

# Knowledge and Practice of Mothers in the Management of Children's Diarrhea, in Northwest, Iran

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**Background:** Diarrhea is the most common pediatric disease. The leading cause of death from acute diarrhea is the loss of water and essential minerals, which can be compensated by oral rehydration solution (ORS). The role of mothers is vital in health promotion, disease prevention and patient care.

**Objectives:** The present research aimed to investigate the knowledge and performance of the mothers of diarrheic children referring to the Children's Hospital, Tabriz, Iran.

**Patients and Methods:** Predesigned questionnaires were used to collect data from the mothers of diarrheic children aged younger than 12 years, referring to the outpatient clinic of the Children's Teaching Hospital in Tabriz. Demographic information of the mother and child, mothers' knowledge about pediatric diarrheal disease, and their performance in the case of pediatric diarrheal disease, were investigated.

**Results:** A questionnaire was administered to 956 mothers, of whom 3.03%, 21.75% and 75.22% were uneducated, had a university education, high school diploma or less, respectively. Furthermore, 95.5% of the mothers referred to a doctor after the first day following an episode of diarrhea. The knowledge of 37.23%, 44.24%, and 18.53% of the mothers was poor, medium and good, respectively. Moreover, the performance of 51.98%, 30.03% and 17.99% of the mothers was poor, medium and good, respectively. A significant relationship was found between maternal education and knowledge ( $P = 0.000$ ), but no relationship was observed between maternal age and knowledge ( $P = 0.36$ ). There was also a direct relationship between maternal education and performance, which was significant ( $P = 0.001$ ). There was no relationship found between any other variables.

**Conclusions:** The knowledge and performance of the majority of mothers were medium or poor. Training programs are recommended for mothers, medical students, pediatric, internal and infectious residents, in addition, retraining programs are recommended for GPs and related specialists.

**Keywords:** Diarrhea; Pediatrics; Knowledge

## 1. Background

Diarrhea is the most prevalent pediatric disease and cause of death in children under five years-of-age in developing countries (1, 2). Moreover, diarrheal diseases cause serious economic problems for developing countries. The leading cause of death from acute diarrhea is the loss of water and essential minerals, which can be compensated in most cases by an oral rehydration solution (ORS) (3-5). The role of the family, especially the mother, is vital in health promotion, disease prevention and patient care. In the actions mothers take, the minimum required is a brief and superficial examination of the dehydrated child and the amount and type of liquid fed to him/her in the case of diarrhea, however, these actions are vital for pediatric welfare (6). Other factors involved in the care and development of diarrheic children include the quality and quantity of food, along with other factors involved in their nutrition. Maternal knowledge and performance

play a central role in this regard (7-9).

One-third of hospital beds are occupied by diarrheic children in the majority of developing countries, most of whom are cured using expensive IV rehydration methods and consumption of ineffective medications (10). The leading cause of death from acute diarrhea is a result of water loss and essential minerals, which can be compensated by an oral rehydration solution (ORS) in most cases. ORS is absorbed through the small intestines even during severe diarrhea and replaces water and electrolytes excreted via diarrheic stools (11). Nevertheless, we still witness poor treatment, consumption of unnecessary medications, loss of resources and also economic losses (12). There may be a relationship between maternal knowledge and performance, and occupation, education, husband's occupation, husband's education, place of residence, income level, number of children, child's birth ranking, his/her age, and history of diarrhea (13).

### Implication for health policy/practice/research/medical education:

This is a descriptive cross-sectional study conducted in the Children's Hospital, Tabriz City, IR Iran, from 2012-2013.

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## 2. Objectives

The present research aimed to investigate knowledge and performance in the mothers of diarrheic children referring to the Children's Hospital, Tabriz.

## 3. Patients and Methods

This was a descriptive cross-sectional study conducted in the Children's Hospital, Tabriz, from 2012-2013. Questionnaires were given to 956 mothers. The inclusion criterion was having a diarrheic child, aged less than 12 years, referring to the Children's Hospital, Tabriz. According to the World Health Organization, the definition of acute diarrhea is the passage of loose or watery stools, at least three times in a 24 hour period, and lasting for less than 14 days. Research data was collected via a questionnaire. The content validity of the questionnaire was based on scientific resources and a reliability of 87%, which was calculated by a Cronbach's alpha test (14, 15). Questionnaires had three sections; the first section included demographic information of the mother and child (maternal age, pediatric age, maternal education); the second one included questions regarding maternal knowledge about pediatric diarrheal diseases; and maternal knowledge was determined by summing up the scores from responses to the questions. A correct response was given a score of one, and an incorrect one, a score of zero. The total possible score for knowledge was 24. 'Good knowledge' was described by an aggregate score 16-24, 'medium knowledge' 8-16, and 'poor knowledge' by 8 or below. The last section included questions regarding maternal performance in cases of pediatric diarrhea (oral rehydration, increased fluid consumption, continuation and increase of breastfeeding and feeding, avoiding antibiotics and the time of referral to a doctor). Total possible score for performance was 12. 'Good performance' was described by an aggregate score 9-12, 'medium performance' 5-8 and 'poor performance' by 4 or below. After completion of the questionnaires, each question was given a score with regard to its importance (14, 15). Scores were divided into good, medium and poor groups. The data were analyzed using a chi-square test and SPSS (version 11.5) software ( $P < 0.05$ ).

