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Mothers'/Guardians' Knowledge about Promoting Children's Oral Health

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Purpose. *The purpose of this study was (a) to explore what mothers know about promoting good oral health in their children and which information they need, and (b) to identify whether factors such as age, years of education, and number of children in the family affect their knowledge.*

Methods. *Data were collected from 105 mothers/guardians (age range: 19 to 54 years) who brought a child to an appointment at a community dental clinic. When provided with a choice, 54 mothers/guardians responded to surveys, and 61 participants asked to be interviewed. The respondents had between 1 and 9 children (mean=2.48).*

Results. *Only 25.7% of the respondents gave correct answers to a question concerning the age at which children should start seeing a dentist, and only 32.4% correctly answered a question about the age at which their children should have their teeth brushed. However, the majority of mothers (91.4%) knew that a child should not go to bed sucking on a bottle containing milk or juice. The higher the family income was, the more the respondents knew about dental care utilization and oral health-related behavior. The more years of education the respondents had, the more they knew about the consequences of poor oral health. The more children the mothers had, the more they knew about preventing oral health problems. The more knowledgeable the respondents were about oral health promotion, the more often they brushed and flossed, and the less dental anxiety they had.*

Conclusions. *Parents and caregivers can play an important role in preventing oral disease in children and should thus be well educated about oral health promotion. These findings point to the importance of focusing educational efforts on educating younger mothers with fewer children and/or less education who come from socioeconomically disadvantaged backgrounds.*

Keywords: oral health promotion, children, mothers' knowledge, prevention, oral health

Introduction

Young children are very susceptible to oral diseases, which could be prevented if their caregivers were sufficiently informed about their causes and treatments and were motivated to engage in appropriate oral health promotion. A prime example of a preventable disease among children is Early Childhood Caries (ECC), a severe form of tooth decay that affects the

primary teeth of infants and young children up to 71 months of age.^{1,2} Some children have carious lesions even before they are able to develop good oral hygiene habits.³ Research has shown that mothers or other primary caregivers are typically responsible for teaching their children proper hygiene skills.³ Since caries is a preventable disease, primary caregivers play a crucial role in preventing dental caries in young children. Therefore, it is crucial that caregivers are educated early on about the prevention and treatment of dental caries.⁴ Research has shown that mothers' dental awareness has an important impact on their children's oral health and oral health-related behavior.⁵

The first objective of this study was to explore what mothers/guardians know about promoting their children's oral health in order to determine what information they need. Gaining a better understanding of the knowledge mothers/guardians have about oral health promotion can help dental care providers address the topics that should be targeted when educating parents and other caregivers about how to prevent oral disease in their children. The second objective focused on identifying who should be targeted for educational interventions. Consequently, this study also explored if any background factors such as the mothers' age, number of children, education, and income, as well as oral health-related factors, such as dental fear and the history of oral health care experiences, affected their knowledge about promoting their children's oral health. Identifying who knows what would allow dental care providers to provide the most needed information and then target educational efforts in such a way that they reach the specifically vulnerable groups of caregivers most in need for this information.

Review of the Literature

Caries in children is the most common chronic childhood disease. It is 5 times more common than asthma, 7 times more common than hay fever, and 14 times more common than chronic bronchitis.² In one study, only 231 out of 446 preschool children were completely caries-free.⁶ Early childhood caries, a severe form of tooth decay that affects the primary teeth of infants and young children up to 71 months of age,² can have serious consequences for a child's general health,⁸ future oral health,⁹⁻¹¹ and quality of life.¹²

Early Childhood Caries can be prevented by successfully educating primary caregivers of newborn children about this disease and by thus motivating them to engage in positive oral health promotion efforts. Research suggests that many mothers do not know how to prevent caries in their children. In 1998, Hood identified that 26.7% of mothers of children 5 years and under who brought their children for extractions of teeth under general anesthesia to a dental school did not know how to prevent caries in their children.¹³ This finding is important because an analysis of insurance claims data on 9886 children showed that primary posterior tooth treatment in this age group was associated with future permanent first molar treatment.¹⁴ Ismail concluded In a review of the literature on prevention of Early Childhood Caries, Ismail concluded that in addition to offering preventive dental services such as fluoride varnish, the education of mothers and caregivers should be promoted, especially in high risk communities and population groups such as low-income families and native populations, because mothers' behavior influenced their children's oral health status.³

