problems than their peers. Dentists should recognize the oral health concerns of these individuals in the context of

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their special health care needs and be prepared to render appropriate care. Future studies should explore barriers to dental care among this vulnerable population.

Practical Implications: Youth in foster care have self-identified oral health needs that should be assessed by dental professionals.

Keywords

foster home care; foster care; dental care for children; pediatric dentistry; access to dental care

Introduction

According to the Children's Bureau, there were 673,000 children in or entering foster care in the United States in 2019.[1] Estimates from 2000 – 2011 indicated almost 6% of children in the US had been part of the foster care system, with disproportionately higher rates among Native American (15.44%) and Black children (11.53%).[2] In Minnesota, approximately 15,300 children experienced foster care in 2019.[3] Minnesotan children of color were overrepresented compared to the general population, with Native American children eighteen times more likely and Black children three times more likely to experience foster care than white children.

The American Academy of Pediatrics (AAP) considers children in foster care to be children with special health care needs (CSHCNs), as they are often exposed to early traumatic experiences and experience sub-optimal, episodic access to health care.[4] Risk factors associated with foster care placement are linked to adverse mental and physical health outcomes such as depression, anxiety, attention-deficit/hyperactivity disorder (ADHD), behavioral issues, adolescent drug and alcohol use, asthma, obesity, and speech, vision, and hearing problems.[5,6] To address these issues, the AAP recommends that children in foster care should have a medical exam within 72 hours and a dental exam within 30 days of placement.[7,8]

Oral health care is one of the highest unmet needs for all CSHCNs.[9] Consequences of poor oral health include pain, and localized and systemic infections resulting in emergency room visits, inability to pay attention in school, and delayed development.[10,11] The vast majority of children in the foster care system have medical and dental coverage through Medicaid which covers preventive and comprehensive health services under the Early, Periodic, Screening, Diagnosis, and Treatment (EPSDT) benefit.[4] Despite mandatory state dental coverage, children in foster care face significant barriers to accessing oral health care.[12] One of the largest obstacles is finding a dental provider who takes Medicaid or CHIP. According to the American Dental Association's (ADA) Health Policy Institute (HPI), in 2019 only 43% of dentists participated in Medicaid with the highest participation rates by pediatric dentists (73%).[13]

Fully understanding the oral health needs of children in foster care is a challenge. Most analysis of the oral health status and dental utilization for children in foster care has relied on indirectly assessing their needs through chart review or claims data. A retrospective analysis of charts at a Florida dental school showed that children and youth (2–18 years old)

in foster care had more caries in the primary and permanent dentition compared with other children enrolled in Medicaid. They also had significantly more teeth that presented with pain and needed invasive dental interventions, such as root canal therapy or extraction.[14] An analysis of Medicaid claims data from Washington state found that less than half of the children in foster care (43%) used dental care in the last year, despite national recommendations and Medicaid dental coverage.[15]

Because it is difficult to survey children in foster care directly due to issues with access and obtaining informed consent, other studies have looked at surveying those who work directly with these children. In structured interviews with social workers, Negro and colleagues found that social workers believed most children in foster care were at high risk for dental disease, but workers were unsure of the extent due to the fact the children had not previously seen a dentist due to neglect.[16]

Direct knowledge of the oral health issues facing children in foster care is needed to provide a clearer picture of their self-identified oral health needs so that barriers to care can be identified and effective interventions can be developed.

Purpose

The goal of this study was to compare the self-reported oral health needs and access to dental care among youth who have and have not experienced foster care. We hypothesized that youth with a history of foster care would fare worse than their peers with no history of foster care on all indicators. Specifically, we anticipated that youth with a history of foster care would self-report more oral health needs and lower levels of access to dental care, when compared to their peers with no history of foster care.

Methods

This secondary data analysis used data from the 2019 Minnesota Student Survey (MSS). The MSS is a statewide, anonymous, cross-sectional survey administered every three years to public school students in fifth, eighth, ninth, and eleventh grades. Youth who had reached the age of majority (i.e., 18 or 19 years old) at the time of the survey were removed from the analytic sample. The MSS assesses a wide range of demographic characteristics, health-related behaviors, and risk and protective factors. The survey is administered online. Passive parental consent is obtained prior to survey administration; no records are kept regarding the number of parents who decline to have their children participate in the survey. In 2019, middle and high school students in 81% of the school districts in Minnesota completed the survey. Because this study involved secondary analysis of publicly available anonymous data, the University of Minnesota Institutional Review Board deemed this study exempt from human-subject review.

