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Original Article

Mothers' perceptions of fever in children

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ABSTRACT

Background: Fever is one of the most common symptoms for children. Most fevers are not dangerous; parents, especially mothers, nevertheless experience severe anxiety confronting children's fevers. This study aimed to explore the mothers' perceptions of fever in their children. **Materials and Methods:** Mothers of hospitalized febrile children were selected by purposeful sampling method from two hospitals in Bushehr in 2012. Data saturation was reached after in-depth semi structured interviews with 12 participants. Data analysis was done by conventional content analysis method. **Findings:** Sense of concern, the necessity for quick action and the need for protection emerged from mothers' views. Sense of concern came from concerns over cause of fever, child's hospitalization and possible side-effects of fever. The necessity for quick action resulted from gathering information, self-medication and referring to healthcare centres; the need for spiritual and emotional protection created the need to protect in mothers. **Conclusion:** Findings showed that mothers need educational, emotional and spiritual protection in order to overcome their concerns and managing their children's fever. It is recommended that an empowering model based on these findings be developed in order to strengthen mothers in dealing with fevers in order to prevent excessive concern and anxiety.

Key words: Febrile child, mothers' perception, qualitative study

INTRODUCTION

Fever is one of the most common symptoms of illness in infancy and toddlerhood and the most frequent reason for referral to hospitals; almost 30% of children's referrals to paediatricians were due to fever.[1,2] Febrile seizure is the most recognized result of high fever, which occurs in 3-4% of children under 7 years.[3,4]

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Usually fever in children causes fear and anxiety in parents, particularly mothers. Several studies conducted to assess parental fear of fever have listed seizure that can cause brain damage and fatality as primary fear sources.[5-8] Parental training reduced fear and misunderstanding of fever, promoted appropriate measures during febrile attacks, and reduced unnecessary medical visits and untimely phone calls.[8] Some parents chose to act in order to avoid delayed or missed diagnoses;[9] it has been recommended that future studies evaluate educational interventions and identify the types of medical care practices that foster fever phobia.[6]

It has been reported that mothers' knowledge and attitude of military families in Iran towards management of fever in the children and about basic issues of health and disease in children is still low and needs to be increased;[10] awareness and knowledge about fever in mothers helps to promote home measures, to correct false beliefs and to reduce mothers' anxiety.[2,7]

Negative experiences such as febrile convulsions, media reports of harm, not receiving a definitive diagnosis, inaccessibility

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to regular doctors and receiving conflicting information about fever management increased concerns.[11]

High and rapidly rising temperature, as well as physical symptoms associated with fever, caused concern in most parents surveyed. Seventy-four percent of parents felt that the elevated temperature from fever was dangerous and 90.3% always try to treat it. Most Canadian parents fear their child's fever, resulting in aggressive surveillance and treatment. Parents expect information about fever etiology and how to care for their ill child.[12]

All the parents in another study believed that fever could cause at least one harmful effect and 89.9% (n = 349) believed that, if left untreated, it can cause brain damage or seizures.[13] In a cross sectional study, 350 parents with children less than 5 years referred to various units of clinics covered by community oriented centre of Kermanshah, and revealed that considerable efforts will be required to educate parents about fever and its management.[14]

Based on the results of many studies have tried to recognize and plan interventions helping parents specially mothers in managing their children's fever. It seems there are still misconceptions about management and complications of fever;[15] even in Iran. These studies provide a broad picture of parental fear of fever and misunderstand of it, but little insight into the reasons behind them especially to the mothers. Data are needed to assist health care providers positively influence parents' views and perceptions. This study aimed to explore the perceptions of mothers of fever in their children.

MATERIALS AND METHODS

Conventional qualitative content analysis was used to guide the project of inquiry. We chose this method because factors determining mothers' perceptions on febrile children are often difficult to quantify as they are influenced by individual and cultural differences;[16] this method also offered the possibility of explaining the intended concepts.[17] Participants were chosen purposively among mothers of febrile children with the first experience of hospitalization in two of the hospitals in … city in 2012 and were willing to express perceptions and beliefs about their child's fever. Exclusion criteria were inability to express their experiences for any reason, such as lack of interest, dialect or language differences, limitations, and inability to speak (stress, embarrassment, and so on).

