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Neighborhood and Children's Oral Health Status

by

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ABSTRACT

Neighborhood conditions affect general health by influencing health behaviors. But parental perceptions of their neighborhood and its influence on children's oral health status have received little attention. This study examined the association between neighborhood perception as reported by parents/caregivers and children's oral health in the United States. We analyzed data from the National Survey of Children's Health (NSCH), 2003-2004. Bivariate and multivariable analyses were used to explore the association between neighborhood perception based on parental responses to questions reflecting community social support and safety of the neighborhood and children's oral health status. Parental perception of people helping each other, can count on each other in the community were significantly associated with higher rating of their child's oral health. Safety in the neighborhood, at school, and at home was significantly associated with excellent or very good/good rating of a child's oral health. In multivariable analyses, neighborhood perceptions were significantly associated with reporting that a child's oral health was excellent. Other significant factors adjusted for in the model were poverty status, education, gender, insurance, age, and race/ethnicity. The study demonstrates that parental perception of their neighborhood is associated with rating of a child's oral health. Oral health care programs and policies developed to address oral health disparities and access to dental care should include strategies aimed at influencing neighborhood perception.

INTRODUCTION

Researchers, policymakers and health advocates suggest that neighborhood composition (characteristics of individuals who live in the neighborhood) and context (neighborhood infrastructure including the social and physical environment) of where individuals reside influence their health and health outcomes (Poortinga, Dunstan, & Fone 2007; Ellaway, Macintyre, & Kearnd 2001; Macintyre, Mclver, & Sooman 1993; Kawachi, & Berkman 2003; Pickett, & Pearl 2001; Walker, & Hiller 2007; Raudenbush 2003; Schaefer-McDaniel, Dunn, Minian, & Katz 2010), as well as their access to and utilization of health services. Atchison and Dubin reported that behavior and perceptions are important determinants of oral and general health in racial and ethnic minority groups as well as in all populations (Atchison & Dubin 2003). Macintyre et al. reported that neighborhood conditions affect self-perception of general health by influencing health behaviors, promoting diffusion of health related information, and increasing the adoption of healthy normative behaviors (Macintyre, Ellaway, & Cummins 2002). Additionally, Robert reported that poor neighborhoods have detrimental effects on individual health status through three pathways; first, that the concentration of poverty and related characteristics create more detrimental social environments (e.g., violence, stress and anxiety, exposure to drugs, limited social control); second, that poorer communities are less likely to have access to adequate health care and social services; third, that the physical environment (e.g., air pollutants, hazardous conditions leading to accidents, poorer sanitation) interfere with individual use of health services (Robert, 1999).

Few studies have attempted to examine the influence of neighborhood composition on oral health related issues. For example, Borrell et al. reported that neighborhood characteristics including the socioeconomic conditions are associated with self-rated oral and general health and

accounts for some of the racial and ethnic differences in adults' oral health (Borrell, Taylor, Borgnakke, Woolfolk, &Nyquist 2004). Turrell et al. reported that the socioeconomic characteristics of neighborhoods are more relevant in oral health than the socioeconomic characteristics of the people living in those places (Turrell, Sander, Slade, & Spencer 2007). Another concept related to psychosocial influence of health is "social capital" or "social support" dealing with how individuals in communities cooperate with each other to overcome obstacles of collective action continues to receive attention in sociology and public health (Lochner, kawachi &Kennedy 1999). According to Saegert and colleague, social capital is about social networks and norms that facilitate collective trust and the ability to achieve individual and collective goals (Saegert, Winkel, & Swartz 2002). Putnam described social capital as a feature of social organization, such as network, norms and trust that facilitate coordination and cooperation for mutual benefit (Putnam, 1993). The role of social capital in oral health has received little attention and needs to be addressed.

