ORIGINAL ARTICLE

Complementary and alternative medicine experiences of mothers in the treatment of infantile colic

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ABSTRACT

Lack of effective medical treatment in infantile colic (IC) causes desperate mothers to apply for complementary and alternative medicine (CAM) treatments. Due to the possibility of benefits, the risks that may be incurred by these methods are often ignored by the parents. Therefore, information on the use of CAM methods in IC is needed. The aim of this study is to reveal the CAM experiences of mothers in IC treatment and the demographic characteristics that affect them. Mothers whose children were diagnosed as IC by a physician in the past were included in the study. The sociodemographic characteristics of the mothers, IC-diagnosed baby characteristics and CAM experiences were investigated face to face with a structured questionnaire. Sixty-six of 96 mothers who participated in the study used the CAM method. There was a statistically significant difference between the use of CAM and the education level of mothers ($p < 0.05$). We determined that 74% of mothers informed their doctors before starting treatments, and 82% do not believe if the CAM method could cause any harm that they would not notice by observing. The results showed that CAM methods are commonly used in IC treatment. According to these findings, mothers who use these methods believe that they are always harmless and have no side effects. For this reason, physicians should be careful about the adverse effects that may occur due to the CAM methods, which are widely used.

KEYWORDS

Infantile colic; Complementary therapies; Traditional medicine.

INTRODUCTION

Infantile colic is a health problem worldwide, which develops in one of every five babies younger than 3 months, characterised by uncontrollable crying and unrest in babies who are otherwise healthy. Although infantile colic (IC) is described as a self-limiting and benign

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Received: 19 September 2019 | **Accepted:** 14 September 2020

How to cite this article:
Oflu A, Bukulmez A, Gorel O, Acar B, Can Y, Ilgaz NC, Yenioglu I, Uygun S, Sulecik S. Complementary and alternative medicine experiences of mothers in the treatment of infantile colic. Sudan J Paediatr. 2020;20(1):49–57.
https://doi.org/10.24911/SJP. 106-1568897690

situation, it is very troubling for parents [1]. The diagnostic criteria, also known as the 'rule of three', are defined as unbroken crying episodes of infants younger than 3 months, which cannot be stopped more than 3 hours a day, more than 3 days in a week and during at least 3 weeks [2, 3]. Complementary and alternative medicine (CAM) is defined as a variety of health applications and products that are not defined in traditional medicine. Whilst complementary medicine is used for the purpose of contributing to traditional medical methods, an alternative medicine is used instead of traditional medical methods. Although they are less commonly used in children than adults, parents' tendency to use CAM treatments has been increasing [4]. Since there is no safe and effective pharmacological treatment for IC, the use of CAM methods in IC treatment has also been increasing [5].

The aim of this study was to determine the frequency and associated demographic characteristics of CAM use in the treatment of IC. In addition, it was aimed to determine the experiences of mothers about CAM methods, to investigate their perspectives and to determine the sources from where they learned about these methods.

MATERIALS AND METHODS

Study design

This study was designed as a cross-sectional descriptive study. It was conducted in the Paediatric Outpatient Clinic at Afyonkarahisar Health Sciences University Hospital between 9th of January 2017 and 9th of March 2017. Mothers with children aged 2–5 years, who applied for healthy child visits and diagnosed as IC by a physician in the past, were included in the study. Mothers who had children with serious health problems in the postnatal period were excluded from the study. The age limit of children was set as 2–5 years to prevent mothers' recall bias.

Study sample

The population of the study was the mothers with children aged 2–5 years seen at the paediatric clinics for healthy child visits. The number of mothers who applied to the paediatric outpatient clinic was calculated as 3140/2 months based on previous months' records. Accompanied by these data, the sample size was calculated as 96 in the 90% confidence interval using 'OpenEpi (https://www.openepi.com/SampleSize/SSPropor.Htm) calculator' according to n = [DEFF*Np(1−p)] / [($d^2/Z^2_{1-\alpha/2}$*(N−1)+p*(1−p)] equation. The parameters were sustained as population size (N): 3140, % frequency of IC in the population [7] (p):10%+/−5 and confidence limits as %(d): 5%.