Youths' experience in foster care was assessed with one item: "Have you ever been in foster care." Response options were: "No"; "Yes, during the last year"; and "Yes, more than a year ago." Responses were recoded to reflect 0 = "No experience of foster care" and 1 = "Any experience of foster care."

Youth were asked whether or not they had experienced five types of dental problems in the past 12 months: 1) toothaches or pain; 2) decayed teeth or cavities; 3) swollen, painful, or bleeding gums; 4) could not eat certain foods because of a dental problem; 5) missed one or more school days because of a dental problem. If youth endorsed any dental problems, they were then asked, “Have you had this dental problem treated by a dentist?” Three response options were recoded into a binary variable where 1 = “Yes” and 0 = “No, but I will see a dentist” or “No, I am unable to see a dentist.” Finally, youth were asked about routine dental care: “When was the last time you saw a dentist for a check-up, exam, or teeth cleaning or other dental work?” Four response options were recoded into a binary variable: 1 = “During the last year” and 0 = “Between 1 and 2 years ago,” “More than 2 years ago,” or “Never.”

Key covariates included youths’ self-reported age, biological sex, race/ethnicity (white, non-Hispanic vs. all other race/ethnic groups), geographic region (Greater Minnesota vs. 7-county metro area), and poverty. Youth were considered to be living in poverty if they indicated that they received free or reduced-price lunch at school and/or if they reported having to skip meals because their family did not have enough money to buy food.

Youth demographic and oral health characteristics were summarized overall and by foster care status using mean (sd) for continuous and count (%) for categorical variables. Logistic regression models were constructed for each outcome of any dental problem, having that dental problem treated by a dentist, and seeing a dentist in the past year, with foster care status as the predictor of interest. Additional models adjusted for age, biological sex, poverty, geographic region, and race/ethnicity. Odds ratios evaluating differences in odds of each outcome in those with foster care experience and those without were evaluated for statistical significance at the 0.05 level. All analysis was conducted in R, version 4.0.2.[17]

Results

Participants included 4,696 (3%) youth who reported a history of foster care and 150,078 (97%) youth who reported no experience in foster care. Missing data across all variables was low. In particular, foster care history had 8.7% missing values, and dental health variables ranged from 3.5% to 4.6% missing. Youth with a history of foster care were more likely to be from racial and ethnic minority groups, attend school outside the 7-county metro area, and report living in poverty (Table 1).

Youth with a history of foster care were more likely to report each of the five dental problems and less likely to report receiving dental care, compared to their peers with no history of foster care (Table 2). Approximately 44% of youth with a history of foster care reported at least one dental problem, compared to 32.2% of youth with no experience of foster care. Youth with a history of foster care had lower odds of seeing a dentist for a dental problem (58.2% vs. 71.2%) or for routine dental care (69.6% vs. 84.4%), than their peers with no history of foster care. These findings held after controlling for key demographic characteristics (Table 3).

Discussion

To our knowledge, this is the first study to document the self-reported oral health experiences of youth with a history of foster care. Our findings confirm what previous studies have found: youth with a history of foster care report having significantly more dental problems and are less likely to have access to a dentist to address these problems than their peers with no experience in foster care. These findings build on previously conducted chart reviews[14] and claims data[15] that suggested children in foster care have higher oral health needs than their peers and that these needs are unmet.

