

Knowledge of Teething and Prevalence of Teething Myths in Mothers of Saudi Arabia

Santhosh Kumar*/ Jyothi Tadakamadla** / Ali Idris***/ Idris Ali A Busaily****/
Ahmed Yaqoub Ibrahim Allbrahim*****

Objectives: To assess the knowledge about teething, to evaluate the experiences of the mothers' during the teething of their youngest child and practices undertaken by them to relieve teething symptoms. **Study design:** A stratified cluster sampling technique was used to collect representative sample of school children of Jazan province (Saudi Arabia), who were provided with a questionnaire kit to be filled by their mothers. **Results:** A total of 159 mothers participated in this study. More than four-fifths and three-fourths of the study population knew that the first primary teeth erupt at 6-7 months of age and lower central incisors are the first teeth to erupt respectively. The most prevalent signs and symptoms associated with teething as reported by the mothers were desire to bite (97.5%), fever (93%), diarrhoea (91.1%), increased salivation (79.9%), loss of appetite (77.4%) and gum irritation (71.7%). A little more than half (55.7%) of the mothers' gave their child a chilled object to bite and 42.1% bottle fed their baby at night to relieve teething pain. **Conclusions:** Many mothers had poor knowledge and misbeliefs about teething. There is a need to educate the mothers of Jazan province on the facts related to teething, specifically those related to teething pain relieving practices.

Key Words: Parents; Teething; Knowledge; Preventive practices

INTRODUCTION

Many childhood illnesses have been attributed to teething since centuries. Hippocrates proposed that children who have gone through painful teething period are more likely to overcome other childhood diseases.¹ Many parents consider teething as an important episode of child's growth and development.² Teething is a physiological phenomenon which involves eruption of teeth in the oral cavity from its intraosseous position in the jaw.³

There have been conflicting findings in the literature on the association of teething with systemic illnesses. Tighe and Roe reported many systemic symptoms occurring concurrently with teething but concluded that evidence from the literature is not enough to state that teething is the potential cause of systemic symptoms.⁴ However Shapira *et al*, examined the Gingival Crevicular Fluid (GCF) of children with teething and observed those cytokines in GCF that are related to fever, sleep disturbances, gastrointestinal disturbances and appetite disturbances.⁵ A wide range of symptoms have been attributed to teething which include fever, diarrhea, dermatitis, constipation, restlessness, respiratory infections, rashes and red face, increased finger sucking and decreased appetite.⁶⁻⁹ In addition, tooth eruption can lead to intermittent localized discomfort in the area of erupting primary teeth, irritability, and excessive salivation.¹⁰ Two studies that relied on the data from objective clinical examination observed teething to be associated with systemic symptoms like drooling, diarrhea, and fever in most of the children and these systemic manifestations were more prevalent during eruption of deciduous incisors.^{11,12} Sood and Sood in their review have elucidated that systemic illnesses in children during teething occurs as the time frame for eruption of deciduous teeth corresponds to the reduction in maternal humoral immunity.¹³

Even though the evidence on the effectiveness of teething remedies is lacking, local discomfort and pain caused by teething can be managed by non-pharmacological (chewing chilled teething rings, chilled fruits or vegetables, cold wet towels, cold compression and gingival massage), pharmacological (analgesics and local anesthetics) and alternative strategies (oil based applications, herbal formulations and acupressure).^{14,15}

*Santhosh Kumar. BDS, MDS, Population and Social Health Research Programme, Menzies Health Institute Queensland and School of Dentistry and Oral Health, Griffith University, Queensland, Australia.

Jyothi Tadakamadla** BDS, MDS, Population and Social Health Research Programme, Menzies Health Institute Queensland and School of Dentistry and Oral Health, Griffith University, Queensland, Australia.

***Ali Idris. BDS, MDS, PhD, Professor of Oral Pathology, College of Dentistry, Jazan University, Jazan KSA.

****Mr Idris Ali A Busaily, Undergraduate student, College of Dentistry, Jazan University, Jazan KSA.

*****Mr Ahmed Yaqoub Ibrahim Allbrahim Undergraduate student College of Dentistry, Jazan University, Jazan KSA.

Send all correspondence to:

Santhosh Kumar Tadakamadla
Population Social Health Research Program
Griffith Health Institute & School of Dentistry and Oral Health
Griffith University, Gold coast
Australia
Mobile: +61415060506
E-mail: santoshkumar.tadakamadla@griffithuni.edu.au

Beliefs about the effect of teething on systemic health prevail in all the communities, so much so that, teething has been listed frequently as a cause of death in Utah records.¹⁶ It is necessary to understand the awareness of teething among parents as serious health problems that occur in children can be erroneously associated with teething. Most of the parents are often uncertain if the child's health problems are due to teething or other serious health problems.¹⁷ The present study intended to assess the knowledge about teething, evaluate experiences of the mothers during the teething of their youngest child and practices undertaken by them to relieve teething symptoms.

