

Access this article online
Quick Response Code:

Website: www.jehp.net
DOI: 10.4103/jehp.jehp_708_21

Effectiveness of breastfeeding education compared to standard hospital information on exclusive breastfeeding among mothers: A systematic review

Athirarani Muraleedharan Rohini, Sujitha Elavally¹, Geetha Saradakutty²

Abstract:

Breastfeeding is the single intervention with the largest impact on the health of a new-born baby. Evidence has to be generated to convince the mother as well as policy-makers for the promotion of exclusive breastfeeding (EBF) for 6 months. This study aimed to assess the evidence for the effectiveness of breastfeeding education compared with standard hospital information among mothers on the rate of EBF. The study design is systematic review. Trials which are randomized or cluster randomized which studied the effect of educational interventions for mothers on EBF were searched for. Two databases were searched, namely PubMed and Cochrane. Manual search of reference lists of all included studies in Google scholar and Clinical Trial Registry was done. Two reviewers independently assessed the quality of the included studies. Data were extracted using a table format set by the reviewers referring the previously reported high-quality systematic reviews. Out of the 12 comparisons of nine studies included for review, eight studies report that breastfeeding education has added advantage on increasing the rate of EBF. We conclude that there is evidence to support breastfeeding education versus standard hospital information across diverse settings.

Keywords:

Breastfeed, education, systematic review

Introduction

Breastfeeding is the most natural and cost-effective intervention for child vitality and survival. The theme of World Breastfeeding Week 2020 is “Support breastfeeding for a healthier planet.” World Health Organization (WHO)-UNICEF led Global Breastfeeding Collective Advocating concerted efforts from all the countries to promote exclusive breastfeeding (EBF).^[1] However, for the past few decades, the rate of EBF globally being 43%.^[2] It is even lower in low-income and middle-income countries, only 37% of children younger than 6 months of age are exclusively breastfed.^[3,4]

Lactational support and education to the mothers and significant others will enhance early, exclusive, and extended breastfeeding. Virtually all mothers can breastfeed, provided they have accurate information, support of their family, the health-care system, and society at large. They need support and reassurance as they learn the breastfeeding skill.^[5] The major objectives of such preparations are to communicate the advantages and benefits of breastfeeding, demonstrate the techniques, to assess the actual and potential difficulties in breastfeeding and to identify ways to work with women to overcome the difficulties. All health workers who are in contact

This is an open access journal, and articles are distributed under the terms of the Creative Commons Attribution-NonCommercial-ShareAlike 4.0 License, which allows others to remix, tweak, and build upon the work non-commercially, as long as appropriate credit is given and the new creations are licensed under the identical terms.

For reprints contact: WKHLRPMedknow_reprints@wolterskluwer.com

How to cite this article: Rohini AM, Elavally S, Saradakutty G. Effectiveness of breastfeeding education compared to standard hospital information on exclusive breastfeeding among mothers: A systematic review. J Edu Health Promot 2022;11:125.

Department of
Community Health
Nursing, Government
College of Nursing,
Thiruvananthapuram,
Kerala University of
Health Sciences, India,
¹Department of Medical
Surgical Nursing,
Government College
of Nursing, Thrissur,
Kerala University
of Health Sciences,
India, ²Department of
Paediatrics, Government
Medical College,
Thiruvananthapuram,
Kerala University of Health
Sciences, India

Address for correspondence:

Dr. Sujitha Elavally,
Department of Medical
Surgical Nursing,
Government College of
Nursing, Thrissur, Kerala,
India.
E-mail: sujithaajith@
yahoo.co.in

Received: 18-05-2021
Accepted: 21-09-2021
Published: 28-04-2022

with the mothers have a key role to play in imparting breastfeeding education to sustain optimal breastfeeding practices. The message of breastfeeding promotion needs to be reached to more and more sections in the society. Every behavior change platform needs to be utilized for breast feeding promotion and this should be the concern for all health professionals. A breastfeeding mother may not talk about her feelings easily, especially if she is shy, and with someone whom she does not know well. The health care agency has to tailor the Breast Feeding Education in such a way to encourage her to express more about her concerns. Proactive efforts need to be employed to address the gap and to regain the ideal situation. The Information-Education-Communication interface is the principal means of motivation for behavioral change related to breastfeeding. The theory of planned behavior explains that a factual and specific set of instructions imparted formally to a person can ensure permanent learning and these knowledge-oriented initiatives may act preventively to influence the intellectual attitudes of those who receive it.^[6]

