Current Research in Medical Sciences
P ISSN: 2538-6212

Student Research Committee
Babol University of Medical Sciences

Research Article

The Effect of Educational Intervention on the Promotion of Health Literacy of Mothers in the Field of Child Nutrition

Neda Ahmadzadeh Tori [1], Zahra Aboosaedi [2], Amirhossein Alizadeh Nodehi [3], Davoud Shojaeizadeh [4]

1. Ph.D in Health Education and Health Promotion, Social Determinants of Health (SDH) Research Center, Babol University of Medical Sciences, Babol, Iran.
2. Social Determinants of Health (SDH) Research Center, kashan University of Medical Sciences, kashan, Iran.
3. Student Research Committee, Babol University of Medical Sciences, Babol, Iran.
4. Professor, Department of Health Education and Promotion, Faculty of Medical Sciences, Tehran University of Medical Sciences, Tehran, Iran.

Article Info.

Received: 20 August 2023
Revised: 14 Oct 2023
Accepted: 6 Jan 2024

*** Corresponding Author:**

Davoud Shojaeizadeh;
E-mail: shojae5@yahoo.com

Cite this article:

Ahmadzadeh Tori N, Aboosaeidi Z, Alizade Nodehi A, Shojaeizadeh D. The Effect of Educational Intervention on the Promotion of Health Literacy of Mothers in the Field of Child Nutrition. Curr Res Med Sci. 2024; 8: 1-6.

Abstract

Background: Childhood is the most important period of a child's growth and development. Considering the role of the mother, this age period is important due to the formation of eating habits and the start of complementary feeding. The purpose of this research is to determine the effect of education on improving the health literacy of mothers in the field of child nutrition.

Methods: The current research is a semi-experimental before-and-after study that was conducted on 696 mothers covered by the health center of Pakdasht city in 2017. The samples were randomly selected in two groups of 50 case and 50 control group. The tool for collecting information is the parents' health literacy questionnaire and the food pyramid scale, which were completed by mothers two times before and 3 months after the intervention. After the pre-test, educational intervention was conducted in 8 sessions. SPSS version 22 and Kolmogorov Smirnov, Wilcoxon, linear regression, Mann-Whitney, Fisher, chi-square statistical tests were used for data analysis. It should be noted that the level of significance in the present study is $P<0.05$.

Results: There is a significant difference between the average knowledge scores of the case and control groups after the training, which shows the effect of the training. Before the intervention, the average scores of the two intervention groups were 37.43, attitude 20.03, and behavior 8.45. The intervention had increased by 40.25, 20.52 and 8.53, respectively.

Conclusion: According to the findings of this study, education can be an effective tool to improve the knowledge, attitude and practice of mothers towards children's nutrition.

Keywords: Health literacy, Child nutrition, Educational intervention.

[Downloaded from crms.mubabol.ac.ir on 2026-11-19]

[DOI: 10.22088/crms.8.1.1]

Copyright © 2023 Babol University of Medical Sciences. Published by Babol University of Medical Sciences. This work is licensed under a Creative Commons Attribution-Noncommercial 4.0 International license (https://creativecommons.org/licenses/by-nc/4.0/). Noncommercial uses of the work are permitted, provided the original work is properly cited.

Introduction

Health literacy is broadly defined as the knowledge, motivation and competence of people to access, understand, evaluate and apply health information in order to judge and make decisions in daily life about health care and disease prevention (1). Health literacy is the result of efforts to promote social and individual factors that face the concerns and dimensions of health literacy and is known to be critical for health care outcomes, empowering people to change behavior and lifestyle is essential to improve health and quality of life (2).

The World Health Organization has defined health literacy as cognitive and social skills based on the motivation and ability of people to acquire, know and use information in ways that promote and maintain good health and health (3). Health literacy in pregnant mothers means special knowledge and special social skills to recognize pregnancy risk signs, healthy lifestyle and proper nutrition during pregnancy (4).

It affects pregnancy by improving the quality of prenatal care. Mothers with high health literacy have lower birth weight, preterm birth, and infant mortality (5). Hence, it seems that adverse effects are more common in women with poorer health literacy. Maternal health literacy is a skill to recognize the danger signs of pregnancy. Having a healthy lifestyle and proper diet during pregnancy is a positive factor in the mother's health (6).