High sugar intake is a significant factor in dental caries.¹⁵ Putting an infant to bed with a formula bottle or a sucking cup with juice, or giving children sweets as snacks, are topics that dental care providers need to discuss with caregivers.¹⁶ Chestnut et al indicated that many mothers knew that putting children to bed with a bottle containing a sugary liquid was harmful. However, because they did not understand why it was harmful, they continued to give sugary drinks at night.¹⁷ Blinkhorn illustrated that 100 out of 139 mothers admitted giving their children sweets to reward them for good behavior, to pacify the child, or for no specific reason.¹⁸

Kay and Locker suggested that an understanding of what mothers know about oral health issues is crucial in order to modify their behavior and encourage good health promotion.¹⁹ Hale stated that along with proper feeding practices, mothers should also be aware of the timing of basic oral health practices, such as when a child should see the dentist for the first time, and when a child should have exposure to small amounts of fluoride.²⁰ Knowledge about toothbrushing is crucial

as well. A study by Wierzbicka et al concerning the prevention of caries demonstrated that 80% of the respondents answered that toothbrushing can prevent dental decay. However, only 46% of these respondents believed that fluoride could prevent decay. Few mothers mentioned flossing when asked about oral hygiene practice in their households.²¹

Research also showed that the degree to which mothers understand oral health issues is significantly related to better oral health in their children.⁸ In addition, mothers' knowledge about oral health had an important impact on their children's future oral health-related practices.⁵ Gaining a better understanding of what mothers and other primary caregivers know, and what they do not know about optimal oral health promotion for children, would be the first step to develop educational materials about oral health-related matters to better educate caregivers.

While all mothers should be educated about how to prevent disease and promote good oral health for their children, there might be specific groups of mothers that need more education about these issues than other mothers. It is therefore important to explore which mothers should be especially targeted for educational interventions. A mother's socioeconomic background may be a contributing factor to oral health concerns. Research has shown that caries is especially prevalent in children who come from disadvantaged backgrounds.²²⁻²⁴ This finding may be related to the lack of available health care. However, it could also be related to a lack of knowledge about the causes of dental disease and oral health practices. In addition, Rajab and Hamdan showed that a low level of education was associated with a lack of information about oral health issues and lack of access to dental care.²⁵

Additional factors to consider when exploring influences on children's dental health could be the age of the mother or primary care giver and the number of children for which care is being provided. Comparisons of these groups could address the question whether young and/or first-time mothers have less understanding of concerns related to oral health issues than older mothers and/or mothers with more than one child.

In addition to exploring the role of background factors, oral health-related variables could be of importance as well. Mothers' own oral health practices and their dental fear might also affect the way they approach oral health promotion in their children. Rossow showed that mothers who flossed regularly were more likely to have children who flossed.²⁶ While flossing is very important for removing inter proximal debris, one study found that only 13% of 622 adults flossed daily, and 52% admitted to never flossing.²⁷ Dental fear was shown by Segelnick to cause mothers to avoid visiting a dentist.²⁷ Arnup et al found that a mother's dental anxiety can be passed on to their children and impact their dental treatment.²⁸

In order to prevent oral disease in children, primary caregivers (mothers and guardians) have to be educated about how to promote good oral health in their children. Dental care providers need to know what topics concerning oral health promotion they should cover and who should be targeted for special educational efforts.

