



The Meaning and Purpose of Primary Tooth Disposal Rituals: Implications for Pediatric Dental Professionals

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Rituals for disposing of exfoliated primary teeth exist in virtually all cultures around the globe, suggesting an important psychological and social function for young children and parents. Despite the importance of these rituals, and the role they may play in children's interactions with dental professionals, the meaning and purpose of primary tooth disposal traditions has not yet received adequate attention in pediatric dentistry. The overarching goal of this perspective was to draw attention to the meaning and purpose of primary tooth disposal rituals and show how, with a greater understanding of these rituals, dental professionals could improve the interactions they have with their young patients. To achieve this goal, we first summarize findings from prior research on how primary tooth disposal rituals are primarily practiced as a rite-of-passage to ease the transition from early to later childhood, to counteract anxiety, trauma, or pain experienced by children of tooth-shedding age, and to honor spiritual or religious beliefs that are thought to protect the child and aid their healthy development. Second, we articulate how, by understanding the significance and diversity of these traditions, practitioners can potentially improve their ability to prevent dental anxiety, increase their cultural competence to engage with increasingly diverse pediatric patient populations, and ensure more timely primary oral care. Finally, we provide a two-pronged approach, centered around the pillars of Education and Communication, to improve overall patient care built on knowledge of these rituals and cultural practices.

Keywords: teeth, tooth, dentition, folklore, psychological, culture, traditions

INTRODUCTION

Rituals for disposing of exfoliated primary teeth exist in virtually every culture around the world (1–4). The Tooth Fairy and associated pillow ritual, in which the primary tooth is placed under a child's pillow in exchange for money or gifts, are widely recognized in the United States, Europe, and other countries with large English-speaking populations (2, 5–7), appearing in children's books, movies, and even phone apps (8, 9). A variety of other tooth disposal figures

and traditions currently exist globally that hold meaning in their regions of origin, but might also be relevant in diverse patient populations, including recent immigrants, to the United States.

In Spanish-speaking countries, a mouse named El Ratón Perez, Ratoncito Pérez, or similar, exchanges a child's exfoliated tooth for money (5–7, 10). The tooth mouse also exists in France and Italy in addition to Ukraine and South Africa (5–7, 10). Across Africa and Asia, teeth are often thrown onto the roof of a house, to the East, into a fire, behind a stove, toward the sun, or other variations. Sometimes the tooth is buried in the ground (e.g., New Guinea, Senegal), or fed to a dog or other animal (e.g., Mongolia) (2, 5–7, 10, 11). No matter what tradition is practiced, all seek to dispose the tooth in a way that honors the child and the tooth itself (4).

The near universality of such rituals suggest they serve important psychological and social functions for children and parents. However, the meaning and purpose of these traditions have received little attention among dental professionals or in the dental literature. The aim of this Perspective was to bring new attention to the meaning and purpose of these rituals, as well as the diversity in traditions themselves, and show how increased knowledge and understanding of these rituals could benefit dental professionals. We approached this Perspective by first briefly summarizing the literature on the meaning and purpose of tooth disposal rituals. We then describe how practitioner's understanding of these traditions can improve patient care. Lastly, we provide recommendations for specific ways dental professionals can implement knowledge of these traditions into their dental practice. By increasing awareness of the meaning of these traditions and offering recommendations for improving education and communication among clinicians and patients, we hope this Perspective will facilitate more culturally competent dental care and improve the overall dental experience of pediatric patients.

PURPOSE OF TOOTH DISPOSAL TRADITIONS

Most tooth disposal rituals serve as a means for psychological processing and to ease the transition from early to later childhood (6, 11). For parents, their child's belief in magical figures, like the Tooth Fairy, signal that their child is still young and not growing up too quickly (2). For children, giving their first teeth away to the Tooth Fairy or other figures and getting "big teeth" symbolize relinquishment of early childhood (11). These rituals serve as an important rite-of-passage, as historically children might not survive to tooth-shedding age. The age of tooth loss also coincides with other developmental milestones, such as the transition from home to formal education and learning to read and write (11). Therefore, the rituals in many traditions are focused on the future: promoting growth of a new tooth and its strong development or ensuring the child's overall health.