Children's health, growth and development are directly related to their nutrition. Malnutrition of children is a common problem in developing countries (7). In early childhood, the child's control over his eating habits increases rapidly, so parents should obtain the necessary information about the proper nutrition of the child and the creation of appropriate restrictions in his nutrition (8).

Studies have shown that food literacy/nutrition literacy can play an important role in shaping children's eating behaviors and enabling them to make healthy food choices (9). In Iran, nutritional changes have taken place due to urbanization and rapid socio-economic changes and have led to a tendency towards a more westernized food pattern, especially among children and adolescents (10). Therefore, parents should teach their children correct nutritional behavior and provide a favorable environment for child nutrition, because children's nutritional behaviors are influenced by the family (11).

One of the important points in designing educational interventions for the target groups of mothers is to pay attention to their health literacy, which is an important mediating factor in the effectiveness of health education interventions (2). There is a reciprocal relationship between health education and health literacy. On the one hand, health literacy is one of the key outcomes of health education programs, and on the other hand, the implementation of health education interventions regardless of the level of health literacy of learners, has a negative effect on the effectiveness and benefits of these interventions (12).

The purpose of this study was to determine the effectiveness of the educational intervention based on the level of health literacy of mothers in the field of nutritional behaviors of children in Pakdasht city.

Methods

The present study was a semi-experimental study. In this semi-experimental study of an intervention that was carried out in Pakdasht city of Tehran in 2015, among the health centers, this health center and its subsidiary bases were selected for the purpose of conducting this study due to the relatively high number of clients. Random sampling method it was simply done. The studied population included the mothers of health care centers in Pakdasht city.

Sample method a simple random sampling was done. The studied population included the mothers of health care centers in Pakdasht city.Inclusion criteria for mothers with children under 2 years old and not having cognitive problems. The exclusion criteria included: unwillingness to participate in the study and absence of 2 out of 4 sessions. The number of participants in the study is 100 people who are randomly selected and placed in two intervention and control groups (50 people each).

After permission from the mentioned clinic officials, first the purpose of this research was explained to their mothers and they were assured that the questionnaire information will be completely confidential. Then, their verbal consent was obtained and they were informed that participation in this study is voluntary. It was collected at two times before and 3 months after the

[Downloaded from crms.mubabol.ac.ir on 2026-11-19]

[DOI: 10.22088/crms.8.1.1]

educational intervention. The data collection tool in the current study includes two questionnaires. The tools of the present study were based on demographic characteristics and a questionnaire made by the researcher, including questions of knowledge, attitude and practice.

The validity of the questionnaire will be evaluated with the methods of content validity and face validity. In this way, the questionnaire was prepared according to reliable sources and books, and for the final evaluation of the validity of the content, the opinions of 10 experienced professors in different fields were obtained in person and by correspondence and were examined by the researchers, and some of them were included in the questionnaire. The reliability of the questionnaire was evaluated by the test-retest method. Thus, the questionnaire was administered twice with an interval of 2 weeks by 20 mothers, and Cronbach's alpha was 0.80.

The scoring method of the questionnaire is as follows: it was designed in the part of measuring knowledge (10 questions), attitude (10 questions) and practice (10 questions). The maximum score of the knowledge questions was 30 and the minimum was 10. In such a way that I disagree with the answer 1, I have no opinion 2 and I agree with 3. A yes answer is given 2 points and a no answer is given 1 point. For attitude, maximum 50 and minimum 10 and practiceal questions had maximum 20 and minimum 10 points (8).

After collecting the data from the intervention and control groups using the information obtained from the pre-test, the training program was held for the subject group in three sessions and each session lasted 90 minutes by means of practical demonstrations, videos, lectures and questions and answers. In the first knowledge session the educational content includes the importance of child nutrition, the impact of nutrition on the child's growth and development, and the role of the mother in this field, the second session focused on mothers' attitude and practice in relation to the importance of nutrition in children and mothers' health literacy. Three months after the training session, the post-test was completed using the initial questionnaire for both groups (case and control). SPSS version 22 and Kolmogorov Smirnov, Wilcoxon, linear regression, Mann-Whitney, Fisher, chi-square statistical tests were used for data analysis. It should be noted that the level of significance in the present study is $P<0.05$.