Methods and Materials

Design

This research was a survey study designed to explore mothers'/guardians' knowledge about how to promote their children's oral health. The research was conducted at the Pediatric Dental Clinic at Mott Children Health Center (CHC), in Flint, Genesee County, Michigan, between June 22, 2005, and July 20, 2005. The Pediatric Dental Clinic at Mott CHC serves children of Genesee County who come from socioeconomically disadvantaged backgrounds (200% under the poverty level). This research was approved by the Institutional Review Board (IRB) for the Health Sciences at the University of Michigan, Ann Arbor, MI., and by the IRB of Mott Children's Health Center.

Respondents

Data were collected from 105 mothers/female guardians. The respondents were on average 29.96 years old (range: 19 to 54; SD=7.343). They had on average 13.40 years of education (range= 8 to 19 years; SD=2.06).

Procedure

The mothers/guardians of regularly scheduled pediatric dental patients at this community dental clinic were invited to participate in this study upon arrival at the dental clinic. They were informed that they would receive one soft ADA-approved toothbrush and a trial size tube of toothpaste as a gift for their participation. Once the mothers/guardians read the consent script and orally consented to participate in the study, they were given a choice to either respond to a written survey on their own, or participate in a face-to-face interview. Sixty-one respondents choose to be interviewed and 54 respondents completed the written survey. All interviews were conducted by one female interviewer who had been carefully trained to avoid leading questions and to use the exact wording of the questions. This interviewer also administered the survey to the participants who chose to respond to the survey. All respondents were fluent in English. The data collection was conducted in 1 of 2 waiting rooms, or in a private room while the respondents' children received dental treatment. The mothers were given the choice to skip any questions they did not want to answer. No names or other identifying information were collected.

Survey

The survey consisted of 3 sets of questions that the researchers developed. The first part had questions concerning the respondents' demographic background, such as their age, education, income, and number of children. The second part consisted of oral health-related questions such as questions concerning the mothers'/guardians' and children's health behavior and dental history, and included the Dental Anxiety Scale - Revised to measure the respondents' level of dental anxiety. The third part consisted of 20 knowledge questions. Each question consisted of a statement concerning children's oral health-related topics for which the respondents' had to indicate whether it was correct or false (see Table 1). The 20 statements addressed 4 issues. The first topic was concerned with children's oral health-related behavior such as brushing ("When a child is about two years old, mothers should start to brush their teeth"; "Once children are 6 years old, they can brush their teeth without supervision"; "Older children should brush their teeth twice a day"), flossing ("Children should have their teeth flossed by 3 years of age"; "Children should floss their own teeth once they are 6 years old"), or the use of tooth paste and toothbrushes. The second set of questions was concerned with utilizing health care services. This category had 2 questions: ("Once a child is two years old, the child should visit the dentist"; "Children should see a dentist twice a year"). The third category consisted of 4 questions assessing knowledge concerning the prevention of oral disease and caries ("Cavities are the most common chronic childhood disease in children under 7 years of age"; "Water fluoridation is important to prevent cavities"; "A child should not go to bed sucking on a bottle containing milk, formula, or juice"; "Sucking on pacifiers is not bad for a child's teeth"). The final category consisted of 5 items about the consequences of oral disease ("A child with severe cavities is likely to not gain weight appropriately"; "Poor dental health could affect a child's general health"; "Poor dental health can affect a child's ability to learn"; "Dental pain can keep a child from paying attention in class"; "Poor dental health can keep a child from sleeping through the night"). The 20 statements were randomly presented and not grouped by topic.

Table 1: Percentages of mothers who responded correctly to the knowledge questions asked

