

## Maternal Knowledge and Performance about Use of Iron and Multivitamin Supplements in Children in Northwest of Iran

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### Abstract

#### *Introduction*

Micronutrients deficiency, especially iron and vitamins, is a common nutritional problem among children under 2 years in Iran. The aim of the present study is to assess the awareness and performance of mothers about the use of iron and vitamin supplements in infants less than 2 years.

#### *Materials and Methods:*

This cross-sectional study was performed on 762 mothers of 6-24 months infants referred to the Children's Hospital of Tabriz in (Mar 2012-Mar 2013). They completed questionnaire. Data was collected through a three partite questionnaire and analyzed through interviews with mothers about the use of iron and multivitamin supplements. Data were analyzed by descriptive- analytic tests and using SPSS 11.5.

#### *Findings:*

The results showed that the number of mothers with high, moderate, and low awareness was 115 (15.09%), 456 (59.84%), and 91 (25.06%), respectively. The number of mothers with good, moderate, and poor performance was 186 (24.4%), 379 (49.74%), and 197 (25.86%), respectively. There was a significant relationship between education level and the performance of mothers ( $P<0.05$ ).

#### *Conclusion:*

Periodic retraining courses for health staff, technicians, and nutrition and children experts play a key role in increased knowledge, attitudes, and practices of health staff. Such courses will improve the ability of health staff to transmit correct educations to mothers. Most important factor in avoiding the use of vitamin and iron drops is their taste and teeth stain, the production and use of supplements with better taste and fewer side effects can be effective.

**Key word:** Children, Iron, Knowledge, Multivitamin, Performance.

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## Introduction

Iron is an essential micronutrient during infancy nutrition. Iron deficiency anemia occurs when iron intake is less than the amount required and can lead to developmental disorders in infants up to 2 years (1). In the first years of life during which small amounts of iron-rich foods is consumed, it is difficult to provide sufficient amounts of iron in the diet (2). Thus, infants should receive iron supplement in addition to the diet since approximately 6 months of age (3). Iron deficiency anemia is a common nutritional problem in children under 5 years (4). Iron deficiency impairs physical and mental development of the child especially in the first two years of life and reduces learning abilities and body's resistance to infections followed by behavioral changes, apathy, and unpleasant social and economic consequences (5).

Micronutrients deficiency will increase the incidence of diseases, growth disorders in children, low birth weight, reduced Intelligence Quotient (IQ), and reduced mental and physical abilities (6). In addition, it will impose heavy costs on the healthcare system (7). In the first 6 months of child's life, exclusive breastfeeding and use of (A+D) Drop provide nutritional needs of infant (8). Vitamin A plays an important role in maintaining epithelial tissues of the skin and mucosa. The most common symptoms of vitamin A deficiency include skin keratinization and dryness of the conjunctiva and cornea, photophobia, and even blindness. Severe vitamin A deficiency may lead to mental and physical growth lag, apathy, and anemia in children (9).

Vitamin D deficiency can lead to a decrease in bone mineralization and occurrence of rickets which is common in developing countries. Rickets is observed in children fed with a diet not rich in vitamin D and breastfed infants without

adequate exposure to sunlight who do not receive vitamin D supplement (10). The use of iron supplement and multivitamins has been implemented as one of the major strategies for prevention and control of micronutrients deficiencies in Iran. Proper nutrition in childhood, especially in infancy, affects growth and health than at any other time (11). Given the statistics related to iron deficiency anemia, rickets and malnutrition, it is necessary to study mothers who have a key role in infant nutrition. Thus, the present study aims to assess the knowledge and performance of mothers referred to Children's Hospital of Tabriz about the use of iron and vitamin supplements in infants less than two years.

## Materials and Methods

This cross-sectional analytical study was conducted at the Children's Hospital of Tabriz in (Mar 2012 - Mar 2013). The study population consisted of mothers of 6-24 months children. A total of 762 mothers who referred to the Children's Hospital of Tabriz for any reason during the study period were interviewed. Data was collected through a three partite questionnaire. The first part included demographic information of mothers and children (maternal age, child age, maternal education). The second part consisted of questions about the mother's awareness on the use of iron and multi-vitamin supplements. The third part assessed the performance of mothers. A reliability of 93% was calculated by test-retest method. The content validity of the questionnaire was approved using similar studies. Data was analyzed using Chi square test using SPSS-11.5.  $P < 0.05$  was considered significant.

