

## Iron and Multivitamin Supplements in Children and its Association with Growth rate

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### Abstract

#### **Introduction:**

Vitamin deficiency and iron deficiency anemia are common nutritional problems, at least in children under 5. These materials shortage, especially in the first two years of life, impair physical and brain growth, reduces the child's learning ability, reduces body resistance against infections, behavioral changes, apathy and finally social and economic adverse consequences would be followed. This study aimed to determine the supplements used in children under two years and its Association with Growth rate in Mashhad City.

**Materials and Methods:** In this cross-sectional descriptive study, 300 children 6 to 24 months were recruited in health centers in Mashhad, Data was collected from mother and children's records and valid and reliable questionnaire was used to collect data. The data was analyzed by statistical tests and SPSS 11.5 and  $P < 0.05$  was considered significant.

**Results:** Results showed that 13.7 percent of families were with low income, 82.7 percent middle income and 3.7 percent well income. In growth chart, 86.7 percent of children showed appropriate growth, 10.3 percent had delayed growth and 3 percent had horizontal growth curve. In 80.7 percent of families, maternal multivitamin and iron drops have been used to their children regularly, 1.7 percent did not believe in these supplements and 17.7 percent of mothers sometimes used these supplements for their children. Results also showed statistical correlation significant variables of parental education, family income, mothers referred to health centers for monitoring the growth and get face to face training of personnel center drops of multivitamin with iron and growth status of children variable is available, so children who regularly have used supplements and income level and above are literate parents have grown more favorable than the other kids ( $P < 0.05$ ).

**Conclusion:** Regarding the importance of iron and multivitamin use in children less than two years, necessary training must be provided to mothers in this field by health centers personnel. Meanwhile, it is recommended that the authorities must distribute periodical and enough drops to health centers.

**Keywords:** Children, Iron, Multivitamin, Growth rate, Supplements.

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## Introduction

Appropriate nutrition in the first two years of life is one of the most important factors in health development of children in the future. Mortality of children under 5 years in third world countries accounts for a significant percentage of total deaths (1). The most important causes of mortality in this group are respiratory infections, diarrheal diseases and malnutrition (2). Most patients are children who have poor nutrition, also they have longer disease duration. Growth rate in the early years of life and lack the necessary knowledge on child nutrition. Factors in the prevalence of malnutrition in children under 5 years. Children who have been deprived of proper and adequate food in their first years of life, have a lower IQ in school and are not able to do their homework (2). Iranian studies have shown that children are born with appropriate weight, but they gradually began to lose weight between 4-6 months. That is Likely that the child needs food aid -Select the model is unsuitable for feeding habits and improper nutrition. Due to inadequate health care and lack of necessary knowledge to this weight loss continued for 18 months, and despite the increased weight and onward in parallel with the growth curve of the reference line below the reference median curve moves (3). In this regard, physicians and health personnel and more important, mothers should be completely aware of various stages of baby development, and factors affecting this process. The purpose of this study was to assess the status of supplements used (iron and multivitamin drops) in children and its association with growth rate of Mashhad city children.

## Materials and Methods

This cross sectional descriptive study was approved by the Mashhad University of Medical Sciences and was done in health centers in Mashhad, Iran.

The sample consisted of 300 mothers and their children 6 to 24 months who were

referred to 30 selected health centers in Mashhad city.

Data were obtained from mother and their children' records and questionnaire was used to collect data. To determine the Validity of questionnaire,used the content validity. So after consideration new articles about this study and incorporate comments of 10 professors,validity was confirmed. To determine reliability of this questionnaire, we used test-retest method. Thus, the questionnaire was completed on 15 mothers who were eligible and was repeated again after one week. The reliability of questionnaire was confirmed by Pearson's correlation using ( $r=0.98$ ). For doing the study, researchers refer to 30 health centers and after obtaining informed consent from the mothers,completed questionnaires. These centers were selected by stratified and randomly sample.

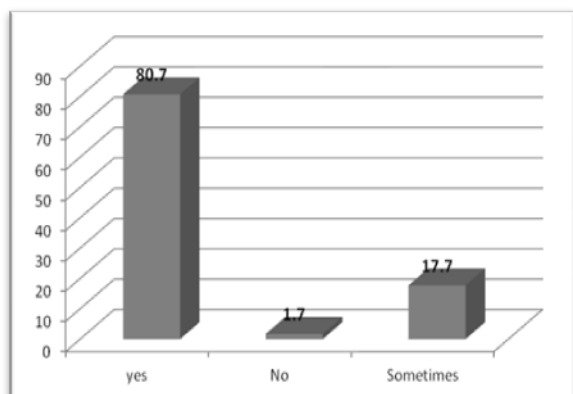
Data were analyzed using SPSS version 11.5 and descriptive and analytic statistic tests, and  $P<0.05$  was considered significant.