Data collection

The data were obtained with the method of face-to-face interviews using a structured questionnaire. This included the demographic characteristics of the participants (maternal age, marital status, education level, occupation and number of children), the characteristics of infants diagnosed as IC (the number of children, sex, birth weight, nutrition characteristics in the first 3 months, the existence of an additional accompanying disease, duration of the colic and the use of medical treatment for IC) and whether they used the CAM methods for their babies. In nonuser group, the reason why they did not use any methods was ascertained, whereas, in the user group, the CAM methods that they used, their knowledge sources regarding CAM methods, whether they consulted a doctor before the use of CAM and whether they had benefited from the CAM method were questioned.

The ethics committee approval was received for this study from the AFSU Local Ethics Committee for Clinical Studies (2011-KAEK-2, Decision no: 2017-1-11, date: 6th January, 2017). All study procedures were performed in accordance with the Declaration of Helsinki.

Statistical analysis

The results were expressed as numbers or percentages. For categorical data, 2 × 2 Chi-square test and Fisher's exact test were used in the comparison of two independent groups. The Chi-square test was used for the comparison of more than two independent groups. The statistical package for the Social Sciences version 21.0 **(SPSS Inc., Chicago, IL)** was used to evaluate

the data. A p-value < 0.05 was considered to be statistically significant.

RESULTS

General and demographic characteristics of mothers

Ninety-six mothers who stated that their baby was diagnosed as IC by a physician were included in the study. It was found that 66 (68.7%) of 96 mothers who participated in the study used CAM methods for IC. The proportion of highly educated mothers was significantly higher in CAM user group (p = 0.012). The power analysis of the difference was measured as 81.3%. There was no significant difference between CAM users and nonusers in terms of residence, mother's age at birth and number of children (Table 1).

General characteristics of infants

When gender distribution in IC babies of participant mothers is examined, the female ratio of infants diagnosed as IC was 45.5% in the CAM user group. There was no significant difference between CAM user and nonuser group according to the child's birth week, birth weight, onset of symptoms, duration of symptoms and nutritional status of the child (Table 2).

Table 1. *General and demographic characteristics of mothers (n = 96).*

	CAM users (*n* = 66)	Nonusers (*n* = 30)	Significance*
Age of mothers, *n* (%)			*p* = 0.835
<25-year old	17 (26)	7 (23)	
25–35 years old	39 (59)	17 (57)	
>40-year old	15 (15)	6 (20)	
Education level of others, *n* (%)			*p* = 0.012
Primary	16 (25)	17 (56)	
Secondary	35 (42)	11 (37)	
Higher education	15 (23)	2 (7)	
Working status of mothers, *n* (%)			*p* = 0.749
Yes	10 (15)	3 (10)	
No	56 (85)	27 (90)	
Residence, *n* (%)			*p* = 0.506
Village – Town	27 (41)	15 (50)	
Province – City	39 (59)	15 (50)	
Number of children, n (%)			*p* = 0.586
1	26 (39)	9 (30)	
2	26 (39)	13 (44)	
3	10 (16)	6 (13)	
>3	4 (6)	6 (13)	
Mother's age at birth (years), *n* (%)			*p* = 0.237
<20	10 (15)	5 (13)	
20–35	46 (70)	19 (57)	
≥35	10 (15)	10 (30)	

CAM: complementary and alternative medicine.

*The *Chi-Square test* of independence and Fisher's exact test are used in the comparison of two categorical variables. The *Chi-square test* of independence is also used to compare more than two categorical variables. p < 0.05 is considered as statistically significant.

