

# The Effect Of Educational Support Intervention For Infant Care On The Growth Rates Of Infants, Breastfeeding Self-Efficacy And Quality Of Life Of Their Mothers And Sharing The Experiences Of Peer Groups: Study Protocol

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## Research Article

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# Abstract

**Background:** Mother's knowledge of how to deal properly with the infant's problems and provide the necessary care can increase the mother's confidence in providing care for her infant and eliminate misconceptions in primiparous mothers. The present study was conducted to the effect of educational support intervention for infant care on the growth rates of infants, breastfeeding self-efficacy and quality of life of their mothers and sharing the experiences of peer groups.

**Methods:** This quasi-experimental study is an educational support intervention protocol for infant care which will be conducted in two phases. The educational support program will be designed in the first phase. The program includes educational sessions on breastfeeding, growth and development of infants and care for children under two years of age in a virtual group where a physician, a nurse, a midwife and a healthcare provider are also present. Using the opinions of the experts, the peer group will discuss various points and the research team will finalize the program based on priorities. The second phase of the educational intervention will be conducted experimentally as a pretest-posttest design for the intervention and control groups.

**Discussion:** The present study provides useful data about the effect of educational support intervention for infant care and the sharing peer group experiences on infants' growth rates, breastfeeding self-efficacy, and quality of life of their mothers. the current educational package not only combines virtual education and peer experiences in strengthening the education of mothers, but also it can improve mothers' physical and mental health and reduce medical costs by using telephone follow-up in supporting the mothers of infants.

**Trial registration:** Registration of this randomized control trial has been completed with the Iranian Registry of Clinical Trials, IRCT20210913052457N1, registered 9/10/2021, <https://www.irct.ir/trial/59093>

## Plain Language Summary

Mother's knowledge of how to deal properly with the infant's problems and provide the necessary care can increase the mother's confidence in providing care for her infant and eliminate misconceptions in primiparous mothers. This quasi-experimental study is an educational support intervention protocol for infant care which will be conducted in two phases. The educational support program will be designed in the first phase. The program includes educational sessions on breastfeeding, growth and development of infants and care for children under two years of age in a virtual group where a physician, a nurse, a midwife and a healthcare provider are also present. Using the opinions of the experts, the peer group will discuss various points and the research team will finalize the program based on priorities. The second phase of the educational intervention will be conducted experimentally as a pretest-posttest design for the intervention and control groups. The present study was conducted to the effect of educational support intervention for infant care on the growth rates of infants, breastfeeding self-efficacy and quality of life of their mothers and sharing the experiences of peer groups.

# Background

As one of the most sensitive stages of life, infancy is a period which needs to be correctly known and precisely cared. The maintenance and promotion of children's health as a vulnerable group has a special place in health services. Mother's knowledge of how to deal properly with the infant's problems and provide the necessary care can increase the mother's confidence in providing care for her infant and eliminate misconceptions in primiparous mothers(1). According to many studies, paying attention to care in the first two years of an infant's life is of particular significance(2). Accordingly, to prevent underweight, interventional measures should be taken before the age of two(3). The responsibility of infant care since birth has been to a large extent on the shoulder of mothers. As such, raising the awareness of mothers, their empowerment and improving their quality of life are the main objectives of the healthcare system. Mothers may experience various physical and mental complications during childbirth and the postpartum period, which can affect the natural process and quality of their life(3, 4). Quality of life is a feeling of well-being which arises from satisfaction or dissatisfaction with various life aspects that are of great importance to the individual; it includes the areas of health, occupation, socio-economic, psychological and family, and is a significant healthcare measurement criterion(5).

Given the fact that most postpartum problems related to mother and infant are solved easily and through education, paying attention to the method, content and modality of these educations seems to be important(6). The creation of positive self-efficacy, especially self-efficacy in breastfeeding, seems to be a prerequisite of mothers' empowerment(7). The continuation of breastfeeding is easier in mothers with high self-efficacy in breastfeeding. According to researchers, mothers with a more successful breastfeeding will more successfully raise their children and will have a stronger sense of accepting their motherly role. Bandura believes that one's level of empowerment and self-efficacy can be improved by adopting appropriate educational strategies and interventions in acquiring the necessary skills and knowledge(8).