Thus, the investigators resort to search for different types of breastfeeding interventions with an educational component, given primarily to mothers which will result in strict adherence to EBF and increase the duration of any breastfeeding. In Cochrane, as on April 13, 2019, there were no systematic reviews or meta-analysis on the current research questions posed by the investigators. In International prospective register of systematic reviews (PROSPERO) also, there were no protocols registered in this regard, as on April 4, 2019. Therefore, this review aimed to assess the evidence for the effectiveness of breastfeeding education compared with standard hospital information among mothers on the duration of EBF.

Materials and Methods

Study design

The study was a systematic review.

Study setting

The review was conducted in Kerala, India.

Study participants/sampling

Samples were studies published with a theme of effect of education support to promote breastfeeding.

Criteria for considering studies for this review

Types of studies: Randomized controlled trials including cluster-randomized trials published in the English language within 10 years till April 2019 were eligible for inclusion. Types of participants: All antenatal or postnatal mothers who can care for their normal newborn infants and breastfeed them were included. Exclusion

criteria: Trials recruiting populations with specific health problems such as AIDS were not included in this review. Furthermore, studies defined EBF based on criteria other than WHO were excluded from the study.

Types of interventions/comparison

Breastfeeding Education program given by trained professionals in the form of teaching, counseling or support to mothers or couple during the antenatal or postnatal period in the hospital or community setting as one to one teaching or group teaching or as Short Message Service or a phone call or computer-assisted interventions covering the various aspects of breastfeeding such as feeding positions, the importance of feeding on demand, avoidance of formula and pacifier, management of sore nipple and breast engorgement and opportunities for prolonging lactation after returning to work were considered.

Comparison

The expected comparisons were routine/standard health messages provided during antenatal or postnatal period inside the hospital or in the community setting.

Types of outcome measures and definition

The main outcome measure fixed for this review was the proportion of infants being exclusively breastfed until 6 months of age. For EBF, the WHO definition was referred. It is defined as no other food or drink, not even water, except breast milk (including milk expressed or from a wet nurse) for 6 months of life, but allows the infant to receive Oral rehydration Solution, drops and syrups (vitamins, minerals, and medicines).^[7]

Search methods for identification of studies

Electronic database

Two databases, namely PubMed and Cochrane were searched independently by the two reviewers using search words. We searched reference lists of retrieved articles also. Manual searches: The reference lists of all included studies, Google Scholar, Clinical Trial Registry-India and Indian Academy Pediatrics journal index were searched.

Search strategy

We searched the databases using key terms "Breastfeeding" AND "Education" AND "Trials." We restricted our search to English language and free full-text.

Study selection

Two review authors independently assessed the potential studies for eligibility. Eligible studies were screened at a full-text level and we resolved any disagreement through discussion and with the help of a third reviewer. Joanna Briggs Institute (JBI) appraisal instrument was used to appreciate the quality of studies. JBI data extraction tool

for quantitative studies was also utilized. Studies were numbered for independence in review [Figure 1].

Data collection process

Data collection tool and technique

Researcher-formulated table format was used to collect the data from selected studies using review method.

Data extraction and management

We designed a tabular format to extract the data. From each eligible study, two review authors extracted the data using the agreed format. Nine studies were included for systematic review. The extracted data included details of the study, participants, interventions, and outcomes.

Ethics/registration

The review was done by authors in Kerala, India. The period of review was 2019–2020. Since the review does not involve use of humans/human data in a direct way, the institutions of the authors does not mandate formal clearance from IEC. However, the review has been registered in International prospective register of systematic reviews (PROSPERO). PROSPERO Acknowledgement of receipt is (131114), April 2020. The study complies with the international standards for systematic reviews by PROSPERO.

Results

Results of the search

We identified 68 records through our search of databases and CTRI. Thirty-eight duplicates were removed and the remaining 30 records were screened at the abstract level. Full texts of 20 studies with suitable abstracts were perused and 11 were excluded. The reasons for exclusion included unhealthy mothers, non-WHO criteria for EBF, unclear or incomplete reports on EBF and being a protocol. Subsequently, nine studies were included for the analysis. Of these, three studies tested two interventions and each arm was considered separate for the review namely women’s group intervention and volunteer peer counselling,^[8] Baby-Friendly Hospital Initiative steps 1–9 and steps 1–10^[9] and counseling at home and hospital.^[10] Thus, there were 12 comparisons from nine studies. The included studies comprised six cluster randomized trials and three individual randomized trials [Table 1].

