SYSTEMATIC REVIEW

The effectiveness of breastfeeding self-efficacy intervention on implementation of breastfeeding in low-birth-weight infants: A systematic review

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Abstract

Objective: To present an overview of breastfeeding self-efficacy interventions to enhance the implementation of exclusive breastfeeding for mothers with low birth weight infants.

Method: The systematic review comprised search for randomised controlled trials and quasi-experimental studies published between January 2014 to January 2022 on Scopus, ScienceDirect, Sage journals, ProQuest, Google Scholar and PubMed databases using the Population-Intervention-Comparison-Outcome framework and in line with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses checklist. The analytical quality of the studies was assessed using the Critical Appraisal Skills Programme checklist.

Results: Of the 339 studies initially identified, 10(2.94%) qualified for detailed analysis. Breastfeeding self-efficacy interventions could notably enhance the implementation of exclusive breastfeeding.

Conclusion: Breastfeeding self-efficacy interventions can be modified and effectively used by nurses to improve the implementation of exclusive breastfeeding for mothers with low birth weight infants.

Keywords: Breastfeeding, Milk, Infant, Low birth weight, Intervention. (JPMA 73: S-153 [Suppl. 2]; 2023)

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Introduction

Exclusive breastfeeding (EBF) has extraordinary advantages for optimising the growth, development and staying power of low birth weight (LBW) infants.[1,2] Breastfeeding (BF) contributes to short- and long-term health results for both mother and infant.[3] BF can reduce the incidence of pre-menopausal breast and/or ovarian cancers, in addition to type 2 diabetes mellitus (T2DM) for the mother.[4,5] Infants who are exclusively breastfed can have a decreased risk of infections owing to immune protection.[3,5] However, maintaining EBF can be a challenge for many mothers.[6]

The EBF prevalence is still low at 18% inside the first 48 hours of LBW life, and by the sixth month, one-third women continue to breastfeed, but effectively it is 1 in 20 in EBF terms.[7] The BF rate of LBW mothers was found to be lower than that of mothers who gave birth at term[8]. Usually, early BF termination is based on mother's notion that there is not sufficient milk.[5] Mother's perception related to BF behaviour is called breastfeeding self-efficacy (BSE), which is recognised as an essential modifiable factor for successful BF related to LBW neonates.[4,9–11] BSE can have an effect, among other things, on the way a mother responds to various demanding situations in the BF procedure.[9,12,13]

The health belief model (HBM) is a principle that is broadly used to explain health behaviours, including BSE interventions. The 4 factors that determine the perceived level of confidence are; overall performance achievement, representative experience, verbal persuasion, and physiological and affective states.[14] The current systematic review was planned to present BSE interventions used in literature to improve BSE implementation for LBW neonates.

Materials and Methods

The systematic review comprised randomised controlled trials (RCTs) and quasi-experimental studies published between January 2014 to January 2022 that were searched on Scopus, ScienceDirect, Sage journals, ProQuest, Google Scholar and PubMed databases in line with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses PRISMA checklist.[15]

Key words and Boolean operators (AND, OR, and AND NOT) were used in line with the Population-Intervention-Comparison-Outcome (PICO) framework (Table 1).[16] Studies included were RCTs or controlled clinical trials to decrease the risk of unknown factors, comprised mother or both parents with LBW/premature neonates, had interventions associated with BSE based on education, training and counselling, used smartphone applications for follow-ups.

The studies identified were imported into the Mendeley application, and duplicates were removed. Studies that did not meet the inclusion criteria were also excluded. The analytical quality of the studies was assessed using the Critical Appraisal Skills Programme (CASP) checklist

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(Table 2).[17]

Data was noted to evaluate BSE interventions based on social learning theory to increase EBF in LBW cases.[14,18]

Results

Of the 339 studies initially identified, 10 (2.94%) qualified for detailed analysis (Figure).[1,10, 19–26,27] Of the total, 7(70%) studies examined BSE interventions primarily based on self-efficacy theory.[10,19–23]

BF performance is identified through an education/ knowledge provision and demonstration. Educating mothers can significantly reduce scheduled BF and improve on-demand BF.[28] Demonstration activities based on previous BF experiences can be done using a doll[1,28] on days 2-3 when the babies are cared for in the nursery.[10,25,28]

Building confidence by learning from others was identified through counselling activities carried out by nurses to explore the experience of mothers learning BF skills.[29] The primary counselling consultation was carried out face-to-face, and subsequent sessions continued via smartphones.[10] Counselling was carried out flexibly according to the mother's condition.[1]

Verbal persuasion through encouragement from friends and family as well as by nurses helped maintain EBF.[1,7] Encouraging mothers to begin pumping on day one post-delivery also helped.[20]

It was found to be crucial to apply BSE interventions to reduce postpartum distress and to increase BSE[21]. Stress counselling management could also be used as an intervention as it has been shown[30] that the combination of stress control counselling in BF education programmes can enhance self-efficacy and BF duration in mothers.