The research was approved by the ethics committee of … University of Medical Sciences, Iran. All of the participants were notified of the purpose of the study; all provided oral and written consent. Participants were ensured that their identity would remain confidential and only codes and small parts of their conversations would be reported. Participants were able to discontinue their cooperation at any time without consequences.

After a brief explanation of the study, and collecting written informed consent, interviews were done and all conversations were recorded. Interviews were conducted at the mother's convenience and at the patient's bedside to avoid the mother's concern about being apart from her child during the interviews. The permission was obtained for calling for further information or clarification.

Sample size in qualitative studies is often low and depends on required information[16]

Participants were asked these main questions: 'How do you define "fever"? What were your reactions to your child's fever? What was the reason of your referring to the hospital? How did you determine the intensity of fever?', and supplementary questions were based on the participants' responses.

In qualitative content analysis, data collection and analysis should occur concurrently.[18] The analysis stages include: finding meaning units, condensing, abstracting content area, emerging codes, category and themes.[19] Each transcript was read many times to gain immersion in the data. The codes were placed in categories. When all the data had been coded and the categories condensed, each category was assessed and compared to determine whether it was saturated. Each interview took approximately 30-45 minutes, based on the tolerance and tendency of mothers. It seemed that the data had been saturated after interviews with 12 mothers of febrile children, so the sampling was ended. Two last participants gave no more information.

For enhancing credibility, researchers used prolonged engagement (allocation of sufficient time to become familiar with mothers and good communication with them for data collection), peer debriefing (all three researchers were involved in the data analysis process and agreement was reached about the selection of examples for the kind of meaning unit, the coding process, and the categories and themes). Member checks (vague statements adjusted by calling the participant, extracted concepts were returned to the participants and examined) to increased credibility. Inquiry audit by an independent qualitative researcher was considered for enhancing dependability and confirmability. Researchers tried to select different participants from different cultural and economic groups and describe study design for enhancing transferability.[16]

Findings

Encoding, classification and summarization of interviews suggested three themes related to mothers' views of having children with fever: sense of concern, the necessity for quick action and the need for protection [Table 1].

The age range of hospitalized children was from infancy to toddlerhood and their mothers' age ranged from 18 to 39 years. The majority of mothers were high school graduates up to bachelors, and housewives.

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Table 1: Mothers' perceptions of fever in children

Themes	Subthemes	Examples
Sense of concern	Concerns over cause of fever	Recognizing other symptoms
		Recognizing a disease outbreak
	Concerns over child's hospitalization	Serious condition necessitating hospitalization
	Concerns over possible side-effects of fever	Occurrence of febrile seizures
		Occurrence of brain damage
		Occurrence of being handicapped
Necessity for quick action	Gathering information	Acquire information from doctors
	Self-medication	Use acetaminophen syrup
	Referring to healthcare centres	Use rectal suppository
		Use wet sponge
		Reduced the clothes
		Referred immediately to doctors
Need for protection	Need for spiritual protection	Praying
		Promise to God
	Need for emotional protection	Need for husband protection
		Need for family support

Sense of concern

Sense of concern was the first reaction upon detection of fever in children. This sense was connected to the cause of fever in children, fear of children's hospitalization due to fever and fear of complications caused by fever.

Cause of fever in children

Mothers attempted to find the cause of fever, other symptoms present and whether a disease outbreak at the time existed-if there were a dangerous outbreak of flu, for example, the possibility of those diseases caused excessive fear and concern.

One mother said: "Honestly, I was more afraid of swine flu. I do not know exactly what it is, but since it is widely spoken about, and they say it is dangerous and one of its symptoms is also fever I feared my baby may have had swine flu. "

A one-year-old child's mother said: "I was worried why she has fever; unless it is an infection. Urinary tract infection I mean, I fear."