Studies in the medical literature have documented the relationship between neighborhood and individual level factors on patterns of health and chronic diseases, with the understanding that factors that operate at the level of the communities may affect individual-level health outcomes (Buka, Brennan, Rich-Edwards, Raudenbush, & Earls 2003; Diez-Roux, Nieto, Muntaner, Tyroler, Comstock, Shaher et. al. 1997). There is some evidence that individual perceptions of their neighborhood could influence health seeking behavior such as parents taking their children to seek dental care or receiving required preventive dental services. However, little research has been done on parents/caregivers perception of their neighborhood influence on utilization and patterns of oral health in children. This study examined the association between neighborhood perception and parents/caregivers rating of children's oral health in the United

States based on data from a nationally representative sample. Findings from the study address three important issues: first, expand the dental literature on children oral health and health outcomes; second, provide insight to parental perception of the influence of neighborhood safety on child's oral health; and third, provide information on parental perception of community support on child's oral health. Identifying and evaluating the potential association between neighborhood perception and parents/caregivers rating of their child's oral health are important for oral health and could be another link to future oral health intervention strategies to reduce racial/ethnic disparities in oral health.

METHODS

Data Source

   Data for the project are from the National Survey of Children's Health [NSCH], a module of the State and Local Area Integrated Telephone Survey (SLAITS), conducted by the National Center for Health Statistics (NCHS) of the Center for Disease Control and Prevention (CDC). SLAITS used the National Immunization survey as its sampling frame. The survey was designed to produce reliable and representative national and state-specific prevalence estimates for Healthy People 2010 national prevention objectives, state Title V needs assessment, and Title V program planning and evaluation. The survey was conducted from January 2003 through July 2004 and consists of 102,353 children ages 0-17 years in all 50 states and the District of Columbia. One child was randomly selected from all the children in each household to be the subject of the survey. The respondent was the parent or guardian who knew the most about the child's health and health care. The survey was conducted in English and Spanish. The weighted overall response rate was 55.3% based on a calculated interview completion rate of 68.8%, the screener completion rate 87.8%, and the resolution rate 91.6% (Blumber, Frankel, Osborn,

Srinath, & Giambo 2005). Further details about sampling methodology and the procedures related to data collection can be found in previously published articles (Blumber, Frankel, Osborn, Srinath, & Giambo 2005; Van Dyck, Kogan, Heppel, Blumberg, Cynamon, & Newacheck 2004; Liu, Probst, Martin, Wang, & Salinas 2007; Kogan, & Newacheck 2007; Ezzati-Rice, Cynamon, Blumberg, & Madans 1999).

<u>Measures</u>

The dependent variable was the condition of the child's teeth (excellent vs. very good/good vs. fair/poor) reported by the parent. This variable serves as a measure of child's oral health status in this study. Independent variables included are: child's gender (male, female), age, race/ethnicity (White, Black, Multiracial, other). Parental educational attainment (less than high school vs. high school vs. more than high school), household income defined by poverty level (<100 %, 100-199%, 200-299 %, 300-399%, and ≥400%). Information on neighborhood characteristics was based on parental responses to 8 item-questions focusing on residents' perceptions of neighborhood safety, community social support, and presence of bad influence. The questions on neighborhood characteristics used in the study were originally developed for the Longitudinal Studies of Child Abuse and Neglect as well as for the Survey of Income and Program Participation. Four of the questions are related to "social capital" focusing specifically on positive aspects of social capital relating to children (Fields, & Smith 1998). This concept, alternatively called ''social support,'' is similar to the concept of ''social cohesion and trust''. The other 4 questions are on safety which is related to variations in violence among inner-city neighborhoods (Sampson, Raudenbush, & Earls 1997). An example of a question asked is: "People in this neighborhood help each other out." Would you say that you definitely agree, somewhat agree, somewhat disagree, or definitely disagree with this statement?