Table 2. *General characteristics of infants (n = 96).*

	CAM users (*n* = 66)	Nonusers (*n* = 30)	Significance*
Gender, *n* (%)			*p* = 0.514
Female	30 (45)	14 (47)	
Male	36 (55)	16 (53)	
Birth week, *n* (%)			*p* = 0.073
<38	20 (30)	6 (20)	
38–42	46 (70)	22 (73)	
>42	0 (0)	2 (7)	
Birth weight, *n* (%)			*p* = 0.657
<2,500 g	14 (21)	4 (14)	
2,500–4,000 g	50 (75)	25 (83)	
>4,000 g	2 (4)	1 (3)	
The age of onset of infantile colic symptoms (week), *n* (%)			*p* = 0.666
<3	34 (52)	19 (57)	
≥3	32 (48)	15 (43)	
Duration of infantile colic (week), *n* (%)			*p* = 0.817
3–12	22 (33)	9 (30)	
>12 week	44 (67)	21 (70)	
Nutritional status of the infant in first 6 months, *n* (%)			*p* = 0.317
Only breast fed	38 (58)	18 (60)	
Breast fed and formula fed	25 (38)	9 (30)	
Only formula fed	3 (4)	3 (10)	

CAM = complementary and alternative medicine.

*The *Chi-Square test* of independence and Fisher's exact test are used in the comparison of two categorical variables. The *Chi-square test* of independence is also used to compare more than two categorical variables. $p < 0.05$ is considered as statistically significant.

The CAM methods used by mothers for their babies and for themselves

The most common CAM method used by mothers for their babies was massage (59.0%). The most second frequent methods were determined as fennel tea (48.4%) and rhythmic rocking (48.4%). The least applied methods were amulet (3.0%), acupuncture (3.0%) and poppy oil (3.0%). A minority (4.5%) of mothers swaddled their babies. These mothers explained that their babies were swaddled from torso and arms, but they left their babies' hips and legs out of the swaddling (Figure 1). The most common CAM method used by mothers for themselves (Figure 2) was fennel tea (57.5%). It was observed that mothers learnt the CAM methods most frequently from their family elders and second frequently from their doctors (Figure 3).

We found that 46.9% of mothers who used CAM had complete benefits after the treatment, 34.8% of them had partial benefits and 18.3% had no benefit. All mothers stated that they did not have any negative effects of CAM methods. The majority (81.8%) of mothers do not believe that CAM methods could cause any harm that they would not notice by observing.

Before applying the CAM methods, 74.2% of mothers informed their doctors. In the group of

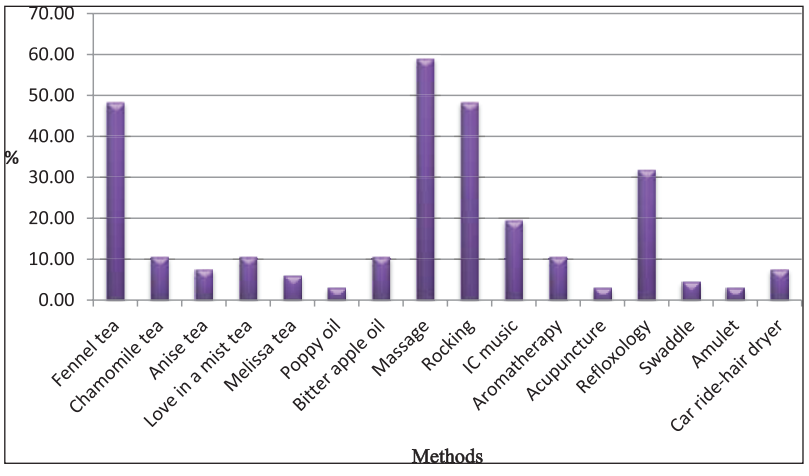

Figure 1. Complementary and alternative medicine methods used by mothers for babies.

