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Rural Mexican immigrant parents' interpretation of children's dental symptoms and decisions to seek treatment

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Objective: Mexican-origin children have higher rates of decay and lower dental utilization rates than children from all other racial/ethnic groups. Different cultural groups' interpretations of dental symptoms illuminate their different decision-making process about seeking care. Through ethnography in a small rural U.S. city, we examined low-income Mexican immigrant caregivers' interpretations of their children's dental symptoms and evaluations of the need for treatment. ***Basic Research Design*:** We conducted 49 in-depth interviews with 26 Mexican immigrant caregivers about their perceptions of their children's dental symptoms, and observations of five such caregivers' help-seeking episodes and 30 other caregivers' presentation of their children's symptoms at dental clinics. All interviews and fieldnotes were analyzed qualitatively through a series of readings and codings. ***Results:*** A conceptual model of caregivers' decision-making processes was developed. Most caregivers deduced the health of teeth from visible appearance, and thus children's complaints of pain alone were often ineffective in triggering a dental visit. Caregivers often delayed treatment because they viewed their children's oral disease as mere "stains" requiring cleaning rather than as bacterial infections requiring restorative treatment. Parents appeared to confuse carious "stains" with fluorosis stains common in rural Mexico. ***Conclusions****:* Even when Mexican immigrant caregivers recognize a dental problem, they often misinterpret it as a "stain." Caregivers' interpretations of decay were shaped by their lack of experience with children's decay in rural Mexico. Oral health education programs should help rural immigrant caregivers distinguish between "stains" and "cavities," and understand the heightened oral hygiene requirements of the cariogenic diet in industrialized countries.

Key words: Dental help-seeking, Early Childhood Caries, ethnography, immigrants, Latino/Hispanic children, low income, oral health education, parental health beliefs and behaviors, rural

Introduction

Latino children have poorer oral health than children from any other racial/ethnic group in the United States, and Mexican Americans have the poorest oral health of all Latino subgroups (DHHS, 2000). Despite this need for dental care, Latinos have the lowest dental utilization rate of all racial/ethnic groups, and Mexican Americans have the lowest dental utilization rate of all Latinos. The National Health Interview Survey of 2000-2003 found that 16.7 percent of Latino children ages 2 through 17 – and 17.7 percent of Mexican American children – had never seen a dentist (Scott and Simile, 2005). Wall and Brown (2004) reported a persistently lower dental care utilization rate for Mexican Americans and Mexican immigrants in particular--compared to other Latinos--even after external factors such as age, income, education, gender and dental insurance coverage had been taken into account. Mexican-Americans were two to three times more likely to visit a dentist than were immigrants born in Mexico but living in the United States. The authors conclude that the lower dental utilization rate specifically for Mexican-born immigrants clearly calls for further research.

Much research has documented barriers to access and utilization of dental care for low-income rural Mexican-origin populations (Arcury and Quandt 2007; Lukes and Miller 2002, Lukes and Simon 2006; Quandt *et al*., 2007) as a partial explanation of Latinos' lower dental utilization rate. Some research suggests that Latino immigrant parents may have poor knowledge of effective preventive measures (Entwistle and Swanson, 1989; Watson *et al*. 1999; Woolfolk *et al*., 1985), and may not understand the relationship between diet and oral disease (Woolfolk *et al*., 1985). Yet little research explores how Mexican immigrant caregivers interpret their children's dental symptoms and evaluate the need for treatment. Some research indicates that immigrant caregivers from a variety of backgrounds may view primary teeth as less important than permanent teeth, because the former will "fall out anyway" (Harrison and Wong, 2003; Hilton *et al*., 2007, Wong *et al*., 2005). This research suggests that immigrant parents may not fully understand the severity of their children's oral disease nor the effect of early childhood caries (ECC) on the child's permanent dentition.

Kleinman (1980) suggests that different cultural beliefs about the origins and nature of a particular disease lead to different methods of addressing it (Horton and Barker, 2008.). Different cultural groups' interpretations of dental symptoms illuminate their different decision-making process about seeking care, which does not always

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dovetail with dentists' clinical decision-making (Bedos *et al*., 2005). While Bedos and colleagues (2005) have recently identified the ways that low-income residents of Montreal make decisions regarding seeking dental treatment, no research to date has derived such a model for caregivers of children, and for Mexican-origin children specifically. To better understand low-income rural Mexican immigrant parents' decision-making processes, this study explores how they define oral disease and interpret their children's oral symptoms.