## 4. Results

The mean maternal age was 29.36 years. The youngest and oldest mothers were 17 and 49 years, respectively. The mean pediatric age was 31.34 months. In addition, 52.4% and 47.6% of the children were female and male, respectively. Among the mothers, 3.03%, 21.75% and 75.22%, were uneducated, had a university education, high school diploma or less, respectively. In total, 95.5% of the mothers referred to a doctor after the first day following their infant's diarrhea. The knowledge of 37.23%, 44.24%, and 18.53% of the mothers was poor, medium and good, respectively. Furthermore, the performance of 51.98%,

30.03% and 17.99% of the mothers was poor, medium and good, respectively, Table 1. There was a significant relationship found between maternal education and knowledge ( $P = 0.000$ ), but no significant relationship was observed between maternal age and knowledge ( $P = 0.36$ ). There was also a direct significant relationship between maternal education and performance ( $P = 0.001$ ). There was no relationship found between the other variables (Table 2).

## 5. Discussion

According to this present research, the knowledge and performance of the majority of mothers were either medium or poor, as only about 20% of mothers had a good knowledge and performance in the case of pediatric diarrhea. The results of the studies conducted in Iran are inconsistent with those of other countries (16). A study by Asakitikpi in Nigeria showed that mothers do not use ORT as a therapy in children, although they are aware of its role in the treatment of diarrhea. These mothers believe that ORT can have a role in correcting dehydration of diarrhea, but it has no ability to stop the diarrhea (17). A study by Khalili in Iran, found that maternal knowledge and performance was also medium or poor (18). In another study by McLennan, the majority of mothers had insufficient information regarding stopping feeding during the prescription of antibiotics for diarrhea (19).

**Table 1.** Drugs Used in the Management of Diarrhea Prior to the Visit (n = 956)<sup>a</sup>

Variable	No. (%)
<b>Self-Administration of Antibiotic</b>	
Yes	813 (14.5)
No	143 (85.5)
<b>Use of ORS</b>	
Yes	185 (19.35)
No	771 (80.64)

<sup>a</sup> Abbreviation: ORS, oral rehydration solution

**Table 2.** Knowledge and Practice Among Mothers About Diarrhea (n = 956)

Variable	No. (%)
<b>Knowledge</b>	
Poor	356 (37.23)
Medium	423 (44.24)
Good	177 (18.53)
<b>Practice</b>	
Poor	497 (51.98)
Medium	287 (30.03)
Good	172 (17.99)

In another study by Ketsela et al. in Ethiopia in 1991, 97.4% of the mothers had an adequate knowledge (15). Moreover, in research by Datta et al. in India, mothers had poor knowledge and performance in cases of pediatric diarrhea (20). In our study, mothers had a considerable knowledge about the role of ORS in the compensation of dehydration in pediatric diarrhea, but had poor performance in using it. There was no significant linear relationship between maternal knowledge and performance in the case of pediatric diarrhea. In another study by Westaway, there was a significant relationship observed between maternal knowledge, attitudes and behavior during pediatric diarrhea and the use of ORS (21). Moreover, in a study by Mangala, there was a significant relationship found between maternal knowledge and the use of ORS in cases of diarrhea (22). In our study, 78.97% of mothers were aware of the role of ORS in the treatment of dehydration caused by diarrhea. However, only 19.35% had used ORS before referring to a doctor. The most important cause of poor performance in using ORS was its bad taste and intolerance by children. In a study by Ketsela, there was a direct relationship between maternal education and her knowledge and performance in the case of pediatric diarrhea (15). In our study, 82.94% of mothers believed that antibiotics were beneficial in cases of diarrhea, which is a considerable number. Furthermore, 14.95% of mothers arbitrarily administered antibiotics to treat diarrhea before referring to a doctor, even though they did not have any indications for using antibiotics. As mentioned previously, there was a direct significant relationship found between maternal education and performance when dealing with acute pediatric diarrheal diseases. As a result, continued maternal training for dealing with pediatric diarrheal diseases, such as face-to-face training, books, clips and posters, can be useful in the prevention and treatment of acute pediatric watery diarrhea, continuation of breastfeeding and not requiring antibiotics. With regard to the obtained results and poor maternal performance and also the expenditure on harmful anti-diarrheal drugs, it is recommended that mothers are provided with the required knowledge, via training programs and assurance about the effectiveness of ORS, so that they could obtain the required skills, and consequently pediatric mortality due to dehydration would decrease. Continuous training in society to promote the use of more fluids, continuation of breast feeding, adequate and appropriate nutrition, and taking special care of children during episodes of diarrhea are the three main factors that bring children back to health. Promotion of hygiene behaviors is effective if it is done repeatedly via appropriate communication channels over long periods of time. Obviously, by eliminating potential obstacles that prevent mothers from using ORS, an effective step will be taken in pediatric development and the provision of pediatric health. It should be noted that maternal

knowledge and performance is also influenced by the behavior of doctors and healthcare staff in health centers. One of the reasons for their belief in the use of antibiotics in the case of diarrhea is due to this fact. Therefore, training programs are recommended to be held for medical students, pediatric, internal and infectious residents, and in addition, retraining programs are recommended for GPs and related specialists.

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