## Results

A total of 300 mothers participated in this study. Share equally in any health center and a third sample was included. 49% of the sample size children were male and 51% female. Educational levels of mother were as follows: 15.3% primary education, 16.3% junior education, 50% high school graduates and 18.3% university education. Educational levels of father were as follows: 13.3% primary education, 20.7% junior education, 48.7% high school graduates and 17.3 percent university education. Families size were as follows: 45.7%of families had one child, 46% 2 children, 7.3% 3 children and 1 percent of families had more than 3 children. Family income were as follows: 13.7% low income, 82.7% median income and 3.7% were with high outcome.

Child nutrition status was as follows: 77.3% breastfeeding, 5.3% artificial milk, 11% breast milk and cow, and 6.3% breast milk and artificial baby food. For iron and multivitamin drops for children it was as

follows: 80.7% responded and 17.7%, sometimes used drops to their children (Figure1).



**Fig1:** Distribution of use Iron ant Multivitamin Drops for Infants

Mothers were asked whether they participate in training courses, 34.3% of mothers answered yes, 41% answered no and

24.7 % said that they would participate in these classes occasionally. Face to face in terms of providing education to mothers by health care personnel: 44.7 percent answered yes, 15.7% no answer and 39.7 percent as they have sometimes given to education. Growth status of children was as follows: Optimal growth in 86.7 percent, low growth in 10.3 percent and 3 percent had horizontal growth curve. 1.3 percent of children weighted less than 2500 grams and 98.7 percent more than 2500 g. 35% of mothers started supplemental feeding before 6 months and 65% after 6 months.

There was a significant Relationship between use of supplements (iron and multivitamin) and education level of mothers,so mothers with diploma level more than other mothers used drops for children (iron and multivitamin) ( $P < 0.001$ ), (Table1).

**Table1:** Distribution of use Iron ant Multivitamin Drops for children by Mother’s Education.

Education	Use Iron and Multivitamin Drops			Total
	Yes	No	Sometimes	
Primary	29 12%	5 100%	12 22.6%	46 15.3%
Less than Diploma	34 14%	0 0	15 28.3%	49 16.3%
Diploma	140 57.9%	0 0	10 18.9%	150 50%
Academic	39 16.1%	0 0	16 30.2%	55 18.3%
Total	242 100%	5 100%	53 100%	300 100%

$P < 0.001$

There was a significant Relationship between use of supplements(iron and multivitamin) and status percentile growth in children, so mother used iron and

multivitamin for infants, the status of growth in children was better than the other infants)( $P < 0.001$ ),(Table2).

**Table2:** Distribution of use Iron ant Multivitamin Drops for children by Status Percentile Growth.

Status Percentile growth	Use Iron and Multivitamin Drops			Total
	Yes	No	Sometimes	
Good	227 93.8%	0 0	33 62.3%	260 86.7%
Growth delay	10 4.1%	5 100%	16 30.2%	31 10.3%
Horizontal	5 2.1%	0 0	4 7.5%	9 3%
Total	242 100	5 100%	53 100%	300 100%

## Discussion

In this study, 65 percent of mothers have started complementary feeding iron and multivitamin drops at an appropriate age. Supplemental foods before 6 months except for breast milk are not appropriate before the starting of the complete digestive tract function. Any new food for children should be started from a low value, and increased gradually. In this case, infant tolerance gradually increases and his or her digestive system gets used to new foods (4). Considering the fact that most fetal brain development occurs during the first year the importance of proper nutrition and child development, physical and mental health, children's learning and performance is undeniable (5). Therefore, in the first years of life children feeding and the type of food are more important (6). However, the implementation of all international and national programs to increase the number of nursing mothers and duration of exclusive breastfeeding until 6 months and continue it until the end of 2 years is associated with food aid (7). Results showed that 80.7 percent of mothers use drops of iron and multivitamin for their children, which is somewhat consistent with the findings of Nick niaz (1). These findings demonstrate a good knowledge of mothers regarding the role of supplements in children, however, the role of health workers in encouraging mothers to use the drops for children is undeniable. Studies have revealed that supplement drops deficiency, especially iron, in addition to iron-deficiency anemia is the most common blood disorder in children.

Power cuts lead to lower IQ and learning-ultimately reducing impaired physical growth and mental and physical abilities are (8). Children's optimal development depends on proper nutrition and proper food habits. If an appropriate child feeding and child health program be provided, he or she would be healthy. Children nutrition programming is important, because they are the most sensitive and vulnerable group to malnutrition in

society. There are some evidences indicating that children malnutrition leads to reduced immunity against infection, which may even cause mortality, moreover physical and intellectual growth would be impaired (9). Results showed significant associations between parental education, children place of birth with growth status is available with Holakouee the findings in this area is coordinated (10). The findings of Amiri between births and maternal education are coordinated (11). Significant relationship between age and begin receiving prenatal care in complementary feeding is inconsistent fotouhi and findings as to the relationship between smoking by parents and the child's age is not significant is not coordinated (12). Findings of current research findings Soheil the interval between birth and duration of breastfeeding coordinator and with the findings of Alavi Naini-Karimi-teimori-namakin-fzalaghaee is significant in relation to parental education is coordinated with growth status of children. (6,13-18) However, findings about the significant variables associated Keyghobadi about maternal education and nutrition education to mothers coordinate and Hashemi and findings in the field of education mother and mother's milk in children is consistent (9-18).