	Correct Answer	Rank*
Oral Health-Related Behavior:		
Before a baby has a first tooth, mothers should clean their gums with a cloth. (True)	83.3%	8
When a child is about two years old, mothers should start to brush their teeth. (False)	32.4%	18
Once children are about 6 years old, they can brush their teeth without supervision. (True)	48.6%	15
Older children should brush their teeth twice a day. (True)	70.5%	11
Children should have their teeth flossed by 3 yrs of age. (True)	56.2%	14
Children should floss their own teeth once they are 6 years old. (False)	44.8%	16
A pea size amount of toothpaste is all that is needed to brush a child's teeth. (True)	87.6%	4
A child should not swallow toothpaste. (True)	86.7%	7
A child's toothbrush should be replaced every 6 months. (False)	21%	20
Utilizing Health Care Services:		
Once a child is two years old, they should visit a dentist. (False)	25.7%	19
Children should see a dentist twice a year. (True)	90.5%	3
Knowledge / Prevention of Disease:		
Cavities are the most common chronic childhood disease in children under 7 years of age. (True)	68.6%	12
Water fluoridation is important to prevent cavities. (True)	81%	9
A child should not go to bed sucking on a bottle containing milk, formula, or juice. (True)	91.4%	2
Sucking on pacifiers is not bad for a child's teeth. (False)	73.3%	10
Consequences of Poor Oral Health:		
A child with severe cavities is likely to not gain weight appropriately. (True)	42.9%	17
Poor dental health can affect a child's general health. (True)	87.6%	4
Poor dental health can affect a child's ability to learn. (True)	58.1%	13
Dental pain can keep a child from paying attention in class. (True)	91.4%	1
Poor dental health can keep a child from sleeping through the night. (True)	87.6%	4

Legend: * The ranking of the percentages of correct answers starts with 1 = most frequent correct answer.

Pretest

A pretest of the survey was conducted with 42 dentists, dental hygienists, dental assistants, and administrative staff persons from a community pediatric dental clinic. A free lunch was provided for these staff respondents and they were then asked to give feedback to the survey. Any suggested changes were considered and included in the final version of the survey.

Statistical analyses

Descriptive statistics, as illustrated in Table 1, were used to summarize the frequency of correct responses. Correlations were used to identify associations between the respondents' knowledge, measured as the sums of correct answers in each of the 4 categories of knowledge questions, with the respondent background factors and oral health-related indicators. This is illustrated in Table 2. Finally, independent sample t-tests were conducted to test whether the average number of correct answers in the 4 groups of knowledge questions differed for younger (up to 23 years of age) versus older mothers

(23 years or older); mothers with lower versus higher income (< \$1000 vs. \$1000 and more monthly income); and mothers of fewer children (pregnant or mothers with 1 or 2 children) versus mothers with more children (3 or more children).

Table 2: Correlations between the background factors and the dental health-related factors and the four indices of health-related knowledge

	Health Behavior - Sum Score	Dental Visit - Sum Score	Prevention - Sum Score	Consequences - Sum Score
Demographic Factors:				
Age	-.159	-.005	.160	.163
Income (4 categories)	.185 (p=.080)	.239 (p=.017)	-.027	.054
Years of Education	.090	-.134	.017	.193 (p=.067)
# of children	.078	.135	.195 (p=.055)	.065
Health-related Factors:				
Dental Health	.135	.024	-.113	-.184 (p=.071)
Frequency of Brushing	.278 (p=.008)	-.004	-.023	.155
Frequency of Flossing	.231 (p=.028)	.082	.054	-.031
Number of Fillings	-.039	.022	-.033	.225 (p=.049)
Dental Anxiety Score	-.201 (p=.060)	-.046	-.087	.124

Results

The first aim of this study was to explore what the respondents know about promoting their children's oral health. As can be seen in Table 1, the percentages of correct answers for the 20 questions ranged from a low percentage of 21% for the statement "A child's toothbrush should be replaced every six months" to the highest percentage of 91.4% correct answers to the questions "A child should not go to bed sucking on a bottle containing milk, formula, or juice" and "Dental pain can keep a child from paying attention in class." It is interesting to note that the percentage of correct answers concerning the age at which a child should start utilizing healthcare services was low (25.7%), as well as the percentage of correct answers concerning when a mother should start brushing a child's teeth (32.4%). Overall, these results indicate what specific information should be provided for mothers in educational interventions concerning promoting good oral health in children.