MATERIALS AND METHOD

The target population for the present cross-sectional survey comprised mothers of Jazan city whose children were studying in one of the public schools of Jazan, Saudi Arabia. A stratified cluster sampling technique was used; Jazan city was stratified into four regions based on the geographical directions (North, East, West and South). In each stratum, one school was randomly selected for inclusion. All the students in grade 1 were considered for inclusion. Children were provided with the questionnaires to be filled by their mothers within a week's time.

A self-administered, pre-coded, and closed ended questionnaire in Arabic was used for the present study. Target population was approached through children. All the children present on the days of the survey in the randomly selected schools were provided with a questionnaire to be carried to their mothers along with a request letter addressed to both the parents stating the purpose of the study and inviting their participation. In addition, an informed consent sheet was provided with the request letter that had to be signed or thumb imprinted by the mother. A statement was added in the request letter advising the father of the child to help the mother fill the questionnaire if she was illiterate. The filled questionnaires were collected back from the children within a week. Ethics approval for conducting this study was obtained from the ethics committee of Jazan University, Saudi Arabia.

Survey instrument

The questionnaire consisted of two parts. The first part was ascribed to collect data on mother's age, child's age, number of children, family income, occupation, and education of the mother. The second part consisted of questions regarding the knowledge about teething (eg., at what age does the tooth eruption start, which group of teeth are the first teeth to erupt, is delayed eruption of teeth associated with some systemic problems), experiences of the mothers during the teething of their youngest child (eg., which of the systemic symptoms do you think are associated with teething) and teething pain relieving practices adopted by mothers to relieve teething symptoms in their children (eg., allow the child to bite on chilled objects) which have been adopted from a previous study.¹⁸ The questionnaire was pilot tested in a convenience sample of 30 mothers visiting the dental clinics of Jazan University, based on the suggestions from the mothers few statements were reframed in Arabic for clarity without changing the meaning. As there are many signs and symptoms associated with teething in the literature, only those symptoms were included in the final questionnaire that were reported by more than 10% of the mothers in the pilot study. Consequently, symptoms like constipation, restlessness, convulsions and skin rashes were deleted from the piloted questionnaire.

Statistical analysis

SPSS, version 15.0 was used for statistical analysis. Descriptive statistics like frequencies were used to describe the knowledge, experiences and teething pain relieving practices adopted by mothers during teething of their children. Chi square test was used to assess the relationship between the child's age, mother's age, number of children, occupation, education and family income with teething related knowledge, symptoms and pain relieving practices.

RESULTS

The questionnaire was distributed to 205 mothers, of which 169 mothers returned the questionnaires with a response rate of 82.4%. Ten of the returned questionnaires were excluded as they were incompletely filled and thus the final sample consisted of 159 mothers. The age of the study population ranged from 18 to 47 years. It is clear from **table 1** that most of the study population (75.9%) were aged 18-37 years and more than half of the mothers (51.4%) were house wives. Nearly half of the subjects (42%) have never been to school and half the respondents had annual family income in the range of 6301-12000 SR. Mothers who had one child constituted 18.5% (not presented in tables) of the total study population. More than half (62%) of the mothers had 1-3 children.

More than four-fifths and three-fourths of the study population knew that first primary teeth erupt at 6-7 months of age and lower central incisors are the first teeth to erupt respectively while it was discouraging to observe that very few mothers (20.9%) were aware of the fact that delayed eruption of teeth is associated with presence of systemic disease. The most prevalent signs and symptoms associated with teething as reported by their mothers were desire to bite (97.5%), fever (93%), diarrhoea (91.1%), increased salivation (79.9%), loss of appetite (77.4%) and gum irritation (71.7%). Nearly half the participants believed vomiting (49.4%) and sleep disturbances (51.1%) to be associated with teething (**table 2**). Respiratory problems (18.2%), increased susceptibility to diseases (23.4%), ear problems (34.6%) and running nose (37.1%) were observed by fewer mothers in their children during teething. On bivariate analysis, only one fourth (26.9%) of the mothers whose youngest child was less than 6 months old knew that eruption completes by 2 years in comparison to half (51%) of the mothers whose children were more than 2 years old. Significantly, more mothers in the youngest age group were aware of the facts that lower incisors were the first teeth to erupt and baby teeth start to erupt by 6 months when compared to the mothers in other age groups (not presented in tables). Other variables like number of children, mother's occupation, education and family income were not significantly related to teething knowledge or symptoms.

