

RESEARCH ARTICLE

# Mothers' false beliefs and myths associated with teething

Miami K. Yousif

Address for Correspondence:

**Miami K. Yousif**

Department of Pediatrics, Alzahraa College of Medicine,  
University of Basrah, Iraq  
Email: miamiyousif@yahoo.com

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## ABSTRACT

**Background:** Teething is a physiological process experienced by all children. However, many unrelated illnesses are blamed on teething.

**Objective:** The aim of this study was to assess mothers' beliefs toward teething and to investigate the practices preferred by mothers to alleviate symptoms that might accompany the teething process.

**Methods:** A cross-sectional study was conducted in Basra. The study population includes mothers of young children aged (6 – 30) months who had at least one erupted primary tooth, and who had no history of medical or systemic disease that might affect teething. Two hundred mothers of different age groups and educational backgrounds responded to a questionnaire that included information on the child's age and birth order, mother's age, level of education, occupation, number of children, beliefs toward teething symptoms, and the practices preferred to relieve the attributed symptoms. Data has been presented in numbers and percentages, the Chi-square test was performed where appropriate, and a  $p$  value of  $< 0.05$  was considered significant.

**Results:** All (100%) participants attributed at least one symptom or sign to the teething process. The most common symptoms reported were fever (70%), diarrhea (68.5%), and sleep disturbance (63.5%).

Sixty-eight percent of mothers believed teething remedies were effective; only 10 (5%) did not give any treatment. Over half (62%) gave medications, such as antipyretics, antibiotics, and antidiarrheal agents. Some used teething gels (29%), pacifiers (50%), gum massage (22%), and hard foods such as biscuits and carrots (43.5%). Mothers of various educational levels reported attributed symptoms, and

the result was statistically significant ( $p < 0.05$ ). Mothers of a firstborn child were found to have a higher tendency to attribute symptoms to teething than those who had previous experience with children ( $p < 0.05$ ).

Discussion and conclusions: Teething myths and misconceptions are common among mothers. The study identified a significant number of doctors, dentists, and pharmacists still attribute many symptoms and signs to teething despite the lack of supporting evidence. Therefore, the findings of this study highlight the need for continuous medical education and nationwide prospective studies to eradicate these false beliefs.

Keywords: antipyretics, misconceptions, pacifiers, teething

## INTRODUCTION

Teething is a physiological process that all children go through. The whole process usually takes approximately two years, and generally occurs from 6 to 30 months of age. Teething is a source of parental concern; many unrelated illnesses are blamed on teething. From grandmothers to medical professionals, everyone seems to have a list of symptoms that they believe are linked to teething.<sup>1</sup> Little evidence exists to support these beliefs, despite their implications for clinical management.<sup>2</sup> In 1975, R. S. Illingsworth wrote, "Teething produces nothing but teeth."<sup>3,4</sup> This simple statement is a straightforward summation of the actual process of teething, but it still is not universally accepted.<sup>3</sup> It is common for teething to be blamed for several ailments. It has been wrongly associated with systemic symptoms such as fever, diarrhea, skin rash, loss of appetite, salivation, sleep disturbance, and irritability. Historically, it was presumed that children who survived a difficult teething period would be less likely to succumb to other illnesses. Infant mortality was extremely high in previous centuries, typically peaking at six months to four years of age, which temporally corresponds to tooth eruption. Thus, it is not surprising that teething was believed to be the cause of death.<sup>3</sup>

There is no scientific proof that teething and systemic symptoms are linked. If an infant has severe signs of systemic disease, this should not be ascribed to teething. The child should immediately be referred to a physician. Health professionals prescribe unnecessary medications for teething in an attempt to please

parents. Some of these so-called "teething remedies" may be hazardous to an infant's health.<sup>5</sup> For example, teething gels should not be used on children under two years since the gels contain the numbing agent benzocaine, which in extreme cases has been reported to cause methemoglobinemia.<sup>6-8</sup> Also, teething gels can numb the back of the throat and interfere with swallowing and the gag reflex, and therefore they carry the risk of choking. Mothers' false beliefs about teething may interfere with the prompt diagnosis and management of serious illnesses.<sup>9</sup>

A delay in seeking medical consultation has been observed for young children presenting to the pediatric outpatient and emergency departments with high fever or severe diarrhea with dehydration, or signs of infection. According to the parents' beliefs, these symptoms and signs were attributed to teething. Assuming that teething causes, such severe illnesses may lead to high morbidity among infants and toddlers. Various studies show that false beliefs and misconceptions about teething exist in many cultures.<sup>10,11</sup> This study attempts to assess maternal beliefs and conceptions toward teething in Basra city and investigate the traditional practices used to alleviate symptoms that might be associated with teething. The findings of this study will be used to establish a society-specific education program to deal with these conceptions.