The belief in and practice of tooth disposal rituals also provide parents and children with emotional benefits that give the traditions purpose. For example, for children who follow the Tooth Fairy tradition, the ritual may address possible

psychological concerns that accompany tooth loss by promoting excitement for the Fairy's visit (2). Such concerns may include: anxiety surrounding the ambiguous state of their remaining teeth, trauma and pain from tooth exfoliation, which might remind children of growing teeth in their early months of life, and loss of infancy (2). A recent study found that 82% of children who participate in the pillow ritual experienced positive emotions, including joy and pride (1). Pride is apparent when children use newly acquired writing skills to leave a note for the Tooth Fairy, if applicable, another exciting mark of growing-up (11). While no research to our knowledge has been conducted on the emotional impacts of disposal traditions besides the Tooth Fairy and pillow ritual, the similarities in function and meaning of these practices likely translate to comparable positive emotional experiences.

Many tooth disposal rituals mirror spiritual or religious beliefs. Some practices aim to protect children from powers or spirits that might harm them, based on the thinking that all parts of the body are connected and that if a spirit acquires a child's primary tooth, this spirit could gain power over the child (2). For example, in Jamaica, children guard against the "rolling calf" by putting their tooth in a tin can and shaking it (2). The noise is thought to keep the rolling calf away, so it will not take the child and his/her tooth.

Many rituals date back to medieval Europe (12). Folklore surrounding extracted teeth note the importance of proper tooth disposal (6, 13). In Switzerland and Scotland, teeth were tossed into a fire along with salt to prevent bad luck, prevent children from growing a dog's tooth in its place, or keep the children from having to seek their tooth after death if it was not in their possession (12). Thus, proper disposal of exfoliated teeth have symbolic potency, preventing teeth from falling into the hands of an enemy (6, 13).

IMPLICATIONS FOR DENTAL PROFESSIONALS

Folklore and tradition may not seem immediately relevant to many dental practitioners in terms of how they interact with their patients. However, we think these traditions can impact how pediatric patients and their families perceive dental visits and clinicians. The meaning and purpose behind these traditions therefore has important implications for dental professionals, particularly those encountering dental anxiety, treating increasingly diverse patient populations, and those looking to ensure timely primary oral care. To those ends, we summarize major themes in these areas for how understanding the significance and diversity of these traditions can lead to improvements in three key aspects of pediatric dental care.

Prevention and Treatment of Dental Anxiety

The international prevalence and diversity of tooth disposal rituals and the emotional experiences children have when losing a tooth are important for the patient-practitioner relationship. Tooth-shedding can be a means for practitioners to bond with their young patients. When practitioners are aware of family traditions and other cultural factors surrounding primary tooth loss, they may be better positioned to prevent dental

anxiety, which affects one in five children globally (14). Dental anxiety often begins early in life and continues into adulthood, resulting in long-term negative oral health outcomes (15). The origins of dental anxiety and fear typically stem from psychological and social factors, including traditions, myths, and beliefs related to cultural identity. For example, in some cultures, people think extracting teeth can negatively affect their vision (16). A key psychological factor is also the trust patients have in their dentists. Prior studies have shown dental anxiety is more pronounced when there is a lack of a reliable and positive relationship between patients and dentists (17). As dental anxiety emerges early in life (18), when children's first experiences with dental providers are especially impactful, negative interactions during these sensitive periods in the lifespan may fuel the development of dental anxiety that persists across the lifecourse.

Little is known about how oral health beliefs influence behaviors and emotions related to dental fear (16). However, we hypothesize that dental anxiety may be reduced when providers are better attuned to their patient's culture and family traditions overall, including their beliefs and practices surrounding primary tooth exfoliation. We base our hypothesis on several sources of prior research knowledge, described below.