Statistical Analysis

Descriptive statistics and proportions were calculated by taking into account survey design and using appropriate NSCH sampling weights. Bivariate associations between the outcome variable and the independent variables were examined using chi-square test. Weighted multivariable logistic regression model was used to examine the association between the outcome variable and the independent variables of interest adjusting for other covariates. Backward elimination model selection procedure was used to identify covariates significant in predicting the rating of child's teeth condition. Only the independent variables found significant at the alpha level of 0.05 were selected for inclusion in the regression models. Adjusted odds ratios and 95% confidence intervals are reported for the multivariable analysis. All analyses were performed using SAS version 9.2 statistical software (SAS Institute Inc., Cary, NC).

RESULTS

We analyzed data for 85,280 children 3 years and older for whom parental rating of the condition of their teeth and other covariates were available. A summary of the study population characteristics is provided in Table 1. Age of study participants ranged from 3 to 17 years with 51% of them being males. The racial/ethnic group composition was Whites (60%), Hispanic origin (17%), and Blacks (14%). More than three quarters of the study participants had insurance and 91% had education at high school or higher level. Fifty percent of parents rated their children's teeth condition as very good/good and 40% rated their child's teeth as excellent. Positive responses were received to questions regarding community support and safety. More than 80% of parents agreed with the statements that people help each other, watch each other's children, and are helpful if a child gets hurt in the neighborhood. Eighty two percent of

respondents felt that their children were safe in the neighborhood and 97% reported that their child was safe at home.

Table 2 shows results of the bivariate analysis of demographic and socioeconomic characteristics of the household along with the neighborhood characteristics as they relate to rating children's teeth condition. We found significant differences between parental rating of their child's teeth condition and insurance status, income, parental education level, and child's gender and age. Parents of younger children were significantly more likely to describe child's oral health as excellent (50% of parents of children who are 3-5 year old vs. 40% of parents with children who are 12-17 years old). Parents who had insurance were more likely to rate their child's teeth as excellent compared with those without insurance (41% vs. 37%). Similarly, those who had higher education levels rated their child's teeth as excellent compared to those with less than high school (47% vs. 19%).

Parents of the children of Hispanic origin were least likely to define their teeth condition as excellent (24%) while 31% of back children and 47% of white children received excellent teeth condition rating, respectively. Proportion of children reported to have excellent teeth condition increased with increasing household income. Twenty three percent reported their child's teeth condition to be excellent in the poorest (<100% poverty level) households while this number rose to 54% in the highest income bracket (≥400% poverty level). Perception of the neighborhood also played an important role in parental assessment of their child's oral health. Parents who live in the neighborhoods with more community support (people help each other, watch for each other's children, no presence of bad influence) are more likely to report excellent teeth condition when asked about their child's oral health. Increased children's safety in the neighborhood,

home, and school were significantly associated with a positive teeth condition rating reported by their parents.

Multivariable analyses reinforced aforementioned findings. Results of multinomial logistic regression are presented in Table 3. Older children were less likely to receive excellent or very good/good teeth condition rating than the youngest children in the study. There were significant differences between reporting very good/good and fair/poor condition between children of different ethnicities. Parents of black children were less likely to report their oral health being excellent versus fair/poor as compared to the parents of white children (OR: 0.72, 95% CI: 0.62-0.83). Teeth condition of Hispanic children was less likely to be rated as excellent versus fair/poor as compared to the parents of white children (OR: 0.36, 95% CI: 0.31-0.41). Parents in the highest income bracket (≥400% poverty level) were significantly more likely to describe their children's teeth condition as excellent or very/good versus fair/poor as compared to those in the lowest income category (<100% poverty level) (OR: 4.40, 95% CI: 3.64-5.31 and OR: 2.23, 95% CI: 1.87-2.67).

Neighborhood perception is also significantly associated with the rating of children's teeth condition. In the communities where people help each other, parents were significantly more likely to report excellent or very good/good teeth condition versus fair/poor condition as compared to those who live in the communities to be perceived having less community support. In particular, in the communities where people help each other parents were significantly more likely to describe their children's teeth condition as excellent versus fair/poor (OR: 1.39, 95% CI: 1.21-1.59) or very good/good versus fair/poor (OR: 1.30, 95% CI: 1.15-1.48). Perception of safety in the neighborhood and at school played similar role. Children living in the neighborhoods felt to be safe were significantly more likely to receive excellent teeth condition

rating as opposed to fair/poor (OR: 1.43, 95% CI: 1.24-1.65) or very good/good versus fair/poor (OR: 1.21, 95% CI: 1.06-1.38).