Methods

Research Design and Innovation

An in-depth qualitative approach (ethnography) was used to derive a conceptual model of Mexican immigrant parents' perceptions of their children's dental symptoms and decisions to seek treatment. This approach consisted of: 1) in-depth interviews with Mexican immigrant caregivers about their children's oral health and interpretation of dental symptoms, supplemented by 2) extensive systematic observation of immigrant caregivers' actual help-seeking episodes in dental clinics. No other conceptual models exist of caregivers' decision-making processes regarding dental help-seeking for their children, and ethnographic observation is lacking from other studies on dental decision-making Bedos *et al*., 2005). Ethnography helped reveal how Mexican caregivers' different interpretations of their children's dental symptoms influenced them to seek different forms of treatment for their children.

Sample Recruitment

The study site was a small rural community in central California. Eligibility criteria for interviewees were: (1) be a primary caregiver of at least one child under the age of 6; and (2) of Latino origin. Participants were drawn from two sources: 2/3rd from a randomized list of household addresses generated by a partner study on farmworker occupational health, and 1/3rd from two local early childhood education programs. This paper focuses specifically on the low-income Mexican immigrant caregivers of focal children who were eligible for the state's dental public "safety net" benefits (Denti-Cal). These children were eligible for diagnostic, preventive and restorative dental procedures free-of-charge. The seasonal nature of farmwork, low Denti-Cal reimbursement rates, and immigration and naturalization policies hindered children's access to dental care (Barker and Horton, 2008). However, caregivers had learned through pediatricians, early childhood education programs, or a federal low-income nutritional supplement program that their focal children's Medicaid insurance provided them with comprehensive dental benefits (i.e., Denti-Cal) . Thus cost and lack of insurance were not overriding obstacles to access.

Interviews

Interested participants were screened for eligibility and recruited into the study by bilingual interview staff (the first author and an assistant), who obtained informed consent. All interviews relied on an open-ended interview guide approved by the institutional review board of the University of California, San Francisco. As data collection proceeded, relevant findings were used to modify the guide to reflect new areas of inquiry. Interview topics included: caregivers' conceptions of their children's oral health and oral disease, their interpretation of symptoms of oral disease and beliefs about the appropriate treatment of such symptoms, their understandings of preventive oral health care, and the help-seeking behaviors they adopted based on these understandings. The interview staff conducted the interviews, of 1-2 hours in duration, in Spanish. Each participant was interviewed at least once; several were interviewed up to three times on additional oral health topics. Participants received a $20 gift certificate to a local grocery store for a first interview, and a $10 certificate for subsequent interviews.

Observations

Ethnography included observations of: 1) help-seeking episodes of five interviewed caregivers for whom the team provided transportation, and 2) presentation by 30 other immigrant caregivers of their children's dental symptoms at the front-desks of dental clinics**.** Eight dental clinics in the county that accepted Denti-Cal permitted observations of clinic staff interactions with caregivers. Observations complemented the data provided by the interviews, and were conducted with the express consent of the families observed.

Data Collection and Analysis

Each interview was audiotaped, translated, and transcribed verbatim, and all observations recorded as typed fieldnotes. Data analysis included preparing and coding the transcripts and fieldnotes, and performing qualitative analysis on the content of the textual data. Following standard procedures, we developed a short list of codes related to conceptions of oral health, interpretations of dental symptoms, and evaluations of the need for treatment. We added new codes when they emerged while reading transcripts and fieldnotes (Bernard, 2005; Miles and Huberman, 1994). Two researchers independently read through the transcripts and fieldnotes, categorized caregivers' interpretations of children's and infants' dental symptoms and evaluations of the need for treatment, compared results, through discussion reached consensus on discrepant categorizations. Together, the researchers then derived a model representing participants' model of interpretation of their children's dental symptoms and evaluation of the need for treatment.