Understanding a patient's background and needs has been shown to alleviate fear and negative emotions while improving confidence in the dental treatment process (1, 19). Practitioners who better understand their patients' cultural traditions might be better positioned to alleviate existing dental anxiety, and potentially prevent its onset. Such benefits could be especially important for certain demographic groups, including racial/ethnic minorities and people from low socio-economic backgrounds. These vulnerable and marginalized groups are often the most likely to display higher rates of dental anxiety (20). Racial/ethnic background also influences dental visits through access to dental care and insurance (20). Within dentistry, a major area of focus in the public policy area is aimed at heightening standards for dental training and practice to reduce social disparities in access to high quality oral health care (21). More positive and empathetic interactions with dental professionals early in life may aid the prevention of dental anxiety and numerous other negative outcomes for all children, including those who are most vulnerable in our society (15, 22–24).

Promoting Cultural Competence Among Pediatric Dentists

Of further relevance to pediatric dentists is how awareness and understanding of tooth rituals can promote cultural competence when caring for increasingly diverse patient populations (25). Nations around the world are experiencing large demographic shifts related to immigration (26). For example, in the United States, non-Hispanic whites will become a minority around 2045 (27). Globally, native indigenous groups account for 6% of the population; these groups face poorer oral health outcomes and access to oral health care compared to the general population. Thus, people's unique cultures and customs may impact their world view,

experiences, and relationships in ways that shape their access to dental treatment.

Cultural competence, or the comprehensive understanding of diverse populations' experiences, has been identified as a need for dental providers (28, 29). In 2014, Goleman proposed a model of culturally competent dental care consisting of three key practices providers can adopt to achieve greater cultural competency: (1) gaining awareness of the range of values, beliefs, and practices of patients served; (2) acquiring knowledge and skills required for working with an interpreter; and (3) developing practical strategies for navigating patient interactions when a practitioner is unfamiliar with their patient's culture (30). We argue these same practices can be applied to tooth disposal traditions. In other words, dental practitioners can (1) develop awareness of the range of tooth disposal traditions practiced, (2) learn how to effectively work with an interpreter when applicable in non-English speaking patients to convey culturally competent dialogue related to rituals and traditions, and (3) develop strategies for how to work with patients for whom their practiced disposal tradition is unknown or unclear.

Ensuring Timely Oral Care

Finally, improving dentists' understanding of how parents think about their children's teeth, the practices surrounding these primary teeth, and the impact of culture, race, and ethnicity may also help providers give anticipatory guidance to ensure timely primary oral care (31). Because the primary dentition is temporary, parents may not give their child's teeth the same importance as that of permanent teeth, leading to inadequate management of oral health (32, 33). In order for dental providers to educate parents around preventing dental diseases, practitioners must have a thorough understanding of different cultures within their patient population (34). Poor attention to children's oral health has been tied to dental caries and more invasive caries-related treatments (32, 33). Caries-related visits have been shown to decrease the likelihood of experiencing positive emotions when losing the first tooth (1), counteracting the positive effects of tooth disposal traditions.

Delayed oral health care, including professional dental visits, can have potentially lifelong health consequences (33, 35, 36). Early dental visits occurring at age one are key for preventing early childhood caries (37). However, many parents expect this first visit to occur much later. In one recent study in India, over 40% of parents thought age 3 was the ideal age for their child's first visit, and nearly 35% thought 6 years was more appropriate (38). As a result, dentists may not encounter pediatric patients until they are close to or within tooth-shedding age, again highlighting the sensitive nature of these early interactions with young children. Parental practices in regards to their own oral health maintenance are associated with oral health behaviors in children, who may model the behavior of parents or be taught the behaviors needed to maintain oral health (39). Additionally, research on the different opinions parents have on how dentists should manage their child's behavior during treatment has been shown to differ by parents of different ethnicity (40).

IN PRACTICE

Building from the literature on dental anxiety, beliefs around dentists and dental care, and cultural competence, we provide two sets of recommendations dental professionals can adopt to improve their understanding of shed tooth disposal rituals. These recommendations center around two pillars: (1) *Education*, provided by dental schools as well as through continued professional and certified trainings and workshops for existing dental practitioners, and (2) *Communication*, focused on effective and culturally competent dialogue between practitioners and their pediatric patients and families.

