



Educational Interventions to Improve Breastfeeding Self-efficacy: A Systematic Review

Aazam Seddighi¹, Zahra Bostani Khalesi^{2*}, Soheila Majidi³

Abstract

Objectives: Breastfeeding self-efficacy (BFSE) is considered one of the critical components of a successful breastfeeding experience. The purpose of this study was to review the educational interventions to improve BFSE.

Materials and Methods: The Cumulative Index to Nursing and Allied Health Literature, Web of Science, ProQuest Nursing and Allied Health Source, PubMed, EMBASE, Social Science Research Network, SCOPUS, Health and Psychosocial Instruments, PsycINFO, Mosby's Nursing Skills, SID, Magiran, Google Scholar, Iran Medex, and Iran Doc databases were searched. Eligible articles were published from January 2000 until December 2019. Two independent reviewers conducted data extraction and relevance screening.

Results: Out of 287 studies, 25 of them were eligible for review. Modalities of interventions were summarized into three types: Visual aids (e.g., booklets, pamphlets, handouts, posters, and movies), verbal education (e.g., instruction by health providers, peer educators, group educational sessions, or small group and face-to-face education), and telephone support.

Conclusions: Interventions included procedures specifically had offered for increasing maternal BFSE. The findings demonstrate the importance of designing educational programs to improve mothers' BFSE.

Keywords: Education, Breastfeeding Self-efficacy, Exclusive breastfeeding

Introduction

Breastfeeding is considered the normal and natural method of infant feeding (1). The Public Health Agency of Canada ascertains breastfeeding as the optimal method to provide nutritional, emotional, and immunological nurturing to infants and toddlers (2). According to the world health organization, virtually all mothers can continue breastfeeding if they receive accurate information and family support (3).

Breastfeeding significantly influences the health of women and children and is a significant public health issue (4). The costs of not breastfeeding are high. Researchers also determined that inadequate breastfeeding results in \$340 billion in avoidable health care costs and lost earnings worldwide every year. (5). Many factors influence the woman's decision about whether to breastfeed or bottle-feed (4).

Self-efficacy (SE) is a factor that predicts maternal breastfeeding behavior and breastfeeding initiation (6). SE is a potentially modifiable variable that influences breastfeeding (7). SE is a person's belief in their capabilities to produce a specific outcome or behavior. SE is a concept based on Albert Bandura's Social Cognitive Theory developed in 1977 (8). Bandura suggested in his theory that an individual's attitudes, abilities, and cognitive skills played a significant role in how one interpreted a situation and then responded to that given situation (8,9). The

theory suggested that SE "influences the choices people make and how they feel about facing a challenge" (6). This implied that those with higher levels of SE would be more likely to exert effort and persevere to succeed (7).

Dennis applied Bandura's SE theory to breastfeeding. To apply this to breastfeeding, if a new mother has difficulty latching her infant to breastfeed, this will decrease her sense of breastfeeding self-efficacy (BFSE) (9). Conversely, if she successfully latches and breastfeeds her infant, this would increase her BFSE (5). BFSE is positively correlated with breastfeeding success in the literature (10). BFSE refers to a mother's confidence in her ability to breastfeed her child (11). Maternal BFSE is a predictor of breastfeeding duration (12). When compared to women with high confidence, women with low confidence prematurely discontinued breastfeeding (12). Mothers with an increased sense of BFSE are more likely to persevere when faced with breastfeeding difficulties and are more likely to overcome such problems, thus improving their likelihood of breastfeeding success (5,7,12).

A recent systematic review has suggested a positive relationship between increased breastfeeding education and better success rates for breastfeeding (13). However, another recent systematic review reported a significant effect of the intervention on BFSE (14). Many studies have exposed that knowledge alone does not ensure successful initiation and continued success with breastfeeding.

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¹Student Research Committee, School of Nursing and Midwifery, Guilan University of Medical Sciences, Rasht, Iran. ²Social Determinants of Health Research Center, Guilan University of Medical Sciences, Rasht, Iran. ³Master of Midwifery, Lecturer, Department of Midwifery, Zeynab (P.B.U.H) School of Nursing and Midwifery, Guilan University of Medical Sciences, Rasht, Iran.

