Supportive fathers can promote children's oral health

by

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Bachelor of Science, University of Pittsburgh, 2019

Submitted to the Graduate Faculty of

School of Public Health in partial fulfillment

of the requirements for the degree of

Master of Public Health

University of Pittsburgh

2023

UNIVERSITY OF PITTSBURGH

SCHOOL OF PUBLIC HEALTH

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2/17/23

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Abstract

Purpose. Few studies address the role of fathers in child oral health. The purpose of this study was to examine mothers' perception of fathers' impact on children's oral health.

Design. In-depth, semi-structured qualitative interviews.

Setting. Face-to-face interviews with mothers recruited in Pittsburgh, Pennsylvania, and the state of West Virginia between 2018–2020.

Participants. We conducted 126 semi-structured interviews with mothers of children ages 3-5 years old.

Method. Mothers completed 30 to 60-minute qualitative interviews, which consisted of open-ended questions on mothers' social relationships that affected their child's dental visits, oral hygiene, and diet. All interviews were audio-recorded and transcribed. Template analysis was utilized.

Results. We found that 30% (n=38) of mothers described that their child's father had a positive impact on their child's oral health by performing high-quality child dental hygiene and promoting a low-cariogenic diet.

Conclusion. Our results support the intentional inclusion of fathers in the promotion of child dental health because of the positive impact that they can impart on child dental hygiene and diet. This research has the public health significance of investigating how fathers, as a part of mother's social networks, contribute to the care of their children's oral health. Social support and

interpersonal relationships are a key component of the social determinants of health and can affect children's health, including oral health, both positively and negatively.

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1.0 Introduction

Over one-third of children age two to eight experience dental caries (i.e., tooth decay), making it the most common chronic disease of childhood (Dye 2015; Dye et al. 2017; Dye et al. 2007; Fleming and Afful 2018; U.S. Deparment of Health and Human Services 2020). Dental caries are prevalent in children, and can affect the child's well-being beyond the mouth and teeth. Children with dental caries experience poor school attendance and performance (Jackson et al. 2011; Seirawan et al. 2012) and general decreased quality of life (Pahel et al. 2007; U.S. Deparment of Health and Human Services 2020). Optimal dental hygiene, such as toothbrushing with fluoride toothpaste (Axelsson et al. 1976; Craig et al. 1981), accessing evidence-based preventive dental services such as fluoride varnish and sealants (Azarpazhooh and Main 2008; Beiruti et al. 2005; Holm 1979; Lawrence et al. 2008), and consuming a diet containing little and/or infrequent amounts of sugar and carbohydrates (Bradshaw and Lynch 2013; Moynihan and Petersen 2004; Palacios et al. 2016; Seow et al. 2009; Sheiham and James 2015; Tinanoff and Palmer 2000) can prevent childhood dental caries and promote child oral health.

Much has been written about the primacy of the mother on child health behaviors (Craig and Mullan 2011; Lyn 2006; Sevilla and Smith 2020), including the impact of mothers on child oral health (Divaris et al. 2011; Hom et al. 2012; Lee et al. 2012). Far less has been written about fathers' influence on child health (Garfield and Isacco 2012; Lara et al. 2012; McNeil et al. 2019; Yogman and Garfield 2016). Notably, there is no published literature on the positive impact of fathers on child oral health behaviors. The aim of this study was to examine mothers' perceptions of fathers' positive impact on their children's oral health, in two-parent, heterosexual couples.

2.0 Methods

Design. This qualitative, cross-sectional study consisted of 126 semi-structured interviews of mothers of children 3-5 years old, located in either Pittsburgh, Pennsylvania or West Virginia. This research is a part of the Center for Oral Health Research in Appalachia (COHRA2) study (Neiswanger et al. 2015). Interviews included open-ended questions about the effect of mother's social relationships on child dental visits, child home oral hygiene, and child diet. Three interviewers were trained in qualitative data analysis using a six-month curriculum that included practice interviews with reflections and feedback. A SMART institutional review board mechanism approved this study. Under this mechanism, the University of Pittsburgh was the primary site and West Virginia University was the referring site. This qualitative data is also the basis for other research on child oral health (Dahl et al. 2020; Marquart et al. 2020). All participants provided written informed consent.

Analysis. A qualitative approach offered flexibility to explore complex social networks using explanations directly from the mother. Template analysis (King 2004) was conducted in an iterative process until theoretic saturation was reached (Lacey and Luff 2001). Field notes, feedback from trained interviewers, and memos (Lacey and Luff 2001) were used to aid analysis. The interviews were transcribed by an external agency (TranscribeMe, Los Angeles, CA) and analyzed in NVivo12 (QSR International, Melbourne, Australia).