Education

Educating dental professionals on the differences in beliefs and traditions across different countries, and the purpose these traditions may serve for children and families, is necessary for providing specialized and effective treatment among a wide range of pediatric populations. Educational programs have been shown to increase providers' cultural competence, improve professional behavior, and notice harmful biases and stereotypes (41, 42). For example, in Australia, such programs have been successful in combatting dentists' biased racial attitudes and increasing their general cultural competence when caring for Aboriginal people (43). Many of these educational programs teach practitioners about the social determinants of health [meaning the specific pathways and societal features, including living, learning, and working conditions that impact patient's health (44)], or immerse practitioners within their local communities so they can gain more experience working with diverse communities (43).

Dental schools can introduce specific lectures and trainings on these topics to address the need for knowledge on cultural competence. Additionally, the better dental education can prepare students to engage in real-world settings, the more confident these practitioners will be when treating pediatric patients (45). We think dental practitioners who are aware of both the diversity in cultural tooth disposal traditions and the varying significance attached to primary tooth loss will be able to better connect and appreciate their patient's experiences, allowing each patient to receive more culturally competent care and an overall better dental experience (1).

Importantly, education on cultural diversity should not end with a degree. Rather, it is a lifelong endeavor that can occur through structured trainings and lived experiences providers have in interacting with their patient populations and learning more about their patients' beliefs. Dentists are continually gaining new patients, all of whom come from unique backgrounds and deserve to be understood. Providers who have more interactions with diverse populations may be more likely to provide culturally competent treatment. Cultural competence courses could even be considered for the continued education credits required for dental professionals.

Communication

Research demonstrates that communication plays a more significant role in shaping the trust patients have in their

dentists than patients' past treatment-related experiences (17). For instance, work by Abrahamsson et al. (46) demonstrated that the pediatric patient's first meeting with their dentist, in addition to their subjective perception of the dentist's communication, were crucial factors for providers to understand when treating dental fear. If dentists cannot effectively communicate to a patient why and what health issue they are treating, the technological and intellectual skills of practitioners may be rendered ineffective (30). Dentists can improve how their patients perceive them and increase trust through being mindful of patients' personal characteristics. Ultimately, a more trusting relationship will create positive post-visit attitudes between patients and their providers (17).

Patient-centered communication that is informed by cultural traditions and rituals related to primary tooth exfoliation can occur in several ways. During routine check-ups or surgical consultations, providers can ask the child or family members what the child intends to do with their primary teeth. Such questions allow dentists to tailor their communications and even the eventual disposition of any extracted teeth based on the traditions practiced by child and their family. Clinicians can also use this opportunity to explain to their young patients what will happen to their primary teeth during even routine visits and answer questions using culturally competent language. For instance, when discussing a loose tooth with a pediatric patient, the provider can explain how the tooth will fall out and a permanent one will come in using language that reflects the child's culture (e.g., referring to the tooth with terminology the child uses, invoking their practiced tradition, etc.) After obtaining consent from the parent or guardian, this conversation may also be an opportunity for providers to discuss more emerging possibilities related to tooth donation, such as the donation of a child's primary tooth for stem cell biobanking or other medical purposes, including participation in research studies. Further research is needed to explore how the increasing popularity of collecting primary teeth for stem cell banking could potentially impact tooth shedding practices and disposal traditions in the near future. This level of patient-centered dialogue is important not only for individual patient care, but also to improve overall familiarity with the diversity in traditions and beliefs held by a practitioner's patient population.

CONCLUSION

The improved understanding of tooth disposal practices and rituals around primary teeth and their disposal is important for clinicians' cultural awareness. As we show, the cross-cultural diversity in traditions has important implications for dentists treating children with dental anxiety, treating increasingly diverse pediatric patient populations, and engaging parents around primary oral care and early childhood dental visits. Increasing education and training regarding tooth disposal traditions in dental programs, as well as improving culturally competent communication between patient and practitioner,

could help improve awareness and improve overall patient care.

DATA AVAILABILITY STATEMENT

The original contributions presented in the study are included in the article/supplementary material, further inquiries can be directed to the corresponding author/s.

AUTHOR CONTRIBUTIONS

CP was responsible for co-conceiving, drafting, and revising the manuscript. RM and FB helped co-conceive the paper, provided important insights into early drafts, and assisted in revisions. AL and MT made critical revisions to later manuscript drafts. ED helped conceive the paper, provided primary supervision to the research team, and gave ongoing feedback on the

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