There are likely a number of reasons why youth with a history of foster care have more dental problems relative to their peers. Compared to their peers, foster youth in this sample were more likely to report living in households experiencing poverty. Data from the 2015 – 2016 National Health and Nutrition Survey (NHANES) found that children living in households below the poverty level had a caries prevalence of 56.3% compared to 34.8% of youth from households with incomes greater than 300% of the federal poverty level.[19] Only 15.6% of youth with foster care experience in our study reported decayed teeth or cavities. Caries prevalence for both children with and without a history of foster care experience may be underestimated because our data relies on self-report and not an evaluation by an oral health care professional like in the NHANES sample. Notably, a quarter of the youth in our study with foster care experience reported “toothaches or pain” which may suggest that their known caries experience is more severe and could require more invasive procedures such as pulpal therapy (root canals) or extractions. Known racial disparities in oral health may also play a role in why youth with a history of foster care experience more dental problems compared to their peers. Foster youth in our sample were more likely to be from racial and ethnic minority groups, mirroring statewide data from the Minnesota Department of Human Services reflecting the disproportionate impact of foster care on families of color, particularly Native American and Black youth.[3] An Indian Health Service survey from 2016 – 2017 reported a prevalence of 87% in American Indian/Alaskan Native school children with 47% having untreated caries.[18] Oral health data from the 2015–2016 NHANES reported a higher total caries prevalence in Hispanic (57.1%) and Black (48.1%) youth than in White youth (40.4%). Untreated caries were reported to be higher in Black (17.1%) and Hispanic (13.5%) youth than in White youth (11.7%).[19] These racial inequities are likely attributable to a number of factors that compromise the health and well-being of youth of color, including less access to preventative dental services.

In addition, we found that youth in foster care were significantly less likely to report access to dental care - either to address a problem they had or for routine care. All youth in foster care are eligible for coverage through Medicaid for dental insurance, but barriers to accessing care clearly remain. Melbye et al used structured interviews of social service professionals and a social-ecological framework to identify several significant barriers including: (1) linguistic and cultural barriers; (2) lack of dentists willing to accept children’s Medicaid dental insurance; (3) lack of resources available to case workers (i.e. large caseload burden) (4) lack of federal funding for specialized dental care; (5) lack of systematic health record-keeping; (6) child transience, leading to the lack of a dental home; (8) foster parents’ competing needs; (7) child behavior problems; and (9) lack of dental ‘buy

in' from adolescents.[12] Another study of social worker perceptions reinforced that the main problem faced by foster families to accessing dental care was finding a dentist who accepted Medicaid and who was comfortable accommodating the special needs of foster children.[16]

Medicaid reimbursement is the greatest factor influencing dentists' willingness to treat Medicaid-enrolled adolescents.[20] Dental Medicaid services in Minnesota for children are managed primarily through one of several health care plans that manage the state's Medical Assistance (MA) program, with a smaller percentage of enrollees using a fee-for-service model or "straight MA" plan. In a 2016 HPI Brief comparing state Medicaid reimbursement as a percentage of private dental insurance reimbursement, Minnesota MA ranked 47th in the country, at a rate of 38.2%.[21] For the 23 states that had a majority of managed care Medicaid plans, Minnesota ranked second to last by reimbursing only 31.1% of the fee typically charged by a dentist. In contrast, private dental insurance plans paid 81.3% of the fee typically charged by a dentist. Despite the low reimbursement rates, 63.9% of dentists in Minnesota report participating in Medicaid. Why then are Minnesota adolescents in foster care having trouble accessing a dentist? More research is needed, but it could be that Minnesota dentists limit the number of Medicaid-enrolled patients they accept or place limitations on who they will see, such as only taking Medicaid-enrolled individuals with special health care needs or those under a certain age. At first glance, they may not know that youth in foster care qualify as an individual with a special health care need. Or, if they limit on a temporal basis (i.e. only take a certain number of new patients per month) or for other reasons (e.g., only accepting patients under a certain age range), they may miss the window of opportunity to treat the adolescent while they are in a placement with a family who can help them access dental services.

Limitations

The current study has a number of strengths including the large sample size and youths' self-reports of their oral health. However, several limitations should be considered. Self-report of oral health issues provides important first-hand information, including obtaining youths' own perspectives regarding their oral health. Self-reporting however may inadvertently over-report visible cosmetic concerns ("crooked teeth") and underreport more significant health metrics like undiagnosed caries that have not yet caused dental pain.[22] Future research would benefit from assessing foster youths' oral health through multiple methods, including both self-reports and physical exams. Findings are also limited to students enrolled in public school and present on the day of the survey. Because youth with a history of foster care are more likely to experience disruptions in school, our results may have underestimated associations. Additionally, our measure of foster care involvement is limited. We chose to examine youth with any history of foster care experience, by combining youth who reported experiencing foster care in the past year with those who reported foster care more than a year ago. Further, the survey does not include additional detail about when in the adolescent's lifetime their involvement in foster care occurred or how long they were in foster care. These factors may be important for considering the type and severity of youth's oral health concerns and their access to dental care. Finally, this study was conducted in one state; caution should be taken in generalizing results to other contexts that may have different state laws regarding foster care and youths' access to dental health care.