Participants and settings

The number of participants in the included studies ranged from 106 to 11,867 in individual studies. The total accounted for 31,891 from nine studies. Majority of the studies were from the middle to low-income countries

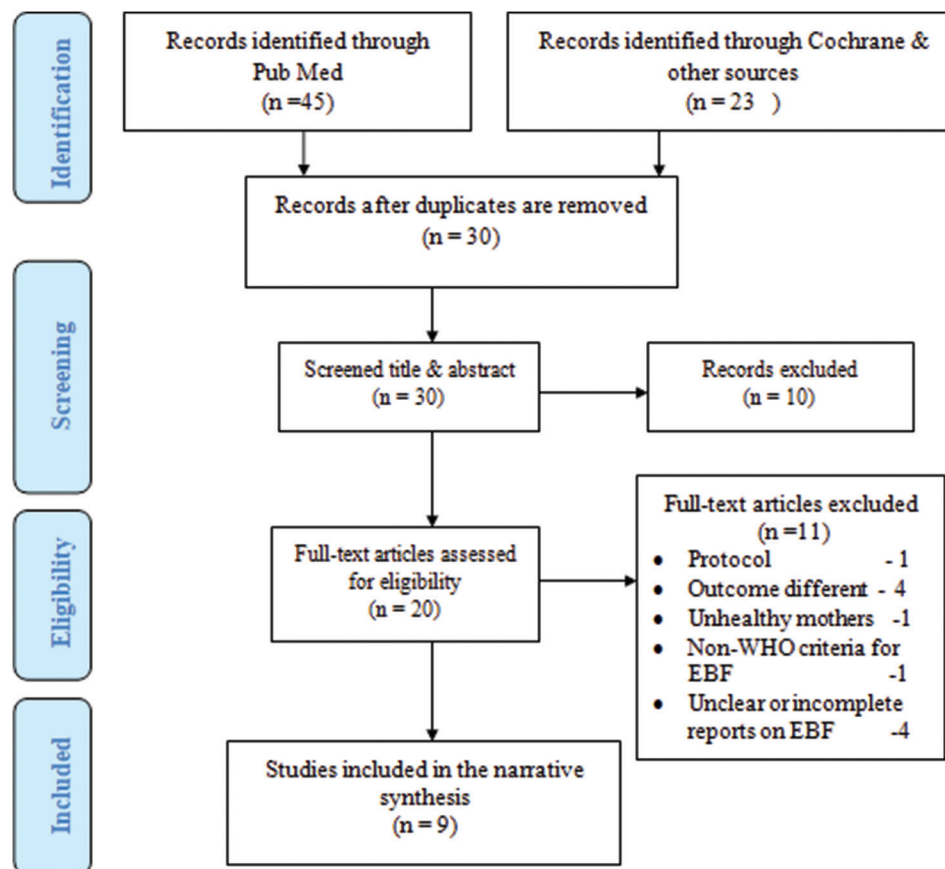


Figure 1: PRISMA flow diagram

Table 1: Details of the included studies

Author (year)/ study design	Population/number of participants	Intervention	Control group	Result
Khan <i>et al.</i> (2017) ^[11] RCT	Mother infant pair Intervention group (n=1402) Control (n=1387)	Breastfeeding counseling	Usual health message	At 4 months, 69.0% (95% CI: 66.1-71.9) of the BF counseling group were being exclusive breastfed, as were 46.6% (95% CI: 42.8-50.4) in the usual health message group, while the corresponding figures at 6 months were 15.3% (95% CI: 10.4-20.1) and 6.4% (95% CI: 1.3-11.5), respectively
Nikiéma <i>et al.</i> (2017) ^[12] Cluster RCT	Mother-child pairs (1170 in the intervention and 1083 in the control arms)	Facility-based personalized maternal nutrition counseling	Routine preventive, promotional, and curative services	Mothers of infants below 6 months of age in the intervention arm were more likely to exclusively breastfeed (54.3% vs. 42.3%; (DP) 12.8%; 95% CI: 2.1, 23.6; P=0.020) as compared to the control arm
Ahmed <i>et al.</i> (2016) ^[13] RCT	Postpartum mother-infant dyad ≥ 18 years Intervention group (n=49) control group (n=57)	Breastfeeding counseling	Standard hospital care	A significant difference in BF outcomes was between groups at 1, 2, and 3 months (P=0.027, P=0.000 and P=0.002). Members of the intervention group had higher EBF rates at 1, 2, and 3 months. By the end of the third month, 84% of the intervention group was breastfeeding compared to 66% in the control group
Chola <i>et al.</i> (2015) ^[14] Cluster RCT	Mother-infant pair Intervention group (n=396) control group (n=369)	Breastfeeding counseling	Standard hospital care	At 12 weeks, EBF prevalence (24 h recall) in the intervention group was 82%, compared to 44% in the control group, a PR (CI) of 1.89 (1.70-2.11)
Yotebieng <i>et al.</i> (2015) ^[9] Cluster RCT	Mother infant pair Intervention group (n=363) control group (n=304)	Breastfeeding counseling BFHI 1-9 group and BFHI 1-10 group	Usual care	Prevalence of EBF at age 14 weeks was 89 (29%) in the control group, 237 (65%) in the steps BFHI 1-9 group (adjusted PR 2.20, 95% CI 1.73-2.77), and 129 (42%) in the steps BFHI 1-10 group (1.40, 1.13-1.74). At age 24 weeks, the prevalence of EBF was 36 (12%) in the control group, 131 (36%) in the steps 1-9 group (3.50, 2.76-4.43), and 43 (14%) in the steps 1-10 group (1.31, 0.91-1.89)