## METHODS

Study design: This is a cross-sectional study conducted in Basra between March and September 2019.

Sample size: The study enrolled 200 mothers aged (18 – 45) years.

Inclusion criteria: Mothers of children 6 – 30 months of age, who had at least one erupted primary tooth, and who had no history of medical or systemic disease that might affect teething.

Exclusion criteria: Mothers who had no willingness to participate in the study.

Data collection: A special questionnaire was developed for data collection, including information about the child's age and birth order, mother's age, level of education, occupation, number of children, beliefs toward teething symptoms, and preferred practices used to relieve the attributed symptoms. Verbal consent was obtained from each mother before

participation in the study. Mothers were categorized into two groups: those working in the medical field (doctors, dentists, pharmacists) and those with other occupations or homemakers who attended the outpatient department in AlMawane teaching hospital for child checkups. Mothers' responses were one of two options: agree or disagree. The data have been presented as numbers and percentages. The Chi-square test was performed where appropriate, and a *p* value <0.05 was considered statistically significant.

### RESULTS

Two hundred mothers were invited to complete the questionnaire. One- hundred of them were medical personnel. All (100%) mothers included in the study believed that teething is associated with at least one systemic complaint. Table 1 shows that fever (70%), diarrhea (68.5%), and sleep disturbance (63.5%) were the most common symptoms ascribed to

teething by the respondents, whereas skin rash (6%) was the least. Practices undertaken by nursing mothers to alleviate teething symptoms are shown in Table 2. Of the total mothers, 136 (68 %) believed those practices were effective in alleviating symptoms.

Mothers had different educational backgrounds: 100 were medical personnel (41 physicians, 28 dentists, and 31 pharmacists), 9 were other college graduates, 17 had a secondary level of education, 24 had a primary level education, and 48 never attended school.

Table 3 presents mothers' level of education and the most common symptoms attributed to teething. The association between mothers' age and the most common symptoms attributed to teething was significant for fever and sleep disturbance (*p* < 0.05), as shown in Table 4. Common symptoms attributed to teething by mothers of a first born child vs. those of a second or later child are presented in Table 5.

**Table 1. Symptoms perceived by mothers associated with teething**

Complaint	Medical personnel (100)	Others (100)	Total N (200)	Total N (%)	<i>p</i> Value
Fever	66	74	140	70%	0.217
Diarrhea	59	78	137	68.5%	0.0038
Loss of appetite	84	28	112	56%	0.00001
Sleep disturbance	83	44	127	63.5%	0.00001
Salivation	82	21	103	51.5%	0.00001
Skin rash	9	3	12	6%	0.074
Rhinitis	9	12	21	10.5%	0.489
Desire to bite	84	37	121	60.5%	0.00001
Irritability	89	20	109	54.5%	0.00001
Ear rubbing	52	55	107	53.5%	0.6713
Redness and swelling of gums	84	14	98	49%	0.00001

Chi-square test was used

**Table 2. Practices undertaken to alleviate teething symptoms**

Variable	Medical Personnel N	Nonmedical Personnel N	Total N	Total N (%)
Medicines	55	69	124	62%
Teething gel	30	28	58	29%
Bite on Pacifier	60	40	100	50%
Cold things	60	6	66	33%
Gum massage and analgesics	25	20	45	22.5%
Gum massage without analgesics	38	6	44	22%
Foods, hard biscuits, carrots	50	37	87	43.5%
Nothing	2	8	10	5%

**Table 3. Mothers' level of education and most common attributed symptoms**

Symptom	College (medical personnel) N = 100	College (others) N = 9	Secondary school N = 17	Primary school N = 26	Never been to school N = 48	p Value
Fever	66 (66%)	1 (11.1%)	15 (88.2%)	23 (88.4%)	35 (72.9%)	0.0001
Diarrhea	59 (59%)	4 (44.4%)	12 (70.5%)	19 (73%)	43 (89.5%)	0.0021
Sleep disturbance	83 (83%)	3 (33.3%)	12 (70.5%)	6 (23%)	23 (47.9%)	0.00001

Chi-square test was used

**Table 4. Mothers' age and most common attributed symptoms**

Symptom	< 30 years N = 103	> 30 years N = 97	p Value
Fever	79 (76.69%)	61 (62.88%)	0.0333
Diarrhea	73 (70.87%)	64 (65.97%)	0.4564
Sleep disturbance	57 (55.3%)	70 (72.16%)	0.0135