Conclusions

To our knowledge, this study is the first in the United States to survey youth with a history of foster care about their oral health care needs. We found that compared to their peers, youth with a history of foster care have self-identified dental needs, including issues with pain, and they have less access to a dentist to address these needs. Future research with larger samples and more nuanced measures of foster care history are needed to determine the potential modifiable barriers to accessing dental care for youth with a history of foster care.

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Table 1:

Demographic Characteristics

Characteristic	Overall N = 169,484	No Foster Care N = 150,078	Foster Care N = 4,696
Grade, N (%)			
5th	44,753 (26.4)	40,007 (26.7)	1,483 (31.6)
8th	44,919 (26.5)	40,754 (27.2)	1,174 (25.0)
9th	45,232 (26.7)	39,086 (26.0)	1,227 (26.1)
11th	34,580 (20.4)	30,231 (20.1)	812 (17.3)
Age (years)	13.7 (2.2)	13.7 (2.2)	13.5 (2.2)
Biological Sex: Female, N (%)	84,351 (49.9)	76,521 (51.1)	2,393 (51.2)
Race/Ethnicity: White, Non-Hispanic, N (%)	113,503 (68.3)	104,391 (70.7)	2,068 (45.0)
Region, N (%)			
7-County Twin Cities Metro Area	90,556 (53.4)	79,120 (52.7)	1,925 (41.0)
Greater Minnesota	78,928 (46.6)	70,958 (47.3)	2,771 (59.0)
Free/Reduced Lunch, N (%)			
Yes	37,267 (22.5)	30,424 (20.7)	2,147 (47.1)
Not sure	31,226 (18.9)	27,577 (18.7)	934 (20.5)
No	97,023 (58.6)	89,081 (60.6)	1,474 (32.4)
Gone hungry in the last 30 days, N (%)	6,947 (4.3)	5,753 (3.9)	652 (14.1)
Poverty, N (%)	40,861 (30.9)	33,438 (27.8)	2,428 (65.2)
Homeless, N (%)			
Homeless - on own	1,070 (1.0)	692 (0.6)	351 (11.4)
Homeless - with parents	4,453 (4.0)	3,782 (3.5)	590 (19.2)
No	106,253 (95.1)	103,412 (95.9)	2,138 (69.4)
Parental Incarceration, N (%)			
Current	2,181 (1.9)	1,564 (1.4)	561 (18.5)
Past	16,513 (14.8)	15,011 (13.9)	1,347 (44.4)
No	93,226 (83.3)	91,452 (84.7)	1,125 (37.1)

Table 2:

Oral Health Characteristics

Characteristic, N (%)	Overall N = 169,484	No Foster Care N = 150,078	Foster Care N = 4,696
Toothaches or pain	29,920 (18.3)	27,049 (18.2)	1,184 (25.8)
Decayed teeth or cavities	20,283 (12.4)	18,462 (12.5)	714 (15.6)
Swollen, painful, or bleeding gums	12,327 (7.5)	10,998 (7.4)	584 (12.7)
Could not eat certain foods because of a dental problem	8,809 (5.4)	7,801 (5.3)	456 (9.9)
Missed one or more school days because of a dental problem	9,729 (5.9)	8,599 (5.8)	451 (9.8)
At least one of these dental problems	52,910 (32.3)	47,741 (32.2)	2,022 (44.1)
Have you had this dental problem treated by a dentist?: Yes	37,901 (70.2)	34,769 (71.2)	1,231 (58.2)
Have you seen a dentist in the past year?: Yes	135,075 (83.6)	125,260 (84.4)	3,215 (69.6)

Table 3:

Odds ratios and 95% confidence intervals from logistic regression of each outcome comparing those with a history of foster care to those without

Outcome	Unadjusted	Adjusted[†]
Any dental problem(s)	1.66 (1.57, 1.76)[*]	1.54 (1.44, 1.65)[*]
Had dental problem treated by a dentist	0.56 (0.52, 0.62)[*]	0.71 (0.64, 0.79)[*]
Seen a dentist in the past year	0.42 (0.40, 0.45)[*]	0.64 (0.59, 0.69)[*]

[†]Adjusted for age, biological sex, poverty, region, and race/ethnicity

[*]Indicates p-values less than 0.001