

Parent beliefs about infant teething: A survey of Australian parents

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Objective: Parents ascribe many infant symptoms to teething, despite little evidence to support such an attribution. We report current parental beliefs about teething and its management in a suburban Australian setting.

Methodology: A written questionnaire was given to all English-speaking parents consecutively attending infant hearing testing sessions in one Melbourne municipality between August and October 1997. Approximately 90% of Victorian infants attend these sessions.

Results: Parents of 92 infants (mean age 9.9 months) completed questionnaires (97% response rate). Only one believed that teething causes no problems. Most (70–85%) believed that teething causes fever, pain, irritability, sleep disturbance, mouthing/biting, drooling and red cheeks; 35–55% reported nappy rash, 'sooking', ear pulling, feeding problems, runny nose, loose stools, and infections; and a few (< 15%) reported smelly urine, constipation, colic or convulsions. Symptoms reported for a parent's own infant correlated almost perfectly with symptoms believed to be experienced by infants generally ($r = 0.97$, $P < 0.001$). Amount of infant distress when teething correlated with more 'difficult' infant temperament ($r = 0.25$, $P < 0.05$), and longer duration of symptoms per tooth correlated with parent distress ($r = 0.26$, $P < 0.05$). Paracetamol (60%) and topical analgesia (55%) were commonly used remedies. Parents diagnose teething more by the presence of 'teething symptoms' (65%) than by palpable (43%) or visible (36%) tooth eruption.

Conclusions: Teething is a distressing but ill-defined phenomenon reported by almost all parents of young children, and most use some form of medication to manage it. Most symptoms are minor and relate to discomfort rather than physical illness, but a substantial minority still ascribes potentially serious symptoms to teething.

Key words: infants; parent beliefs; symptoms; teething.

Tooth eruption is universal, recurrent and easily observed. A child's first tooth usually erupts between 4 and 10 months of age, and the full complement of 20 deciduous teeth is almost always present by 30 months.¹ Therefore, the average child erupts roughly one tooth per month between 6 and 30 months of age, coinciding closely with a period in which infants are known to experience frequent minor illnesses² and rapid developmental change. Probably because of this temporal association, causal attribution of signs and symptoms of illness to teething appears to be nearly universal across cultures and continents.³

Objective study, though very limited, does not support a relationship between teething and serious illness, or indeed between teething and minor illness such as infection, sleep disturbance, diarrhoea, otitis media and cough.^{4–6} A recent prospective study suggested a rise in mean daily temperature of 0.5°C in the 3 days leading up to the eruption of the first tooth observed by parents⁶ but an earlier, more detailed study did not show a relationship between teething and fever.⁴

There have been few surveys of parent beliefs about teething. In a survey of 200 Finnish mothers, 90% believed

teething causes gum rubbing and finger sucking, 77% that it causes drooling, and 50% that it leads to fever, sleep disturbance and daytime restlessness.⁴ Recently Coreil,³ citing 18 studies from the Americas, Asia, Africa, and Australia, commented on the near-universal belief across folk cultures worldwide that teething is related to diarrhoea. Many Australian parents likewise believe that teething causes numerous symptoms in young children even when such symptoms may be indicative of other serious conditions.⁵

In this study, we report a recent survey of teething beliefs and practices of suburban Australian parents with infants aged 6–12 months. This study was part of a larger project in which professional beliefs about teething were examined and a prospective cohort study of effects of infant and toddler teething was conducted.

METHODS

Between August and October 1997, all parents attending routine hearing testing sessions at Maternal & Child Health (M&CH) Centres in one statistical local area^a in suburban Melbourne (Northcote) were invited to take part. The M&CH service is provided free to all children in Victoria aged 0–6 years, and approximately 90% of children are known to attend the hearing testing sessions offered to all infants aged 7–9 months (pers. comm., Office of the Family, Victorian Department of Human Services). Northcote has a broad socio-demographic spread of families with a median income slightly below the Victorian

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average,¹ and seemed likely to provide a sample reflecting a variety of parental opinions.

In the M&CH Centre waiting room, parents were handed a written questionnaire in English designed to elicit parental experience and general beliefs about teething, sources of advice about teething, methods used to relieve any symptoms, and perceptions of their own and their infant's health and well-being. Questionnaires took less than 5 min to complete and appointments were staggered, so parents did not have the opportunity to discuss responses with each other during questionnaire completion. A study investigator was available at all times to answer any questions or provide assistance if required.

The questionnaire^b was developed from a base of professional knowledge, literature review, informal discussion with parents, and four formal focus groups conducted between May and June 1997 (three comprising first time mothers with young infants attending inner suburban M&CH Centres, and the fourth comprising parents of children attending a 2–4-year-old play-group). The questionnaire underwent pilot testing and modification prior to administration.

The statistical computer package SPSS for Windows Release 6.1 (SPSS Inc., Chicago, IL, USA) was used for all analyses. Descriptive statistics were used in reporting prevalences. After confirming normality of continuous variables, Pearson correlation coefficients and linear regression were used to examine bivariate relationships and paired *t*-tests to compare means.

