

Published in final edited form as:

J Public Health Dent. 2014 January ; 74(1): 64–70. doi:10.1111/j.1752-7325.2012.00369.x.

Encouraging early preventive dental visits for preschool-aged children enrolled in Medicaid: Using the Extended Parallel Process Model to conduct formative research

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Abstract

Objective—Preventive dental visits for preschool-aged children can result in better oral health outcomes, especially for children from lower income families. Many children, however, still do not see a dentist for preventive visits. This qualitative study examined the potential for the Extended Parallel Process Model (EPPM) to be used to uncover potential antecedents to parents' decisions about seeking preventive dental care.

Methods—Seventeen focus groups including 41 parents were conducted. The focus group protocol centered on constructs (perceived severity, perceived susceptibility, perceived self-efficacy, and perceived response efficacy) of the EPPM. Transcripts were analyzed by 3 coders who employed closed coding strategies.

Results—Parents' perceptions of severity of dental issues were high, particularly regarding negative health and appearance outcomes. Parents perceived susceptibility of their children to dental problems as low, primarily because most children in this study received preventive care, which parents viewed as highly efficacious. Parents' self-efficacy to obtain preventive care for their children was high. However, they were concerned about barriers including lack of dentists, especially dentists who are good with young children.

Conclusions—Findings were consistent with EPPM, which suggests this model is a potential tool for understanding parents' decisions about seeking preventive dental care for their young children. Future research should utilize quantitative methods to test this model.

Keywords

Oral Health; Prevention; Qualitative Research; Behavioral Research

Introduction

The American Academy of Pediatric Dentistry (AAPD) states that children should have a relationship with a primary dental care provider that includes comprehensive oral health care and their first dental visit by age one (1, 2). The purpose of early dental visits is to lay a foundation for preventive oral health behaviors (2, 3). Early dental care for primary teeth is essential to prevent early childhood caries (ECC) and severe tooth decay (which can lead to infections, oral pain, and difficulty eating and sleeping), and it decreases the risk for caries throughout childhood (3).

Despite the AAPD recommendation for preventive dental visits by age one, rates of dental care utilization in young children are low (4), and rates for preventive dental visits are even lower (1, 5). Studies in Iowa found 71% of children from birth to 48 months (general population) had a dental visit, compared to 23% of Medicaid-enrolled children younger than age 6 (6). Parental reports of preventive dental visits in a national survey indicate that 19.9% of children with private dental insurance did not have a preventive visit in the previous year, while 24.3% of children enrolled in public dental insurance had not had a preventive visit (5). A previous national study using the Medical Expenditure Panel Survey found that rates of preventive dental visits for young children (<6 years of age) ranged from 8.9% for children at 100% Federal Poverty Level (FPL), to 21.5% for children at 200% FPL (4).

Some risk factors for low use of preventive dental care in young children have been identified. Parents who reported no visits to a dentist were more likely to be non-Hispanic African American, live in a rural setting, be lower income, and report poor perceived oral health among family members (8-10). Children with private dental insurance are 1.5 times more likely to have visited the dentist than children enrolled in Medicaid (8). Other risk factors for the lack of early dental care include lack of knowledge about professional recommendations, physical barriers to dental care, and previous negative experiences in the dental care system (11-15).

Interventions are needed to address the discrepancy between policy and parental behavior. Health behavior theories and models can be used in research to identify the factors influencing oral health behavior so that effective interventions can be designed (16).

The Extended Parallel Process Model (EPPM; see Figure 1) provides a framework for exploring perceptions of threat (severity and susceptibility) and efficacy (self and response), and how these constructs may motivate behavior (17). This model has been used to determine antecedents to behavior, as well as for intervention development. The model is based on the concept of 'fight or flight.' A person is likely to 'flee' if the threat is great and there is little hope for the person to overcome the obstacle. The 'flight' response is in reply to the fear a person feels. A person will more likely 'fight' if the person believes the challenge is important enough and the person has the ability to win. EPPM purports that when someone is faced with a health problem, such as tooth decay, they may: 1) sense no threat and do nothing, 2) become fearful and ignore the health problem, or 3) begin a danger control process that allows them to accept the challenge and take action. EPPM has been used to understand a variety of preventive health behaviors (18-21).