The findings of this research findings Majdzadeh reported that the child's age and smoking by parents no significant relationship with growth status of children is not coordinated (13). The present findings also showed that 34.3% of mothers would be ready to participate in educational programs in health centers, while it has been reported as only 2.3% in Sadr study, it means that in this study mothers showed more interest to participate in educational and health provided programs by health personnel (18).

## Conclusion

The use of iron and multivitamins supplements on the growth and development of children is affected. Mothers should know how to use supplements for childrens.

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## References

- Vakili R. Children's growth. Mashhad University of Medical Sciences, Department of Research. Volume 2, Winter 2005.
- Nikeniaz A. Shagagi A. Farahbakhsh M. Alizadeh M. Care for children under 6 years in the North West Area of Tabriz, 2001. Journal of Medical and Health Services, Tabriz, Appendix autumn period -2004 - 1382 Number, Volume, Fall Number 59: pages120-1233. Ministry of Health and Medical Education in collaboration with United Nations Children's Fund (UNICEF). Systems in provincial child nutrition. Autumn2000.
- Teimori P. Rshadmsh N. Effect of nutritional knowledge of mothers of children 2-0 years old weighing on growth Mothers attending urban health centers in Kurdistan In 1998. Scientific Journal of Kurdistan University of Medical Sciences, 1999, Volume 2, Spring. No. 7, pp.20-5.
- Kusha Ali. Children under one year of feeding. Journal of Zanjan University of Medical Sciences , Fifth Year , N 2 , Fall 1998.
- Alavi Naini M. The prevalence of malnutrition in children under five years and some of factors that are covered by health houses of Birjand city. Journal of Tehran Faculty of Medicine, 2002, Volume 59, Issue 1, 99-103.
- Office of Family Health, and schools, the educational program to promote breast feeding. Tehran, Deputy of Health Affairs, Ministry of Health and Medical Education, 1999.
- Dareh F. Sajjadi M. Causes of irregular iron intake in children 24-6 months in 2004 referred to health centers in Arak. Rahavard knowledge, Journal of Medical Sciences University, 2005, Volume 7, Fall, No. 28, pp. 6-1.
- Imani M. Mohammadi M. Complementary feeding patterns and factors affecting the city of Zabol in urban and rural areas Southern Medical Journal of Medical Sciences and Health Services, Bushehr, 2002, Volume 4, March, Issue 2, Pages 150-6.
- Holakouee K. Fotouhi A. Borhani M. Poya B. Determinants of malnutrition among children 6 to 30 months, health care centers in Hormozgan Province. Journal of Epidemiology, Iran, 2006, Volume 1, Winter, No. 2, p27-32.
- Omidi A. Barugh Nasrin S, Bogharpush M. Investigate the association between birth spacing and physical growth of children under five years referred to health centers in Karaj city. Bimonthly scientific stars - MD (Medicine), Year XII, No. 4 (46), Winter.
- Fotouhi A. Izadi Sh, Naseh M. Holakouee Kurush. Causes of malnutrition in children 3 to 6 months referred to health centers, city of Bandar Abbas, March 1999. Journal of School Health and Health Research Institute, 2003, Volume 1, Fall, No. 3 Page 30-23.
- Sohail AA. Zamanian M. Prevalence of malnutrition and its influencing factors in children 36-0 months of home health subsidiary Skinheads city in 2003. Medical Journal (Shahid Beheshti Medical School), 2005, Volume 28, Spring. No. 1, pp. 53-8.
- Karimi M, Ordoee M, Jamshidi Kh. Nutrition knowledge of mothers of children in the first 2 years after birth in Yazd Branch. Journal of Medical Sciences and Health Services - Hospital Yazd, 2002, Volume 9, Appendix winter, Number 4, P16-22.
- Teimori P, Rashadmanesh N. Effect of nutritional knowledge of mothers of children 2-0 years old weighing on growth in mothers referred Urban health centers in the province in 1998. Scientific Journal of Kurdistan University of Medical Sciences, 1999, Volume 2, Spring, No. 7, p20-25.
- Kabiri M, Parsinia M. Godarzi M, Babaei Gh. Investigate the relationship between physical growth of children 0 to 2 years referred to health centers in Karaj city with economic, social, cultural and their parents using a logistic regression model. Iranian Journal of Pediatrics, 2004, Volume 13, Spring, Number 1: p 47-52.
- Proceedings of the second Festival of Children Server scientific research. Mashhad, 27 and 28 November, 2007, Mashhad University of Medical Sciences in collaboration with Children foundation sarvar.
- Keighobadi Keikhosro. Siasi F, Malek Afzali H, Jarolahi N, Sadrzadeh H. The effect of maternal education on the nutritional status of children of marginalized households in Kerman. Hakim Research Journal, 2003, Volume 5, Spring, No. 1 p49-55.
- Barzegar M, Amini A, Hanaee J, Yaghubi Ar, Sadr K. Knowledge, attitude and practice of mothers living in the North West area of Tabriz in the care of children under 6 years, 2001, Journal of Medical and Health Services, Tabriz, 2004; period, autumn Appendix, No. 59: pp23-8.