DISCUSSION

Few studies have attempted to investigate the relationship between oral health and neighborhood characteristics among adults (Borrell, Taylor, Borgnakke, Woolfolk, &Nyquist 2004; Turrell, Sander, Slade, & Spencer 2007; Tellez, Sohn, Burt, & Ismail 2006; Borrell, Burt, Warren 2006), but little is known about the association of parents/caregivers perception of their neighborhood and oral health in children. This study examined the association between parents/caregivers rating of children's oral health and neighborhood perception in the United States. This study used a nationally representative sample with responses to survey questions that serve as indicators or proxy measures for neighborhood social capital focused on the positive aspects related to children (Fields, & Smith 1998). The concept is also recognized as "social support" and similar to "social cohesion and trust" used in previous studies (Fields, & Smith 1998; Sampson, Raudenbush, & Earls 1997).

We found that 4 out of 5 parents/caregivers agreed with the statements that people help each other, watch each other's children, and are helpful if a child gets hurt in the neighborhood. Our analysis indicates that parents /caregivers who agreed with the statement that people help each other had significantly higher odds of rating their child's oral health as excellent, very good/good vs. poor/fair, compared to parents/caregivers who reporting that they disagree with the statement. This finding reflects elements of shared values and a strong community which could be a positive indicator of neighborhood social capital. It is also consistent with reports that high level of social participation or trust is associated with self-rated health status (Patel, Eschbach, Rudkin,

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Peek, & Markides 2003, Subramanian, Kim, & Kawachi 2002; Barefoot, Maynard, Beckham, Brummett, Hooker, & Siegler 1998).

Parents/caregivers reporting that their children are always or usually safe in their neighborhoods and schools had almost twice the odds of rating their child's oral health as excellent, very good, good vs. fair/poor, compared with children living in neighborhoods and attending schools perceived by parents /caregivers as sometimes or never safe. Although not directly investigated by this study, our finding is most likely a reflection of the psychosocial value parents place on safety of their neighborhood. Subramanian and colleague used the same database as our study to examine the association of parental perception of neighborhood safety and reported lifetime asthma. They found an inverse association between perception of neighborhood safety and the odds of reporting asthma among children (Subramanian, & Kennedy 2009). A related finding is the work published by Ellaway and Macintyre on the association between perceived neighborhood problems and smoking (Ellaway, & Macintyre 2009). Our study echoed these findings as they relate to oral health in that parents/ caregivers reporting that they disagree with the statement that "bad influence is present" in their neighborhood were significantly more likely to rate their child's oral health as excellent vs. fair/poor, compared to those that agree with the statement.

Prior studies that used the NSCH data have identified racial/ethnic disparities in access to care and use of medical and dental services (Dietrich, Culler, Garcia, & Henshaw 2008; Flores, & Tomany-Korman 2008; Tomany-Korman 2008). We established that black and Hispanic parents were less likely to report that their child's oral health was excellent as compared to parents of white children. This finding is most likely related to a well documented fact that racial/ethnic minorities are disproportionately affected by oral disease, less likely to use dental

services, and more likely to have untreated dental disease (Dietrich, Culler, Garcia, & Henshaw 2008; Flores, & Tomany-Korman 2008; Oral Health America 2000). Socioeconomic status, absence of insurance, and parents' education level were also found to be significantly associated with child's oral health rating. Parents in the highest income bracket were more likely to report that their child's oral health was excellent, very good/good vs. fair/poor. This finding corroborates the documentation that individuals from high income families have less dental disease and are more likely to have made a dental visit in the last 12 months (Vargas, Crall, & Schneider 1998; Gift, Reisine, & Larach 1992). In agreement with prior studies indicating that insurance is a strong predictor for excellent oral health (Vargas, Crall, & Schneider 1998; Gift, Reisine, & Larach 1992), we found that parents/caregivers with health insurance were twice more likely to rate their child's teeth as excellent, very good/good, compared to parents/caregivers without health insurance.