Results

There is a significant difference between the average knowledge scores of the intervention and control groups after the training, which indicates the effect of the training, while before the training, the two groups did not have a significant difference in terms of knowledge scores ($p<0.001$). Three months after the initial measurement of attitude, significant changes in the reduction of this variable are observed in the intervention group. But in the control group, these changes are not significant ($p<0.001$).

Before the intervention, there is no significant difference between the average practice score of the intervention group and the control group. After the training, there is a significant difference, which indicates the effect of the training, while before the training, the two groups did not have a significant difference in terms of the attitude score ($p<0.001$). (Table No. 2).

Table 1. Comparison of demographic variables of study intervention subjects in the intervention and control groups

Variable		Intervention group		control group	
Gender of the child	**Girl**	23	%46	26	%52
	Boy	22	%44	24	%48
Mother's education	**Under diploma**	11	%22	10	%20
	Diploma	14	%28	18	%36
	High diploma	25	%50	22	%44
Father's education	**Under diploma**	10	%20	12	%24
	diploma	19	%38	16	%32
	High diploma	21	%42	22	%44

[Downloaded from crms.mubabol.ac.ir on 2026-11-19]

[DOI: 10.22088/crms.8.1.1]

Variable		Intervention group		control group	
Mother's job	Free	17	%34	22	%44
	Employee	33	%66	28	%56
Job	Employed	19	%38	16	%32
	Housewife	31	%62	34	%68

Table 2. Comparison of knowledge, attitude, and practice of participants in the intervention and control groups

Variable	group	Before intervention	After intervention	P-Value
knowledge	Control	38(5.04)	38.07(5.34)	0.028
	intervention	37.43(4.33)	40.25(6.35)	0.001
Attitude	Control	20.03(4.33)	20(4.9)	0.92
	intervention	18.94(4.18)	20.52(5)	0.001
Practiec	Control	9.14(2.61)	9.37(3.07)	0.297
	intervention	8.45(3.01)	8.53(2.93)	0.009

Discussion

The present study was designed with the aim of investigating the effectiveness of an educational intervention based on the level of health literacy of mothers in the field of nutritional practices of children in Pakdasht city. Based on the results of this research, training caused improvement in the target group. Before the intervention in the two intervention groups, the average scores of knowledge were 37.43, attitude 20.03, and practice 8.45, and after the intervention, they increased by 40.25, 20.52, and 8.53, respectively.

In line with this study, Babazadeh et al showed in 2013 with the aim of educational intervention in the field of mothers' nutrition practices that education improved the health literacy of mothers (8). In the study of Mirzaei et al., it was reported that the educational intervention was more effective on the attitude and practice of patients with sufficient health literacy (13). Which is consistent with the findings of our study.

The results of our study showed that education is effective in improving the knowledge and practice of mothers. In line with our study, the study of Kahtri et al. showed that by teaching students, the average level of health literacy before and after the intervention in the test group showed a significant difference (14). Similar to the study of Ulyani and colleagues, it was aimed at the relationship between students' health literacy level and body mass index, which showed that the lower the health literacy, the higher the body mass index. Consequently, one of the important outcomes of health education is health literacy (HL), which should be expanded to improve health promotion (15). However, the results of some surveys indicate the effectiveness of educational programs on the knowledge and practice of people with low health literacy. In Muir et al.'s study, an educational intervention was implemented for patients with sufficient and insufficient levels of health literacy, and the educational intervention was effective only for patients with low literacy (16). In the study by Kahtri et al., students whose parents had a higher level of education had a higher level of health literacy (14).