Table 3 demonstrates that slightly above half (55.7%) of the subjects gave their child a chilled object to bite on in order to relieve pain and approximately half (42.1%) of the mothers bottle fed their baby at night to relieve pain. In addition, over one thirds (38.6%) and half (50.3%) of the respondents gave systemic analgesics and applied topical analgesics respectively to relieve pain. Majority of the mothers (84.9%) gave their children fluids to prevent dehydration during teething and more than half of the mothers (69.2%) consulted the doctor to relieve teething symptoms in their children. There was a significant trend with more mothers informing practices to relieve tooth pain like "Biting on a chilled object" and "Consultation of

doctor” as the age of their youngest child increased (not presented in tables). Teething pain relieving practices adopted did not differ significantly between the categories of number of children, mother’s age, occupation, education and family income.

Table 1: Demographic data of the study population

Background characteristics		Percentage
Age	18-27 years	31.2
	28-37 years	44.7
	38-47 years	24.1
Occupation	House wife	54.1
	Education sector	35
	Health sector	7.6
	Other	3.2
Education	Never been to school	42
	Primary	27.4
	Secondary	15.3
	Intermediate	13.4
Family income	<6300 SR	25
	6301- 12000 SR	52.2
	> 12000 SR	22.8
Number of children	1-3 children	63.1
	4-6 children	30.6
	> 6 children	6.4
Age of the youngest child	Less than 6 months	16.6
	6-12 months	31.8
	13-24 months	20.4
	>24 months	31.2

Table 2: Mother’s knowledge of teething and symptoms experienced by their youngest child during teething in Jazan region

	Agree	Disagree	Don’t know/ remember
‘Baby teeth’ start to erupt around 6–7 months of age	132(83.5)	18(11.4)	8(5.1)
The first teeth to appear in the mouth are the lower central incisors	122(76.7)	20(12.6)	17(10.7)
The eruption of teeth is complete at approximately 2 years of age	63(39.6)	44(27.7)	52(32.7)
Delayed eruption of teeth may be an indication for the presence of systemic disease	33(20.9)	39(24.7)	86(54.4)
Signs and symptoms believed by parents, to be caused by teething			
Fever	148(93.0)	10(6.4)	1(0.6)
Diarrhoea	144(91.1)	13(8.2)	1(0.6)
Sleep disturbance	81(51.9)	39(25)	36(23.1)
Loss of appetite	123(77.4)	16(10.1)	20(12.6)
Gum irritation	114(71.7)	23(14.5)	22(13.8)
Desire to bite	155(97.5)	1(0.6)	3(1.9)
Increased salivation	127(79.9)	9(5.7)	23(14.5)
Running nose	59(37.1)	60(37.7)	40(25.2)
Respiratory system problems	29(18.2)	89(56)	41(25.8)
Vomiting	78(49.4)	51(32.3)	29(18.4)
Ear problems	55(34.6)	61(38.4)	43(27)
Increased susceptibility to other diseases	37(23.4)	57(36.1)	64(40.5)

Table 3: Preventive practices undertaken by mothers to relieve teething problems

Practice to deal with teething problems	Agree	Disagree	Don’t know/ remember
To relieve pain			
Allowed the child to bite on a chilled object	88(55.7)	54(34.2)	16(10.1)
Allowed bottle feeding or nursing at night	67(42.1)	73(45.9)	19(11.9)
Used systemic analgesics	61(38.6)	52(32.9)	45(28.5)
Applied topical analgesics to rub the gums	80(50.3)	43(27.0)	36(22.6)
Other practices			
Given the child fluids to prevent dehydration	135(84.9)	10(6.3)	14(8.8)
Consulted the doctor	110(69.2)	21(13.2)	28(17.6)