Abbass-Dick <i>et al.</i> (2014) ^[15] RCT	Pregnant women and her partner Intervention group (n=107) control group (n=107)	Breastfeeding support intervention	Usual care	At 6 weeks, mothers in intervention group (n=75, 72.1%) were exclusively breastfeeding than in the control group (n=62, 60.8%), the 11% difference was not statistically significant (P=0.09). At 12 weeks, more mothers in the intervention group (n=70, 67.3%) continued EBF than in the control group (n=63, 60.0%), this 7% difference was statistically nonsignificant (P=0.27)
Fu <i>et al.</i> (2014) ^[10] Cluster RCT	Primi mother-infant pairs Intervention group 1 (n=191) Intervention group 1 (n=269) control group: (n=264)	Group 1: Breastfeeding counseling by the hospital support group Group 2: Breastfeeding counseling by the telephone support group	Standard care	Participants receiving telephone support were significantly more likely to be exclusively breastfeeding at 1 month (28.4 vs. 16.9%; OR 1.89, 95% CI: 1.24-2.90)
Lewycka <i>et al.</i> (2013) ^[8] 2X2 Factorial, cluster RCT	Pregnant women 48 clusters The mean population per cluster was 3873 (range 3083-4933)	Women's group intervention plus volunteer peer counseling, women's group only, volunteer peer counseling only (health education about exclusive breastfeeding, infant care, immunizations and family planning)	No intervention/ standard care	Factorial analysis for the peer counseling intervention showed an improvement in EBF rates (2.42, 1.48-3.96). The results of the stratified, adjusted analysis showed no effect on EBF (1.18, 0.63-2.25) in areas without women's groups, and in areas, with women's groups, there was an increase in EBF (5.02, 2.67-9.44)
Oken <i>et al.</i> (2013) ^[16] Cluster RCT	Mother-infant pair 6321 intervention group, 5546 in the control group	BFHI 10 steps	The prevailing practices	The prevalence of EBF at 3 months was 44.5% in 6321 women in the intervention group and 7.1% in 5546 women in the control group

BF=Breastfeeding, DP=Difference of proportion, EBF=Exclusive breastfeeding, BFHI=Baby friendly hospital initiative, CI=Confidence interval, PR=Prevalence ratio, RCT=Randomized controlled trial

and two were from high-income countries. In one study, the authors did not mention the country of origin.