This study should be interpreted in light of the following limitations. First, the NSCH data on children oral status is not based on normative need but on perceived need and thus have the potential to lead to a biased evaluation of a child's oral health status. However, parent/caregiver report of their child oral health status is a valid and reliable proxy measure of their oral health. Second, the overall response rate of the NSCH has the potential to introduce differential bias, a phenomenon that is somewhat typical in other telephone surveys such as the Behavioral Risk Family Services Survey (Subramanian, & Kennedy 2009). Third, the data on neighborhood safety is related to one question as opposed to an objective systematic observation. Nonetheless, parental perception is a reflection of their views about the neighborhood and could therefore be interpreted as actual safety data (Subramanian, & Kennedy 2009). Fourth, the data on neighborhood perception used in our study is based on parental/caregiver subjective spatial

definition of neighborhood, which could be a much smaller area than what is defined when using block or census tract level information (Coulton, Korbin, Chan, & Su 2001).

This study contributes to our understanding of the relationship between parent/caregivers' perceptions of their neighborhood and their child's oral health. It provides the opportunity for long-term, appropriate, and community-driven intervention strategies to promote oral health and elimination of oral health disparities. In addition, this study calls for a paradigm shift from the medical and dento-surgical model of health to a combination that includes social attributes (social model of health) with due recognition given to efforts of parents/caregivers in determining a child's oral health. In conclusion, this nationally representative data analysis showed that parental perception of their neighborhood is associated with child's oral health rating. Oral health care programs and policies developed to address oral health disparities and access to dental care should include strategies aimed at influencing neighborhood perception.

REFERENCES

Atchison, K. A , & Dubin, L. F. (2003). Understanding health behavior and perceptions. *Dent Clin N Am, 47:21-39.*

Barefoot, J.C., Maynard, K.E., Beckham, J. C., Brummett, B. H., Hooker, K., Siegler, I. C. (1998). Trust, health, and longevity. *Journal of Behavioral Medicine, 21, 517-526.*

Blumberg, S. J., Frankel, M. R., Osborn, L., Srinath, K. P., Giambo, P. (2005). Design and operation of the National Survey of children's Health, 2003. *Vital Health Statistics,1(43).*

Borrell, L. N., Burt, B. A., Warren, R. C., Neighbors H. W. (2006). The role of individual and neighborhood social factors on periodontitis: the third National Health and Nutrition Examination Survey. *Journal of Periodontology, Mar;77(3):444-53.*

Borrell, L. N , Taylor, G. W., Borgnakke, W. S., Woolfolk, M. W., Nyquist, L. V.(2004). Perception of general and oral health in White and African American adults: assessing the effect of neighborhood socioeconomic conditions. *Community Dentistry and Oral Epidemiology, 4 Oct, 32(5), 63-73.*

Buka, S. L., Brennan, R. T., Rich-Edwards, J. W., Raudenbush, S. W., Earls, F. (2003). Neighborhood support and the birth weight of urban infants. *Am J Epidemiol, 157, 1-8.*

Coulton, C. J., Korbin, J., Chan, T., Su, M. (2001). Mapping residents' perceptions of neighborhood boundaries: a methodological note. *Am J Community Psychol, Apr 29(2), 371-83.*

Dietrich, T., Culler, C., Garcia, R. I., Henshaw, M. M. (2008). Racial and ethnic disparities in children's oral health: the National Survey of Children's Health. *J Am Dent Assoc, Nov 139(11), 1507-17.*

Diez-Roux, A. V., Nieto, F. J., Muntaner, C., Tyroler, H. A. , Comstock, G. W., Shahar, E., et al (1997). Neighborhood environments and coronary heart disease: A Multilevel Analysis. Am *Journal of Epidemiology*,146:48-63.