Results

Forty-nine interviews with 26 Mexican immigrant caregivers, all mothers, were conducted within a nine month period between 2005 and 2006. This was a predominantly low-income and recently-arrived immigrant population: Caregivers had been in the U.S. a mean of eight and a half years and had a mean annual household income of $17,000; all were at or below poverty level. Eighty percent came from rural towns of a population of 15,000 or less (See Table 1).

Analysis of the interviews allowed us to derive a model of how rural low-income Mexican immigrant caregivers interpreted children's dental symptoms and evaluated the need for treatment (See Table 2). Caregivers'

Table 1. Sociodemographic characteristics of caregivers born in Mexico

Total n= 26

Gender – Female n=26	26	*Legal status n=25*	
		Undocumented	17
Age of caregiver n=25		Legal Permanent Resident	7
Mean ± SD	30.4 ± 6.2	Citizen	1
Median	29		
Range	19-47	*Occupation n=24*	
		Full-time Caregiver	13
Education completed (years) n=25		Farmworker	10
Mean ± SD	7.1 ± 3.7	Other	1
Median	9		
Range	0-14	*Rural or urban origin*** n=26*	
		Rural Mexico	21
*Annual household income** n=24*		Urban Mexico	5
Mean ± SD	$17,000 ± 5,700		
Median	17,500	*Children per household n=26*	
Range	8,000-28,000	Mean ± SD	2.7 ± 1.2
		Median	3
Marital/partner status n=25		Range	1-5
Mother has partner	24		
Mother is single	1	*Age of youngest child (years) n=25*	
		Mean ± SD	2.3 ± 1.4
Years in U.S. n=25		Median	2
Mean ± SD	8.5 ± 5.6	Range	2 weeks-4 years
Median	7		
Range	3-22	*Age of oldest child (years) n=23*	
Years of residence < 10 years	18	Mean ± SD	10.2± 5.7
Years of residence > 10 years	7	Median	10
		Range	2-24

* As not all respondents answered every question, numbers are noted for each question
** $ US 2006; in 2006 the official federal poverty level was $24,000 annual income for a married couple with two children
*** A rural town was defined as having a population of 15,000 or less, and an urban area as having a population larger than 15,001

Table 2. Mexican immigrant caregivers' interpretations of children's dental symptoms

Symptoms	*No Visible Problem*		*Visible Problem*	
Child's Report of Pain	No	Yes	No	Yes
Interpretation ↓	Absence of Disease ↓	Absence of Disease ↓ Pain report not accepted; child is "making it up" ↓	Absence of Disease – ("Stains") ↓	Disease ↓ Child's report of pain believed ↓
Decision to Seek Care	No, care not needed	No, care not needed	Yes, eventually	Yes, immediately
Treatment Sought	None	None	Cleaning	Restoration/ Extraction

decisions to seek help were based on a combination of their recognition of a visible problem and their acceptance of their children's complaints of pain. While caregivers of infants could only rely upon visible changes to their children's teeth as an indication of disease, caregivers of small children relied upon both visible changes and children's complaints of pain.

Conceptions of "Healthy Teeth"

Mexican immigrant caregivers generally defined "healthy" teeth as those that were "white," and "clean," and pain-free (c.f. Watson *et al*., 1999). Caregivers viewed the absence of symptoms –both of a visible problem and of the child's complaint of pain – as an absence of disease. For example, one immigrant mother said that she had not taken her two-year old son for a checkup because "he is still small and I can see that his teeth are good and white." A second mother said that she saw no need to take her five-year-old daughter in for a first dental visit. "Her teeth are white and clean," she explained. Thus most immigrant caregivers deduced the health of their children's teeth from their appearance and did not see the need for asymptomatic visits.

Recognizing a Visible Problem

Caregivers' interpretations of infants' oral health relied mainly on visible changes to infants' teeth. Yet the question, "Does your child have any cavities or dental problems?" unexpectedly elicited caregivers' alternative interpretations of their children's oral disease. Nine of 26 caregivers in our sample specifically interpreted their children's tooth decay as "stains," or "*manchas,"* rather than as "cavities." One mother, for example, explained that she decided to take her 1½ year old son to the dentist when she saw what she described as "little black points" on his front teeth-- "stains that were black." "That's why we decided to take him to the dentist, that's when the dentist said that they were cavities," she said. Because of his young age and her lack of experience with seeing infants with tooth decay, this immigrant mother was not aware that such "black points" constituted decay. Another mother similarly maintained that she had not seen any "cavities" before her son visited the dentist and received several fillings; she had seen only "two little brown stains" on his molars.

