

## Social Support and Dental Utilization among Children of Latina Immigrants

Helen Nahouraii, DMD, MPH  
Melanie Wasserman, PhD, MPA  
Deborah E. Bender, PhD, MPH  
R. Gary Rozier, DDS, MPH

*Abstract:* Latino children use fewer professional dental services and experience more dental decay than non-Hispanic White and non-Hispanic Black children. This study tested the association between four types of social support (information, influence, material aid, emotional aid) and dental use among children of Latina immigrants in North Carolina. Latina mothers age 15–44 years (N=174) were sampled from four counties using a multi-stage church-based sampling design. Each mother reported dental care use for her oldest child younger than 11 years of age. Instrumental aid (information) alone was not associated with dental care use, but receiving any of the other types of social support was associated with dental care use at the bivariate level ( $p < .01$ ) and at the multivariate level (OR = 3.13; 95% CI = 1.67–5.87). Over half of the women (65.2%) received at least one of these forms of social support. Interventions expanding dental-related social support could help Latina immigrant mothers overcome barriers to dental care for their children.

*Key words:* Hispanic Americans, Latino, women, children, emigration, immigration, social support, dental care.

Latino children, particularly those in immigrant families, use fewer oral health care services than non-Hispanic White and non-Hispanic Black children, and have a higher prevalence of dental disease and lower numbers of restored teeth.<sup>1–3</sup> These oral health disparities, prevalent at the national level, have also been documented in North Carolina.<sup>4–6</sup>

Dental care access is difficult for all children in North Carolina, regardless of ethnicity. The state ranks 47th in its supply of dentists, with 38 dentists per 100,000 persons, compared with the national rate of 60 per 100,000.<sup>5</sup> The cost of services is often prohibitive for uninsured patients; even when children have dental coverage through

---

*HELEN NAHOURAII is a General Practice Dental Resident at Jacobi Medical Center in New York City. MELANIE WASSERMAN is an Associate at Abt Associates and an adjunct faculty member at Brown University's Taubman Center for Public Policy. DEBORAH BENDER is a Clinical Professor in the Department of Health Policy and Administration at the UNC School of Public Health. R. GARY ROZIER is a Professor in the Department of Health Policy and Administration at the UNC-Chapel Hill School of Public Health. Please address all correspondence regarding this paper to: Melanie Wasserman, Abt Associates, Inc., 55 Wheeler St., Cambridge, MA 02138-1168; (617) 349-2714 or (401) 662-3422; [Melanie\\_wasserman@abtassoc.com](mailto:Melanie_wasserman@abtassoc.com).*

Medicaid, few providers will accept it, because reimbursement rates are often too low to meet their costs.<sup>5,7</sup>

Like those in other states, North Carolina's Latino children face further barriers to dental care, including social and psychological factors, inconvenient clinic hours, relatively low socioeconomic status, language barriers, a shortage of Spanish-speaking dental health professionals, and perceived discrimination.<sup>4-10</sup> In 2005, 28.8% of North Carolina Hispanic children ages 5-9 years had untreated primary tooth decay, compared with 16.9% of non-Hispanic Whites. Further, 16.5% of Hispanic children ages 6-17 years had untreated permanent tooth decay, compared with 10.6% of non-Hispanic Whites. Finally, 72.2% of Hispanic parents reported not receiving wanted dental care for their children, compared with 65.6% of non-Hispanic Whites.<sup>6</sup>

In recent years, the range of providers offering preventive dental health services and referrals has been expanded in North Carolina. For example, Head Start programs have fluoride varnish programs, and Medicaid's *Into the Mouths of Babes* program reimburses pediatricians, family physicians, and community health clinics for preventive dental services offered to children ages 0 to 35 months.<sup>7,11</sup> However, these services do not eliminate the need for visits to dentists; in fact, they may increase the number of pediatric dental referrals.<sup>11</sup>

Efforts are underway in North Carolina to remedy provider shortages and to recruit Spanish-speaking oral health professionals,<sup>7</sup> but community and family factors must also be addressed to ensure equal access to dental care for minority communities.<sup>12-14</sup>