Perceived threat is made up of two constructs: perceived severity and perceived susceptibility. In terms of seeking preventive dental care for preschool-aged children, severity would be how negatively a parent perceives a negative oral health outcome such as caries. Susceptibility is the parent's belief about how likely a child will experience a negative oral health outcome. Efficacy consists of self-efficacy and response efficacy. Here, self-efficacy is the parents' assessment of and confidence in their ability to schedule the preventive visits and have the child complete the exam. Response efficacy is parents'

evaluation of how effective preventive dental care will be at averting a negative oral health outcome for the child.

In order to predict which path a person is likely to take, the levels of perceived threat and efficacy must be established. Witte argues that when perceived threat and efficacy are both high, people will be motivated to act in order to control the danger they sense (17). People with such a perception would be motivated to protect themselves. When the threat is low, people will ignore the threat and take no action. When the threat is high and efficacy is low, people will ignore the health problem because their perception is that they cannot mitigate the threat, either because there are no effective responses or because they are unable to do what is necessary. This group of people are only motivated to control their fear and not to take protective action against the danger.

The current study examines whether using EPPM can identify possible antecedents to parents' preventive dental care seeking for preschool aged children. The guiding research question is whether or not EPPM can be useful in understanding what might be influencing parental behavior. EPPM has previously been used in formative research (18-19). Formative research is an important first step in understanding the factors that influence behavior, when there is a lack of rigorous scientific investigation into the behavior.

Methods

This formative, qualitative research was conducted using a sample of parents with children (under age 6) enrolled in Medicaid in Iowa. Focus groups were selected as the data collection method because it would allow for the sharing of in-depth narratives and create synergy amongst the parents (22) and this method is ideal for investigating beliefs, attitudes and expectancies (23). Additionally, because the literature on this topic is minimal, a method was required that would cast a broad net and capture a variety of responses. The sample of children was obtained from Medicaid enrollment and claims files from 7 locations (4 urban and 3 rural). At each location, a random sample was drawn by SPSS of 50 children who had any dental billing codes, and 50 children who did not have any dental codes. For locations with less than 50 eligible children, all available children were included. A total of 600 parents of these children were recruited to participate through an introductory letter, followed up by telephone calls. The letters were sent to the parent listed in the Medicaid files, which in most cases was the mother.

The study protocol was approved by the University of Iowa's Institutional Review Board. Seventeen focus groups were held, with the number of participants in each focus group ranging from 1 to 9 for a total of 41 participants. Eight of the seventeen groups were conducted in Spanish by native Spanish speakers (graduate students in public health and anthropology with qualitative data collection training). The focus groups conducted in English were facilitated by a behavioral scientist and a graduate student in anthropology. The facilitators all had previous qualitative data collection experience and were specifically trained for this focus group protocol. Each facilitator was assisted by a note taker, who monitored the discussion. Following the informed consent process, each participant filled out a brief socio-demographic survey. The focus group protocol consisted of open-ended questions with probes designed to elicit responses about threat, efficacy, benefits, barriers, and past experiences with dental care. The protocol was developed after consulting the current literature and the expertise on the research team, which consisted of dentists, a health services researcher, an anthropologist and a behavioral scientist. For instance to assess benefits and response efficacy, parents were asked, 'What would be the advantages of getting your kids in for a check-up under the age of 6?' 'What do you think check-ups do for your children?' 'Do you think check-ups will help your child be healthier?' 'What do you

think will happen if your child (under 6) does not have a check up?’ These questions were followed by probes such as, ‘Can you tell me more about that experience?’ ‘How do you think that works?’ Facilitators were encouraged to probe participants to elicit full, rich narratives from participants. Participants received a \$20 gift card and a snack for participating.

Focus group proceedings were digitally recorded and transcribed. The Spanish focus groups were transcribed in Spanish and translated into English by two bilingual speakers. The transcripts were coded in a close-ended coding process based on the constructs of EPPM (perceived severity, perceived susceptibility, self-efficacy, response efficacy, and fear). Close-ended coding restricts coders to a set of pre-identified codes (i.e., the constructs of EPPM). These codes were defined as: **fear/fears about teeth** (concerns about teeth—for example pain, cosmetic issues, infection, etc.), **perceived severity** (mothers’ perceptions of how bad it would be for the child to have problems with baby teeth, including consequences of problems with teeth), **perceived susceptibility** (mothers’ perceptions of how likely it is that their preschool aged children will have problems with their baby teeth or how at risk their children are), **self-efficacy** (mothers’ perceptions of their ability to get their children to the dentist for preventive care), and **response efficacy** (mothers’ perceptions of whether preventive dental care ‘works,’ basically does preventive dental care keep children from having problems with their teeth).