*Corresponding Author: Zahra Bostani Khalesi, Tel: (+98) 1333555056, Email: z_bostani@yahoo.com



Key Messages

- ▶ Breastfeeding self-efficacy is a crucial modifiable factor that could be enhanced. Substantial breastfeeding self efficacy decreases increases the duration of exclusive breastfeeding.
- ▶ Based on this review, face-to-face learning has a significant effect on improving maternal breastfeeding self-efficacy

Mothers can have breastfeeding knowledge but still choose to bottle-feed (15-17).

As the role of maternal BFSE has been deemed an influential component to breastfeeding outcomes, this study sought to review the educational interventions to improve BFSE in more detail.

Materials and Methods

Search Strategy and Information Sources

This study was developed according to the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses). A comprehensive literature search was conducted using various databases, including Cumulative Index for Nursing and Allied Health Literature (CINAHL), Web of Science, ProQuest Nursing and Allied Health Source, PubMed, EMBASE, Social Science Research Network, SCOPUS, Health and Psychosocial Instruments, PsycINFO, and Mosby's Nursing Skills as databases for English articles and IranMedex, Google Scholar, SID, Magiran, and Iran Doc as databases for Persian articles. In addition, checking reference lists to identify relevant studies was manually searched for supplementary studies. The following keywords and MeSH terms: "education", "breastfeeding", "breastfeeding initiation", "breastfeeding duration", "infant feeding", "self-efficacy", "lactation", "promotion," and "intervention" were utilized.

Criteria for Included Studies

The eligibility criteria for inclusion in this review were: 1) intervention research, with or without randomization, with or without a control group; 2) educational interventions to improve BFSE; 3) studies that evaluate BFSE as an outcome; 4) studies published in English or Persian; and 5) Studies published from January 2000 to December 2019. BFSE-SF is a 14 item 5-point scale (11).

The exclusion criteria were lack of access to the full text of articles and reports of irrelevant results. Reviews, case reports, commentaries, descriptive studies, editorial letters, and studies that were not scientifically written, excluded.

Quality Appraisal

Two independent reviewers assessed the methodological quality of the studies using Scottish Intercollegiate Guidelines Network the (SIGN) Checklist (18) were assessed in the first section of the checklist that includes: internal validity, the clarity of the study's question, random

assignment to the experimental and control groups, allocation concealment, blindness about treatment allocation, similarities between groups at the start of the trial, validity, and reliability of the outcome measure.

In the second part, based on the answers on items of the first section, the overall evaluation of each study was estimated as high quality (++), satisfactory (+), or low quality (0).

Records deemed eligible were assessed by two independent reviewers. Disagreements were resolved by face-to-face discussions and through reviewing and finally adjudicated by the third author. All duplicated documents were identified and deleted. Then, the cause of removing documents was recorded.

Data Extraction

Data were extracted on the paper characteristics such as publication year, sample size, data collection technique, and main outcome.

Results

A thorough literature review was conducted to examine the evidence for educational interventions that produced BFSE results. A total of 287 records were identified in the above databases. However, some studies were duplicates (n = 68) or were not relevant in the title screening (n = 83). Two reviewers evaluated the abstracts of 136 studies independently, and 46 were kept for the final full records assessment. In addition, two eligible studies were found by manual searching from the reference lists of relevant studies. Finally, out of 46 studies, 25 were recognized as eligible records and 21 were excluded due to no relevant finding (n = 4), non-interventional studies (n = 7), Duplicate abstracts (n = 3), and only abstract available (n = 7) (Figure 1).

This review revealed various combinations of intervention strategies used to improve BFSE. Full details of the 25 included documents are represented in Table 1.

Type of Educational Intervention

Interventions included routine and formal breastfeeding education, printed information, video, individual counseling, and group educational sessions. In many studies, "routine breastfeeding education" was not explicitly described or was extremely vague. Many studies examining the effects of interventions on BFSE incorporated both prenatal and postnatal intervention strategies. Studies focusing exclusively on the practical impact of solely prenatal interventions on BFSE were limited in number. Evidence from these studies was synthesized according to the type, or mode, of education delivery and the specific content of the educational intervention.