The study was approved by the Royal Children's Hospital Ethics in Human Research Committee.

RESULTS

Subjects

Ninety-five parents were approached consecutively, of whom one declined to participate and two did not read English. Ninety-two parents (97% response) completed the questionnaire, all of whom were literate in written English. Demographic details of the sample are shown in Table 1. Beliefs about teething did not differ by number of children, the number of teeth erupted in the index child, or by demographic characteristics. Information about ethnic background was not collected.

Mean infant age was 9.9 months (SD 5.7 months, median 8.5 months). Five respondents did not record the attending child's date of birth so age could not be calculated.

Teething symptoms

Only one parent thought that in general teething caused no problems, and only six parents reported that their own infant had suffered no teething symptoms to date. The great majority of parents believed that teething causes many symptoms, with a mean of nine discrete symptoms believed to be experienced by infants in general and a mean of seven symptoms reported for their own infant. Symptoms reported for a parent's own infant correlated almost perfectly with symptoms believed to be experienced by infants generally ($r = 0.97$).

Table 2 shows the prevalence of individual teething symptoms by parent report. Most parents (70–85%) reported pain, irritability, sleep disturbance, mouthing, drooling, red cheeks and fever. Many (35–55%) also believed that teething can cause potentially serious problems such as loose stools and infections, particularly colds and ear infections. Fewer than 15% ascribed smelly urine, other rashes and constipation (and in one case, convulsions) to teething. Although teething-related fever was in general considered to be low-grade, 22% believed that fever over 38°C and 6% that fever over 39°C could occur due to teething alone in the absence of other illness.

Distress caused by teething

The amount of infant and parent distress were rated on identical four-point scales ('none' – 'a lot'). Most parents (81%) rated the

Table 1 Demographic details of respondents

Characteristic	Categories	n (%)
Age	< 20 years	2 (2)
	20–29 years	27 (29)
	30–39 years	60 (65)
	40–49 years	2 (2)
Maternal education (highest level achieved)	≤ Year 10	9 (10)
	Year 11/12	27 (29)
	Apprenticeship/diploma	11 (12)
	University degree	37 (40)
Relationship to child	Mother	84 (91)
	Father	6 (7)
	Other	1 (1)
Number of children	1	53 (58)
	≥ 2	38 (41)

Table 2 Reported prevalence of teething symptoms

Symptom	Percentage of parents reporting symptom	95% confidence intervals
Pain	85	84.9–96.9
Irritability	82	80.9–94.7
Sleep disturbance	78	75.8–91.4
Mouthing/biting	78	75.8–91.4
Drooling	77	74.5–90.6
Red cheeks	75	72.1–88.9
Fever	70	66.1–84.4
Nappy rash	50	43.6–64.8
'Soaking'	49	42.6–63.7
Infections	48	41.5–62.7
Pulling at ears	46	39.4–60.6
Feeding problems	42	35.2–56.4
Runny nose	41	34.2–55.3
Loose stools	36	29.1–49.9
Smelly urine	14	8.6–24.2
Other rashes	13	7.7–23.0
Constipation	7	3.1–15.1
Convulsions	1	0.02–5.9
Colic	0	0–3.9*

*One sided; 97.5% confidence interval.

^a as defined by the Australian Bureau of Statistics

^b full questionnaire available on request from the authors

amount of infant distress from teething as small–moderate, but 7% reported a lot. Parents rated amount of infant distress as greater than that experienced by themselves (mean 2.5 vs 2.2, $P < 0.001$) though the two correlated strongly ($r = 0.70$, $P < 0.001$). More difficult infant temperament, rated on a five-point scale ('very difficult' – 'very easy'), correlated with the amount of reported infant distress ($r = 0.25$, $P = 0.02$), while the duration of symptoms reported per tooth correlated with the amount of reported parent distress ($r = 0.26$, $P = 0.02$). Neither parent nor infant distress levels correlated with reported parental emotional or overall health or with the perceived health of the infant, each of which were assessed using a single-item 5-point adjectival scale.

How and when do parents diagnose 'teething'?

More than 90% of parents believe that teething problems start between 3 and 11 months and cease between 18 months and 3 years of age, broadly coinciding with the known primary dentition eruption period. However, the duration of symptoms attributed to each individual tooth varied widely, ranging from less than 1 day to more than 4 weeks per tooth (Fig. 1). Molars were most widely considered to cause problems (54% of parents) and eye teeth least likely (40%) though differences were not significant.

Far more parents reported knowing a tooth was arriving because of 'teething symptoms' (65%) than because of more objective evidence such as being able to see (36%) or feel (43%) a tooth. In keeping with this, 58% believe problems are due to the tooth moving in the gum prior to eruption and 65% due to the tooth actually breaking through; only 7% believe problems occur after the gum has separated.

Management

Almost without exception, parents manage teething actively (Table 3). The majority employ a combination of techniques including objects to chew on, comforting and cuddles, paracetamol, and teething gels, while few utilize gum massage, natural/herbal medicines, or sedation. No parents reported using antibiotics. Overall, 76% of parents use some form of medication to manage teething symptoms.

Parents reported obtaining advice about teething from their M&CH nurse (62%), friends (54%) and/or their mother (53%). Very few utilize doctors (26%), pharmacists (12%), dentists (6%) or naturopaths (3%). Books also appear to be a useful source of information for parents (43%).

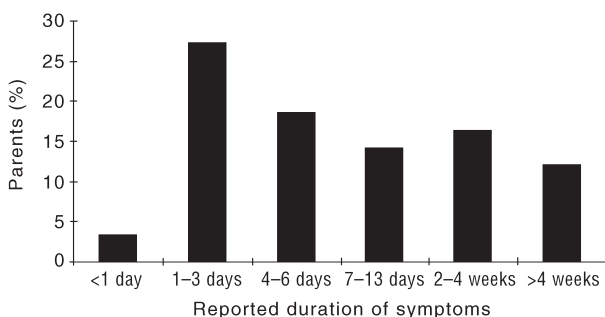


Fig. 1 Duration of teething symptoms per tooth.

DISCUSSION

Results of this survey confirm that Australian urban parents in the 1990s almost universally expect that their children will suffer from teething symptoms during much of their first 3 years of life, even though little evidence supports their beliefs. Teething is reported to be distressing for the great majority of parents, not just for the infants themselves. In this study, teething problems were almost universal, were consistent across maternal education levels, and were reported as frequently by experienced as by first time parents.

A broad range of local and systemic symptoms were reported, many of which were minor and related more to discomfort than physical illness. However, a substantial number of parents still ascribes potentially serious conditions, including fever and infection, to teething, and most parents use some form of medication to manage it. A smaller number of parents attribute potentially dangerous conditions such as high fever and smelly urine to the process of teething, thus running a risk of ignoring markers of a more serious infection or illness. However, without scientific evidence to support these views, parent (and probably professional) education is still needed to ensure that parents act appropriately when faced with symptoms such as high fever, lethargy or excessive irritability.

With these views so prevalent it may be that parents are correct in their attributions. However, because most parents appear to identify the teething period by ill-defined 'teething symptoms' rather than by visual evidence of tooth eruption, and because they also believe that many of these symptoms occur in the period *before* the tooth appears, it is difficult to confirm or refute these beliefs. An alternative interpretation is possible. The literature suggests that these symptoms are not specific to teething and may in fact be normal stages in child development during later infancy.⁷ Thus 'teething' could in fact be conceptualized as a developmental, rather than physiologic, phenomenon. During this phase of development it may be helpful for parents to attribute episodes of difficult behaviour to an understandable cause that they can manage simply and legitimately, with the non-judgmental support of friends, family and health professionals. If this were the case, it could also be counterproductive in the long run. For example, the belief that teething may last for the better part of 2 years may prevent parents from implementing specific measures of known efficacy, such as simple effective sleep management programs which may lead to marked and lasting benefits for both parents and children.⁸⁻¹⁰ The survey reported here indicates that children may instead be given frequent oral and/or topical medication over a period of months to years which, while unlikely to cause serious

Table 3 Reported prevalence of home management techniques for relief for teething symptoms

Method of relief	Percentage of parents
Objects to chew on	65
Comforting and cuddles	62
Paracetamol	60
Teething gels	51
Gum massage	24
Natural/herbal medicines	9
Sedating medication	1
Antibiotics	0
Nothing	3

adverse effects, may come at considerable economic and opportunity costs.

One limitation of this study was its relatively small sample size; however, the response rate was so high and the views expressed so prevalent that a larger sample size would be unlikely to alter the results greatly, as borne out by the reported confidence intervals. A further limitation was the non-random nature of our population. The respondents were predominantly middle class, most were mothers, and all were literate in English. We therefore cannot comment on the views of parents from other groups or how they manage any symptoms perceived to be due to teething, but other studies have indicated that similar beliefs hold across many different cultures.³ The beliefs of suburban Australian mothers in the late 1990s are remarkably similar to those of Finnish mothers 35 years ago,⁴ despite subsequent consistent medical statements clearly opposing these views.^{11,12}

Regardless of the underlying causes, it is clear that parents find the symptoms their children experience distressing. It is important to provide parents with information and simple management techniques, taking into account the views of parents and the common belief in the existence of 'teething' as an entity. It is equally important to inform parents that some symptoms should *not* be attributed to teething as they may have a more serious underlying cause, and to provide parents with information about normal developmental phases of early childhood.

Teething, like colic and reflux, is an ill-defined infant problem for which parents receive much advice, often conflicting and frequently not based on real evidence. Our simultaneous survey of the views of child health professionals and our prospective cohort study of infants of teething age will add to an understanding of what is and is not attributable to tooth eruption. As well as shedding further light on the roles of belief and fact in infant health in our culture, such studies may ultimately form the

basis for parent information which is acceptable, credible and based on fact.

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