Fear of children's hospitalization due to fever

Fear of child hospitalization due to fever added to the concerns of parents, since they guessed their child had a serious condition necessitating hospitalization. Strain that attending the child in hospital would place on other home affairs increased concerns over the child's hospitalization.

Fear of complications caused by fever

Almost all mothers were worried about side effects, particularly febrile seizures. Although most of these mothers had not observed seizures or other side effects following fever in their child or others, it was nonetheless of such importance that they considered the likelihood as a fact. Accordingly, they anxiously attempted to take quick action to lower the fever lest the children suffer from side effects. A 6-month-old infant's mother said: "Since I heard febrile seizures may occur in children I feared my baby would have seizure and find brain problem and become handicapped."

Necessity for quick action

Following the sense of concern, mothers thought they should take quick action and try self-treatment, based on their own past experience and what they learned from others.

Gathering information

Some of mothers tried to acquire information from their families or friends and some others referred immediately to doctors and medical centres. One mother said: "When my child was an infant, I asked the doctor if my child has a fever what can I do? Based on the information given to me I tried to act."

Self-medication

Some other mothers tried to treat their child's fever by different means in order to reduce it. A 21-month-old child's mother said: "When my baby had fever, I tried to use a wet sponge and reduced his clothes to bring his fever down. As they did not respond and my baby vomited the acetaminophen syrup, I used the rectal suppository and then brought him to doctor." Some mothers attempted to lower their children's fever with traditional treatments. One of these popular beliefs is consuming cold beverages, like chicory juice, watermelon juice and other herbal brews. A mother said "When my baby had fever, I reduced her clothing and gave her london rocket beverage and chicory juice. These are cold in nature and were not ineffective and brought her fever a little down."

Referring to healthcare centres

Referral to physician and health care centres was among the measures the interviewees took, when their self-treatment was ineffective, or in some cases directly without taking any measures at home. A mother said: "That was a pretty bad experience. That day I didn't know how I went to the doctor. The baby was too hot. I feared something may happen to her. I gave her syrup but she poured it all over her clothes."

Need for protection

After resolving the initial condition of the child, mothers sought hope for the child's full recovery by appealing to spiritual and moral support resources and attempted to gain emotional and spiritual support from spouse, family members, friends, acquaintances and the medical staff, especially nurses and physicians.

Need for spiritual protection

In the spiritual support resources dimension, many mothers began to pray, sending blessings to the Holy Prophet and saying prayers to God, such as: "After several years of infertility, oh God, You have given me this child, please keep my baby for me." This was to try to maintain peace and hope in themselves and their families. In some cases, they made vows and promises to do charity and to give alms if the sick child got well.

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Need for emotional protection

Hospital admission of child and the consequent necessity for the mother to stay in hospital and care for the febrile child created a lot of stress; this intensified the need for emotional support from the husband and family. In particular, this need was more significant for mothers who were not native to the region and were temporarily living away from their families. One mother said: "That night my baby was sick, there was no one besides me to give me support. I am a stranger in this town. If at least one of my family members were here with me I would be confident that there was at least one person to help me. That night I had a lot of stress. Another mother said: "Hospital is pokey, a person feels like being in prison. The baby is sick, the environment is sad. Even calling me up by my family is encouraging. If they come to visit me I'll be mentally relaxed since I would know somebody minds me."

DISCUSSION

In our study, we found that mothers of febrile children tended to be more worried about adverse effects of fever such as seizures and brain damage. Moreover, following a child's fever, mothers were concerned about irrecoverable complications. In most studies, this issue is confirmed.[6,7,10,20] Compared to the findings of other studies, it seems mothers who participated in our study had little concern about death of children as a result of fever. They were mainly concerned about side effects and children becoming handicapped. Apparently, previous experience with children's fevers did not reduce their concern; early concerns over fever in children caused them to search for information, and perhaps this is why they were less concerned about death as an outcome of fever.