The second aim was concerned with gaining a better understanding of which groups of mothers/guardians should be primarily targeted for receiving information about each of the 4 topics, namely information about oral health behavior, utilization of dental health care services, prevention of oral disease, and the consequences of poor oral health. The role of sociodemographic factors and oral health-related factors were investigated in these analyses.

Knowledge concerning health behavior

The results concerning the question of which mothers/guardians should be educated about oral health-related behavior such as brushing and flossing showed that the respondents' income, their own health behaviors ("Frequency of brushing"; "Frequency of flossing"), and their dental anxiety were relevant factors to be considered. As can be seen in Table 2, these factors had at least a tendency to be correlated with the sum of correct answers to the knowledge questions about health behavior. The more frequently the respondents brushed their teeth and flossed, the more knowledgeable they were about children's oral health behavior (brushing: $r=.278$; $p=.008$; flossing: $r=.231$; $p=.028$). There was a tendency towards significance for the correlation coefficients between the respondents' average dental anxiety score and their health behavior

knowledge score ($r=-.201$; $p=.060$), and their income and this knowledge score ($r=.185$; $p=.08$). A stepwise regression analysis showed that the average dental anxiety score was a significant predictor of this knowledge index concerning health behavior (standardized beta coefficient = $-.303$; $p=.013$). In summary, the more diligently the respondents engaged in brushing and flossing their own teeth, the more likely they were to know about promoting these behaviors correctly in their children. However, the more dental fear they had, the more they needed information about brushing and flossing their children's teeth.

Knowledge concerning dental care utilization

The next questions addressed in the analyses focused on which mothers/guardians should be educated about dental care utilization issues. The results showed that the "dental visit" index was significantly correlated with the respondents' income ($r=.239$; $p=.017$; see Table 2). The more income the respondents had, the more they knew about oral health care utilization. The stepwise regression analysis confirmed this finding. It showed that the dependent variable "Knowledge concerning dental care utilization" was significantly predicted by family income (standardized beta coefficient = $.349$; $p=.003$). As can be seen in Table 3, respondents with a monthly income of under \$1000 knew on average 1.04 of the 2 questions, while respondents with more than \$1000 monthly income knew on average 1.30 of the 2 questions ($p=.017$).

Table 3: Average number of correct answers of mothers / guardians categorized by age, income, and number of children

	Up to 23 years	= >23 years	p
Oral Health-Related Behavior (9 items):	5.00	5.42	n.s.
Utilizing Health Care Services (2 items):	1.17	1.19	n.s.
Knowledge / Prevention of Disease (4 items):	2.55	3.28	.007
Consequences of Poor Oral Health (5 items):	2.83	3.88	.008
	Income <	Income >	
Oral Health-Related Behavior (9 items):	5.14	5.56	.083
Utilizing Health Care Services (2 items):	1.04	1.30	.017
Knowledge / Prevention of Disease (4 items):	3.20	3.22	n.s.
Consequences of Poor Oral Health (5 items):	3.67	3.83	n.s.
	0, 1 or 2 children	3 or more children	
Oral Health-Related Behavior (9 items):	5.36	5.37	n.s.
Utilizing Health Care Services (2 items):	1.15	1.23	n.s.
Knowledge / Prevention of Disease (4 items):	3.02	3.35	.058
Consequences of Poor Oral Health (5 items):	3.66	3.84	n.s.

Knowledge concerning the prevention of oral disease

Concerning which mothers/guardians should be educated about the prevention of oral disease, the number of children in a family should be considered. There was a tendency for significance of the correlation between the knowledge index regarding the prevention of oral disease and the number of children in a family ($r=.195$; $p=.055$; see Table 2). As can be seen in Table 3, pregnant mothers without a child, and mothers of 1 or 2 children knew on average 3.02 of the 4 questions, while mothers of 3 or more children knew on average 3.35 of the 4 questions ($p=.058$). In addition, Table 3 showed that respondents under the age of 23 years gave on average 2.55 correct answers, while mothers over 22 years gave on average 3.28 correct answers concerning the knowledge about preventing oral disease ($p=.007$). In summary, pregnant mothers and mothers of 1 or 2 children, as well as very young mothers (under the age of 23 years), should be especially targeted to receive education about how to prevent oral disease in their children.