Apart from mother-infant dyad, two studies included significant family member namely a grandmother^[14] or

a male partner living with the women.^[15] Two studies specifically selected primi-parous mothers.^[10,15] Most of the studies specified the inclusion criteria of the mothers as ≥ 18 years, singleton healthy baby, no contraindications for breastfeeding, and completed 37 weeks of gestation. None of the studies specified the mode of delivery.

Interventions

The types of interventions delivered to study group participants varied considerably in content, timing, setting, duration and frequency of the sessions. All interventions were education-based. One study^[12] primarily imparted nutritional counseling to mothers and in the remaining eight studies, the education was based on breastfeeding.

Three studies were purely home-community based^[8,11,14] and their interventions were delivered by short-trained lay counselors selected from the locality. In all other studies, health care professionals viz nurses, lactation specialists, obstetricians and pediatricians directly imparted the interventions. In two studies which tested a telephone intervention^[10] and a web-based teaching,^[13] the content was delivered when the couples were at home after the discharge, but they were hospital-initiated. Almost in all studies, the personnel were additionally trained and in many, they were monitored also.^[8,10,11,16] In one study,^[12] additional communication training was given to the counsellors. Eight interventions were delivered face-to-face and were individualized. Most of the studies provided additional learning resources to the intervention group such as handouts,^[13] flyers^[9] and videos and workbooks.^[15] One study^[10] included breastfeeding related demonstrations in intervention. Additional contact/email or questioning facility were provided by four studies. Locally developed materials with culturally appropriate messages were given by one study^[9] in the flyers. The intervention was tailored web advice in one study^[13] and it let the participants to refer back whenever they had a doubt. Another study^[12] allowed mothers to take their own decisions matching their environment on nutrition aspect.

Four studies enrolled mothers in the third trimester^[8,11,12,14] and others selected them postpartum. Three studies delivered combined antenatal and postnatal teaching to the samples while four exposed the mothers to postnatal-only sessions. The number of sessions of intervention ranged from single^[15] to eight^[11,12] and the duration varied from 20 to 45 min. The point of outcome assessment ranged from 1 month^[13] to 18 months^[12] postpartum. One study^[16] followed the mothers until they stopped breastfeeding.

Comparisons

Seven studies gave the intervention group access to usual care too while two studies limited the access to intervention only.^[9,16] One study^[8] exposed the intervention groups to two different education counseling treatments in a cross-over fashion.

Outcomes and measurements

Eight interventions from six studies measured EBF as a primary outcome and in two studies, it was one of the secondary outcomes.^[12,16] In the cross-over study,^[8] EBF was one of the secondary outcomes for the first intervention arm while it was the primary outcome for second intervention arm. Other related outcomes measured were the frequency and intensity of breastfeeding.

For six studies, the outcomes were measured through an interview using questionnaire either face to face^[9,8,11,12,14,16] or phone-based.^[10] One study^[13] collected data online while another^[15] used both web-based self-report and telephone questionnaire.

Risk of bias of included studies

Two review authors independently assessed risk of bias for the included studies using the criteria outlined in the Cochrane Handbook for Systematic Reviews of Interventions and are mentioned below. The consensus was reached through discussion in case of any disagreement.

All selected studies, except one, assigned the participants to the experimental and control group either in single or in clusters using random methods and were scored as having a low risk of selection bias. Two studies did not conceal allocation to treatment groups, four studies concealed the allocation and three studies did not provide information on this. Regarding blinding of participants to treatment allocation, only two studies which were randomized controlled trial (RCTs) did that. Three studies reported that blinding was not possible and four studies did not provide sufficient information on blinding.

On blinding of outcome assessment, in four studies, outcomes were assessed by a person who was blinded to the treatment allocation and low risk of bias was scored. In three studies, this was not done and two studies failed to report adequately on this. For incomplete outcome data, eight studies reported the intention to treat analysis and were rated as having a low risk of bias. The reporting bias was low, as prespecified outcomes of all the studies have been reported completely and all reported outcomes were prespecified.

Other bias

In six studies, the groups were comparable at entry and these studies were categorized to have a low risk of bias.

Two studies failed to report sufficiently on this and in one study, the groups were reported to be unequal. In seven studies, the treatment groups had access to usual care and the groups differed in the aspect of intervention only. Two studies restricted the access to intervention only. The outcomes were measured in a reliable way using appropriate statistical methods in all the selected studies and this was done the same way for the treatment and control groups.