Two authors performed data analysis (JB and AT). The principal investigator (JB) is a clinician-scientist specializing in pediatric dentistry and health services research. JB is a mother of two young children and was raised by a single mother. A student researcher (AT) is a combined

dental and public health student and was reared in a two-parent household with a father involved in child rearing

3.0 Results

Table 1 summarizes the characteristics of the study mothers. While the majority (70%) of the 126 mothers in the study described shortcomings in the father's engagement in child oral health, 38 of the mothers (30%) in the study perceived that their child's father had a positive impact on their children's oral health. Data collected from the COHRA2 parent study characterized 68% of mothers to be married (n=86), 23% single (n=29), 4% living with a domestic partner (n=5), 0.8% widowed (n=1), and 4% divorced (n=5). From these 38 mothers, two main themes emerged: 1) the father performed high-quality child dental hygiene within the home, 2) the father promoted a low-cariogenic diet to promote child health and avoid dental caries, and 3) the father attended the child's dental visits.

Table 1. Characteristics for mothers who participated in the semi-structured interviews on mothers' social networks and child oral health (N=126).

Family Sociodemographic Characteristics	**n**	**%**
Child Age [Mean (SD)]	4.77 (1.02)	
Child Dental Insurance		
Private	77	61%
Public	18	14%
None	31	25%
Mother's Education		
≤ High School or Equivalent	18	14%
Some College or Associate Degree	35	28%
Bachelor's Degree	38	30%
Master's, Doctorate or Professional Degree	35	28%
Mother's Race and Ethnicity		
Non-Hispanic White	120	95%
Hispanic White	5	4%

Other	1	1%
Family Income		
Under $50,000	52	41%
$50,000-99,999	47	37%
$100,000 or more	20	16%
Missing	7	6%
Child Dental Information		
Child Preventive Dental Utilization	87	69%
Dental caries experience (d2ft>0)*	29	23%
Mothers with a partner in their child's oral health social network	103	82%
Mothers who described their partner as supportive of child oral health	38	30%

*d2ft=number of decayed (cavitated) or restored primary teeth.

Child dental hygiene. To describe how the child's father performed high-quality child dental hygiene in the home, one mother stated that the child's father "just is real persistent, makes sure they brush them." The mother continued by stating that the father will "check to see if their toothbrush is wet or dry, see if they're lying, all that stuff." In this quote, the father actively engaged in the care of the child's teeth. He made sure they properly brushed the child's teeth, rather than simply going through the motions. He demonstrated that he cared about the child's oral hygiene through this diligence in toothbrushing.

In another interview, a mother described the weekly division of child oral health responsibilities in that the mother performed child dental hygiene behaviors during the week and the father performed child dental hygiene on the weekends. The mother described that the father was reliable in fulfilling his child dental hygiene responsibilities well. She stated the following:

> Since I'm home during the week with her, I'm usually in charge of getting her teeth brushed in the morning and then at nighttime, one of us will brush her teeth while somebody else is getting all of her stuffed animals set up for bed and getting her

> bed set up for her. And then on the weekends, since I'm usually at work, my husband's in charge of brushing her teeth.

Finally, a mother described that the child's father was creative and resourceful when the child was resisting the act of brushing her teeth. The mother recalled that, "I'm better brushing her hair, so that's what I do, while he's better at getting her to do things that she's very stubborn with me. But he makes things more like a game, and it's fun! So, I think we've just naturally developed our roles." In this quote, the father engaged the child in toothbrushing by making it into a fun game. In this way, he took it upon himself to find a solution to the child's resistance to toothbrushing when it was a difficult task.

Promoting a Low-Cariogenic Diet. Fathers supported child oral health by restricting high-cariogenic foods and drinks in the child's diet. One mother recounted:

> The whole reason [my son] has no cavities right now is because [my husband] is crazy. Like, he doesn't let him eat fruit snacks. No juices. No nothing that can possibly stick in his teeth…. You know, if he's at a birthday-party and they're having juice boxes and fruit-snacks, 'Okay, fine!' But, like, not every day. No gummy stuff… I talk to [my husband] the most about [my son]'s teeth. And, I would say, it's a near daily conversation about [my son]'s teeth.

The mother explained that in her family, promoting a low-cariogenic diet was a regular topic of conversation between the father and the mother, demonstrating that the child's diet and oral health was a priority for both of them.