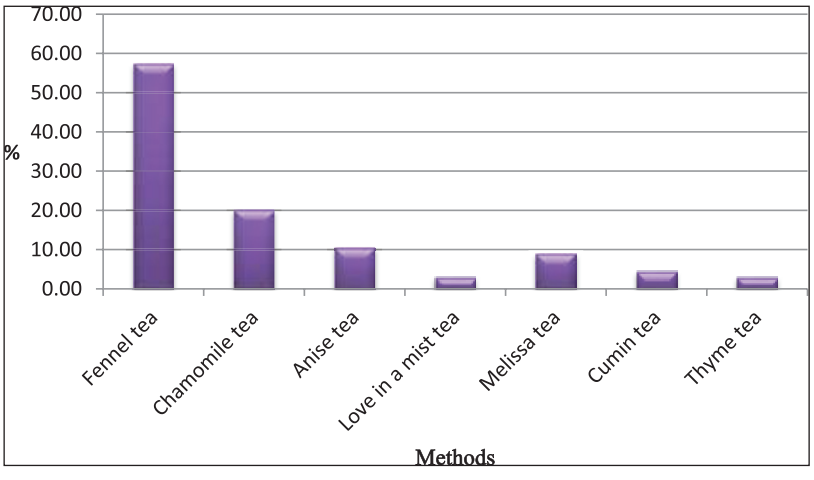

Figure 2. Complementary and alternative medicine methods used by mothers for themselves.

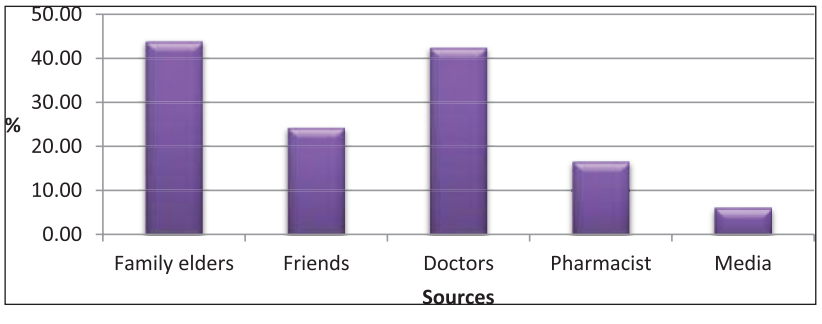

Figure 3. Knowledge sources of complementary and alternative medicine methods.

mothers who did not consult their doctors, 68.1% of them considered that it would not be harmful, 28.7% thought that the physicians would not have any idea on this subject and 3.2% of them feared their physician's criticism. All mothers expect that their doctors should have sufficient knowledge

about CAM methods. In nonuser group, half of the mothers found CAM methods untrustworthy and the remaining of them found them useless.

DISCUSSION

Parents frequently refer to CAM methods because of various health problems in their children. Zuzak et al. [8] compiled data from 20 European countries, including Turkey, and reported the prevalence of CAM use in children living in Europe as 52% (ranging from 5% to 90%). According to this study, the frequency of CAM use in children varies between 46% and 77% in Turkey [8]. Ozturk et al. [9] determined the frequency of CAM use of children as 60% in Turkey. Although there are many studies in Turkey investigating the use of CAM, the present communication is the first study to investigate the use of CAM in IC in Western Anatolia. In this study, we determined the frequency of CAM use in IC as 66.0%. These rates show that the prevalence of CAM use in Turkey is higher than the mean rate of European countries. Although it was suggested that this difference may be related to Turkey being a developing country [8], the parallel increase of maternal education level and the frequency of CAM use according to the results do not support this view.

Some studies in literature show that sociodemographic differences affect the usage of CAM methods [10]. Adult women with chronic disease, high education and high-income levels frequently apply the CAM methods [11]. On the other hand, Kiyak et al. [12] found no significant relationship between the sociodemographic characteristics of patients and CAM use in their study. It is also known that the relationship between CAM use, ethnic origin and education is complex for children [13]. Spigelblatt et al. [14] found that mothers with high educational levels applied CAM methods more frequently. Bulbul et al. [15] reported that the methods of CAM are used more frequently by nonworking parents. Another study found that neither ethnic origin nor parental education level affected the use of CAM methods [16]. This study determined that the frequency of CAM usage increased as the level of education increases ($p < 0.05$). The effect of higher education level on the use of CAM can be interpreted in two ways. The first increases the level of education, which leads to an increase in mothers' socioeconomic power, so mothers can reach CAM methods easier. Another reason is that mothers who have higher education levels go to doctors' clinics frequently and regularly. According to the results, the second most frequent source for learning CAM methods was physicians, and it is consistent with this idea.