Effect of breastfeeding education on exclusive breastfeeding

We included nine studies for review, the study by Khan *et al.*^[11] confirmed a significant difference in the rate of EBF between the intervention and control group as evidenced by the result that at the 6th month, 15.3% (95% confidence interval [CI]: 10.4–20.1) of the breastfeeding counseling group were breastfeeding exclusively, as were 6.4% (95% CI: 1.3–11.5) of the control group. Nikièma *et al.*^[12] reported that mothers of infants below 6 months of age in the intervention arm were more likely to exclusively breastfeed [54.3% vs. 42.3%; Difference of Proportion (DP) 12.8%; (95% CI: 2.1, 23.6; $P = 0.020$)] as compared to the control arm. Ahmed *et al.*^[13] showed that the Breastfeeding Education has a significant effect on the rate of Breastfeeding with EBF rate of 84% in the intervention group compared to 66% of the control group ($P = 0.002$). Chola *et al.*^[14] proved that EBF rate in the intervention group was 82%, compared to 44% in the control group (CI 1.89 (1.70–2.11). In Yotebieng *et al.*'s^[9] study, the prevalence of EBF was 36 (12%) in the control group, 131 (36%) in the BHFI steps 1–9 group (3-50, 2-76–4-43), and 43 (14%) in the steps 1–10 group (1-31, 0-91–1-89) at age 24 weeks where adding an additional step actually lessened the EBF. Abbass-Dick *et al.*^[15] showed a nonsignificant marginal difference in rates of EBF among the mothers in the intervention group versus control group at 6 weeks and 12 weeks ($P = 0.09$ and $P = 0.27$, respectively). Fu *et al.*^[10] revealed that the proportion of participants continuing EBF were consistently higher in the telephone intervention group at 1 month compared with those receiving standard care (28.4% vs. 16.9%; odds ratio [OR] 1.89, 95% CI 1.24–2.90) but not in the in-hospital support group. Lewycka *et al.*^[8] pointed out the improvements in EBF rates in the volunteer peer counselling arm at 6 months (20% vs. 8%, OR-CI 2.42, 1.48–3.96). However, their stratified analysis showed that these effects were not significant without women group intervention. Oken *et al.*^[16] reported that the prevalence of EBF at 3 months was 44.5% in the intervention group and 7.1% in the control group. Out of 12 comparisons, four reported that BF education doesn't have added advantage on increasing the rate of EBF.

Six interventions measured their effect on EBF at 6 months and they reported significant DP ranging from

8.9 to 24. Seven interventions were assessed for their significant effect on EBF at 3–4 months and mean DP was 27.01 (range 7.3–38). Three out of four interventions assessed at 1–2 months significantly influenced EBF and mean of DP was 22.45 (11.3–44). The maximum DP was found to be at 2–3 months, and the minimum was at 6 months.

Though the reported DP was low, the prevalence of EBF was highest in Canadian control group, consistently above 60% at 1 month and 3 months.^[15] Bangladesh reported the lowest EBF among controls with 6.4% at 6 months,^[11] followed by Belarus with 7.1% at 3 months.^[16] A sharp decline in EBF was noted from 3 months to 6 months in Congo despite the intervention efforts.^[9]

Discussion

This review aimed to assess the effect of breastfeeding education interventions versus Standard Hospital Information on the rate of EBF. From the available evidence, we found that these interventions are useful in terms of promotion of EBF across various settings as with previous reviews.^[17-19] The involvement of health staff from various disciplines indicates that the breastfeeding promotion efforts are multi-professional worldwide.

There were good efforts in training and supervision of the educators and such training initiatives are favored in previous reviews,^[17,20] and are recommended especially in low-income countries.^[21] A fourth of the studies provided the educators with amenities like umbrellas and bicycles for fieldwork which might have improved their reach to the targets population. The universal nature of breastfeeding demands more local participation not only in community-based studies but also in facility initiated ones.^[22]

The inclusion of the grandmother or male partner in breastfeeding education is supported by the findings of other published studies.^[23,24] The different modes of education used in the current review namely, individual, face to face, telephone, online sessions are all proved to be effective in previous systematic reviews.^[25-27] The mean number of education sessions employed across the studies was five while WHO recommends at least six sessions^[28] to facilitate a behavioral change. Since BF involves skill learning, extensive practical training is desirable.^[29]

