

**Assessment of maternal knowledge about infantile colic in Saudi Arabia**

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**Abstract**

**Introduction:** The infantile colic is a difficult experience met by parents in the first few months of an infant's life. This may lead to increased discomfort for infants as well as psychological distress for mothers. This study aimed at assessing the baseline knowledge of mothers in Saudi Arabia about infantile colic mainly in regard to the etiology and management.

**Methods:** In this cross-sectional study, a questionnaire was distributed among mothers in six primary healthcare centers (PHCC) in Riyadh, Saudi Arabia, during their visit for immunization clinics in 2016. The questionnaire consisted of two domains for determining the sociodemography characteristics and the maternal knowledge of participants about infantile colic. SPSS version 20 and chi-square test were used for data analysis.

**Results:** A total of 230 mothers completed the survey questionnaire. Of these, 208 participants were Saudis. The majority of the participants were in the age group of 18–29 years (42.6%). The average age of the infants in this study was found to be 5.75±4.26 months. Eighty percent replied that they did not have any previous knowledge of infantile colic; 42.6% mothers believed that the causes of infantile colic were unclear and might involve several factors; 36% of the participants perceived milk allergy as the attributing cause for infantile colic. The source of knowledge about infantile colic was mainly through experiences of dealing with previous siblings who have the same issue (34.4%); 27.4% of mothers prefer the use of herbal medicines to treat this condition.

**Conclusions:** It is recommended that health education needs to be provided to mothers at outpatient clinics during their antenatal hospital visits. This reduces the discomfort of infant and distress in mothers.

**Keywords:** Maternal knowledge, Infantile colic, Psychological distress, Health education

**1. Introduction**

The infantile colic is a difficult experience met by the parents in the first few months of an infant's life. It is a condition in which an infant shows signs of distress such as crying, moaning, etc. for a considerable period without any specific reason. It is estimated that this condition affects about 10%-30% of infants worldwide (1). Despite high prevalence of this situation, the exact underlying etiology is unclear so far and subsequently no standardized therapeutic modalities implemented. The vicious cycle of continuous infant crying and maternal distress may lead to an adverse psychosocial impact on the family, including child abuse. Recent evidence suggests that prolonged periods of this condition in infants may lead to anxiety and fear in the parents and family members (2). The maternal knowledge about this benign situation and its natural course may alleviate those negative impacts and give the mother more confidence in her parenting. This study aimed at assessing the baseline knowledge of mothers in Saudi Arabia about infantile colic mainly in regard to the etiology and management. The results of this study will provide evidence of knowledge possessed by mothers regarding infantile colic and management strategies adopted by them.

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This evidence helps physicians to implement strategies according to the maternal knowledge to reduce the psychological distress in mothers in this situation.

## 2. Material and Methods

### 2.1. Study design and study population

In this cross-sectional survey, the questionnaire was distributed among mothers in six PHCCs in Riyadh, Saudi Arabia, during their visit for immunization clinic from February to April 2016. Those clinics were selected randomly. The questionnaire consisted of two domains; the first domain was allocated for demography of the participants, including mothers and infants ages, level of education, and number of children. The second domain contained questions to assess the maternal knowledge about infantile colic.

### 2.2. Ethical considerations

The participants were informed verbally and in writing on the questionnaire cover letter that their participation in this research project was completely voluntary. Completing and submitting the survey meant they have given their consent to participate in the study. The data collected from the participants were kept confidential.

### 2.3. Data analysis

All the data were represented by descriptive statistics (either mean±SD or percentages). IBM© SPSS© Statistics version 20 (IBM© Corp., Armonk, NY, USA) was used to perform the statistical analysis of the data. A chi-square test was used to determine the association of mother's age and the previous knowledge of colic pain. The significance level was considered at  $p < 0.05$ .

## 3. Results

### 3.1. Demographic profile

This study was conducted at six PHCCs in Riyadh, Saudi Arabia; the data were collected from a total of 230 mothers using the survey questionnaire. Of these, 208 participants were Saudis. The majority of the participants were in the age group of 18–29 years (42.6%) and 30–39 years (42.2%). More than half of the participants completed their university level of education (52.6%). About more than one-third of the participants had two or three children (43.5%) (Table 1). The average infants age in this study was found to be  $5.75 \pm 4.26$  months.