In another study, Golshiri et al. in 2018 compared the effect of two teaching methods, lecture and self-study, on mothers' knowledge and practice regarding children's growth and nutrition. The results of this study showed that the average scores of mothers' knowledge in lecture and self-study were 30.66 and it was 33/34. Three months after the educational intervention, the average scores were 96.33 and 80.33, respectively, and the average practice scores in the lecture and self-study groups before the intervention were 45.00 and 44.27, respectively, and after the intervention, they were 77.91 and 77.91, respectively. It was 88/66, which shows the effect of education on increasing the knowledge and practice of mothers in the field of child nutrition (17).

In line with our findings, the study of Aghdasi et al. (2021) showed that the educational intervention

[Downloaded from crms.mubabol.ac.ir on 2026-11-19]

[DOI: 10.22088/crms.8.1.1]

caused a significant increase in nutritional practice. Before the educational intervention, there was no statistically significant difference between the two test and control groups in terms of the scores of the studied variables. But in the test group, after the educational intervention, a significant statistical difference was observed in the score of mother's practice, child's weight and social cognitive theory constructs ($p<0.05$). The scores of social cognitive theory constructs before and after the intervention (knowledge, outcome expectation, outcome value, task self-efficacy, self-efficacy to overcome obstacles, self-regulation, in case of situation, emotional adaptation) had a significant difference in the intervention group (p 0.05) (18).

Considering the effects of mothers' nutritional practices on children's health and growth, and considering that the child's taste is formed from the beginning of childhood, which is effective on the nutrition and health of a person as an adult, it is necessary to have intervention educational programs to correct undesirable practices. Food for mothers with children should be designed and implemented. Like other studies, this study also had limitations. The living and economic status of families is one of the factors affecting children's growth, which was not under the researcher's control. By holding discussions about nutritionally suitable substitutes and introducing foods with the same nutritional value but cheaper, an effort was made to overcome this limitation to some extent. The presence of some mothers with their children in some educational sessions despite the emphasis on attending without children. Sometimes it caused disorganization in the meeting and lack of concentration of the mothers, so we tried to remove this limitation by creating a telegram channel and sending the important points of the meetings. The difference in the cognitive and mental levels of the participants in the test and control groups, which made it difficult to homogenize them.

Conclusion

Based on the present findings, educational intervention improved the practice of mothers in the test group. If educational interventions to educate mothers and fathers are designed and implemented with educational patterns and models, they will be more effective and through changes in its structures, it will improve the nutritional practice of mothers and improve the growth of their children.

Acknowledgment

This article is the result of a research project approved by Tehran University of Medical Sciences with the number IR.TUMS.SPH.REC.1395.941. We are grateful to all those who helped us in completing this study and the cooperation and effort of the mothers who participated in the research.

Financial support and sponsorship: This study was financially supported by Tehran University of Medical Sciences.

Conflicts of interest: There are no conflicts of interest.

Availability of data and material: Not applicable.

Author's contribution: Conceptualization: Z.A. and A.A.N; Methodology: Z.A., D.SH and N.A.T; Statistical analysis and investigation: N. A.T.; Writing - original draft preparation: Z.A. and A.A.N; Writing - review and editing: A.A.N and N.A.T; Supervision: D.SH.

Consent for publication: Not applicable.

References

1. Nawabi F, Krebs F, Vennedey V, Shukri A, Lorenz L, Stock S. Health literacy in pregnant women: A systematic review. Int J Environ Res Public Health. 2021;18(7).
2. kharazi SS, Peyman N, Esmaily H. The Relationship between Maternal Health Literacy and Nutritional Dietary Self-Efficacy with Pregnancy Outcome. J Midwifery Reprod Heal. 2020;8(1):2058–68.
3. Liu C, Wang D, Liu C, Jiang J, Wang X, Chen H, et al. What is the meaning of health literacy? A systematic review and qualitative synthesis. Fam Med Community Heal. 2020;8(2):e000351.
4. Hakkak HM, Joveini H, Rajabzadeh R, Robatsarpooshi D, Tori NA, Haresabadi M, et al. Health literacy level and related factors among pregnant women referring to bojnord health

[Downloaded from crms.mubabol.ac.ir on 2026-11-19]