Knowledge concerning the consequences of poor oral health

Concerning the question which mothers/guardians should be educated about the consequences of oral disease, it was found that this knowledge index was significantly correlated with the respondents' own experiences with poor oral health, specifically with the number of fillings the respondents had ($r=.225$; $p=.049$). Not surprisingly, the more fillings the respondents had, the more they knew about the consequences of having poor oral health. In addition, some correlations

between this knowledge score and the respondents' perceived dental health score ($r=-.184$; $p=.071$), and years of education ($r=.193$; $p=.067$), showed a tendency towards significance. In addition, a regression analysis showed that the frequency of tooth brushing was a significant predictor of this knowledge index (standardized beta coefficient = $.333$; $p=.041$). As can be seen in Table 3, mothers under 23 years of age had on average 2.83 correct answers, while mothers over 22 years knew on average 3.88 of the 5 answers ($p=.008$).

Discussion

The first aim of this study was to explore **what** knowledge mothers/guardians had concerning promoting their children's oral health. As can be seen in Table 1, the percentage of correct answers concerning both the age when a child should first see a dentist (25.7%) and the percentage of correct answers concerning when to start brushing a child's teeth (32.4%) were low. These percentages may reflect the low importance that mothers may place on taking care of children's primary teeth.¹⁴ On the other hand, the finding that 91.4% of the respondents correctly knew that children should not be put to bed with a bottle containing milk, formula, or juice was encouraging. However, as research showed before, merely knowing that a child should not be put to bed with a bottle may not lead to appropriate behavior as long as the mother did not understand the underlying reason for not engaging in this behavior.¹³

In this context, it is worthwhile to consider the way the mothers'/guardians' knowledge was assessed. One might wonder whether the question/answer format chosen in this study was the best possible way to assess this concept. Without any doubt, asking open-ended questions could have resulted in data that would have reflected the depth and complexity of the mothers' knowledge much more accurately. However, there are 2 reasons why the open-ended answer format was not chosen. First, the analyses of open-ended answers are much more complex, and comparisons between subgroups of a sample are much more difficult to achieve. Data collected with a closed-ended answer format undoubtedly offer a better way to compare groups of respondents. Second, it is worthwhile to consider if an instrument could be developed that could be used to assess mothers'/guardians' knowledge in a quick and easy fashion. The fact that more than half of the mothers did not want to answer the survey themselves may suggest that the functional reading level of many mothers was relatively low. The chosen answer format was relatively easy to respond to. On the whole, there are benefits to having an instrument that allows a quick glance at a parents' knowledge concerning oral health issues. Such an instrument could be used to help providers identify what concrete issues should be addressed when interacting with parents. Another group of researchers has developed an instrument to assess parents' knowledge about their children's oral health issues.³⁰

Concerning the second aim of this study, namely to investigate which parents/guardians should be specifically targeted to receive the 4 types of information and to identify the factors that predicted the degree to which mothers had knowledge about these 4 areas of concern, a number of significant relationships were found. Concerning the role of sociodemographic factors, the analyses showed that the age of the mothers was related to the average number of correct answers concerning (a) the prevention of oral disease; and (b) the consequences of poor oral health (see Table 3). It was interesting that age, per se, was not significantly correlated with the knowledge indices (see Table 2)-most likely due to the wide range of ages. However, as can be seen in Table 3, a comparison of the knowledge scores concerning prevention of oral disease and the consequences of poor oral health showed that the average scores of younger mothers (under 23 years of age) were significantly different from the average scores of older mothers (over 22 years of age). This result should alert dental care providers to the importance of finding ways to provide dental health information to younger mothers. Efforts to reach young pregnant women may be especially important, because pregnant mothers and mothers of 1 or 2 children knew less about the prevention of oral disease than mothers with 3 or more children (see Table 3).