Chi-square test was used

**Table 5. Common symptoms ascribed by mothers of first born child vs. those with second or later child**

Symptom	Mothers of first born child N = 98	Mothers with second or later child N = 102	p Value
Fever	90 (91.8%)	50 (49%)	0.00001
Diarrhea	78 (79.5%)	59 (57.8%)	0.00094
Sleep disturbance	89 (90.8%)	38 (37.2%)	0.00001

Chi-square test was used

## DISCUSSION

Between the ages of six months and three years, parents attribute a variety of their child's behavior to teething. The use of a simple diagnosis of teething helps to reduce their anxiety. Experts do not believe that the teething process causes systemic symptoms. Therefore, in this study, we tried to identify common maternal misconceptions toward teething.

All mothers (100%) involved in the study believed that teething was associated with at least one symptom. This finding was approximately similar to a study in Egypt in which only 1.8% of mothers reported no symptoms at the time of teething<sup>10</sup> and was higher than that reported by Getaneh et al. (91.6%) in Southwest Ethiopia<sup>12</sup> and Aliyu et al. (90.62%) in a similar study in Nigeria.<sup>5</sup>

Fever, diarrhea, sleep disturbance, the desire to bite, and irritability were the most common symptoms ascribed to teething by mothers.

Many mothers believed that teething causes fever (70%), which is in accordance with the findings of Adimorah et al. (71.7%)<sup>13</sup> and higher than that reported by Elizabeth et al. (42.1%).<sup>14</sup>

Teething can result in a slight increase in body temperature but does not cause high fever, which is an important sign of infection. High fevers in an unwell looking child should never be blamed on teething, and the child should be referred to a physician.

Diarrhea was another complaint reported by mothers (68.5%), which is in agreement with the finding by Adimorah et al. (58.3%),<sup>13</sup> but lower than that reported by Getaneh et al. (90.7%) in Southeast Ethiopia<sup>12</sup> and Kumar et al. (91.1%) in Saudi Arabia.<sup>2</sup> There is little evidence to support this belief. When the primary teeth are about to erupt at approximately six months of age, maternal antibodies upon which young children depend begin to decrease. During this time, children build up their antibodies, which are not

yet sufficient to defend them against infections. Furthermore, this same age is when children begin to crawl and place unclean objects in their mouths, which can introduce pathogens into their bodies and may lead to gastrointestinal disturbances, such as diarrhea, vomiting with an associated increase in body temperature.<sup>14</sup>

Misconceptions were reported regarding other symptoms and signs attributed to teething, such as irritability, loss of appetite, the desire to bite, rubbing of ears, and, to a lesser extent, skin rash and rhinitis. Similar results were found in studies conducted in Nigeria,<sup>15</sup> India,<sup>16</sup> Saudi Arabia,<sup>2</sup> Jordan,<sup>17</sup> Sudan,<sup>18</sup> Australia,<sup>19</sup> and Turkey.<sup>20</sup>

A variety of practices exist in different parts of the world, based on culture, religion, and myths that prevail in the community.<sup>16</sup> Both groups of mothers used teething remedies, only 10 (5%) did not give any treatment, and 136 (68%) believed these remedies were effective.

Over half (62%) of the respondents used systemic medications such as antipyretics, antibiotics, and antidiarrheal agents. Some mothers used teething gels, pacifiers, gum massage, and hard foods, such as biscuits and carrots.

The current study showed that symptoms ascribed to teething were reported by mothers of various educational backgrounds, including those with medical education. Young mothers (< 35 years) and those who had only one child were found to have a higher tendency to attribute common symptoms to the teething process. These symptoms, which can be signs of serious underlying diseases, can go untreated if mothers simply think that teething is the cause.

This study was limited by its small sample size and limited area of the study.

## CONCLUSIONS AND RECOMMENDATIONS

Teething myths and misconceptions are common among mothers. Attributing serious childhood diseases such as fever and diarrhea to teething, due to lack of knowledge, may interfere with seeking medical consultation and receiving a prompt diagnosis and initiating management. Proper health education of mothers on the facts related to teething might help to discourage teething as an explanation for symptoms of serious diseases. Health education could be provided throughout primary healthcare in the broader area of Basra in a simple and easily understandable way.

It is cause for concern to find that a significant number of doctors and health professionals still attribute many symptoms and signs to teething despite the lack of evidence to support this contention. Therefore, the findings of this study highlight the need for continuous medical education to eradicate these false beliefs and myths.

Further studies are recommended with larger population size, including urban and rural regions with different sociocultural status to establish a society-specific education program to eradicate false beliefs.

## Conflict of interest

The authors declare no conflict of interest.

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