[DOI: 10.22088/crms.8.1.1]

centers in 2017. Int J Pharm Res. 2019;11(1):152–8.
5. Brygger Venø L, Pedersen LB, Søndergaard J, Ertmann RK, Jarbøl DE. Assessing and addressing vulnerability in pregnancy: General practitioners perceived barriers and facilitators - a qualitative interview study. BMC Prim Care. 2022 Dec;23(1).
6. Barger MK. Current Resources for Evidence-Based Practice, November/December 2019. J Midwifery Women's Heal. 2019 Nov;64(6):775–81.
7. Guler DS, Sahin S, Ozdemir K, Unsal A, Uslu Yuvacı H. Health literacy and knowledge of antenatal care among pregnant women. Health Soc Care Community. 2021 Nov;29(6):1815–23.
8. Moradi F, Babazade T, Zebae N. Impact of Educational Intervention on Mothers Empowerment about Proper Nutrition among Infants under 2 years of age Covered By Health Homes of District 18 of Tehran Municipality. Iran-J-Health-Educ-Health-Promot. 2014;2(3):242–50.
9. Vaitkeviciute R, Ball LE, Harris N. The relationship between food literacy and dietary intake in adolescents: a systematic review. Public Health Nutr. 2015 Mar;18(4):649–58.
10. Doustmohammadian A, Omidvar N, Keshavarz-Mohammadi N, Eini-Zinab H, Amini M, Abdollahi M, et al. Low food and nutrition literacy (FNLIT): A barrier to dietary diversity and nutrient adequacy in school age children. BMC Res Notes. 2020;13(1):1–8.
11. Permatasari TAE, Rizqiya F, Kusumaningati W, Suryaalamsah II, Hermiwahyoeni Z. The effect of nutrition and reproductive health education of pregnant women in Indonesia using quasi experimental study. BMC Pregnancy Childbirth. 2021 Dec;21(1):1–15.
12. Kharrazi SS, Peyman N, Esmaily H. Correlation between Maternal Health Literacy and Dietary Self-Efficacy in Pregnant Mothers. Heal Educ Heal Promot. 2018 Mar;6(1):9–16.
13. Mirzaei A, Ramezankhani A, Taheri Tanjani P, Ghaffari M, Jorvand R, Bazyar M, et al. The Effectiveness of Health Literacy Based Educational Intervention on Nutritional Outcomes of Elderly. Salmand. 2020;15(3):324–37.
14. Literacy H. The e ff ect of the educa ti onal interven ti on on health literacy level in the girl students. 2017;2(3):187–98.
15. Olyani S, Tehrani H, Esmaily H, Rezaii MM, Vahedian-Shahroodi M. Assessment of health literacy with the Newest Vital Sign and its correlation with body mass index in female adolescent students. Int J Adolesc Med Health. 2017 Sep;32(2).
16. Muir KW, Ventura A, Stinnett SS, Enfiedjian A, Allingham RR, Lee PP. The influence of health literacy level on an educational intervention to improve glaucoma medication adherence. Patient Educ Couns. 2012;87(2):160–4.
17. Golshiri P, Sharifirad G, Baghernezhad F. Comparison of two methods of education (lecture and self learning) on knowledge and practice of mothers with under 3 year old children about growth monitoring and nutritional development stages. IJME. 2011 Feb;10(5):927–36.
18. Aghdasi Z, Tehrani H, Esmaily H, Ghavami M, Vahedian-Shahroodi M. Application of social cognitive theory on maternal nutritional practice for weight of children 6 to 12 months with failure to thrive (FTT). Iran J Heal Educ Heal Promot. 2021;9(2):145–58.
19. Anjomshoa H, Mirzaee M, Iranpour A. The Application of Social Cognitive Theory on Mothers' Feeding Practices for Children Aged 6 to 24 Months old in Iran. Int J Pediatr. 2018;6(7):7983–97.
20. Amel Barez M, Maleki Saghouni N, Sharifi F, Esmaily H, Babazadeh R. Investigation the relationship between self-esteem and breastfeeding self-efficacy in primiparous breastfeeding mothers referring to Mashhad medical centers. J Heal Lit. 2020;5(3):36–45.

[Downloaded from crms.mubabol.ac.ir on 2026-11-19]

[DOI: 10.22088/crms.8.1.1]