Today, e-learning is used in patients as the main part of healthcare. E-learning has been introduced by the World Health Organization as an appropriate way of communication with clients(9, 10). While virtual space and direct education through telemedicine have an overt role in health system, the role of covert education through other clients with similar health problems cannot be ignored. In education through the experiences of peers, a simple and safe learning is created based on the similar features of the members of a group; in this method, clients share their healthcare-related experiences(11). Additionally, peer groups are better able to encourage their peers to choose appropriate health behaviors; they are also able to share common strengths, weaknesses, and experiences(12). The need of mothers for breastfeeding-related scientific information and caring for their infants in encountering with misconceptions reveals the need for educating the key points(13). The positive role of educational programs in improving breastfeeding outcomes has been confirmed in various studies. However, no study has hitherto investigated the effect of a virtual educational-supportive program of infant care by sharing peer experiences on the growth indicators of infants, breastfeeding self-efficacy and quality of life of mothers. Thus, the present study was conducted to bridge this gap.

## **Methods/design**

This quasi-experimental study is an educational support intervention protocol for infant care which will be conducted in two phases. The educational support program will be designed in the first phase. This program will be designed based on the review of previous studies and considering the opinions of the panel of experts in health education and promotion, pediatric nursing, and mother-infant health. The program includes educational sessions on breastfeeding, growth and development of infants and care for children under two years of age in a virtual group where a physician, a nurse, a midwife and a healthcare provider are also present. Using the opinions of the experts, the peer group will discuss various points and the research team will finalize the program based on priorities. Reminder text messages will be sent to the participants to remind them of the educational program. The second phase of the educational intervention will be conducted experimentally as a pretest-posttest design for the intervention and control groups.

## **Aim**

This study seeks to design and implement an educational support program for infant care through sharing the experiences of peers, which will be able to affect the indicators of infant growth, breastfeeding self-efficacy and quality of life of mothers.

## **Research hypotheses**

Given the main objective of the study, a hypothesis will be considered based on the opinions of health education, pediatric nursing and mother-infant health experts. The hypothesis is that, after the intervention, the mean score of the indicators of infant growth, breastfeeding self-efficacy and quality of life of mothers will be more in the intervention group.

## **Phase I: Designing an Educational-Supportive Program**

The design of the intervention and the identification of the target audience in this phase will be based on the review of the texts and similar studies as well as the opinions of experts. The educational support program will include virtual training sessions on breastfeeding, growth and development of infants and care for children under two years of age in a WhatsApp group where a physician, a nurse, a midwife and a healthcare provider are among the members. Moreover, the experiences of the peers will be used through discussions and exchange of information.

## **Virtual educational support sessions**

All mothers of the intervention group will join the WhatsApp group, which is managed by the researchers. Additionally, other members of the virtual group include a midwife, a nurse, a healthcare provider and a family physician for answering the specialized questions of the mothers. Accordingly, with regard to their questions, the mothers will have access to nurse, physician and midwife.

In this group, two days a week, an educational program will be provided by the researcher in the form of educational packages related to breastfeeding, growth and development, vaccination, health and nutrition

and other cares for children under two years of age for two months. The educational content has been shown in Table 1. These packages will be sent to mothers based on the latest references of pediatric nursing books approved by the Ministry of Health and the family physician. Two days after sending the educational materials to the mothers, the researcher (pediatric nurse) will provide the mothers with additional explanations about the educational content for 40 minutes and the mothers will ask their questions. The control group will use the routine services of health centers and, after the implementation of the program, the educational packages will be provided to them in the form of booklets.

## **Peer group experiences**

In addition to virtual sessions, the mothers of this group will be able to share their experiences with regard to the growth and development of their infants in this space for a period of three months. At the beginning of the study, the mothers will be informed that the prescription of chemical, herbal, and traditional medicines is against the rules of the research plan and in case of violating these rules, they will be removed from the group. Sharing the experiences of mothers with each other is limited to the issues of growth and development of a healthy child. The researcher and family physician will control all the messages of the intervention group members and prevent the mothers from confusion by providing them with correct guidance. Moreover, in case of illness and any clinical problems for the infant, it is recommended that mothers see a specialist in person.

## **Follow-up and sustained education**

For follow-up and sustained education, reminders and encouragement messages will be sent to mothers at the end of each week. Additionally, to ensure the awareness and learning of research subjects at the end of the month, the mothers are assessed by answering questions extracted from the educational content taught by the researcher.