Ellaway, A., Macintyre ,S., Kearns, A. (2001). Perceptions of place and health in socially contrasting neighborhoods. *Urban Studies, 38(12), 2299-2316.*

Ellaway, A., & Macintyre, S.A. (2009) Are perceived neighborhood problems associated with the likelihood of smoking. *Journal of Epidemiology and Community Health, 63,78-80.*

Ezzati-Rice, T. M., Cynamon, M., Blumberg, S. J., Madans, J. H. (2010) Use of an existing sampling frame to collect broad-based health and health-related data at the state and local level. Federal Committee on Statistical Methodology. *1999. FCSM research conference papers*. http://www.fcsm.gov/99papers/ezzati.pdf. *Accessed August 29, 2010*

Fields, J. M., & Smith, K.E. (1998). Poverty, family structure, and child well-being: Indicators from the SIPP. Population Division Working Paper No. 23. Washington. *U.S. Bureau of the Census. 1998.*

Flores, G.**,** & Tomany-Korman, S.C. (2008). The language spoken at home and disparities in medical and dental health, access to care, and use of services in US children. *Pediatrics, 121,e1703-e1714.*

Flores, G.**,** & Tomany-Korman, S.C.(2008). Racial and ethnic disparities in medical and dental health, access to care, and use of services in US children. *Pediatrics, 121, 286-e298.*

Gift, H.C., Reisine, S.T., Larach, D.C. (1992). The social impact of dental problems and visits. *American Journal of Public Health, 82, 1663-8.*

Kawachi, I, & Berkman, LF. Introduction. In: Kawachi I, Berkman LF, eds. Neighborhoods and health. New York: Oxford University Press; 2003: 1-19.

Kogan, M.D., Newacheck, P. W.(2007). I ntroduction to the volume on articles from the

    National Survey of Children's Health. *Pediatrics, 119(suppl 1), S1-S3.*

Liu, J., Probst, J. C., Martin, A. B., Wang, J. Y., Salinas, C. F. (2007). Disparities in dental

    insurance coverage and dental care among U.S. children: the national survey of Children's

    Health. *Pediatrics, 119(suppl 1), S12-S21.*

Lochner, K., Kawachi, I., Kennedy, B. P.(1999). Social capital: A guide to its measurement.

    Health and Place, 5,259–270.

Macintyre , S., Ellaway, A. and Cummins, S. (2002). Place effects on health: how can we

    conceptualise, operationalise and measure them? *Social Science and Medicine,* 55, 125-139.

Macintyre, S., Mclver, S., Sooman, A. (1993). Area, class, and health: should we be focusing on

    people or places? *Journal of Social Policy, 22:213-234*

Oral Health in America (2000): A report of the surgeon general. Rockville, MD: Department of

    Health and Human Services, *National Institute of Dental and Craniofacial Research,*

    National Institute of Health; 2000.

Patel, K.V., Eschbach, K., Rudkin, L. L., Peek, M. K., Markides, K. S. (2003). Neighborhood

    context and self-rated health in older Mexican Americans. *Annal of Epidemiology,13(9), 620-*

    8.

Pickett, K.E., & Pearl, M. (2001). Multi-level analyses of neighborhood socioeconomic context

    and health outcomes: a critical review. *Journal of Epidemiology Community Health,55:111-*

    122.

Poortinga, W., Dunstan, F. D., Fone, D. L. (2007). Perceptions of the neighborhood environment

    and self rated health: a multilevel analysis of the Caerphilly health and social needs study.

    BMC Public Health, 7:285 doi:10.1186/1471-2458-7-285.

Proietti, F. A., Oliveira, C. D. L., Ferreira, F. R., Dayrell, A. F., Caiaffa, W.T. (2008). Context

unit and systematic social observation: a review of concepts and methods. *Physis, 18: 469-*

481.