**Social support and dental care use.** Research suggests that social networks play a role in promoting the utilization of dental care. Social support has been associated with greater use of dental care among elderly Swedish men<sup>15</sup> and older English and Danish adults,<sup>16,17</sup> and church attendance is an important correlate of dental care use among African Americans.<sup>18</sup> Intervention strategies that support parents in their efforts to obtain desired dental care for their children have been used to good effect. For example, motivational interviewing has been shown to enhance pediatric dental care in a South Asian immigrant community,<sup>19</sup> and the Access to Baby and Child Dentistry (ABCD) program increased the odds of receiving a dental visit seven-fold for enrolled children, by enhancing reimbursement, training dental providers, and combining standard outreach activities with an individualized orientation and follow-up for families.<sup>20,21</sup>

Social support may be particularly important for Latino immigrants, whose access barriers include language, perceived discrimination, and episodes of harassment by immigration authorities.<sup>10,14</sup> Patrick and colleagues<sup>14</sup> suggest these barriers might be overcome by having oral health programs coordinate with existing school and community programs. Indeed, North Carolina Latino advocacy agencies, churches, and volunteer groups have extended social support to connect new immigrants to needed resources, such as pediatric dental care. The purpose of this study was to determine whether four types of social support could mitigate barriers to pediatric dental care.

**Theoretical model.** In the Andersen behavioral model of access to care, three types of factors affect utilization: predisposing factors, enabling factors, and need. Social support is classified as an enabling factor.<sup>22,23</sup> Our theoretical model takes a closer look at the mechanisms whereby social support affects utilization of dental care. Measures of social support may be classified into two broad categories: structural measures, such

as the size of the social support network or its interconnectedness; and functional measures, which focus on types of assistance provided by the social network. The analyses in this paper involve functional rather than structural factors (although the authors assume that the structure of the network would affect the kinds of functional social support received). More specifically, we focused on four frequently measured forms of functional social support: instrumental aid (i.e., the provision of information and logistical assistance to achieve a specific goal);<sup>24</sup> influence/motivational support;<sup>25</sup> material aid (e.g., monetary aid or transportation aid);<sup>25</sup> and emotional aid, also known as moral support.<sup>26</sup> We also anticipated that sociodemographic characteristics, recency of arrival in the U.S., dental care use in the home country, and availability of dental insurance would act as confounders (see Figure 1).