The findings from the selected studies depicted that the maximum DP in EBF between the intervention and control group was found to be at 2–3 months and the minimum was at 6 months. This reflects the global general trend of EBF that it fades towards the end of EBF

period.^[30] However, this is in contrast with the findings of an extensive systematic review^[26] which found that the greatest effect of counseling interventions was noted at 4–6 weeks and at 6 months. Overall, most of the control group proportions who were exclusively breastfeeding remained well below 20% and rarely reached 40% at various measurement points.^[31]

Thus, the effectiveness of interventions needs to be interpreted in the background of the study. The interventions are proved more effective in areas where breastfeeding initiatives preexist. The high prevalence of breastfeeding among Canadian control group mothers and low prevalence among Bangladesh and Congo mothers' contrast with the reports that middle and low-income countries maintain a high rate of breastfeeding.^[32] Statutory changes like extending the paid maternity leave may help to influence this scenario.^[33] An Indonesian study demonstrates that mother's knowledge and attitude toward breastfeeding largely depends on the education given by the support group.^[34] Studies also reveal the importance of providing standard education package for pregnant mothers during the antenatal period.^[35]

Limitation and recommendation

We adhered to PRISMA guidelines, the standard reporting format for systematic reviews. We also used the JBI tool to assess the quality of studies and utilized Cochrane handbook of systematic reviews for assessing the risk of bias. Since RCTs are included, we believe that the evidence is stronger in this narrative review. We attempted to minimise bias during the review process by having three people assess the eligibility of studies and risk of bias.

We consider that the risk of bias in the included studies is minimal. Since there were studies reporting the nonsignificant effect of interventions and even a fall in EBF, we believe that the publication bias is excluded. The big sample sizes of individual studies, except in two RCTs, add strength to the review. The authors of the cross-over study (Lewycka *et al.*, 2013), specifically report about a wash-out period and thus the carryover bias is assessed to be low.

The review had limitations. We had limited the search to the published free literature only. The selection was based on the availability of studies in databases selected and was subject to the variability of key terms internationally. Some studies which presented key results relevant to the EBF phenomenon were not considered for review due to either the methodological inaccuracy or their inability to satisfy the inclusion criteria. We did not find many other reviews reported on this topic and this affected our initial plan to do a meta-analysis.

The certainty of evidence may have been compromised because, the data on breastfeeding are basically self-reports. Furthermore, we consider the heterogeneity of the interventions and the high risk of bias of allocation concealment and blinding in some of the studies. There was no standardization in usual care given to the control group across the studies.

Mode of birth was not addressed in this review which is said to be a significant contributing factor in BF practices. Although we looked for EBF for 6 months, many studies restricted their assessment to 3 months or less and the reasons for this remain unclear.

Since published studies on multi-professional involvement in breastfeeding promotion are rare, authors believe that such an approach will create greater improvements in this field. We suggest that in future, uniform standard care can be set as the inclusion criteria. We experienced difficulty in extracting data from nontabular reports and suggest that the authors of breastfeeding studies should improve the clarity and precision in measuring and reporting the outcome at specified intervals mentioned in the methodology.

Time and resource constraints were mentioned by some of the studies can be taken into consideration in implementing further studies in the same context. Future reports should be done in a manner which facilitates replication and utilization of the best evidence locally. Interpretations of study outcomes could ideally be context-specific because of the minor differences in practice in resource-limited environments.

Conclusion

In our review, overall, the educational interventions significantly produced a positive effect on the EBF rate. When viewed individually, this was true except in the case of four interventions which did not identify a statistically significant difference. The current practice of usual health message has limited value in improving the rate of EBF.

Acknowledgments

We acknowledge that the article complies with the ethical moral codes for systematic reviews. The review has been registered in International prospective register of systematic reviews (PROSPERO). PROSPERO Acknowledgement of receipt is (131114), April 2020. Authors acknowledge Dr. Judith N, Assistant Dean, Manipal College of Nursing, Karnataka, India and Dr. Rajamohan. K, Former Professor in Pediatrics, Sree Avittom Thirunal Hospital, Thiruvananthapuram, Kerala, India for their help during the review process.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