Table 1  
Educational content

Educational program	Educational content	How to provide education	Audience
Educational package	<p>Newborn Breastfeeding methods (time and duration of breastfeeding); milking and storing breast milk; KMC; bathing the infant; vaccination and aftercare; umbilical cord care; change of clothes; burping; methods of preventing sudden infant death syndrome; how to use supplements; Thyroid check-up (hypothyroidism training); education of danger and safety symptoms and the need for seeing a physician; and audiometry</p> <hr/> <p>One month to two years old Optometry; complementary nutrition; toilet training; infant safety; food allergies; vaccinations and aftercare; weaning education; oral health of the infant; development of social skills as well as delicate and coarse movements</p>	Educational program will be offered two days a week and for two months in the form of educational package which will be sent to the virtual group	Mothers of infants
Question and answer	Questions about the educational content and problems of the mothers and the response of the experts to these questions in the group	Necessary additional explanations with regard to the educational content and questions asked by the mothers in the virtual group	Mothers of infants
Peer experiences	Sharing the experiences of mothers with regard to the growth and development of their infants in a virtual group and under the supervision of experts	Sharing the experiences of mothers in a virtual group	Mothers of infants
Education follow-up	Message for reminding of educational content together with verbal encouragement	Sending reminder messages at the end of each week	

## Expert's team

The content and visual validity of the educational program will be measured, and the comments received from the panel of experts. The panel of experts will be included 4 professionals from health education and health promotion field, 3 professionals from the reproductive health and 2 expert from the field of pediatric nurses and a doctor.

## Phase II: Implementation of educational intervention

In this step a randomized controlled clinical trial will design to assess the efficacy of prepared protocol. Participants randomly will allocate into two groups. In experimental group we will implement our designed protocol, and control group will not receive any intervention, but they follow as same as experimental group. For ethical issues all educational material will offer them at the end of study.

## **Study environment and population**

This interventional randomized study will be conducted at health centers of Yazd, Iran.

## **Study sample**

This interventional randomized study will be conducted on mothers of infants who have been receiving maternity care at health centers of Yazd, Iran.

According to the study of Araban et al. (14) and considering the level of significance ( $\alpha = 0.05$ ) and test power ( $\beta = 0.8$ ) as well as standard deviation of breastfeeding self-efficacy score which is 4.22 and 4.88 in case and control groups respectively, and in order to achieve a significant difference of at least 2.5 points in the mean score of breastfeeding self-efficacy in the intervention and control groups, and taking into account 10% of probable drop, the sample size is considered to be 57 subjects in each group.

## **Sampling method**

Convenience sampling's method will apply to select the participants. The sampling method will be random and the participants will be in two groups of intervention and control.

## **Inclusion criteria**

Inclusion criteria include willingness to participate in the study, primiparous mothers, having an under two-years-old infant, physical health of the infant, no underlying disease, access to mobile phones for connecting to virtual space, ability to use internet and media literacy.

Iranian nationality, consent to participate in the study, ability to understand questions or ability to read and write, not participating in any other clinical trials at the same time.

## **Exclusion criteria**

The exclusion criterion is not completing the intervention for any reason and Reluctance to participate in the study.

## **Data collection method**

Quality of Life Questionnaire:

The SF-36 Quality of Life Questionnaire is a general questionnaire for assessing the quality of life of individuals; it assesses the quality of life of individuals in 8 domains of physical function, limitations caused by physical problems, social functioning, physical pain, mental health, limitations caused by mental problems, vitality and general health. The score of each domain is calculated independently and

ranges from zero (the worst condition) to 100 (the best condition). Questions of the mentioned dimensions are as follows: physical function (questions 3 to 12); limitation caused by physical problems (13 to 16); social functioning (2, 20 and 32), physical pain (21 and 22), mental health (24 to 28 and 30); limitations caused by mental health problems (17 to 19), vitality (23, 27, 29, 31) and general health (1, 33 to 36). The reliability of this questionnaire has been calculated to be 0.89 and 0.92 by retest and Cronbach's alpha respectively(5).

Breastfeeding Self-efficacy Scale:

Breastfeeding self-efficacy scale is derived from the short form of BSES-SF Dennis. This 14-item scale is designed based on a 5-point Likert scale; so that, I am not sure at all is given score 1, and scores 2 to 5 are given to a bit sure, relatively sure, I am sure, and I am quite sure, respectively. Generally, the range of scores is 14-70, where scores 14-32 indicate low level of self-efficacy, 33-51 moderate self-efficacy, and 52-70 high self-efficacy. This scale has been evaluated psychometrically in the study of Araban et al. and its content and form validities have been confirmed; Cronbach's alpha has also been evaluated to be optimal (0.91) (14).

Evaluation of the infants' anthropometric indices:

Infant's anthropometric indices will be measured using the ratios of infant weight, height, head circumference recorded on the infant's health card or health record in the pre-test and post-test stages.

## **Data analysis:**

We will apply X2 and independent T test to analysis our data by using SPSS version 22.