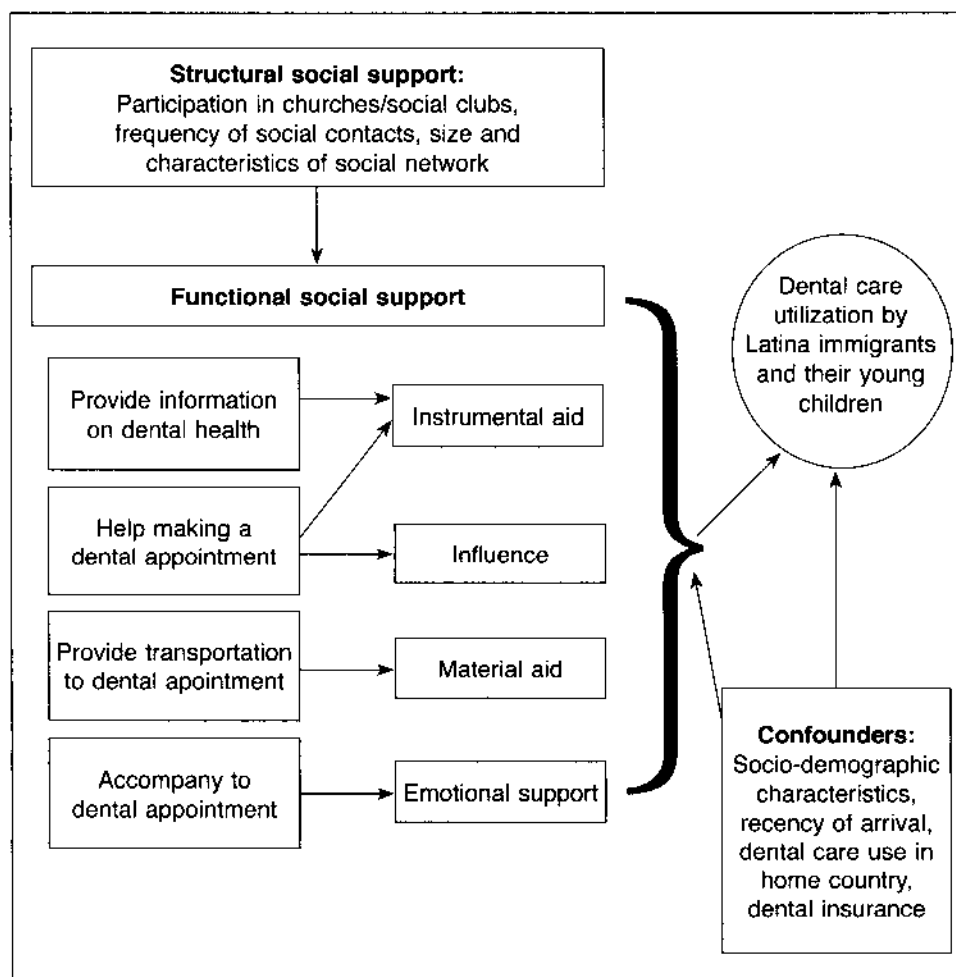


Figure 1. Theoretical model.

## Methods

Data for this study were drawn from the Migration Transitions Study, which was conducted between August 2002 and May 2003 in four contiguous North Carolina counties (Alamance, Chatham, Durham, and Orange).

**Data collection and sampling strategy.** An innovative, cross-sectional church-based sampling strategy was used for this study. We constructed an inventory of all Spanish-language churches in the study area, first by contacting the Catholic diocese (for Catholic churches), and second by conducting ethnographic research in the Latino community until saturation of information was achieved (for non-Catholic churches, including Baptist, Episcopalian, Pentecostal, and Unitarian denominations). Four Catholic and 24 non-Catholic churches with Spanish-language services were identified, and priests and ministers were surveyed about the size and characteristics of their congregations. Based on information provided by priests, we estimated that, in an average week, approximately 20% of the study area's Spanish-speaking population attended church.

In each of the churches sampled, announcements were made by priests/ministers and the study team to request women's participation in our study about access to health services. All women parishioners between the ages of 15 and 44 in each church were asked to complete a short, self-administered screening form following religious services. The screening form included questions about women's age, their level of education, marital status, whether they had children, the ages of their children, country of origin, and the year they arrived in the U.S. Most women were able to complete the form on their own, but a team of Spanish-speaking interviewers (bilingual students and Latina immigrants from the community) assisted women who had difficulty reading or writing. Based on priests' estimates of their congregation size, we estimate that the 706 women who completed a screening form represented 91% of eligible women within the sampled churches. Compared with the Spanish-speaking population of the study area, our church-based sample over-sampled foreign-born women (our target group) and gave a comparable representation of countries of origin. However, women who were married or had very high or very low education levels were over-represented.<sup>27</sup>

Women were eligible for the study if they were between the ages of 15 and 44, born in a Spanish-speaking country of Latin America or the Caribbean, migrated to North Carolina less than ten years ago, and had at least one child born in the United States who was younger than 6 years of age. The purpose of the last criterion was to allow data collection for a separate component of the study on the use of immunizations among preschool-aged children.

**Data collection instrument.** Research shows that Latino respondents have a *yea-saying* bias that is significantly higher than that of other respondents.<sup>28,29</sup> Thus, to achieve valid responses, it was particularly important to establish trust and a friendly, communicative environment with our interviewees. We used a Spanish-language ethno-survey, a semi-structured data collection tool whose format allows the interview to be carried out as a friendly conversation.<sup>30</sup> The instrument is laid out in a series of tables that are completed by the interviewer as he or she chats with the interviewee; responses are simultaneously coded for quantitative analysis. The result is a body of data with

greater reliability and more internal validity than is achievable using a standardized interview or in-depth interview alone.<sup>31,32</sup>

During interviewer training, the instrument was pilot-tested with Latina immigrant women and bilingual students, and the ethno-survey was modified by consensus. The final instrument consisted of approximately 200 items including questions pertaining to demographics, social support, acculturation, and health practices and beliefs.\* Dental health items included questions on utilization of dental services for mother and child, the child's dental health status, insurance, and four specific questions measuring the types and sources of social support received in obtaining dental care. Each woman was asked about the use of dental services for her oldest child younger than 11 years (the index child).

**Measures.** The outcome of interest for this study was whether each woman's index child had ever visited a dentist. Dental care guidelines recommend a visit to the dentist no later than the first birthday.<sup>33</sup> In keeping with these guidelines, women whose index child was under the age of 1 year were excluded from the analysis.