Putnam, R.D. (1993). Making Democracy Work: Civic Traditions in Modern Italy. Princeton,

NJ: Princeton University Press.

Raudenbush, S. W. (2003). The quantitative assessment of neighborhood social environments. In

Kawachi I, Berkman LF, eds. Neighborhoods and health. *New York: Oxford University*

Press,113-114.

Robert, S. A. (1999). Socioeconomic position and health: The independent contribution of

community socioeconomic context. *Annu Rev Sociol, 25:489-516.*

Saegert, S., Winkel, G., Swartz, C. (2002). Social capital and crime in New York City's low-

income housing. *Housing Policy Debate,13;189-226.*

Sampson, R. J., Raudenbush, S. W, Earls, F. (1997). Neighborhoods and violent crime: A

multilevel study of collective efficacy. *Science 277, 918–24.*

Schaefer-McDaniel, N., Dunn, J. R., Minian, N., Katz, D. (2010). Rethinking measurement of

neighborhood in the context of health research. *Social Science & Medicine, 71, 651-656.*

Subramanian, S. V., Kennedy, M. H. (2009). Perception of Neighborhood Safety and Reported

Childhood Lifetime Asthma in the United States (U.S.): A Study Based on a National

Survey. *PLoS ONE , 4(6): e6091. doi:10.1371/journal.pone.0006091*

Subramanian, S. V., Kim, D. J., Kawachi, I. (2002) .Social trust and self-rated health in US

communities: a multilevel analysis. *Journal of Urban Health, 79(4 Suppl 1),S21-34.*

Tellez, M., Sohn, W., Burt, B. A., Ismail, A. I. (2006). Assessment of the relationship between neighborhood characteristics and dental caries severity among low-income African-Americans: a multilevel approach. *Journal of Public Health Dentistry, Winter 66(1), 30-6.*

Turrell, G., Sanders, A. E., Slade, G. D., Spencer, A. J., Marcenes, W. (2007). The independent contribution of neighborhood disadvantage and individual-level socioeconomic position to self-reported oral health: a multilevel analysis. *Community Dentistry and Oral Epidemiology, Jun 35(3), 195-206.*

Van Dyck, P., Kogan, M. D., Heppel, D., Blumberg, S. J, Cynamon, M. L., Newacheck P. W. (2004). The National Survey of Children's Health: a new data resource. *Maternal and Child Health Journal, 8(3), 183-188.*

Vargas, C. M., Crall, J. J., Schneider, D. A.(1998). Sociodemographic distribution of pediatric dental caries: NHANES III, 1988-1994. *J Am Dent Assoc,129, 1229-38.*

Walker, R.B., & Hiller, J. E. (2007). Places and health: a qualitative study to explore how older women living alone perceive the social and physical dimensions of their neighborhoods. *Social Science & Medicine, 65, 1154-1165.*

Table 1: Study Population Characteristics (N=85,280)

Characteristics	Percent
Age (years)	
3-5 yrs	20
6-11 yrs	39
12-17 yrs	41
Gender	
Male	51
Female	49
Insurance Status	
Yes	77
No	22
Race/Ethnicity	
White	60
Black	14
Hispanic	17
Multiple	3
Other	4
Parental Education	
Less than High School	8
High School	26
More than High School	65
Poverty Status	
<100%	15
100-199%	20
200-299%	16
300-399%	14
≥400%	24
Rating of child's teeth condition	
Excellent	40
Very good/good	50
Fair/poor	10
People help each other	
Agree	82
Disagree	15
Watch for each other's children	
Agree	85
Disagree	12
Can count on others	
Agree	85
Disagree	12
Bad influence is present	
Disagree	48
Agree	48

Adults help scared/hurt child	
Agree	89
Disagree	8
Feeling safe in neighborhood	
Always/usually	82
Sometimes/never	16
Child safe at school	
Always /usually	68
Sometimes/never	9
Child safe at home	
Always/usually	97
Sometimes/never	2

Table 2: Bivariate Analysis of Study Participants' Characteristics and Teeth Condition