Two trained coders coded a random sample of 3 of the 17 transcripts to establish inter-coder agreement through subjective assessment, which is a common practice in qualitative methods. (24) Discrepancies between the coders were discussed with a third coder and resolved. The remaining 14 transcripts were divided among the 3 coders and coded individually (24).

Results

Mothers’ age ranged from 22 to 46 with a mean of 31.7 years (SD = 6.4). Mothers reported between 1-6 children with a mean of 2.8 children (SD = 1.4). Over two-thirds (68.3%) of the women self-identified as white, 9.8% as black, and 22.0% as Latina. Education levels among mothers varied: 73.2% of the women finished high school or had a GED and of those women 36.6% reported having some type of education after high school graduation. Ten of the participants identified as Spanish-speaking only. Only one mother reported that her child had not seen a dentist at least once in his/her lifetime.

The qualitative analysis results are presented below. In general, the findings were consistent with the model, meaning that high levels of threat and efficacy were present among mothers who sought preventive dental care for their young children. The results indicate that EPPM has the potential to help us understand factors that influence parents’ behavior. Those factors are outlined below.

Perceived severity

Mothers reported high levels of severity with concerns over negative consequences of children not visiting the dentist including poor oral health, pain, poor general health, and appearance. One mother told the story about her parents and the negative health outcomes of poor dental health. She explained that her parents had many illnesses related to the dental infections they had and she did not wish to see her children endure the same problems. Negative outcomes related to appearance were important to most mothers. A mother who was committed to making sure her children had early and regular preventive dental exams told a story about her nephew, whom she felt sorry for:

‘...his mother didn’t take him to the dentist when he was younger at all and now he’s like fifteen... but teeth was –looked like a person, I hate to say this, but a person who had using drugs, all ate out and green and he was only like six, seven and he got made fun of in school and all that.’

Mothers reported being particularly worried about pain, ‘The cavity thing worries me because I know that can be painful....’

It was also common for mothers to hope that the negative oral health outcomes they had experienced as children would not happen to their children. One mother expressed this concern by saying how severe it would be if her children had ‘...horrible teeth, rotten teeth, bad teeth and I will not let my kids go through the pain I go through...’

Perceived susceptibility

Perceived susceptibility varied by mother in relation to how early their children had a first preventive exam. Although, it is not possible to test these relationships quantitatively, using the qualitative data gathered, mothers who reported having already taken their children early to the dentist for regular preventive exams also believed that their children would not have any negative health outcomes such as caries. Mothers whose children had not been seen for preventive exams early perceived that their child would have a negative oral health outcome. Mothers who believed their children would not have negative dental outcomes simply remarked that they were doing the right things, such as teeth brushing and preventive dental exams. Mothers who perceived their child to be at risk reported that other behaviors—such as not brushing teeth or eating sugary foods—put their children at risk.

Some mothers hinted that caries in young children was almost inevitable. One mother remarked, ‘I guarantee they’ll have a cavity or some kind of—something...’ A few mothers suggested that they themselves could assess whether or not their children had healthy teeth. One mother who had her child with her at the focus group exemplified this attitude. She said, ‘*Let’s see, open your mouth* (pause as mother looks in child’s mouth). *No, you don’t have any [cavities].*’ Yet mothers also told of instances when they incorrectly believed their child’s teeth to be fine. One woman explained that she did not see anything wrong with her child’s teeth, but he was assessed at a dental screening site and they found four cavities.

Self-efficacy

Mothers’ self-efficacy ranged from those who found a dentist with ease and had a very positive experience, to women who struggled to find a dentist, to those who had very negative experiences with dental care. For some of the Spanish-speaking mothers, language seemed to be a barrier that negatively impacted their self-efficacy, although most of the women reported being able to seek dental care despite the language barrier.