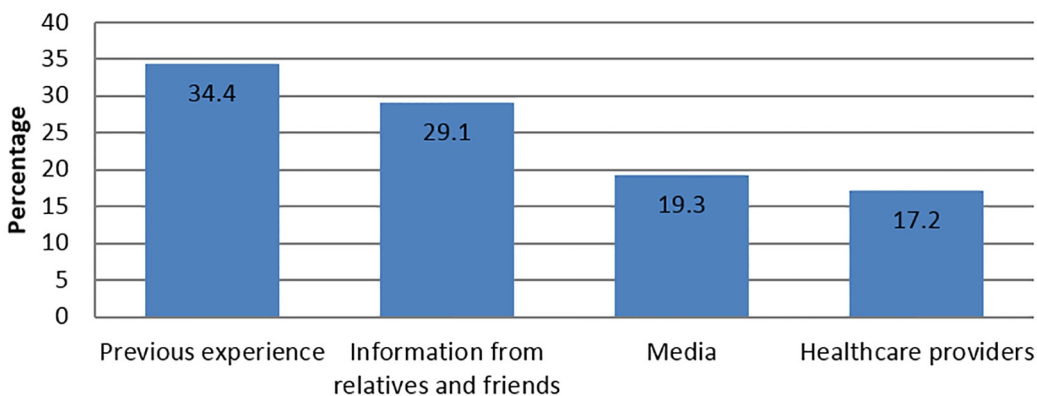
**Table 1.** Demographic characteristics of the participant mothers

Characteristics	<i>n</i>	%
Maternal age (year)	18–29	98 42.6
	30–39	97 42.2
	>40	35 15.2
Nationality	Saudi	208 90.4
	Non-Saudi	22 9.6
Education level	Read and write	6 2.6
	Primary school level	5 2.17
	Intermediate school level	21 9.13
	Secondary school level	77 35.47
	University level	121 52.6
Number of children	1	64 27.8
	2–3	100 43.5
	More than 3	66 28.7

### 3.2. Maternal knowledge of infantile colic

The second part of the questionnaire assessed the knowledge of mothers regarding the infantile colic and its management. Of the total 230 participants, a majority (80%) replied that they do not have any previous knowledge of infantile colic. Most of the participants (90%) believed that there is no gender difference in the frequency of occurrence of infantile colic. Six percent of mothers believed that it is more common in girls, whereas remaining 4% perceived it to be more pronounced in boys. Ninety-eight out of 230 (42.6%) mothers believed that the causes of infantile colic were unclear and might involve several factors; 36% of the participants perceived milk allergy as the attributing cause for infantile colic; 10% believed that it is due to gastroesophageal reflux disorder; 2.6% attributed this to decreased emotional bonding between mother and the infant, and the remaining 8.8% of participants said they

have no idea of the causative factors of infantile colic. The source of knowledge about infantile colic was mainly through experience from dealing with previous siblings who have the same issue (34.4%) followed by getting the information from relatives and friends (29.1%), then through media (19.3%) and lastly from healthcare providers (17.2%) (Figure 1). By applying a chi-square test, it was seen that mothers in the age range of 18–29 years were found to have more knowledge of colic pain, and this association was found to be statistically significant ( $p=0.004$ ) (Table 2). On performing the chi-square test, it was seen that the mothers with one child were found to have more knowledge of colic pain and this association was found to be statistically significant ( $p=0.038$ ) (Table 3).



**Figure 1.** Source of knowledge of infantile colic

**Table 2.** Relationship between maternal age and knowledge of colic pain

Maternal age (year)	Knowledge of colic pain		Total
	Yes	No	
18-29	29 (29.6%)	69 (70.4%)	98
30-39	13 (13.4%)	84 (86.6%)	97
>40	3 (8.6%)	32 (91.4%)	35

Pearson Chi-Square=11.290, df=2,  $p=0.004$

**Table 3.** Relationship between number of children and knowledge of colic pain

No. of children	Knowledge of colic pain		Total
	No	Yes	
1	48 (75%)	16 (25%)	64
2-3	77 (77%)	23 (23%)	100
>3	60 (90.9%)	6 (9.1%)	66

Pearson Chi-Square=6.552, df=2,  $p=0.038$

### 3.3. Management of infantile colic

Among the 230 participants, one-third mothers (33%) reported that they do not use any management techniques for infantile colic and rather adapt to the situation; 27.4% of mothers prefer the use of herbal medicines to treat this condition; 18.3% considered alteration of milk formula as a remedy; 1.7% reported that they would stop breastfeeding and start formula feeding. About one-fifth of the participants gave no response to this question.