Some households divided the labor of preparing low-cariogenic meals, with both mothers and fathers having specific responsibilities. A mother explained, "I'm usually in charge of making the meals work for [my daughter] during the week, and then on the weekends, my husband does the cooking too. It's pretty much the same as the teeth-brushing." In this quote, the father fulfilled his caregiving responsibilities by preparing healthy meals for the children. In another interview,

the mother discussed that she plans the meals and the father executes the meal preparation. The mother stated, “I mostly decide, but if he packs the lunch, he would pack the same thing I would pack. We kind of have a formula down for it.” The father completed child food preparation tasks, such as packing a lunch, in a manner that promoted a healthy diet consistent with the mother’s food choices for their children.

Child Dental Visits. Mothers reported that fathers brought their children to their dental visits. In several interviews, mothers described that the decision of who would take the child to the dentist was made jointly with their partner based on their respective work schedules. One mother explained that they decided who was in charge of the dental visit by “whoever’s work schedule is less bad.” In this way, the mother described that both caregivers shared the task of bringing their child to their dental visits. Another mother reported that in their family, one parent takes a child to the dentist, while another stays home with the other children:

> He will take [my older daughter] when he goes to the dentist… We'll schedule it so that he can go right after work, and he'll swing by and pick her up. And then the two of them will go to the dentist. And then I'll go with [my younger daughter], and what I prefer to happen is for [my husband] to stay home with [my son] and [my older daughter] … Ideally, we each only have one kid, ideally, when we go… We try to do it every three months someone has a dentist appointment. Usually [my husband] and [my older daughter], and then me and [my younger daughter]. And we just trade off every three months.

The mother explained that the father contributes to the children’s dental visits by taking a child to the dentist while the mother watches the other children. Conversely, when the mother is taking a child to the dentist, the father stays at home and watches the other children. In this way, they divided the tasks of taking their children to the dentist and childcare of the other children.

4.0 Discussion

In this qualitative study of 38 mothers of young children, mothers described several activities where fathers supported child oral health: engaging in home dental hygiene, the promotion of a low-cariogenic diet, and attending dental visits. This is the first study in the literature that explicates these roles for fathers in child oral health.

A role for fathers in child oral health is consistent with fathers' role in other domains of health care. In the medical literature, fathers support mothers when their children were ill, attend pediatrician's visits, and promote the health of the children through a balanced diet and exercise (Garfield & Isacco Iii, 2012; Yogman & Garfield, 2016). Mental and behavioral health is also positively impacted by the presence of supportive and engaged fathers (Boyce et al., 2006; Jia et al., 2012; Sarkadi et al., 2008; Yogman & Garfield, 2016).

Since a subset of fathers were reported by mothers to be involved in promoting their child's oral health, there are clear benefits to including them in oral health discussions and decision-making. This can be operationalized by actively including fathers during dental visits and when disseminating oral health information. This family-based approach to child health engages both caretaking adults in child oral health discussions and decision-making.

If fathers are not included in child oral health discussions, this could cause a cycle in which fathers are excluded from participating in their child's oral health because they do not have access to the information or resources, which then prevents them from being knowledgeable and effective as a caretaking adult for the child's health. This family dynamic has been reported in other aspects of child health, such as childbirth, where fathers report feeling excluded, leading to them feeling unprepared (Deave & Johnson, 2008; Steen et al., 2012). The consequences of not recognizing the

potential positive impact of fathers on child health is that fathers may then be excluded from information, resources, and participation in dental visits.

This study is subject to several limitations. First, we did not cross-verify reported child oral health behaviors with fathers for their first-hand report. Second, the findings may not be generalizable to families in geographic regions outside of North Central Appalachia. Third, the data are specific to households with a mother and a father. It does not capture the experiences of households with different compositions, such as single fathers, or with parents of different gender identities.

This is the first study in the literature that describes an important role for fathers in child oral health. There are clear benefits to including fathers in oral health discussions and decision-making. This can be operationalized by actively including fathers during dental visits and when disseminating oral health information. This family-based approach to child health engages both caretaking adults in child oral health discussions and decision-making.

Future research could rectify these limitations by studying the perspectives of fathers on child oral health directly, exploring the prevalence of child oral health behaviors performed by fathers, and examining how fathers in different family structures contribute to child oral health behaviors and experience interactions with the oral health system. For planning future interventions, descriptive research on the proportion of fathers in dual parent households that actively participate in oral health is needed. The lack of studies on fathers and child oral health may be an indication of gender bias, which could be rectified with more research and inform future interventions to improve child oral health.

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