While the outcome measure is dental care use by the children of Latina immigrant mothers, the key explanatory variable is social support provided to the mothers. Fathers and extended family members occasionally bring children in for preventive care. However, despite evidence of gender role transitions among Latina immigrants, research suggests that Latinas maintain a strong cultural orientation toward motherhood.<sup>34</sup> Our own observations in North Carolina suggest that Latina mothers shoulder the greatest share of responsibility for their children's preventive care.

Thus, the Spanish-language ethno-survey questionnaire included questions to measure four dimensions of social support received by mothers. Translated versions of these questions are as follows: *In North Carolina, among your friends and relatives . . .* (1) *Did someone give you information about dental health?* [Instrumental aid]; (2) *Did someone help you obtain a dental appointment?* [Instrumental aid/Influence]; (3) *Did someone help you get to your dental appointment?* [Material Aid]; and (4) *Did someone accompany you to your dental appointment?* [Emotional Aid].

A number of variables were considered for inclusion in the model because of their potential to act as confounders in the relationship between social support and dental care use. These were grouped according to characteristics of the mother, father, and child. Mothers' characteristics of interest included their education level (0–6 years, or 7 years and older), employment status (employed or unemployed), place of birth (urban or rural), age at the time of the interview (younger than 30 years, or 30 years and above), year of arrival in the United States (pre- or post-1997), marital status (married/partnered, or single/divorced/widowed), insurance (*yes* or *no*), dental care use in the country of origin and in North Carolina, U.S. driver's license (*yes* or *no*), travel distance between home and the dentist's office, languages spoken at home, and mothers' perceptions of the oral health status of their children. Less information was collected about fathers because of our assumption that mothers tend to be primarily responsible for their children's use of preventive health services. Data items of interest that were collected about the fathers included level of education (0–6 years, or

\* The full instrument is available by request from the corresponding author.

7 years and older) and employment status. Finally, characteristics of interest for each child included age (1–2 years, 3–5 years, and 6 years and older), whether the child had dental insurance, and the type of insurance that he or she had (Medicaid/SCHIP, private insurance, or other).

**Analysis methods.** While women were sampled with certainty within churches, churches themselves were sampled with unequal probabilities within three strata (Catholic, small non-Catholic, and large non-Catholic). All analyses were carried out in Stata 8.0\*, using survey commands to correct variance estimates for sampling weights and survey design.

Frequency distributions were tabulated for dental care use of children and mothers, as well as social support variables and potential control variables. Each of the potential control variables was examined for its association with child's dental care use, using two-way frequency tables and Pearson chi-squared statistics.

In the interest of a parsimonious model, of the potential confounders, only variables that were statistically significantly associated with the outcome variable at a level of  $p < .10$  in the bivariate analysis were included in the multivariate model. Further, based on the results of a factor analysis, we constructed a single index of social support (see below). A multivariate logistic regression model was then fitted to the data to test the association between the index of social support and children's dental care utilization, controlling for key confounders.

Finally, because data were collected in four counties and county-based areas roughly correspond to dental health markets,<sup>35</sup> dummy variables were added to control for county-level fixed effects.

## Results

Of the 706 women who completed the screening form, 305 met inclusion criteria for the Migration Transitions Study, and 223 (73%) completed the study interview. Of these women, 49 were excluded from the present study, either because dental health questions were asked for a child younger than the age of 1, or because values for the child's age or dental care use were missing. The final sample size for the present study was 174.

Socio-demographic characteristics of the sample are displayed in Table 1. The majority of the mothers interviewed were uninsured (75.5%), and unemployed (53.7%), and had arrived in the U.S. prior to 1997, meaning that they had lived in the U.S. for five years or longer (65.2%); 77.6% spoke only Spanish at home.

Variables characterizing dental care use for mother and child are presented in Table 2. The majority of children in this study had visited a dentist at some point in their lives (57.0%). Fewer than half (47.4%) had dental insurance. Most mothers (58.0%) described the condition of her index child's teeth as *excellent*, *very good*, or *good*, while 42.0% described it as *so-so* or *bad*.

Table 3 displays the types and sources of support received in relation to dental care: 29.6% of mothers reported receiving information (instrumental aid) about dental health in North Carolina, 16.8% reported receiving assistance in making a dental appointment

\* Statacorp. 2003. Stata Statistical Software: Release 8. College Station, TX: Statacorp I.P.