Visual aids

Many studies incorporated various types of individual

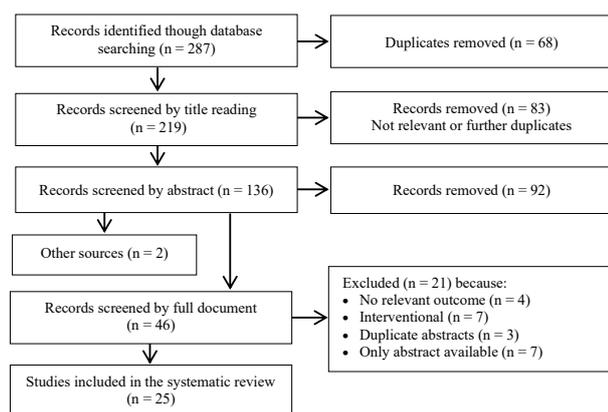


Figure 1. Flow Diagram of the Selection of Included Studies for Systematic Review.

visual aids or a combination of them, such as booklets, pamphlets, handouts, posters, and movies. These educational delivery methods were the only intervention mode for control groups in studies using an additional intervention, such as individual counseling or educational classes. No studies found in the literature used only visual aids as an educational intervention for breastfeeding promotion.

Table 1. Characteristics and Primary Result of Studies Included in the Systematic Review

Author (ref)	Design	Sample Size	Intervention	Main Findings
Noel-Weiss et al (19)	RCTs	47 Women in the case group and 45 women in the control group	Workshop	One 2.5-hr prenatal workshop had a significant effect on breastfeeding cessation under six months
Olenick (20)	RCTs	86 Women in the case group and 96 women in the control group	One 2-hour prenatal class	The prenatal class had no significant effect on breastfeeding cessation up to 4 to 6 weeks
Hauck et al (21)	RCTs	193 Women in the case group and 195 women in the control group	Workbook	Workbook enhancing the BFSE score
Nichols et al (22)	RCTs	45 Women in the case group and 45 women in the control group	Workbook	Workbook had a significant effect on the BFSE score
Azhari et al (23)	Experimental study	124 Women in direct training, indirect training, and the control group	Explicit teaching by the midwife and indirect teaching through images	The results showed that indirect teaching increased the BFSE score
Awano and Shimada (24)	RCTs	55 Women in the case group and 62 women in the control group	Pamphlet and movie	The intervention was effective in experimental compared with the control group that received usual maternity care
Chaibarn et al (25)	RCTs	26 Women in the case group and 26 women in the control group	The video compact disk and handbook	BFSE score in the experimental group was significantly higher than the control group
Kronborg et al (26)	RCTs	603 Women in the case group and 590 women in the control group	Workshop, pamphlet, movie	Interventions had a significant effect on BFSE
Hatamleh et al (27)	RCTs	19 Women in the case group and 17 women in the control group	One 2-hr prenatal class, movie, telephone counseling	The results showed a significant increase in the score of BFSE in the experimental group
Boonchalerm et al (28)	RCTs	15 Women in the case group and 21 women in the control group	Demonstration, Flip chart, cartoon book, The video compact disk	In BFSE score in the experimental group were significantly higher than that in the control group
Goodarzi et al (29)	RCT	107 Women in the case group and control group	Peer education	The results suggested a significant increase in the score of BFSE in the experimental group compared with the control group
Saljughi et al (30)	Clinical trial	74 Pregnant women in the case group and control group	Role-playing	Learning through role-playing increased the BFSE score

Verbal Education

Several studies have recommended lactation consultants in the form of instruction by health providers, peer educators, group educational sessions, or small group and face-to-face education.

Telephone Support

One study in this literature review included telephone support as a component of a prenatal breastfeeding educational intervention.

Discussion

This review found 25 eligible studies, which had examined the effects of educational interventions about maternal BFSE assessing.

Several studies often suggested that prenatal breastfeeding support provided through various educational methods is an essential predictor of BFSE (22,25,26,28,31,33,41). The strategies used as prenatal educational methods include visual aids, individual counseling (through lactation consultants, peer educator, healthcare providers, telephone support, and group educational sessions (either a single educational class or a combination of educational sessions).