Not surprisingly, it was found that mothers with lower incomes (under \$1000 per month) had less knowledge concerning the utilization of health care services than mothers with higher incomes. This finding stresses how important it is to inform socioeconomically disadvantaged mothers about the ways their children can receive dental care, eg, in community dental clinics, and at which age they should start bringing their children for a first dental visit.

In addition to considering sociodemographic factors as determinants of who should be targeted for educational interventions concerning promoting children's oral health, it was also found that oral health-related factors such as the respondents' own health behavior, their prior dental experiences, and dental fear may be important. Not surprisingly it was found that the

more positive the respondents' own health behavior was (namely how often they brushed their own teeth and flossed), the more they knew about promoting their children's oral health. These findings concerning the relevance of mothers' own health behavior point to the significance of educating mothers' about promoting their own oral health as well as their child's oral health. Oral health promotion should be a family matter.²⁵ It was also not surprising to find that the more restorations mothers had, the more they knew about the consequences of poor oral health (see Table 2). One potential explanation could be that once the respondents had experienced for themselves how much their quality of life was decreased by having poor oral health, they might be better prepared to clearly assess the effects of poor oral health on their children. However, the fact that the number of fillings was not significantly correlated with the mothers' knowledge about appropriate health behavior could be a sign that these respondents had not received sufficient dental health education when they were treated for dental caries.

In addition, the role of dental anxiety should not be underestimated because it was a significant predictor of the knowledge index concerning health behavior. Previous research showed quite convincingly that children's, adolescents,' and parents' dental fear are related with avoiding dental care and a lack of dental care utilization.³¹⁻³⁴ It is therefore noteworthy to find that dental fear might not only be related with dental care utilization, but also with knowledge concerning oral health behavior.

There are some factors that limit the generalizability of these findings. The sample size was low and the sample was not representative of mothers / guardians in general because the data were collected at a community pediatric dental clinic. In addition, the format of the questions might have given the respondents an opportunity to guess the correct answers. However, despite these limitations it seems worthwhile to consider these findings and start a process of developing strategies of targeting especially vulnerable populations for receiving specific types of health information.

Collaborations between oral health care providers and social service community programs, as well as general health providers, could make a difference in the level of information about oral health promotion that parents and guardians have.³⁵ In an ideal world, all parents and guardians would, of course, receive a comprehensive education about promoting their children's oral and general health early on in their child's life, and subsequently as the child grows up. However, even in a country as affluent as the United States, certain segments of the population are less likely to receive oral health care and thus do not have the benefits of interactions with health care providers that could result in education about oral health issues. It seems therefore crucial to consider what information should be targeted at specific groups of parents and guardians.³⁶ Recent research on the effects of motivational interviewing when educating mothers highlight an opportunity for future research.³⁷ Combining these findings concerning how to educate mothers with the findings from this study concerning (a) the content of educational interventions, as well as (b) which groups of parents should be especially targeted could result in a comprehensive approach to developing better educational interventions.

Conclusions

The findings examine the question who knows what. The results suggest targeting mothers and caregivers of younger children about promoting their children's oral health, especially about when to start with brushing their children's teeth and utilizing oral health care services. In addition, it can be concluded that special efforts should be made to educate younger mothers/guardians, as well as first time mothers and mothers with less than 3 children, about promoting their children's oral health. Concerning the content of educational efforts, it can be concluded that mothers from lower income families need to be informed about (a) the importance of utilizing preventive dental care services for their children; and (b) how they can gain access to dental care for their children. However, it is important to stress that the mothers/guardians should not merely be educated about promoting their children's oral health, but that oral health education should make oral health promotion a family matter. The study showed that the more mothers engaged in good dental health-related behavior for themselves, the more likely they were to know more about promoting their children's oral health. Finally, the importance of reducing dental fear in mothers should not be overlooked. High levels of dental anxiety in mothers may lead to ignorance about oral health-related behavior and avoidance of oral health care services not only for the mothers, but also for their children.

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Notes

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