**Table 1.**  
**SAMPLE DESCRIPTION: SOCIO-ECONOMIC**  
**CHARACTERISTICS (N=174)**

Socio-economic characteristic	%
Mother's characteristics	
Age	
≤29 years	41.9
>29 years	58.1
Year of arrival in U.S.	
1997 or earlier	65.2
Post-1997	34.8
Languages primarily spoken at home	
Spanish only	77.6
Spanish more than English	19.1
Spanish and English equally	.8
English more than Spanish	.8
Other (indigenous language)	1.7
Education	
≤6 yrs	30.4
>6 yrs	69.6
Employment status	
Employed	46.3
Unemployed	53.7
Health insurance status	
Insured	24.5
Uninsured	75.5
Marital status	
Married/living with partner	90.1
Single/widowed/divorced	9.9
Father's characteristics	
Education	
≤6 yrs	32.1
>6 yrs	67.9
Employment status	
Employed full-time	78.0
Not employed full-time	22.0
Index child's age	
>1 and ≤2 yrs	27.0
>2 and ≤5 yrs	38.2
>5 and <11 yrs	34.8

**Table 2.**  
**SAMPLE DESCRIPTION: DENTAL HEALTH**  
**CHARACTERISTICS (N=174)**

Dental health characteristic	%
Child's dental health	
Any dental visit	
Yes	57.0
No	43.0
Dental insurance for child	
Yes	47.4
No	52.6
If yes, type of insurance plan	
Medicaid/S-CHIP	78.1
Private	19.3
Other	2.6
Mother's description of child's teeth	
Excellent/very good/good	58.0
So-so/bad	42.0
Mother's dental health	
Ever had teeth cleaned in country of origin	
Yes	58.7
No	41.2
Ever had teeth cleaned in N.C.	
Yes	47.8
No	52.2

(instrumental aid/influence), 26.4% received help getting to an appointment (material aid), and 26.8% were accompanied to their dental health appointment (emotional aid). Instrumental aid was primarily provided by clinics or hospitals, while material aid and emotional aid were primarily provided by family members. Approximately 65% of mothers received some dental health-related social support, as measured by the 3-item social support index.

In bivariate analyses (Table 4), social support items 2, 3, and 4, as well as the social support index composed of these items, were significantly associated with child dental care use ( $p < .10$ ). However, item 1 (informational aid) was not ( $p = .17$ ). In the interest of a parsimonious model, we conducted a factor analysis to determine whether a single index of social support could be created from these four items. Items 2, 3, and 4 loaded strongly (at .50 or above) onto a single factor, whereas the factor loading for item 1 was less than .50. At a conceptual level, items 1 and 2 both measured similar constructs: information provided about dental care (item 1) could very well be the same as information on how to make a dental appointment (item 2). Thus, item 1 was



**Table 3.**  
**SAMPLE DESCRIPTION: DENTAL SOCIAL SUPPORT (N=174)**

Dental social support characteristic	%
Instrumental aid	
In North Carolina, did someone give you information about dental health?	
Yes	29.6
No	70.4
If yes, who?	
Family member	26.9
Friend	20.0
Organization	6.2
Clinic/hospital	43.9
Other	3.1
Instrumental aid/influence	
Did someone help you obtain a dental appointment?	
Yes	16.8
No	83.2
If yes, who?	
Family member	52.5
Friend	10.0
Organization	5.0
Clinic/hospital	30.0
Other	2.5
Material aid	
Did someone help you to get to your dental appointment?	
Yes	26.4
No	73.6
If yes, who?	
Family member	86.4
Friend	8.5
Organization	1.7
Clinic/hospital	3.4
Emotional aid	
Did someone accompany you to your dental appointment?	
Yes	26.8
No	73.2
If yes, who?	
Family member	90.1
Friend	3.3
Organization	3.3
Clinic/hospital	3.3
Any social support (index of items 2, 3, and 4)	
No <sup>a</sup>	34.8
Yes <sup>b</sup>	65.2

<sup>a</sup>Answered "no" to all three questions.

<sup>b</sup>Answered "yes" to at least one question.