## 4. Discussion

Evidence suggests that infantile colic is a common condition seen in about one and five infants. It commonly occurs in the first three months after birth (3). As this is a self-limiting condition, doctors place much less emphasis on its treatment. This may be because of exhaustion and psychological distress in the parents and the family. Hence, it is important to assess the maternal knowledge regarding this condition, which may thereby help in reducing the psychological distress among them. In the present study, 80% of mothers reported that they do not have any previous knowledge of infantile colic. In this study, about 90% of the participants reported that there is no gender difference in the causation of infantile colic. Evidence from a review published in 2007 supports the perception of mothers that there were no gender differences in occurrence of infantile colic (4). Majority of the mothers in this study believed that there are multiple factors associated with the occurrence of infantile colic. Other causes

identified by remaining mothers were milk allergy, gastroesophageal reflux, and decreased emotional bonding between mother and baby. Evidence from a recent review identifies multiple factors responsible for infantile colic such as lactose intolerance, gastroesophageal reflux, feeding disorders, gut hormones, and microflora and psychological factors such as reduced bonding of mother with child (1). Based on these findings, it is evident that the participants were having better knowledge of the possible causes of the infantile colic. In this study, it was observed that mothers with one child were more knowledgeable of infantile colic. There is an evidence that the prevalence of infantile colic is higher in the first-born child (5). The majority of mothers reported that their source of knowledge regarding this condition was their own experience with the previous child (34.4%), followed by from relatives and friends (29.1%), then through media (19.3%), and lastly from healthcare providers (17.2%). These findings were in concurrence with the previous findings in which a majority of mothers reported their source of knowledge being their own experience from a previous child and from their parents and friends (6). It is evident from the results that the healthcare providers were the last option to gather knowledge regarding infantile colic in these study participants. These findings were similar to a study published in 2009, which reported a lower percentage of mothers relying upon physicians regarding the information of infantile colic (7). It was observed in our study that the mothers in the age range of 18–29 years were found to have more knowledge of colic pain, and this relation proved to be statistically significant. These findings were supported by a study conducted on Nigerian mothers, which reported that younger mothers worry more about the symptoms of infantile colic in the child (8). The possible explanation for this finding may be that, as young mothers worry more about their first child, they try to gather information from various reliable sources regarding colic pain. Thus, they tend to be more knowledgeable. The majority of study participants reported that they do not use any management methods for treating infantile colic. Use of herbal medicine (27.4%) for the management of infantile colic was found to be greater than other methods. These results were in concurrence with findings of another study, which reported that 50% of mothers opted for herbal medicines for the management of infantile colic (7). Yet another study also reported the mothers' preference of herbal medicines over pharmacological drugs (9). The effectiveness of the herbal medicines over conventional treatment drugs was proved in several studies (10, 11); 18.3% of participants considered change of milk formula as a management strategy to deal with this condition (Table 4). A cross-sectional study published in 2014 identified the reasons of changing the milk formula for infants in Saudi Arabia. The most common reason for changing the formula was found to be infantile colic pain in the infants (12). A lower percentage of participants (1.7%) considered stopping breastfeeding as the management strategy. Low values show that the participants were more favourable for breastfeeding in this condition also. The importance and benefits of breastfeeding were highlighted in a recent study, which reports that breastfeeding helps protect infants from several ailments (13). A review published in 2016 provided evidence that paediatric massage therapy is effective in treating the infantile colic. This involves providing soothing massage to the infant, which can be enjoyable to mothers and also has fewer side effects than other management techniques. This management technique will calm the infant as well as provide relief to the parents (14). In order to reduce the distress in parents and discomfort to the child, the physicians must be able to provide individualized management methods to each infant. The strength of this study resides in the fact that it included the mothers' perceptions regarding the etiology and management of infantile colic. The limitation of this study is its sample size and generalizability. Further large-scale community surveys are recommended in this area for drawing conclusions.

**Table 4.** Management strategies used by the mothers for infantile colic

Management	<i>n</i>	%
Herbal medicine	63	27.4
Alteration of milk formula	42	18.3
Stopping breastfeeding and starting formula feeding	4	1.7
Adaptation with situation	76	33
No response	45	19.6

## 5. Conclusions

The results of this study have provided evidence, on a small number of patients, on maternal knowledge regarding etiology and management of infantile colic in six primary healthcare centers of Saudi Arabia. Mothers in this study were found to have less knowledge of infantile colic. This may lead to increased discomfort to the infants as well as psychological distress in mothers. Hence, it is recommended that health education needs to be provided to mothers at the outpatient clinics starting from their antenatal hospital visits across the routine postnatal well baby clinic visits.

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Nothing to acknowledge.

**Conflict of Interest:**

There is no conflict of interest to be declared.

**Authors' contributions:**

All authors contributed to this project and article equally. All authors read and approved the final manuscript.

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