## **Outcome measures**

### **Breastfeeding Self efficacy of mothers:**

The mean score of Breastfeeding Self efficacy of mothers will be measured using a questionnaire BSES-SF Dennis in the pre-test and post-test phase.

### **Quality of Life of mothers:**

The mean score of Quality of Life of mothers will be measured using a questionnaire SF36 in the pre-test and post test phase.

### **Infants' growth status:**

Infant's anthropometric indices will be measured using the ratios of infant weight, height, head circumference recorded on the infant's health card or health record in the pre-test and post-test stages.

## **Discussion**

The present study provides useful data about the effect of educational support intervention for infant care and the sharing peer group experiences on infants' growth rates, breastfeeding self-efficacy, and quality of life of their mothers.

In line with the present results, a study entitled "Development and evaluation of a self-care program on breastfeeding in Japan" was conducted by Masayo Awano et al. in 2010 on 117 primiparous women(15). The educational intervention was performed in the form of group training and pamphlet presentation during the hospital stay for the subjects of the intervention group. After one month, the results indicated that the breastfeeding self-care program significantly increased the self-efficacy of the intervention group mothers in breastfeeding and had a positive effect on continued breastfeeding(15). Similarly, Mirghfourvand et al. conducted a study on 547 breastfeeding mothers who had 2-6 months old infants. According to the results, there was a direct and significant relationship between breastfeeding self-efficacy and quality of life. Accordingly, the design of appropriate training programs seems to be necessary as such programs can increase breastfeeding self-efficacy and thereby improve the quality of life of pregnant women(16). Azimi and Nasiri also found in their clinical trial on 80 breastfeeding mothers who referred to health centers in 2018, that using peer counseling program for the promotion of breastfeeding behaviors of primiparous mothers can improve their function with regard to breastfeeding techniques(17). Heidari et al. also in their clinical trial study, conducted in 2018, examined the effect of virtual space education on breastfeeding self-efficacy(18). The intervention group received breastfeeding training program in seven 45-60-minute sessions. They recommended that education via virtual space can be considered as an easy, safe, low-cost and appropriate intervention which can control and solve the problems of breastfeeding mothers(18). With regard to online education, Almohanna et al. revealed in 2020 that various types of Internet-based electronic technologies can effectively promote education and support breastfeeding women(19). Similarly, Rezaian et al. conducted a quasi-experimental study on 72 6-12-months-old infants and their mothers, entitled "The Effect of Supportive Program of Complementary Feeding to Mothers on Infantile Anthropometric Indicators". As the results of this study showed, the implementation of this program in health centers, hospitals and kindergartens could help improve the anthropometric indices of infants(20). Araban et al. conducted a study entitled "Randomized Controlled Trial of a Prenatal Breastfeeding Self-Efficacy Intervention in Primiparous Women in Iran". They also demonstrated that breastfeeding self-efficacy interventions improved breastfeeding self-efficacy and exclusive breastfeeding as well(14). Conducting a study on breastfeeding mothers living in a city in Philippine, Gonzales et al. argued that breastfeeding self-efficacy is a substantially significant variable in influencing breastfeeding outcomes. Breastfeeding self-efficacy in the early postpartum period is an important predictor of breastfeeding duration(21).

Educational intervention programs in the field of women's health can be effective(22, 23). According to the investigations, the current educational package not only combines virtual education and peer experiences in strengthening the education of mothers, but also it can improve mothers' physical and mental health and reduce medical costs by using telephone follow-up in supporting the mothers of infants. Additionally, the strategy used in this protocol can be used for education and support in pre-pregnancy, pregnancy and childbirth care.

The strategies of this program could be important and cost effective, and therefore we hope that the success of such a program is a step forward in improving maternal and infant health status.

## Abbreviations

QOF: Quality of Life

BSES-SF: Breastfeeding Self-Efficacy

## Declarations

### Ethics approval and consent to participate

Ethical approval for this study has been obtained by the ethics committee affiliated with Shahid Sadoughi University of Medical Sciences, Yazd, Iran (23/8/2021). reference number **IR.SSU.SPH.REC.1400.096**), in compliance with the Helsinki Declaration. Registration of this randomized control trial has been completed with the Iranian Registry of Clinical Trials, **IRCT20210913052457N1, registered 9/10/2021**, <https://www.irct.ir/trial/59093>.

### Consent for publication

Not applicable

### Availability of data and materials

Not applicable.

### Competing interests

The authors declare that they have no competing interests.

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### Authors' contributions

All authors were involved in study conception, design, drafting of the manuscript, FO, ShO, ZK and NY were involved in write and revise the manuscript. All authors have read and approved the final version of the manuscript.

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