**Table 4.**  
**BIVARIATE RESULTS: DENTAL CARE USE BY**  
**LEVEL OF SOCIAL SUPPORT AND SIGNIFICANT**  
**CONTROL VARIABLES (N=174)**

	Mothers whose index child ever had a dental visit in North Carolina (%)	Chi-square p-value
Social support variables		
Among your friends and relatives in North Carolina, did any one . . .		
Give you information about dental health?		
Yes	68.1	.17
No	52.4	
Help you to make a dental appointment?		
Yes	80.0	.005
No	52.4	
Help you to get to your dental appointment?		
Yes	76.2	.02
No	50.1	
Accompany you to your dental appointment?		
Yes	78.1	.003
No	49.3	
Index of social support (items 2, 3, and 4)		
Answered "No" to items 2, 3, and 4	46.3	.002
Answered "Yes" to one or more of these items	77.1	
Significant control variables		
Mother-related variables		
Year of arrival		
≤1997	71.7	.008
Post 1997	29.5	
Ever received a dental cleaning in native country		
Yes	61.9	.03
No	50.3	
Child-related variables		
Age		
≤2 yrs	15.5	.0003
≤5 yrs	62.1	
>5yrs	83.7	

excluded from the final analytical model, and a social support index was created from items 2, 3, and 4. This variable was coded 0 if the respondent answered *no* to all of the items 2, 3, and 4, and 1 if she answered *yes* to any of those items. Other covariates significantly associated with the child's dental care use at the bivariate level were the

mother's age at the time of the interview, mother's year of arrival in the U.S., age of the child, and whether the mother had received a dental cleaning in her native country.

In the multivariate model, the key explanatory variable of interest, the index of social support, was significantly associated with the child's dental care use (Table 5). Compared with children whose mothers had received no social support, the odds of having had a dental care visit were 3.1 times greater (95% CI = 2.21–6.60) for children whose mothers had received some social support. Having a mother who arrived in the U.S. prior to 1997 and being in an older age category were also significantly positively associated with the child's dental care use.

## Discussion

In this study, when hospitals and clinics provided dental health-related social support to Latina immigrant mothers, the type of aid provided was typically instrumental aid, i.e., information given to mothers about dental care. However, that type of aid was not associated with dental care use by children.

By contrast, when friends and family provided dental social support, the type of aid provided was typically a combination of instrumental aid and influence (helping mothers to make appointments), material aid (helping them to get to their appointment), and/or emotional aid (accompanying mothers to their children's dental appointments). Remarkably, approximately 65% of women received at least one of these types of aid. These types of social support were strongly associated with use of dental services in children. Children of mothers who answered *yes* to at least one of the three questions on the social support index were three times more likely to have had a dental visit in North Carolina than those whose mothers answered *no* to all three questions. This

**Table 5.**

### MULTIVARIATE ANALYSIS: INDEX CHILD'S DENTAL CARE USE AND SOCIAL SUPPORT (N=174)

	OR (95% CI)
Any social support (3-item index)	3.13 (1.67–5.87)**
Mother's age $\leq 29$ yrs	1.36 (.75–2.47)
Arrived in U.S. pre-1997	4.39 (2.14–9.01)**
Mother ever received dental cleaning in native country	1.65 (.72–3.76)
Child age $>2$ and $\leq 5$	20.14 (4.96–81.83)**
Child age $>5$ and $\leq 10$	5.86 (1.52–22.54)*
County	
Durham	.48 (.26–.91)*
Chatham	.69 (.27–1.76)
Alamance	1.47 (.58–3.76)

\*  $p < .05$ , \*\*  $p < .01$

finding is consistent with results from previous studies documenting the association of social support with dental care use.<sup>15-21</sup>

Two important limitations of this study are worth noting. First, the study's cross-sectional design prevents us from determining whether social support is causally related to use of dental care. For example, mothers who are more effective in seeking out social support may also be more effective in obtaining dental care for their children. Greater use of dental care could therefore be the result of their general ability to seek out information and resources in their community, rather than the result of social support *per se*. Second, the study used a church-based sampling frame. While this allowed the rapid sampling of a hard-to-reach population of Latina immigrant mothers, it limited study generalizability, because our sample over-represented older, married women and more recently arrived immigrants.<sup>27</sup> Despite the limitations of this study, its results suggest several ways in which social support interventions could be implemented to increase dental care use among the children of Latina immigrant mothers.

First, since health care facilities provide little support beyond information, providers might consider expanding the types of dental care-related social support that they provide to immigrant mothers. For example, when mothers visit health care facilities for well-child or sick child visits, a nurse or physician's assistant could pick up the phone to make a dental appointment for the child. A clinic might also provide transportation to the dental office, or connect Latina immigrant mothers with navigator or *promotora* programs that can provide emotional aid along with the other forms of support. (*Promotoras* are community health workers recruited from among lay individuals in the Latino community, from whom others ask advice and support.) *Promotoras* have not typically been trained to act as liaisons with the dental health care system, but this service could be added to their repertoire.