Walsh and colleagues conducted a study on 15 children's parents and concluded that they must provide parents of young children with consistent, reliable information preferably before their first child's first febrile episode.[11] Implementation of educational programs regarding the management of the febrile child are needed in the study carried out in Italy.[13]

Fever phobia continues to be a significant issue for Canadian parents. Identifying the cause (80.6%) and seriousness (87.4%) of fever were the most common stressors to them. As a result, they treat fever aggressively and often seek medical attention. The researchers recommended that good communication is important for medical staff caring for febrile children and typically leads to satisfied parents.[12] Karwowska *et al.*, in their study found that parents of febrile children tended to be more worried about adverse effects of fever such as seizures, dehydration and brain damage than parents of otherwise well children.[7]

Evidence-based educational interventions are the best way to treat and prevent fever phobia and reduce unnecessary use of health services. Parents should be taught how simply to assess the child's wellbeing (e.g. skin color, activity levels, respiratory rate, and hydration). Media and the magazines have an important role in contributing to instruction and education of caregivers. Antipyretics should be used with indications, like other drugs, and not for fever *per se*.[21] A clinical trial study on 88 mothers of children aged 5 months to 6 years in Iran, confirmed the efficiency of educational interventions in improving mother's knowledge, attitude and practice regarding prevention of febrile seizure in children.[22]

Parents can reduce their concern and fear with different methods aligned with religious and spiritual believes. Our study showed that spiritual beliefs and emotional support have a considerable impact on maternal concerns. Emotional support from spouse, family members and medical staff, as well as spiritual beliefs such as prayer create hope for the child's full recovery and greatly reduce maternal concern.

Belief that problems are a way to achieve success and greater faith reduced anxiety.[23] The results of a study in this context showed that 80.9% of parents, in order to overcome the problems of their children, had trust in God.[24] Results of another study also showed that faith in God, trusting Him to solve problems and accepting a child's illness as a fact were the predominant (97.5%) method of coping.[25] A vast number of studies indicate the positive impact of prayer on the return of a patient's health. Researchers recommend using spiritual ceremonies beside medical treatment to control and treat diseases.[26]

This study showed that after developing a sense of concern, mothers attempted to find a solution and take quick action to lower fever. These measures included self-treatment at home, use of herbal medicine, referring to health centres and even superstitions.

Al-Nouri *et al.* concluded that the majority of mothers started antipyretic medication and antibiotics for children and applied a wet sponge with alcohol for them.[8] Another study showed that the majority of mothers started antipyretic medications for mild fever (less than 38.5° C) and only half used the correct dose of medication; most wet sponge application was done incorrectly.[10] Mothers in the present study sought reasons for the fever and took quick action to reduce the fever.

Parental awareness reduces misunderstanding and fear of fever. Appropriate measures promote better health during the fever phase and reduce times of medical visits. This shows the need for training by the media, physicians and health centres. While in healthy children a temperature up to 39°C does not require treatment with anti-fever medications, fear of side effects and lack of sufficient knowledge causes fever treatment in low temperatures.[3,5]

Overall, it can be said that lack of knowledge regarding what is the fever and how it could be treated still a main cause for concerns to febrile children among mothers; And since the majority of mothers interviewed conducted self-treatment measures such as using cold beverages and almost all were very concerned about irreversible complications of febrile seizure, it

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seems that providing correct information for mothers in health centres including information about febrile seizure, aetiology and prognosis of it, and how to measure a child's temperature at home are all appropriate. Based on technologies providing parents of young children with reliable information preferably before their first admissions to health care settings, and also introducing and teaching parents appropriate evidence-based websites is recommended. Parental education, especially for mothers, should be considered and, according to their spiritual beliefs, mental calmness should be provided for mothers.

One of the strengths of this study was exploring the immediate experiences of participants. However, interviewing just mothers of hospitalized children and the mothers excessive needs for support because of being in hospital for some days and also, due to the the nature of qualitative studies in type of sampling which is purposive and small numbers, the findings cannot be generalized and only provide basic information for further investigation specially in developing an empowering educational model in order to strengthen mothers in dealing with fevers.

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