Assessment

Characteristics	Parental Assessment of Child's Teeth Condition Percentages			
	Excellent	Very good/good	Fair/poor	P-value
Age (years)				<0.0001
3-5 yrs	50	41	9	
6-11 yrs	34	53	13	
12-17 yrs	40	51	9	
Gender				0.0003
Male	39	51	10	
Female	41	49	10	
Insurance Status				<0.0001
Yes	41	50	9	
No	37	48	15	
Race/Ethnicity				<0.0001
White	47	47	6	
Black	31	57	12	
Hispanic	24	53	23	
Multiple	41	49	10	
Other	35	57	8	
Parental Education				<0.0001
Less than High School	19	52	29	
High School	29	56	15	
More than High School	47	47	6	
Poverty Status				<0.0001
<100%	23	55	22	
100-199%	30	57	13	
200-299%	42	51	7	
300-399%	47	48	5	
≥400%	54	42	4	
People help each other				<0.0001
Agree	42	49	9	
Disagree	31	52	17	
Watch for each other's children				<0.0001
Agree	41	50	9	
Disagree	33	52	15	
Can count on others				<0.0001
Agree	42	49	9	
Disagree	31	53	16	

Bad influence is present				<0.0001
Disagree	46	46	8	
Agree	38	52	10	
Adults help scared/hurt child				<0.0001
Argee	40	50	10	
Disagree	34	50	16	
Child safe in neighborhood				<0.0001
Always / usually	42	49	9	
Sometimes / never	27	54	19	
Child safe at school				<0.0001
Always / sually	39	51	10	
Sometimes / never	24	56	20	
Child safe at home				<0.0001
Always / usually	40	50	10	
Sometimes / never	21	57	22	

Table 3: Multivariable Analyses of Factors Associated with Parents/caregivers Perceptions of

Child's Teeth

Characteristics	Odds Ratio (95% CI)	
	Excellent vs Fair/poor	Very good/good vs Fair/poor
Age (years)		
3-5 yrs	Reference	Reference
6-11 yrs	0.39(0.27-0.55)	0.75 (0.53-1.06)
12-17 yrs	0.63(0.45-0.87)	0.97 (0.70-1.36)
Gender		
Male	Reference	Reference
Female	1.15(1.04-1.27)	1.03 (0.93-1.13)
Insurance Status		
No	Reference	Reference
Yes	1.42 (1.28-1.59)	1.45(1.31 -1.62)
Race/Ethnicity		
White	Reference	Reference
Black	0.72 (0.62-0.83)	0.97 (0.85-1.12)
Hispanic	0.36 (0.31-0.41)	0.58 (0.51-0.66)
Multiple	0.65 (0.49-0.85)	0.74 (0.56-0.96)
Other	0.62 (0.45-0.85)	1.01 (0.76-1.35)
Parental Education		
Less than High School	Reference	Reference
High School	1.53 (1.26-1.87)	1.39 (1.19-1.64)
More than High School	3.02 (2.49-3.66)	1.93 (1.65-2.27)
Poverty Status		
<100%	Reference	Reference
100-199%	1.40 (1.21-1.63)	1.32 (1.15-1.51)
200-299%	2.35 (1.98-2.79)	1.69 (1.44-1.98)
300-399%	3.06 (2.53-3.69)	1.96 (1.64-2.34)
≥400%	4.40 (3.64-5.31)	2.23 (1.87-2.67)
People help each other		
Disagree	Reference	Reference
Agree	1.39 (1.21-1.59)	1.30 (1.15-1.48)
Bad influence is present		
Agree	Reference	Reference
Disagree	1.22 (1.10-1.35)	1.09 (0.98-1.21)
Child safe in neighborhood		
Sometimes / never	Reference	Reference
Always / usually	1.43 (1.24-1.65)	1.21 (1.06-1.38)
Child safe at school		
Sometimes / never	Reference	Reference
Always / usually	1.46 (1.23-1.72)	1.23 (1.06-1.43)