Second, friends and family members of immigrant women might provide more support if they were fully aware of the need for early dental care and the importance of their support. An intervention designed to reach these important others could take place within the context of prenatal care or well-child visits. Women could be asked to bring in one or several trusted family members or friends who would help them with decisions related to the health care of their child. This family member could then be included in the educational session about the need for dental care.

Third, a broad public education campaign could be developed and broadcast through Latino advocacy groups, churches, and Spanish-language media so that family members understand the reasons for taking young children to the dentist and are encouraged to help mothers follow through with this recommendation.

A precondition for successful implementation of these interventions is that dental care guidelines should be clear and easy for mothers and their families to follow. At the moment, dental organizations recommend a dental health visit, ideally, as soon as the baby's first tooth appears, but no later than the child's first birthday,<sup>33</sup> and the American Academy of Pediatrics recommends the same for children at high risk of caries, while other children should establish a dental home *in the early toddler years*.<sup>36</sup> The message could be simplified, for example, to *take your child to the dentist when the first tooth appears* or *by the first birthday*.

Finally, the context in which this study was conducted could account for the

association of the other forms of social support with dental care use. At the time of this study, provider shortages, high cost of services, low reimbursement, low provider participation in public assistance programs, licensure policy barriers, and lack of linguistically and culturally competent dental care created inordinate barriers to dental care in North Carolina.<sup>7,10</sup> Ultimately, the need for social support to access dental care might diminish if system barriers were addressed.

## Notes

1. Flores G, Fuentes-Afflick E, Barbot O, et al. The health of Latino children: urgent priorities, unanswered questions, and a research agenda. *JAMA*. 2002 Jul 3;288(1):82-90. Erratum in: *JAMA*. 2003 Aug 13;290(6):756.
2. Beltrán-Aguilar ED, Barker LK, Canto MT, et al. Surveillance for dental caries, dental sealants, tooth retention, edentulism, and enamel fluorosis—United States, 1988–1994 and 1999–2002. *MMWR Surveill Summ*. 2005 Aug 26;54(3):1-43.
3. Woolfolk M, Hamard M, Bagramian RA, et al. Oral health of children of migrant farm workers in northwest Michigan. *J Public Health Dent*. 1984 Summer;44(3):101-5.
4. Quandt SA, Clark HM, Rao P, et al. Oral health of children and adults in Latino migrant and seasonal farmworker families. *J Immigr Minor Health*. 2007 Jul;9(3):229-35.
5. North Carolina Institute of Medicine. Task force on dental care access: report to the North Carolina General Assembly and to the Secretary of the North Carolina Department of Health and Human Services. Raleigh, NC: North Carolina Institute of Medicine, 2003.
6. Rozier RG, King RS. Defining the need for dental care in North Carolina: contributions of public health surveillance of dental diseases and conditions. *N C Med J*. 2005 Nov-Dec;66(6):438-44.
7. Hartsock LG, Hall MB, Connor AM. Informing the policy agenda: the community voices experience on dental health for children in North Carolina's rural communities. *J Health Care Poor Underserved*. 2006 Feb;17(1 Suppl):111-23.
8. Kim YO. Reducing disparities in dental care for low-income Hispanic children. *J Health Care Poor Underserved*. 2005 Aug;16(3):431-43.
9. North Carolina Institute of Medicine. North Carolina Latino health. Durham, NC: North Carolina Institute of Medicine, 2003. Available at <http://www.nciom.org/projects/latino/reportchapters.html>.
10. Mofidi M, Rozier RG, King RS. Problems with access to dental care for Medicaid-insured children: what caregivers think. *Am J Public Health*. 2002 Jan;92(1):53-8.
11. Rozier RG, Sutton BK, Bawden JW, et al. Prevention of early childhood caries in North Carolina medical practices: implications for research and practice. *J Dent Educ*. 2003 Aug;67(8):876-85.
12. Grembowski D, Andersen RM, Chen M. A public health model of the dental care process. *Med Care Rev*. 1989 Winter;46(4):439-96.
13. Mouradian WE, Huebner CE, Ramos-Gomez F, et al. Beyond access: the role of family and community in children's oral health. *J Dent Educ*. 2007 May;71(5):619-31.
14. Patrick DL, Lee RS, Nucci M, et al. Reducing oral health disparities: a focus on social and cultural determinants. *BMC Oral Health*. 2006 Jun 15;6 Suppl 1:S4.
15. Hanson BS, Liedberg B, Owall B. Social network, social support and dental status in elderly Swedish men. *Community Dent Oral Epidemiol*. 1994 Oct;22(5 Pt 1): 331-7.
16. McGrath C, Moles D, Bedi R. Who uses independent dental services? Findings from a national survey. *Prim Dent Care*. 1999 Oct;6(4):157-60.