Finding a dentist who would see young children on Medicaid was a major barrier. Some parents were unable to overcome this barrier. Another woman said, ‘*I don’t know how many dentists we have in XXX. I bet there’s at least ten or fifteen and none of them will take Medicaid.*’ A few women reported that finding a dentist, making an appointment and getting to the appointment was not difficult. Some women reported that they received help or were referred to dentists.

Negative experiences with dental care also created barriers that were hard for women to overcome. One mother said, ‘*I had a problem with them* [a particular clinic]. *I took my three year old little boy there and they wouldn’t let me go back with him and he screamed.*’ This issue of children being seen by dentists without a parent was prevalent in many of the focus groups. Mothers also voiced concerns about long waiting times, especially at larger practices

or community health centers, as well as the perception that because their children had Medicaid, they were treated differently.

Despite the barriers, many mothers had high self-efficacy and were able to get their children to preventive dental visits. One woman summed this up, saying,

‘I made sure they did their regular check-ups because there’s no reason why you should have insurance, whether it’s state insurance or insurance that they’re working for, for their kids not be taken care of, for kids to be walking around with their teeth, you know rotted out. You know that’snot cute. That’s not good as a parent.’

Response efficacy

Mothers’ reported perceptions about whether preventive dental care is effective at preventing negative oral health outcomes were primarily positive. Most said that preventive dental care could ‘catch’ problems before they became worse. The majority of mothers reported that preventive dental care would positively impact a young child’s teeth. One mother pointed out how the lack of preventive visits could be damaging because, ‘a bunch of cavities...they can get infected...be painful.’

Many mothers commented that preventive dental care not only helps identify potential issues, but also teaches the children about dental care. One mother said, ‘They can teach’em, you know, the right, you know, make sure that they’re brushing right and stuff like that.’ Such teaching contributes to the formation of important oral health habits and feeling comfortable with dental care.

One mother even commented that preventive dental care ‘teaches them that we love them and we care about them even though it’s...a simple thing like getting your teeth cleaned.’

Mothers also admitted that with previous children they had not sought early preventive care and had learned from these mistakes. One mother reported, ‘I didn’t with my oldest one until it was too late and then with my younger two I started taking them earlier.’

Preventive dental care also could help mothers avoid children having a poor appearance; one mother said, ‘They have to go to the dentist. I mean, this is crazy to say, I’m not walking around with no raggedy-mouthed kids.’

However, a handful of mothers indicated that they did not believe early preventive dental care would have much effect. One stated:

‘On a scale of one to ten, probably a seven. If there’s no immediate issues that you’re seeing as long as you’re brushing their teeth every day, um, not giving them sweets on a continual basis. I don’t think it’s of the utmost importance as long as you’re doing your preventative stuff at home unless you see issues pop up.’

Discussion

The findings were consistent with EPPM (Figure 1). This model provides researchers the opportunity to examine factors that can influence parents’ behavior. Most mothers’ response efficacy for early preventive care was high, and they believed early preventive care could deter illness and poor appearance. Mothers’ self-efficacy was also high, but they were concerned about barriers like the lack of dentists, especially dentists who are good with pre-school children. In general, mothers had low perceived susceptibility. Mothers’ perceptions of severity were high, and they were concerned about negative health and appearance

outcomes. The majority of the participants appeared to be operating in the danger control process, which means they recognized a threat and had high enough efficacy to be motivated to protect their children, as opposed to being motivated by defense and be in a fear control process.

Perceived severity and susceptibility

Mothers listed benefits of early care, such as better oral health, a relationship with a dentist, and receiving instruction on brushing. The severity of negative oral health outcomes were well understood by the mothers in this study. Mothers had low perceived susceptibility to dental problems for their children as a result of most children already receiving preventive care.

Future research needs to explore the causal relationship between mothers' perceptions that negative oral health outcomes are severe in terms of health, appearance and pain and their preventive care seeking behaviors. Attention also needs to be paid to understanding how mothers' beliefs about other preventive behaviors (teeth brushing, monitoring food) modify mothers' willingness to seek preventive dental care. Some mothers in this study seemed to suggest that these other preventive behaviors were sufficient to prevent and detect caries. Future research could explore the genesis of such beliefs. There was the perception among a small group of women that childhood caries are inevitable. More research needs to be done to understand what is influencing this belief, as fatalism about oral health outcomes have been uncovered in other dental research (25).