Caregivers generally viewed children's "stains" as simple discolorations that could be removed through brushing or "cleanings" ("*limpianzas")* rather than as bacterial infections that required restorative treatment. For example, one mother believed that the act of brushing her three-year-old child's teeth could remove the brown stains she saw. "I saw that his teeth were ugly, so I told him that he had to brush so that his teeth would grow out nice," she said. Five caregivers specifically said that what prompted their decision to take their children to the dentist was their desire to get their children a "cleaning" to remove "stains." One mother, for example, said of her seven-year-old: "Her teeth became stained and I had to take her to the doctor [dentist] so he could clean them." "Cleanings" were viewed as not only aesthetic but as preventive of the pain that is caused by tooth "rotting."

This different view of the treatment "stains" required became particularly evident during observations of immigrant caregivers' presentation of their children's dental symptoms in dental clinics. For instance, one Mexican immigrant father brought his three-year-old daughter to a dental clinic specifically requesting that she receive a "cleaning." Staff responded that the child would need a general examination as these "stains," adjacent to the gum line on her upper front teeth, bore the hallmarks of ECC. The father did not understand why his daughter needed more extensive treatment than a simple cleaning, nor did he think such "stains" required urgent treatment. Because immigrant caregivers were unaware that their children's decay constituted a form of oral disease, many delayed seeking help.

A Visible Problem, Confirmed by Audible Complaints

In evaluating the need to take children to the dentist, caregivers relied upon two main forms of data: 1) visible signs of a "problem" and 2) children's complaints of pain. Children's complaints of pain alone were less effective than visible signs of a "problem" in triggering a dental visit. While parents viewed children's complaints of pain as an important indicator of the need for treatment, they did not always believe children's complaints without corroborating visible evidence.

Like immigrant parents of various cultural origins (Harrison and Wong, 2003; Hilton *et al*., 2007; Wong *et al*., 2005), many of the immigrant caregivers we interviewed did say that permanent teeth were more important than primary teeth. Yet while immigrant caregivers viewed primary teeth as of less consequence, they viewed children's pain as of greater concern than adults' pain. When asked for whom they would first seek care if an adult and a child in their family both suffered dental pain yet resources were scarce, 24 of 26 caregivers responded that they would seek care for the child first. Reflecting this common sentiment, one mother said of her son, "I would fix his because he comes first." Thus caregivers placed their children's health needs above their own, and were likely to take a child for a dental visit if they believed that their children were indeed experiencing pain.

Their children, however, did not always complain of pain unless asked. One mother, for example, said that it was not until she saw her child's swollen gum that she asked whether a previously-filled molar was hurting her seven-year-old. When he said "yes," she took him to the dentist, who had to extract the molar. While this caregiver's concern was triggered by the visible symptom of her son's swollen gum, the child's report of pain confirmed the need for an immediate dental visit.

No Visible Problem, But Audible Complaints

Caregivers interpreted their children's visible symptoms, confirmed by a report of pain, as constituting an oral health "problem" requiring a dental visit. Yet in the absence of visible symptoms, caregivers did not always believe their children's complaints of pain. Eight caregivers were not aware that their children were suffering from decay until it had progressed to the point of severe problems such as abscesses, swollen faces, and stomach infections.

A mother, for example, said of her 5-year-old son's daily complaints of molar pain:

I thought that he was just making it up because I would check his teeth and I would not be able to see the cavities... I would tell him, 'How can your molar be hurting?' Until one day he had this big bump-- it's a blister (postemilla) filled with pus and that side of his face was swollen, and I took him in to the dentist and that's when they told me that he had a bad infection.

Similarly, another mother was unaware of her 8-year-old son's severe pain until he was sent home from school complaining of an "ear ache."

My son, one day the school called me, they called me because he had an ear ache and his side of his face was swollen. I took him to the doctor and the doctor said that it was not the ear, it was the cavity that was affecting him.