17. Petersen PE, Nortov B. [General and oral health and their relation to life-style and social activity among elderly Danes living at home]. *Tandlaegernes Tidsskr.* 1990 Feb;5(2):36-41.
18. Felix Aaron K, Levine D, Burstin HR. African American church participation and health care practices. *J Gen Intern Med.* 2003 Nov;18(11):908-13.
19. Weinstein P, Harrison R, Benton T. Motivating mothers to prevent caries: confirming the beneficial effect of counseling. *J Am Dent Assoc.* 2006 Jun;137(6):789-93.
20. Milgrom P, Hujoel P, Grembowski D, et al. A community strategy for Medicaid child dental services. *Public Health Rep.* 1999 Nov-Dec;114(6):528-32.
21. Grembowski D, Milgrom PM. Increasing access to dental care for medicaid preschool children: the Access to Baby and Child Dentistry (ABCD) program. *Public Health Rep.* 2000 Sep-Oct;115(5):448-59.
22. Andersen RM. A behavioral model of families' use of health services. Research series No. 15. Chicago, IL: Center for Health Administration Studies, Graduate School of Business, University of Chicago Press, 1968.
23. Andersen RM. Revisiting the behavioral model and access to medical care: does it matter? *J Health Soc Behav.* 1995 Mar;36(1):1-10.
24. Berkman LF. Assessing the physical health effects of social networks and social support. *Annu Rev Public Health.* 1984;5:413-32.
25. Lin N, Cook K, Burt RS, eds. *Social capital: theory and research.* New York: Aldine de Gruyter, 2001.
26. Wills TA. Supportive functions of interpersonal relationships. In: Cohen S, Syme SL, eds. *Social support and health.* Orlando, FL: Academic Press, Inc., 1985.
27. Wasserman MR, Bender DE, Kalsbeek WD, et al. A church-based sampling design for research with Latina immigrant women. *Population Research and Policy Review.* 2005 Dec; 24(6):647-71.
28. Aday LA, Chiu GY, Andersen R. Methodological issues in health care surveys of the Spanish heritage population. *Am J Public Health.* 1980 Apr;70(4):367-74.
29. Warnecke RB, Johnson TP, Chavez N, et al. Improving question wording in surveys of culturally diverse populations. *Ann Epidemiol.* 1997 Jul;7(5):334-42.
30. Massey DS. The ethnosurvey in theory and practice. *Int Migr Rev.* 1987 Winter; 21(4):1498-522.
31. Massey DS, Zenteno R. A validation of the ethnosurvey: the case of Mexico-U.S. migration. *Int Migr Rev.* 2000 Autumn;34(3):766-93.
32. Massey DS. When surveys fail: an alternative for data collection. In: Stone AA, Turkkan JS, Bachrach CA, et al., eds. *The science of self-report: implications for research and practice.* Mahwah, NJ: Lawrence Erlbaum Associates, 2000; 145-60.
33. American Academy of Pediatric Dentistry. Guidelines on infant oral health care. Chicago, IL: American Academy of Pediatric Dentistry, 2004. Available at [http://www.aapd.org/media/Policies\\_Guidelines/G\\_InfantOralHealthCare.pdf](http://www.aapd.org/media/Policies_Guidelines/G_InfantOralHealthCare.pdf).
34. Guendelman S, Malin C, Herr-Harthorn B, et al. Orientations to motherhood and male partner support among women in Mexico and Mexican-origin women in the United States. *Soc Sci Med.* 2001 Jun;52(12):1805-13.
35. Mayer ML. Using Medicaid claims to construct dental service market areas. *Health Serv Res.* 1999 Dec;34(5 Pt 1):1047-62.
36. Hale KJ, American Academy of Pediatrics Section on Pediatric Dentistry. Oral health risk assessment timing and establishment of the dental home. *Pediatrics.* 2003 May; 111(5 Pt 1):1113-6.