In the current review, 5(50%) studies involved face-to-face and telephone contact with mothers in providing BSE interventions.[1,10,21,24]

Tabl-1: Population-intervention-comparison-outcome (PICO) criteria.

Criteria	Inclusion	Exclusion
Population	Mother with low birth weight infant, preterm	Mother with baby birth weight >2500 g
Intervention	Breastfeeding self-efficacy intervention based on education, training, counseling, and the use of applications from smartphones	Not discuss breastfeeding self-efficacy intervention
Comparison	No comparator	-
Outcome	Implementation of exclusive breastfeeding	Not discuss the implementation of exclusive breastfeeding
Study design and publication type observational study	Quasi-experimental, randomized control and trial, mixed methods	A systematic review, integrative review, scoping review,
Publication years	2014-2022	Pre-2014

Table-2: Quality assessment of the studies Critical Appraisal Skills Programme (CASP) checklist.

No	Author name	Item 1	Item 2	Item 3	Item 4	Item 5	Item 6	Item 7	Item 8	Item 9	Item 10	Item 11
1.	Kucukoglu, S et al. (2014)[1]	Yes	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
2.	Mohammadian, et al. (2021)[10]	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
3.	Brockway, M, et al. (2018)[19]	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
4.	Fontana , et al. (2018)[20]	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
5.	Mohammadi et al. (2018)[21]	Yes	Yes	Yes	No	Yes	No	Yes	Yes	Yes	Yes	Yes
6.	Ghomi, R. et al.(2019)[22]	Yes	No	Yes	No	No	No	Yes	Yes	Yes	Yes	Yes
7.	Lee, B. et al. (2020)[23]	Yes	No	Yes	No	No	No	Yes	Yes	Yes	Yes	Yes
8.	Hägi-Pedersen, MB et al. (2022)[24]	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
9.	Kachoosangy, RA et al. (2020)[25]	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
10.	Heidary, S., et al. (2021)[26]	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Table-3: Summary of the studies analysed.

No	Author name	Method	Participants	Intervention	Outcome	Conclusion
1	Kucukoglu, S et al. (2014)[1]	Quasi-experimental study	85 mothers and low birth weight infants IG: 42 CG: 44	Natural-Feeding Education	Successful Exclusive Breast-Feeding and BSE of Low-Birth-Weight Infants	Natural breastfeeding education given to mothers increased their level of breastfeeding self-efficacy and success in breastfeeding. The results showed that natural breastfeeding education increased the level of breastfeeding self-efficacy, breastfeeding success, and breastfeeding duration.

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Table-3: *continued from previous page*

No	Author name	Method	Participants	Intervention	Outcome	Conclusion
2	Mohammadian et a.l (2021)[10]	RCT	65 eligible mothers CG: 32 IG: 33	Continuous supportive telephone counselling	BSE	The outcomes confirmed that non-stop supportive phone counselling can increase breastfeeding self-efficacy in mothers with premature infants which in turn can enhance lactation continuity in mothers with premature infants.
3	Brockway, M et al. (2018)[19]	A mixed methods protocol (explanatory and RCT)	CG: 5 IG: 5	Family Integrated Care (FICare)	BSE and breastmilk feeding	FICare can assist increase maternal BSE and breastfeeding rates in medium and late preterm infants. Advanced breastfeeding results mother-infant bonding and could assist enhance lengthy-time period health consequences for medium and overdue preterm infants.
4.	Fontana et al. (2018)[20]	RCT	70 mothers of preterm infants EI:34 SC:36	Early intervention	Feeding behavior	Early intervention techniques, primarily based on parent education packages, had been a success in increasing breastfeeding of preterm infants on discharge. Consequently, the EI programme ended in the proportion of infants who had been exclusively breastfed became better than the SC group.
5.	Mohammadi et al. (2018)[21]	RCT	100 mothers IG: 50 CG: 50	SIT	a. BSE b. Perceived stress of mothers	This observation indicates that, on the one hand, SIT can successfully enhance breastfeeding self-efficacy in mothers with LBW infants.
6.	Ghomi, R. et al. (2019)[22]	Quasi-experimental study	40 mothers	Health belief model-based empowerment programme	The caring behaviours	Empowerment programmes based on the health belief model can change the behaviour of caring for mothers with premature babies.
7.	Lee, B, et al. (2020)[23]	Quasi-experimental study	45 preterm mothers CG: 23 EG: 22	Individual breastfeeding education	Preterm mothers' self-efficacy	The intervention programme consisted of breastfeeding education with demonstration and discharge education, and phone complying with-up education inside one week of discharge. This observation indicates that the preterm breastfeeding programme has an effective impact on breastfeeding self-efficacy, breastfeeding attitudes, and prolongation of breastfeeding.
8.	Hägi-Pedersen, MB et al (2022)[24]	RCT	188 mothers/ fathers with premature infants IG: 88 CG: 100	Pre Home Care programme using smartphone with an application	a. Breastfeeding experiences b. BSE c. Mother–infant interaction and d. Parental confidence	The intervention programme consisted of breastfeeding education with demonstration and discharge education, and phone complying with-up education inside one week of discharge. This observation indicates that the preterm breastfeeding programme has an effective impact on breastfeeding self-efficacy, breastfeeding attitudes, and prolongation of breastfeeding. The examination confirmed comparable breastfeeding proportions at discharge. Video consultation could be a viable choice and a crucial supplement during early in-home care. Video session may be a feasible alternative and a critical complement during preliminary home care to enhance lactation continuity in mothers with preterm infants.
9.	Kachoosangy, RA et al. (2020)[25]	RCT	45 preterm EG:15 CG:15 SG:15	Creating Opportunities for Parent Empowerment (COPE) programme on	PMP-SE	Behavioural education interventions will strengthen the mother's self-confidence and knowledge about the neonate and increase the mother's ability to care for the neonate and empower the mother to breastfeed.
10.	Heidary S. et al. (2021)[26]	Quasi-experimental study	90 mothers of premature infants	Educational intervention based on the theory of self-efficacy	Stress- exacerbating and stress-relieving factors of neonatal mothers admitted	Primarily based at the findings of the study, it's far recommended to put in force interventions to make parents of premature infants, particularly mothers, prepared to keep the infant inside the intensive care unit.