Again, another mother said she did not believe her 3-year-old daughter when the child began complaining of pain in her back teeth because she saw no evidence of a problem:

She would always complain that her molars would hurt but I would not believe her because I would say, 'what does she know of molar pain? she is so small,' plus I have never had any tooth aches and I did not listen to her.

As this quote indicates, it is important to place caregivers' skepticism of children's complaints of pain in the context of caregivers' own experiences with oral disease as children. All but two of the 26 caregivers reported having experienced neither dental pain nor having visible dental symptoms as young children in rural parts of Mexico. A mother, who received her first toothbrush at age 12, said:

When I was small I did not even know what a tooth brush was because we lived in a small ranch and like we were nine children--we were really poor--but I don't ever remember having a toothache.

Because of their lack of experience with ECC, then, many caregivers stated that they were taken by surprise by their children's oral disease. In commenting on the difference between the environment in which her eldest four Mexico-born children had been raised and that in which she had raised her youngest US-born daughter, a mother said "It's only my youngest that has had dental problems; my eldest have not had them. I think it's because of the water and because what they eat is so different here." Because of their own different experiences with oral disease in rural Mexico, then, many caregivers were quick to dismiss their children's complaints of pain in the absence of visible symptoms.

Discussion

To our knowledge, this study is the first study to describe a lay dental nosological model—a lay model of the interpretation of dental symptoms and the evaluation of the need to seek treatment—among caregivers of children, and specifically among rural low-income Mexican immigrant caregivers. We found that Mexican immigrant caregivers deduced the health of children's teeth from their appearance, and deemed it unnecessary to take their children for a first dental visit if their children's teeth looked "white" and "healthy." Caregivers recognized two indicators of the need for a dental visit: visible signs of a problem and children's complaints of pain. While the concurrence of both precipitated an urgent dental visit, visible symptoms were usually more successful in triggering an episode of care-seeking than complaints of pain alone.

This study may help shed light on the low dental utilization rate among Mexican-origin populations in the U.S. by illustrating that even when immigrant caregivers recognize tooth discoloration, they may not interpret it as decay. Caregivers described their infants' and children's symptoms of ECC as "stains" requiring a "cleaning" rather than as bacterial infection requiring restoration. This suggests that because of these caregivers' upbringing predominantly in rural Mexico–and different dietary and oral hygiene practices while there–they had little experience with ECC. Indeed, some Mexican immigrant caregivers reported greater experience in seeing small children with fluorosis and enamel stains than with ECC in rural Mexico. Immigrant caregivers' description of their children's symptoms as "stains" may indicate a confusion of their children's oral disease with fluorosis stains. In fact, dental public health research in rural states such as Jalisco, Aguascalientes, and San Luis Potosi has revealed a pronounced degree of fluorosis among rural Mexican children due to high-levels of naturally occurring fluoride in the drinking water (Trejo-Vazquez and Bonilla-Petriciolet, 2001; Grimaldo *et al*., 1995; Hurtado and Gardea-Torresday, 2005). While our data do not conclusively prove this confusion, they do suggest specific oral health education needs: First, to help rural immigrant caregivers distinguish between "stains" and "cavities" and, second, to assist such caregivers in understanding the heightened oral hygiene requirements of living in an area in which refined sugars and processed foods are plentiful.

Immigrant caregivers' dental care experiences within their countries of origin influenced their own oral health beliefs and behaviors, which may be maladapted to a new environment and diet. Yet generalizations should be undertaken cautiously. Our sample of immigrant caregivers derives predominantly from rural origins in Mexico; caregivers from urban Mexico may interpret their children's dental symptoms differently; as might caregivers with greater socio-economic resources. As parents generally base interpretations of their children's dental symptoms upon their own dental experiences as children (Kelly *et al*., 2005), comparative research on experiences with oral disease and fluorosis world-wide is incumbent in order to understand the different nosological models of immigrant groups. This point is particularly germane to the many immigrant groups moving from rural areas –where ECC may be less common–to industrialized areas characterized by a more cariogenic diet and heightened oral hygiene requirements.

Contributors

Sarah Horton conducted the field research upon which this article is based, undertook data analysis, and took the lead in writing this article. Judith C. Barker conceptualized the project, acquired funding, directed its implementation and assisted in data analysis. Both authors helped to conceptualize ideas, interpret findings, edit and review drafts of the manuscript.

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