## Results

The mean age of mothers was  $(28.54 \pm 0.487)$  years. The youngest mother was 19 and the oldest mother was 46 years. The mean age of children was  $(13.92 \pm 0.837)$  months. Among them,

56.7% were female and 43.3% were male. Of 762 mothers, (2.62%) were illiterate, (24.27%) had academic educations and (73.11%) had high school diploma and below. In total, (80.97%) of children under one year of age were breastfed, (11.15%) were fed with infant formula, (0.91%) with cow's milk, and (6.97%) with both or three of them. In terms of iron drops administration, (63%) of mothers gave iron drop on a regular basis, (21%) gave it irregularly, and (16%) of mothers refused to give iron drops. The most important reason was oral intolerance and teeth stain. In response to the iron supplementation age of onset, the number of correct and incorrect or "I do not know" answers were (33.59%) and (66.41%) respectively.

In the case of iron supplement dosage, the percentage of correct answers (15 drops) was (27.95%). The rest of the answers were incorrect or "I do not know". In terms of complications of not using iron drop, mothers reported anemia as the most important complication. (69.9%) percent of mothers regularly gave vitamin drops, (19.9%) gave it in an irregular basis, and (10.12%) did not use vitamin drops. The most important reason for not using or irregular use was oral intolerance. In the case of onset of iron supplementation, (24%) of mothers mentioned the 15<sup>th</sup> day of age, (65%) mentioned another time, and the rest did not know the onset of vitamin drop.

In terms of vitamin dosage, (35.95%) knew the correct dosage, (64.05%) used it incorrectly or did not know the correct dosage. In the case of the side effects of not using vitamin drops, (42.91%) answered "I do not know" and (57.09%) noted the lack of growth as the most important complication. More than half of the mothers stopped both iron and vitamin supplements during their child's illness without consulting with physician. In total, the percentage of mothers with good, moderate, and low knowledge was

(15.09%), (59.84%), and (25.06%), respectively. The percentage of mothers with a low, moderate, and good performance was (25.86%), (49.74%) and (24.4%), respectively (Table1). There was a significant relationship between mothers' education level and awareness ( $P=0.000$ ). There was no significant relationship between maternal age and awareness ( $P>0.05$ ). There was a direct relationship between maternal education and performance ( $P=0.001$ ). There was no significant relationship between other variables.

**Table 1:** Knowledge and Practice among mothers about the Use of Iron and Multivitamin Supplements.

Knowledge	No.	%
Low	191	25.06%
Medium	456	59.84%
Good	115	15.09%
Total	762	100
Practice	No.	%
Low	197	25.86%
Medium	379	49.74%
Good	186	24.4%
Total	762	100

## Discussion

The prevalence of iron deficiency anemia in different countries and even different parts of a country may vary (12). Iron deficiency anemia is a common problem in children and may reach 50%. The incidence of complications is due to improper use of iron supplement and vitamin drops. This can be attributed to poor knowledge, attitude, and performance of mothers about the use of iron supplement and vitamin drops (9). The results of the present study showed that only about a third of children regularly consumed iron drop. Mean awareness and attitude of mothers was not desirable in this regard. The most common reasons for irregular use of medication included the infants' refusal to eat, vomiting after

taking medication, and forgetting to take medicine.

The results showed a significant positive correlation between the awareness and performance of mothers about the use of multivitamin and iron drops. This is consistent with the results of many studies. The most common cause of not giving iron and multivitamins drops include ignorance of administration method, child refusal, not having enough time, and teeth stain (10). The results indicated a significant relationship between education level and mothers' awareness and attitudes. It is hoped that the increase of the education level would improve the performance level of mothers.

According to the results, only about 40 percent of the mothers were aware about the importance of iron and multivitamins drops and onset of supplementation. Therefore, mothers should be informed about the importance of these drops and onset of supplementation. Many developing countries were able to avoid health problems and malnutrition in children through proper planning and giving necessary information to mothers about administration of these drops while breastfeeding in children under two years (11-15).

### **Conclusion**

According to the guidelines of the Ministry of Health and the Breastfeeding Society, the use of iron and vitamin supplements in children under 2 years is mandatory. Given the poor awareness, attitude, and performance of mothers in this regard, there is a need for training staff in healthcare centers to provide proper attitudes and behavior and inform mothers about the complications of not using iron and vitamin drops. Correct informing through the mass media that encompasses a broader community can also be helpful. On the other hand, since the most important factor in avoiding the use of

vitamin and iron drops is their taste and teeth stain, the production and use of supplements with better taste and fewer side effects can be effective.

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