References

- Henrietta H, Fore TA. World Breastfeeding Week 2020 Message; 2020. Available from: <https://www.who.int/news/item/31-07-2020-world-breastfeeding-week-2020-message>. [Last accessed on 2021 Apr 14].
- UNICEF. Improving Breastfeeding, Complementary Foods and Feeding Practices; 2018. Available from: https://www.unicef.org/nutrition/index_breastfeeding.html. [Last accessed on 2018 Jul 21].
- Victoria CG, Bahl R, Barros AJ, Franc GV, Horton S, Krasevec J, et al. Breastfeeding in the 21st century: Epidemiology, mechanisms, and lifelong effect. *Lancet* 2016;387:475-90.
- Radzimirski S, Callister LC. Mother's beliefs, attitudes, and decision making related to infant feeding choices. *J Perinat Educ* 2016;25:18-28.
- Labarere J, Bellin V, Fourny M, Gagnaire JC, Francois P, Pons JC. Assessment of a structured in-hospital educational intervention addressing breastfeeding: A prospective randomised open trial. *BJOG* 2003;110:847-52.
- Ajzen I. The theory of planned behavior. *Organ Behav Hum Deci Process* 1991;50:179-211.
- WHO | The World Health Organization's Infant Feeding Recommendation. WHO; 2001. Available from: https://www.who.int/nutrition/topics/infantfeeding_recommendation/en/. [Last accessed on 2020 May 03].
- Lewycka S, Mwansambo C, Rosato M, Kazembe P, Phiri T, Mganga A, et al. Effect of women's groups and volunteer peer counselling on rates of mortality, morbidity, and health behaviours in mothers and children in rural Malawi (MaiMwana): A factorial, cluster-randomised controlled trial. *Lancet* 2013;381:1721-35.
- Yotebieng M, Labbok M, Soeters HM, Chalachala JL, Lapika B, Vitta BS, et al. Ten steps to successful breastfeeding programme to promote early initiation and exclusive breastfeeding in DR Congo: A cluster-randomised controlled trial. *Lancet Glob Health* 2015;3:e546-55.
- Fu IC, Fong DY, Heys M, Lee IL, Sham A, Tarrant M. Professional breastfeeding support for first-time mothers: A multicentre cluster randomised controlled trial. *BJOG* 2014;121:1673-83.
- Khan AI, Kabir I, Eneroth H, El Arifeen S, Ekstrom EC, Frongillo EA, et al. Effect of a randomised exclusive breastfeeding counselling intervention nested into the MINIM at prenatal nutrition trial in Bangladesh. *Acta Paediatr Int J Paediatr* 2017;106:49-54.
- Nikièma L, Huybregts L, Martin-Prevel Y, Donnen P, Lanou H, Grosemans J, et al. Effectiveness of facility-based personalized maternal nutrition counseling in improving child growth and morbidity up to 18 months: A cluster-randomized controlled trial in rural Burkina Faso. *PLoS One* 2017;12:e0177839.
- Ahmed AH, Roumani AM, Szucs K, Zhang L, King D. The effect of interactive web-based monitoring on breastfeeding exclusivity, intensity, and duration in healthy, term infants after hospital discharge. *J Obstet Gynecol Neonatal Nurs* 2016;45:143-54.
- Chola L, Fadnes LT, Engebretsen IM, Nkonki L, Nankabirwa V, Sommerfelt H, et al. Cost-effectiveness of peer counselling for the promotion of exclusive breastfeeding in Uganda. *PLoS One* 2015;10:e0142718.
- Abbass-Dick J, Stern SB, Nelson LE, Watson W, Dennis CL. Coparenting breastfeeding support and exclusive breastfeeding: A randomized controlled trial. *Pediatrics* 2015;135:102-10.
- Oken E, Patel R, Guthrie LB, Vilchuck K, Bogdanovich N, Sergeichick N, et al. Effects of an intervention to promote breastfeeding on maternal adiposity and blood pressure at 11.5 y postpartum: Results from the promotion of breastfeeding intervention trial, a cluster-randomized controlled trial. *Am J Clin Nutr* 2013;98:1048-56.
- Kim SK, Park S, Oh J, Kim J, Ahn S. Corrigendum to "Interventions promoting exclusive breastfeeding up to six months after birth: A systematic review and meta-analysis of randomized controlled trials". *Int J Nurs Stud* 2019;80:94-105.
- Patnode CD, Henninger ML, Senger CA, