

Original Article

Mothers' Knowledge, Fears and Self-Management of Fever: A Cross-Sectional Study from the Capital Governorate in Kuwait

Huda KA Al-Abdel Jalil, Nadia A Jumah, Amani A Al-Baghli
Primary Health Care, Shamiya Clinic, Capital Health Region, Kuwait

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ABSTRACT

Objective: To survey mothers about their knowledge concerning fever in children, how they manage it at home, what their fears of fever are and to study the relationship between mothers knowledge and fear with the educational level and number of children.

Setting: Primary health care clinics in the capital health region in Kuwait

Subjects: Five hundred and twenty accompanying mothers of feverish children.

Method: A cross-sectional questionnaire survey.

Results: 34.8% of mothers would recognize fever by the general appearance of the child, 32.6% by touching the child; one third (32.6%) would measure the temperature. More than 60% use digital thermometers, 15.7% would use mercury thermometers. The association between the educational level of mothers and method used to measure

the temperature was statistically significant ($p < 0.05$). The most common site mothers use for measuring temperature of a child less than 3 years was the armpit (57.3%). The majority of mothers (81.6%) believed that teething can cause fever in children. Approximately 60% of all mothers believed that an untreated fever could lead to convulsions. The association between perceived consequences of fever and level of education was statistically highly significant ($p < 0.005$). A significant association was also found between perceived consequences of fever and number of children ($p < 0.05$).

Conclusion: Doctors should spend enough time with mothers attending a feverish child, explaining and answering their queries about fever, and providing adequate information that might allay their fear and promote an appropriate fever management at home.

KEY WORDS: children, fever management, Primary health care, temperature

INTRODUCTION

Fever is defined as a body temperature above the normal range; a rectal temperature above 38.0 °C, an oral temperature above 37.8 °C, and an axillary temperature above 37.2 °C are all considered as fever. Children in the age group of 3 to 36 months have approximately six febrile episodes per year, representing the highest incidence of fever during childhood^[1], and it is estimated that fever is the primary complaint for as many as one third of all pediatric consultations in general practice^[2,3]. Although fever was considered a protective response for thousands of years, and was even induced by physicians to combat certain infections, the advent of antipyretic drugs has led to the common belief that fever is maladaptive and harmful^[4-6]. Parents have shown a lot of anxiety and unrealistic fears of fever, and they generally see it as the main component of an illness in their children which often prompts them to seek immediate medical care^[6-10]. In Britain, Kai interviewed socially disadvantaged parents and identified a fear that causes panic when children are feverish^[11]. Therefore, mothers'

knowledge and perception of fever may determine the degree of their anxiety and fear, and reflect on the way the fever is managed at home^[12].

We conducted this study to explore mothers' ideas, knowledge and concerns about fever in their children and their home management strategy and to study the relationship between mother's knowledge about fever and their fears with the educational level and number of children. The conclusions of this survey will help doctors in their management of a feverish child.

SUBJECTS AND METHOD

A cross-sectional survey was conducted over a six-month period in the capital governorate. The capital health area, one of the five health areas in Kuwait, was chosen as our study area because of the convenience of the investigators who are working in this area. During the period from March – August 2004, a survey was carried out in the four primary health care polyclinics which were the only clinics open during weekends. Choosing these polyclinics and weekends would enable the investigators to

Address correspondence to:

Dr. Huda K, Family Physician, Head of Shamiya Clinic, Shamiya Clinic, Code No. 71654, Shamiya, Tel: 4848917 / 4848913, Mob: 9845318, Fax: 4819701, E-mail missing

include subjects from all residential areas (as their regular clinics would be closed) to ensure enrolment of a truly representative capital population which is a mixture of different socioeconomic and educational strata. The study population consisted of 520 mothers who accompanied their feverish children and were willing to participate in the study; we expected mothers to be the main caregivers at home. The number of subjects taken from each polyclinic was proportional to the total number of children registered there. Investigators (doctors) explained the purpose of the study to the mothers and each female parent, with her permission, was given a suitably structured standard questionnaire in Arabic to complete while sitting in the waiting rooms. It contained different questions, most of which were selected from a published and validated questionnaire on knowledge, concerns and management of fever in children. Some additional questions were also added, when considered important, to achieve the aim of the research. Socio-demographic data obtained included age of the mother, level of education attained, and monthly family income and the number of children. Appropriateness of responses to questions was determined on the basis of current medical literature. No assistance was given during the completion of the questionnaire. Mothers who couldn't read Arabic were excluded from the study.

The questionnaires collected were hand-checked for completeness before data entry and analyzed using appropriate statistical tests. The analysis was done on SPSS (Statistical Package for Social Sciences, version 13.0). The descriptive statistics, frequencies and percentages, were used to describe socio-demographic characteristics. Pearson Chi-square test of independence was used to test the association between educational status and number of children with mothers' perception of fever and fears. A p-value ≤ 0.05 was considered to be statistically significant.

RESULTS

A total of 520 completed questionnaires were evaluated. Table 1 shows the distribution of the socio-demographic characteristics of the mothers who participated in the study. The mean age (\pm SD) of the mothers was 33.68 (± 6.91) and they had 3.45 (± 1.78) children. Two thirds of mothers (63.7%) were educated to diploma or university levels, while 36.3% were educated to high school level or less. Most of mothers interviewed had family income equal to or more than 500 Kuwaiti Dinars. Table 2 shows the mothers' perception of fever by educational status. The study showed that 34.8% of mothers would recognize fever by the general appearance of the child, and 32.6% mothers by

Table 1: Socio-demographic characteristics of the mothers in the study

Variables	n	Percent
Age (mean \pm SD)	33.68 \pm 6.91	
Number of children (mean \pm SD)	3.45 \pm 1.78	
Level of education		
Less than high school	79	15.2
High school	110	21.2
Diploma	133	25.6
University or higher	198	38.1
Family income		
Less than 500 KD	65	12.5
500 - <1000 KD	193	37.2
1000 - < 1500 KD	160	30.8
1500 KD and above	101	19.5
Number of children		
1 - 2	182	35.0
3 - 4	192	36.9
5 - 6	125	24.0
≥ 7	21	4.0

KD = Kuwait Dinar

touching the child. Only about one third (32.6%) would measure the temperature. As shown in table 2, mothers used different methods for measuring child temperature. More than 60% of the mothers (62.7%) used digital thermometers, few mothers (15.7%) used mercury thermometers while 21.6% used forehead strip. The association between the educational level of mothers and method used to measure temperature was statistically significant ($p < 0.05$).

The most common site that mothers used for measuring temperature of a child less than three years of age was the armpit (57.3%), followed by the ears (19.2%) and then the anus (17.5%). The least common site was the mouth (6.1%). In order to monitor fever, 37.5% mothers would check their child temperature less than four hourly, 37.3% four hourly, 10.8% six hourly and 14.4% more than six hourly. 62.7% thought it was not necessary for every febrile child to be prescribed antibiotics. On the other hand, 21.7% of mothers' thought that every febrile child should be prescribed an antibiotic. The remaining 15.6% of mothers' were not sure. The association between perceived need of antibiotics and educational status was statistically very highly significant ($p < 0.001$).

The majority of mothers (81.6%) believed that teething can cause fever in children. Only 8.9% did not believe so, and 9.5% of mothers were not sure. There was no statistically significant association between the educational level and the preferred site of temperature measurement, frequency of temperature recording, and teething as a cause of fever.

Description of the mothers' self management of fever is shown in Table 3. The child was considered febrile at body temperatures of 37 °C or less by

Table 2: The relationship between educational status of the mothers and the perception of fever

Variables	All Subjects		Educational status				p-value
			Less than high school	High school	Diploma	Graduate	
	N	(%)	n (%)	n (%)	n (%)	n (%)	
Fever recognition							
General looks	174	(34.8)	26 (33.3)	43 (40.6)	44 (34.6)	61 (32.3)	0.582
Touching child	163	(32.6)	30 (38.5)	32 (30.2)	43 (33.9)	58 (30.7)	
Measuring temperature	163	(32.6)	22 (28.2)	31 (29.2)	40 (31.5)	70 (37.0)	
Kind of Thermometer used							
Mercury thermometer	67	(15.7)	9 (17.6)	21 (23.9)	19 (16.8)	18 (10.3)	0.019
Digital thermometer	267	(62.7)	26 (51.0)	48 (54.5)	68 (60.2)	125 (71.8)	
Fore-head strip	92	(21.6)	16 (31.4)	19 (21.6)	26 (23.0)	31 (17.8)	
Site							
Anus	89	(17.5)	14 (17.9)	22 (20.4)	25 (19.1)	28 (14.5)	0.097
Mouth	31	(6.1)	10 (12.8)	6 (5.6)	6 (4.6)	9 (4.7)	
Armpit	292	(57.3)	45 (57.7)	59 (54.6)	79 (60.3)	109 (56.5)	
Ears	98	(19.2)	9 (11.5)	21 (19.4)	21 (16.0)	47 (24.4)	
Temperature checking frequency							
Less than four hours	190	(37.5)	35 (46.7)	37 (34.6)	52 (39.7)	66 (34.0)	0.227
Every four hours	189	(37.3)	20 (26.7)	37 (34.6)	53 (40.5)	79 (40.7)	
Every six hours	55	(10.8)	8 (10.7)	12 (11.2)	15 (11.5)	20 (10.3)	
More than six hours	73	(14.4)	12 (16.0)	21 (19.6)	11 (8.4)	29 (14.9)	
Need of antibiotics							
Yes	113	(21.7)	30 (38.0)	26 (23.6)	24 (18.0)	33 (16.7)	0.001
No	326	(62.7)	38 (48.1)	61 (55.5)	88 (66.2)	139 (70.2)	
Not sure	81	(15.6)	11 (13.9)	23 (20.9)	21 (15.8)	26 (13.1)	
Teething							
Yes	422	(81.6)	70 (88.6)	91 (84.3)	108 (81.2)	153 (77.7)	0.375
No	46	(8.9)	5 (6.3)	6 (5.6)	13 (9.8)	22 (11.2)	
Not sure	49	(9.5)	4 (5.1)	11 (10.2)	12 (9.0)	22 (11.2)	

* p-values were generated using the chi square tests; ** NS, p-value not statistically significant because > 0.05

Table 3: The mothers' ways of self management of a feverish child

Variables	n	Percent
Temperature of feverish child		
35 – 37	211	40.7
38 – 40	297	57.2
Don't Know	11	2.1
Temperature to give antipyretics		
35 °C	1	0.2
36 °C	6	1.2
37 °C	199	38.8
38 °C	269	52.4
39 °C	33	6.4
40 °C	5	1.0
Fever management		
Give nothing	1	0.2
Give antipyretics	70	13.8
Cold sponges	15	3.0
Antipyretics + sponges + consult doctor	380	75.0
Take child to doctor	41	8.1
Preferred way to give antipyretic		
Mouth	235	45.2
Anal	89	17.1
Both	196	37.7
Source of knowledge		
Relatives / friends	146	29.6
Reading	123	24.9
Doctors/Nurses	183	37.1
Pharmacist	4	0.8
Others	37	7.5

40.7% of the mothers, at 38 °C and above by 57.2% and 2.1% did not know when to consider their child feverish. The table also reveals that 52.4% of all mothers would give antipyretic medication when the body temperature is 38 °C. About 39% of mothers initiated antipyretic treatment for a body temperature of 37 °C, and 7.4% of mothers would wait till the temperature reached 39 °C or more. When a child is feverish, 13.8% of mothers gave antipyretic, 3.0% of mothers applied sponge bathing, 8.1% stated they would take the child to a doctor immediately while three fourth of the mothers' (75.0%) gave antipyretics, applied sponge bathing and consulted a physician as well. Oral medications were preferred by 45.2% of mothers, rectal medications by 17.1% and both by 37.7%. The mothers' main sources of knowledge about fever in children were the doctors and nurses (37.1%), relatives and friends (29.6%), reading (24.9%), pharmacists (0.8%), and others (7.5%).

Table 4 shows mothers' fears from fever. 41.7% of mothers thought that every child with high temperature should be referred to the hospital for treatment, 46.5% thought not, 11.7% were not sure. Feverish children were always awakened from sleep to administer antipyretics by 59.3% of mothers, sometimes by 36.6% and never by

Table 4: The mothers' expectations and fears regarding a feverish child

Variables	n	%
Need of hospital referral		
Yes	217	41.7
No	242	46.5
Not Sure	61	11.7
Waking up feverish child		
Always	308	59.3
Sometimes	189	36.6
Never	21	4.0
Consequences of feverish child		
Convulsions	301	59.0
Convulsion & brain damage	144	28.2
Others	35	6.9
Nothing	30	5.9

4%. 94.1% believed that fever can cause harm, approximately 60% believed that an untreated fever could lead to convulsions, 28.2% believed that it could lead to both convulsions and brain damage, 1.8 and 2.7% believed that brain damage and death respectively could be a result; only 5.9% mothers thought nothing would happen. The association between perceived consequences of fever and level of education was statistically highly significant ($p < 0.005$, Table 5). A significant association was also found between perceived consequences of fever and number of children ($p < 0.05$, Table 6).

DISCUSSION

A cross-sectional study conducted in the capital governorate of Kuwait sought information on mothers' knowledge about fever in children, how they manage it at home and what particular fears they bear in mind about fever. It does have the limitation of excluding mothers' who could not read Arabic.

Two thirds of mothers recognize fever in the child by non-measurement methods which were observing the child's general look or touching him. This tactile temperature taking practice has been shown to be inaccurate with a high percentage of false-negative or false-positive fever determination^[13]. Chaturvedi D^[14] concluded that touch is not a valid screening test for fever. Measuring the temperature is obviously the most accurate method of detecting fever, but only one third mothers actually measure the child's temperature at home to detect fever. It is recommended that a thermometer should always be used by a medical staff to record fever and caregivers must be motivated for the same^[14-16].

The optimal method and the best anatomical site for the assessment of fever have been widely debated in recent years with the introduction of ear thermometers^[9]. Mothers seems to prefer using at home thermometers which are less annoying to the child and easy to read regardless of their accuracy.

Table 5: Relationship between the mothers' educational status and the expected consequences of fever

	All Subjects		Educational Status		p-value*
	N	(%)	High school and less	Diploma+ Graduate	
	n	(%)	n	(%)	
Consequences of a feverish child					
Convulsions	301	(59.0)	126 (67.7)	175 (54.0)	0.003
Convulsion & brain damage	144	(28.2)	35 (18.8)	109 (33.6)	
Others	35	(6.9)	12 (6.5)	23 (7.1)	
Nothing	30	(5.9)	13 (7.0)	17 (5.2)	

* p-values were generated using the chi square test

The preferred thermometer used by sixty percent of them is digital thermometer. 21.6% use the forehead strip which is never used in the hospital because it is not sufficiently accurate^[17-19].

The armpit was the preferred site for sixty percent mothers for temperature measurement of a child less than three. Although axillary temperature measurement is easy to obtain and non-invasive, it does not reflect core temperature and, is affected by ambient temperature and vasoactivity, easy to dislodge and has wide variability^[20]. Recent experience indicates that axillary temperature provides at best a reasonable approximation of body temperature in the neonate but not in other ages (i.e., during childhood or adult age)^[21]. Ogren^[22] concluded that axillary temperature readings should be abandoned in the outpatient setting. Similar to a study conducted in the UK^[23], and in contrast to a study done in continental Europe, mothers did not like to take the anal temperature although the anus has been the most accurate site for children under the age of three years. Mouth was the least preferred site by mothers in spite of being the most accurate site for children older than three^[21]. The accuracy of oral temperature is influenced by tachypnea, recently ingested hot or cold liquid or food, location and length of time of the thermometer in the mouth and the ability to cooperate^[20]. The majority of mothers (74.8%) would monitor the child's temperature four hourly or less. This excessive monitoring might be lead by their hidden concerns about fever. Crocetti *et al* reported that more than half of parents surveyed would check temperature every hour or less when the child had a fever^[9].

It was clearly reported that the overwhelming majority of non-toxic but febrile infants and young children have a viral infection^[24]. Still, 21.7% of mothers in our study thought antibiotics should be prescribed for every febrile child, and 15.6 % were not sure. The physician's primary task is to identify the infant or child who is at risk of serious

Table 6: The relationship between the number of children and the expected consequences of fever

	All Subjects N (%)	Number of Children				p-value*
		1 - 2 n (%)	3 - 4 n (%)	5 - 6 n (%)	≥ 7 n (%)	
Consequences of a feverish child						
Convulsion	301 (59.0)	100 (56.5)	106 (56.1)	83 (66.9)	12 (60.0)	0.026
Convulsion and brain damage	144 (28.2)	45 (25.4)	65 (34.4)	28 (22.6)	6 (30.0)	
Other	35 (6.9)	22 (12.4)	6 (3.2)	6 (4.8)	1 (5.0)	
Nothing	30 (5.9)	10 (5.6)	12 (6.3)	7 (5.6)	1 (5.0)	

* p-value was generated using the chi square test

bacterial infection^[25], and to clarify to mothers the misconception regarding treating fever with an antibiotic.

A common myth that has persisted since the time of Hippocrates is the association of fever with teething^[19]. It seems that this myth is still persisting as seen in our study results where more than 80% of mothers thought that teeth eruption causes fever. Parents and clinicians have traditionally attributed to teething many symptoms such as fever, pain, irritability, diarrhea, drooling and sleep disturbance, but a prospective cohort study carried out in Washington which investigated the relationship between tooth eruption, fever and teething symptoms provided no conclusive evidence that a relationship exists between the eruption of teeth and the experience of these symptoms, and a temperature greater than 38 °C or other serious symptoms in an infant should not be regarded by clinicians as due to teething and should be evaluated appropriately^[26].

The normal body temperature varies with site and has a diurnal variation of about 0.5 °C. In adults the mean oral temperature is 36.8 °C. If it is 36 or 37 °C, it is accepted as normal. 40.7% of mothers would regard a temperature below 37 °C as indicative of fever. This shows that mothers do not know what temperature indicates fever. An almost similar number (38.8%) would treat inappropriately a normal temperature with an antipyretic. A survey of relatively well educated parents in the USA and two other studies also found that about one-fourth gave antipyretics to children when the temperature was within the normal range^[19,27,28].

Current pediatric practice for a febrile child includes the use of antipyretics when the temperature is greater than 38.5 °C. However, parents and most physicians feel compelled to give antipyretics whenever a child has any fever at all. Antipyretics should however be used with discretion and not given automatically. Whether or not to use antipyretics should depend on the comfort of the child rather than the thermometer reading^[1].

With regards to the way fever is managed, the

majority of mothers are so occupied with a feverish child, sponging him, giving an antipyretic and taking him to the doctor, probably to reduce the fever in a short time. The role of tepid sponging to promote heat loss is controversial^[5]. Research literature states that bathing in a cool or tepid water and sponge bathing is ineffective and causes shivering which increases the body's temperature, not to mention discomfort to the child^[21]. Aynsley-Green and Pickering suggest that sponge bathing may aggravate vasoconstriction in dehydrated febrile children and result in increased core temperature^[29]. Initial management of a febrile child should ensure that the child is adequately hydrated and has received an adequate dose of an antipyretic^[24,28,29].

Currently, paracetamol is the most commonly used antipyretic and analgesic drug in pediatric practice. It has the advantage of being available in liquid and suppository form. The latter offers an alternative route in those children for whom the oral route is unsuitable or impractical (vomiting, refusal to take suspension, drowsiness or unconsciousness). Several studies have demonstrated an equal antipyretic effectiveness for rectal and oral preparations of paracetamol^[6,7]. In this study, more mothers preferred oral route rather than the rectal route.

In our study, the majority of mothers regardless of their educational level or number of children would awaken their febrile child to administer antipyretic; in addition, an appreciable number (41.7%) felt that hospital admission was warranted when fever was high. This probably indicates possible fears and anxiety from the cause or the harmful effect of fever.

The type of harm that mothers thought their children would suffer from was mainly convulsions; this was more apparent among the less educated mothers and those with more children. Limited knowledge and a bad past experience with a febrile child is a possible interpretation. Almost one-third of mothers thought that fever might lead to both brain damage and convulsions. The same fears were found among parents in several other

studies^[5,8].

High fever can cause a short "benign, febrile" seizure in 3 to 5 percent of all children, but the seizure does not injure the brain^[30]. This event is difficult to prevent because febrile seizures usually occur during the first few hours of a fever and prophylactic administration of antipyretics does not decrease seizure recurrence^[30,31]. Concerns about fever and its potential harmful effects may lead to parental behavior such as excessive monitoring and treatment^[6]. This fear is translated into most children being awakened at night for antipyretics^[21]. This causes unnecessary discomfort and distress to the child and considered intrusive to children during the time that they are recovering from their illness^[3,10].

CONCLUSION

This study showed that mothers are often unaware of what body temperature indicates a fever and the way they deal with a feverish child was sometimes incorrect or inappropriate. We also noticed that a considerable number of them experienced fear and anxiety when their children developed fever. They believe that the fever could lead to serious complications and this probably forces them to rush to doctors. Only about one third of mothers indicated that doctors and nurses were their primary source of fever-related information. We would recommend that health care providers spend enough time with mothers attending a feverish child, explaining and answering their queries about fever, and providing them with adequate information that might reduce their fears. Use of a well-designed health education aid that presents evidence based information on fever in a clear, consistent and entertaining manner would be more effective.

REFERENCES

- Adam D, Stankov G. Treatment of fever in children. *Eur J Pediatr* 1994; 153:334-340.
- Crocetti M, Moghbeli N, Serwint J. Fever phobia revisited : Have parental misconceptions about fever changed in 20 years? *Pediatrics* 2001; 107:1241-1246.
- Eskerud JR, Lærum E, Fagerthun H, Lunde PKM, Næss A. Fever in general practice. Frequency and diagnoses. *Fam Pract* 1992; 9:263-269.
- Sarrell M., Cohen HA, Kahen E. Physicians, nurses and parents attitudes to and knowledge about fever in elderly childhood. *Patient Education and Counseling* 2002; 46:61-65.
- Impicciatore P, Nannini S, Pharm D, Pandolfini BA, Bonati M. Mothers' knowledge of, attitudes toward, and management of fever in preschool children in Italy. *Prev Med* 1998; 27:268-273.
- Schmitt BD. Fever phobia: misconceptions of parents about fevers. *Am J Dis Child* 1980; 134:176-181.
- Al-Eissa Y.A., Al-Zamil F.A., Sanie A, *et al.* Home management of fever in children: Rational or ritual? *IJCP* 2000; 54:138-142.
- Adam D, Stankov G. Treatment of fever in childhood. *Eur J Pediatr* 1994; 153:394-402.
- Kramer MS, Naimark L, Leduc DG. Parental fever phobia and its correlates. *Pediatrics* 1985; 75:1110.
- May A, Bauchner H. Fever phobia: the pediatrician contribution. *Pediatrics* 1992; 90:851-854.
- Kai J. What worries parents when their preschool children are acutely ill, and why: a qualitative study. *BMJ* 1996; 313:983-986.
- Al-Nouri L, Basheer K. Mothers' perceptions of fever in children. *J Trop Ped* 2005; [Epub ahead of print]
- Bergson PS, Steinfeld HJ. How dependable is palpation as a screening method for fever ? *Clin Pediatr* 1974; 13:350-351.
- Chaturvedi D, Vilhekar KY, Chaturvedi P, Bharambe MS. Reliability of perception of fever by touch. *Ind J Paed* 2003; 70:871-873.
- Graneto JW, Soglin DF. Maternal screening of childhood fever by palpation. *Ped Emerg Care* 1996; 12:183-184.
- Hooker EA, Smith SW, Miles T, King L. Subjective assessment of fever by no contact tympanic thermometer and calibrated rectal glass mercury thermometer. *Ann Emerg Med* 1996; 28:313-317.
- Shann F, Mackenzie A. Comparison of rectal, axillary and forehead temperatures. *Arch Pediatr Adolesc Med* 1996; 150:74-78.
- Scholefield JH, Gerber MA, Dwyer P. Liquid crystal forehead temperature strips. *Am J Dis Child* 1982; 136:198-201.
- Reisinger KS, Kao J, Grant DM. Inaccuracy of the Clinitemp skin thermometer. *Pediatrics* 1979; 64:4-6.
- Bernardo LM, Henker R, O'Connor J. Temperature measurement in pediatric trauma patients. A comparison of thermometry and measurement routes. *J Emerg Nurs* 1999; 25:327-329.
- Fever: Basic mechanisms and management, Philadelphia Lippincott. Raven publishers; 1997, p 27-32.
- Ogren JM. The inaccuracy of axillary temperature measured with an electronic thermometer. *Am J Dis child* 1990; 144:109-111.
- Blumenthal I. What parents think of fever? *Family Practice* 1998; 15: 513-518.
- Krantz C. Childhood fevers. Developing as evidence-based anticipatory guidance tool for parents. *Ped Nursing* 2001; 27:567- 571.
- Luszezak M, Evaluation and management of infants and young children with fever. *American Family Physician* 2001; 64:1219-1226.
- Wake M, Mesketh K, Lucas J. Teething and tooth eruption in infants: a cohort study. *Pediatrics* 2000; 106:1374-1379.
- Schmitt BD. Fever in childhood. *Pediatrics* 1984; 74:929-936.
- Kilmon CA. Parents' knowledge and practices related to fever management. *J Pediatr Health Care* 1987; 1:173-179.
- Sharber JRN. The efficacy of tepid sponge bathing to reduce fever in young children. *American J Emerg Med* 1997; 15:188-191.
- Nelson DS. Pediatric update. Emergency treatment of fever phobia. *J Emerg Nurs* 1998; 24:83-84.
- Van Stuijvenberg M, de Vos S, Tjiang GC, Steyerberg EW, Derksen-Lubsen G, Moll HA. Parents' fear regarding fever and febrile seizures. *Acta Paediatr* 1999; 88:618-622.