Table 1. Continued

Author (ref)	Design	Sample Size	Intervention	Main Findings
Kamran et al (31)	Quasi-experimental	88 Pregnant women in the case group and control group	Breastfeeding education based on the health belief model	Education based on the health belief model significantly increased the BFSE score.
Budsangdee et al (32)	RCTs	26 Women in the case group and 26 women in the control group	Demonstration and the video compact disk	BFSE score in the experimental group was significantly higher than that in the control group
Mir Mohammad Ali et al (33)	Clinical trial	300 Women in the educational package with instruction, case group package without education, and the control groups	The educational package with and without midwife instruction	Direct teaching and instruction significantly increased the BFSE score
Otsuka et al (34)	RCTs	161 Women in the case group and 158 women in the control group	Workbook	Workbook significantly increased the BFSE score
Ansari et al (35)	RCT	120 Women in intervention and control group	Two daily sessions	The results showed a significant increase in the BFSE score in the intervention group
Nekavand et al (36)	RCT	100 Women in the intervention and control group	Verbal training and booklet	Vocal training and booklet significantly increased the BFSE score
Moudi et al (37)	Controlled clinical trial	93 Women in peer education, health care provider, and the control group	Teaching by peer and health provider	The results showed there was no significant difference in the BFSE score between the three groups
Parsa et al (38)	RCT	104 Women in the case group and control group	Telephone consultations	Telephone consultation had a significant increase in the BFSE score
Misheard et al (39)	Clinical trial	100 Women in the case group and control group	Booklet	Education through booklet increased the BFSE score
Khorshidifard et al (40)	Clinical trial	270 Pregnant women in the case group and control group	Education through small group and face-to-face	There was a significant increase in the BFSE score in both experimental groups. But face-to-face education is more effective
Merdasi et al (41)	Quasi-experimental study	210 Women in the gain-framed, loss-framed and, the control group	Message-Framing	There was a significant increase in the BFSE score in the two experimental groups
Mohseni et al (42)	RCT	65 Women in the case group and control group	Six daily sessions	The results showed a significant increase in the BFSE score in the intervention group
Salehi et al (43)	RCT	210 Women in a motivational interview, lecture, and control group	Motivational interview and education by lecture	The motivational interview was found to be more effective in enhancing BFSE

RCT, randomized controlled trial.

Overall, the visual aids were used in studies as supplementary material to reinforce the educational content delivered through various strategies (25-28,32). Many research studies examined the effect of verbal education and individual counseling (19,20,23,27,42,43). Although one study used telephone support as the primary educational method for interventions, it was often included as a supplementary mode of delivery for educational information on breastfeeding (38). A positive relationship may exist between prenatal class attendance and breastfeeding (27,38). Many studies in the literature that examined the effect of breastfeeding education delivered in the prenatal period included group educational sessions. In some studies, the educational group class was offered once and was the main intervention used against the control of standard prenatal care (19, 20). Other studies compared different courses of varying length and content against each other, used multiple group educational sessions as an intervention, or included a combination of group classes with additional modes of

education delivery (25-27,32, 40). The effect of a 2.5-hour experimental workshop as the intervention for nulliparous women who were already planning to breastfeed was evaluated and an increase in maternal breastfeeding SE was found. It was found that the mothers who attended the educational workshop had higher SE scores than those who did not attend the class for four weeks postpartum. In addition, women who attended the course were three times more likely to breastfeed exclusively than the non-attender group at eight weeks postpartum (19). Olenick reported an increase in exclusive breastfeeding rates after a 2-hour class for mothers with no previous breastfeeding experience. They found breastfeeding confidence associated with increased exclusive breastfeeding rates at 1, 6, and 12 weeks (20).

Conclusions

This review has been revealed that educational interventions have a significant effect on improving maternal BFSE. Face-to-face education was more

effective in improving BFSE. Considering that the rate of mobile-based learning has been increasing, therefore, future studies pay to the cost-effectiveness of educational intervention using mobile technology in improving BFSE. The main limitations of the literature review were related to the inconsistency between studies, especially regarding the significant differences in the specifics of the interventions that were used, the mode of delivery, and the specific content of the education. Many of the studies had small sample sizes and had limited generalizability of findings.

Authors' Contribution

AS, ZB, FJ made a fundamental share to the design current study, review and summarized the documents. All authors made fundamental contributions to the attainment and drafted this systematic review. ZB, SM critically revised the study. All three authors have approved the final version of this systematic review.

Conflict of Interests

Authors declare that they have no conflict of interests.

Ethical Issues

The Ethics Committee of Guilan University of Medical Sciences, Rasht, Iran, approved the study proposal (Code: IR.GUMS.REC.1398.106).

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