DISCUSSION

The present study intended to assess the knowledge and beliefs regarding teething and practices that were followed in order to relieve teething symptoms in mothers of Jazan region. Though we have initially tried to contact fathers in order to know their beliefs, the response rate was poor and that is the reason for considering only mothers in this study. As mothers are thought to be more involved in child care, they have been more frequently used as proxies than fathers; a study from Saudi Arabia observed that mothers served as better proxies for reporting the oral health related quality of life in their children than the fathers.¹⁹

Majority of the mothers were aware that the first primary teeth erupt at 6-7 months of age and lower central incisors are the first teeth to erupt, this is in accordance with a previous survey from India²⁰ and Jordan¹⁸ where 84% and 81.3%, 76.9% and 81.5% of the mothers thought that first tooth erupt by 6-7 months of age and lower central incisors are the first teeth to erupt respectively. It was discouraging to observe that very few mothers (20.9%) were aware of the fact that delayed eruption of teeth is associated with presence of systemic disease. Systemic diseases that might cause delayed tooth eruption include Down's syndrome, Cleidocranial dysplasia, congenital hypopituitarism, congenital hypothyroidism, Gaucher's disease and osteopetrosis.²¹

Studies from Nigeria reported that many of the mothers,^{22,23} caregivers²⁴ and child health care workers²⁵ thought babies can experience medical problems as a result of teething. The most prevalent systemic signs and symptoms associated with teething as reported by their mothers were desire to bite (97.5%), fever (93%), diarrhoea (91.1%), increased salivation (79.9%), loss of appetite (77.4%) and gum irritation (71.7%). The local irritation caused by teething might be a provoking factor in infants for their desire to bite. Further, biting relieves teething pain by overpowering the sensory receptors.¹⁵ As in our study, fever during teething has been described as one of the commonest symptom in the previous studies; however the reported prevalence of 91.1% in the current study is greater than 70% - 80% in the previous literature.^{20,22,26} Diarrhoea and increased salivation were other symptoms reported by many mothers in accordance to a previous study.¹¹ Fever and diarrhoea were commonest symptoms reported by parents²⁶ and health care workers of Nigeria²⁷ while a prospective study observed teething to be associated more often with increased salivation and loss of appetite.²⁸ However, there are conflicting reports in the literature with one longitudinal study observing association between increased biting, drooling, mild temperature rise, decreased appetite for solid foods and teething.²⁹ In contrast, another Cohort study by Wake *et al*,³⁰ did not observe tooth eruption in infants to be associated with most of the teething associated systemic symptoms usually reported in the literature.

It was observed that significantly more mothers whose children were older than 2 years knew that eruption completes by 2 years than the mothers whose youngest child was less than 6 months old, the rationale explanation for this might be that the mothers whose children are currently older than 2 years would have witnessed the complete eruption process in their child. Furthermore, a majority of mothers in the youngest age group were aware of the facts that lower incisors were the first teeth to erupt and baby teeth start to erupt by 6 months when compared to the mothers in other age

groups. This finding can be attributed to the fact that those mothers in the younger age group tend to have children of the teething age at the time of data collection and thus would be currently observing these milestones in their children.

Although not everyone, above half (55.7%) of the subjects in our study gave their child a chilled object to bite on in order to relieve pain. American Academy of Paediatric Dentistry (AAPD)¹⁰ suggests that treatment of teething symptoms include oral analgesics and chilled rings for the child to bite. Although use of topical anaesthetics is discouraged by AAPD due to potential toxicity of these products in infants, half the mothers have informed of using topical anaesthetics to relieve teething pain. It was astonishing to find that little less than half the mothers encouraged bottle feeding at night to relieve teething pain. It is evident from the literature that using night bottle feeding as a pacifier is associated with early childhood caries.^{31,32} There was a significant trend with more mothers allowing their child to bite on chilled objects and consulting the doctors as the age of their youngest child increased from 6 months to 2 years or more. Those mothers whose children are exposed to the teething problems for a longer time would have learnt about teething pain relieving practices by experience than those mothers whose children are younger.

Although a probability sampling procedure was used, the results of the current study cannot be generalised to the whole population of Jazan province due to the small sample size. Further, the data reported by mothers was subjective in nature and no objective assessments were done by the authors. It would be interesting to see if the existence of grandparents in the families affects the knowledge related to teething of mothers.

CONCLUSIONS

Many mothers had poor knowledge and misbeliefs about teething. Age of the youngest child was significantly related to mother's knowledge about the eruption dates and few of their practices to relieve teething pain. There is a need to educate the mothers of Jazan province, Saudi Arabia on the facts related to teething, specifically those related to teething pain relieving practices.

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