Response efficacy

Most mothers' response efficacy for preventive care was high, and they believed preventive care could deter illness and poor appearance. There were concerns about barriers such as the lack of dentists, especially dentists who are good with young children. While most women believed that early preventive dental care was effective, some mothers believed that they could identify caries on their own and only needed a dentist once caries had been identified. In fact, studies have found that many parents do not take their children to the dentist until there are major problems, such as frank caries (26-27).

More research should examine if emphasizing the benefits of early preventive care not directly related to having the teeth examined, such as teaching proper brushing or hearing from an adult with authority on the importance of brushing, or establishing a relationship with a dentist, would encourage parents to seek preventive dental care early. Informing mothers that they are laying a foundation for lifelong positive oral health behaviors and dental care is important and can start now. For some women these benefits may be more compelling than advocating for preventive dental exams to prevent caries.

Self-efficacy

Self-efficacy among parents is an important measure in the efforts to get children in for preventive dental visits. Kakudute et al. found that increased self-efficacy improved oral-care behavior of patients (28). Higher self-efficacy has been found to be related to long-term periodontal treatment, lower plaque index, and longer brushing duration (29-30). In this study, although self-efficacy was high, barriers were significant. Barriers were mostly environmental, related to lack of dentists in rural areas, few dentists that accept new Medicaid patients, and even fewer dentists who will see young children. These barriers all pointed to mothers having difficulty locating a dentist. In the short term, mothers need to be connected with the nearest dentist who will see their children. Some women found dentists through informal, social networks, while others had referrals from health and human service

agencies. This type of environmental or system challenge is most appropriately addressed through system and policy changes, and messages about the importance of dental visits.

Limitations

Because this study was formative and qualitative in nature, it is difficult to know whether the results can be generalized to other populations. Though the utility of the EPPM as a research tool for gathering information about the breadth and depth of issues is well established, caution should be used in the interpretation and extrapolation. Qualitative data are not intended to be quantifiable or prescriptive, but instead are meant to provide information about what questions to ask and what information to pursue in future work. The incongruence between Medicaid claims data and mothers' self-report in regard to whether or not their child had a dental visit was a limitation. Half of the original sample was composed of children who had not had a dental visit. Of the mothers that attended the focus groups for children without dental visits, only one mother reported that her child had not seen a dentist. It is possible that mothers reported dental screenings as visits to the dentist or that the children received dental care outside of the Medicaid program, such as pro bono services or services mothers paid for out-of-pocket. Additionally, the time lags between when the claims were processed, when the sample was drawn, and when the focus groups happened could be as long as 6 months for dental offices that file claims slowly. Related to this limitation is a possible self-selection bias. It is probable that mothers who were not in favor of preventive dental care would have been non-responsive to the call for focus group participants.

Useful information towards understanding mothers' preventive dental care seeking for their young children was gathered through this study by using EPPM as a framework for examining the behavior. Mothers have definitive and varying levels of self-efficacy and response efficacy that are linked to care seeking behavior in ways that are modeled by EPPM. Because the model performed well and aiding in making a first step to understanding of mothers' preventive dental care seeking for their young children in this qualitative study, an important next step for this research is to test the EPPM in a quantitative study to confirm the information gathered in these focus groups. Future research will explore the use of EPPM to predict dental care intentions and behavior of a similar target group, as this model has not previously been tested with oral health behaviors.

Acknowledgments

This research was supported by funding from the NIDCR/NIH Grant Number RC1DE02030.

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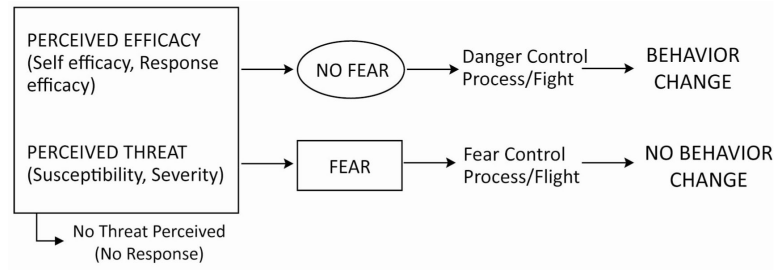


Figure 1.
Extended parallel process model