This study found that mothers applied massage as the most frequent method for IC treatment. Baby massage is a recommended treatment method for IC and is often applied. A study in the German community covering different cultures found that 50% of mothers applied massage treatment. It is known that the baby massage calms the baby by providing many sensory stimuli and improves maternal–infant interaction [17]. We found the rhythmic rocking as the second most frequent method that mothers resorted. Rocking is a method used by mothers to calm their babies and is applied in lap, bed, stroller, or automatic cradle waving [18]. In a study comparing the effectiveness of massage and rocking in IC infants, massage significantly improved the complaints compared to rocking [19]. It is determined in the study that the other second most frequent method used by mothers was fennel tea. In literature fennel, licorice root and chamomile teas have been reported as the most frequently used herbal teas for colic treatment [18]. We did not detect any mother using licorice root in this study. Chamomile, melissa, love-in-a-mist, anise, cumin, thyme teas, bitter apple and poppy oils were other herbal treatments. Mothers in this study also consumed herbal tea to eliminate the colic in their babies. The studies which show that herbal tea is effective in colic treatment are rare. There are two major drawbacks in the use of herbal teas for treatment purposes: one is that the doses and activities are not standardised and the other is that it reduces the amount of nutrition [20]. The other frequently used method was reflexology. The origin of the reflexology is the prediction of points in the hands and feet that reflect each organ. The aim is to stimulate the pituitary gland to release endorphins and enkephalin by applying massage to these reflex points and relieving the pain and discomfort of the body [21]. A study conducted in Turkey reported that the score of IC symptom

was significantly decreased in IC infants with reflexology method [22].

Currently, acupuncture is one of the recommended CAM methods for the treatment of IC. It has been suggested that acupuncture may counteract intestinal dysmotility in infants with IC by affecting parasympathetic vagal reflexes and central opioid-mediated inhibitor pain pathway [23]. The results of the studies related to the acupuncture are contradictory. In the single-blind study of Landgren et al. [24], IC infants were compared: those who received minimal acupuncture and standard acupuncture with those who did not receive treatment. It was suggested that both minimal and standard acupunctures were effective and safe [24]. On the other hand, Skjeie et al. [25] concluded, in the systematic review of their practice, that needle percutaneous acupuncture therapy should not be recommended for IC infants who are not old enough to be approved for this procedure. In this study, a few mothers used this method and had some partial benefits.

People who have applied to CAM methods for different health problems find that the methods are safe, and some believe that they will not have any side effects. It has been emphasised that conventional treatments may interact with CAM methods. This is why it is important for parents to discuss those methods with their doctors [26, 27]. According to the results, three-quarters of mothers had informed their doctors before they applied to the CAM methods. In the group who did not inform the doctors, the majority of mothers think that these methods are harmless. One-third of them believe that their doctor will not have knowledge about CAM. A very small proportion feared a negative response from the doctor. McCann and Newell [26] reported that many parents abstained from the negative attitude of their doctors, but in the group discussing with doctors, 85% of the doctors exhibited a positive attitude for CAM methods. In this study, it can be concluded that doctors are the second important source suggesting CAM and are not on the opposite side regarding the use of these methods.

There are some limitations to be taken into account in this study. First, it was a descriptive study, so any outcome related to the causality is not possible to allege. Second, it was a survey study, which might have the risks of perfunctory, exaggeration, concealment and short-term memory biases. The third limitation was the diagnosis of IC based on the reports of the mothers and not the hospital records.

CONCLUSIONS

The results show that CAM methods are used at a high ratio for IC treatment. These treatments may be the source of inspiration for the future development of effective treatments since effective treatment has not yet been developed. On the other hand, most of the mothers believe that CAM methods are harmless. As CAM methods are widely used nowadays for the treatments of IC or other health problems, physicians should be careful about the possible adverse effects of these methods.

CONFLICTS OF INTERESTS

The authors declare that they have no conflicts of interest.

FUNDING

None.

ETHICAL APPROVAL

Ethics committee approval was received for this study from the AFSU Local Ethics Committee for Clinical Studies (2011-KAEK-2, Decision no: 2017-1-11, date: 6th January, 2017). Written informed consent was obtained from the participants.

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