RCT: Randomised controlled trial, EG: Experimental group, CG: Control group, IG: Intervention group, SG: Supervision group, PMP(SE): Perceived Maternal Parenting Self-Efficacy, BSE: Breastfeeding self-efficacy, EI: Early intervention, SC: Standard care; SIT: Stress inoculation training.

Discussion

BSE is a variable that can be modified through nursing interventions.[12,14] It is an important component underlying sustainable BF practices.[31] The first few weeks post-delivery are very crucial in this regard.[10]

BSE interventions increased EBF at six months postpartum. Overall, a BSE intervention with focus on the HBM theory[14] is recommended as an appropriate strategy to increase the initiation or duration of BF. The most effective HBM-based BSE interventions consist of 4 sessions to produce a

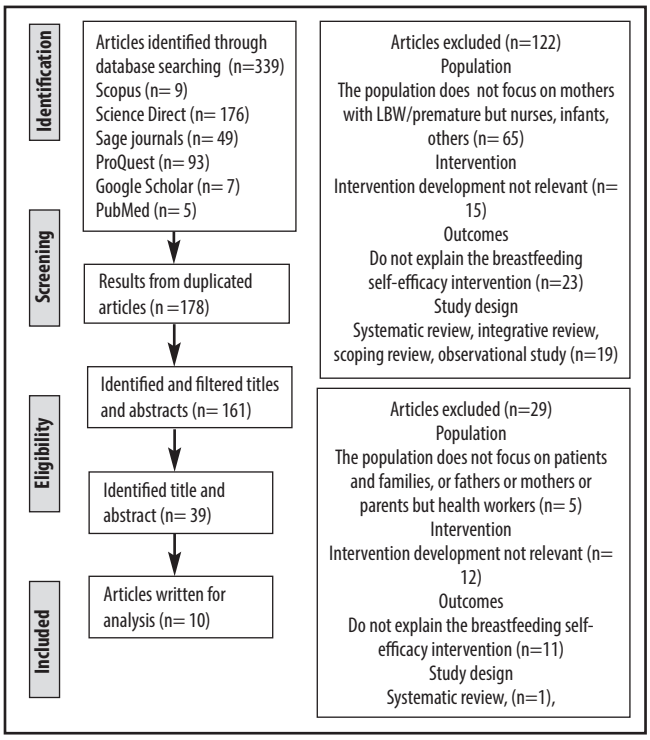

Figure: Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA) flowchart.

significant effect, especially for the first one month postpartum, including a performance of BF behaviour, representative experience (seeing other people breastfeeding), verbal persuasion (encouraging and praise), and physiological reactions that may affect breastfeeding practice.[14] A study[3] reported that BSE ratings had been higher at 4-6 weeks postpartum.

Six of the studies reviewed used a combination of hospital and community settings. A study[3] has reported that combined hospital and community settings showed better outcomes. Presenting education during hospitalisation and follow-up at home reduces BF-associated issues, strengthens present BF information, and encourages mothers to practise EBF for up to 6 months.[32]

Interventions involving face-to-face and telephone contact with mothers significantly maintain EBF.[33] Such interventions are recommended as they are feasible, low-cost and may reduce early weaning.

Conclusion

BSE interventions can be modified and effectively used by nurses to improve the implementation of EBF for mothers with LBW infants.

Limitation: The current literature review was not registered with the Prospective Register of Systematic Reviews (PROSPERO), which is a limitation.

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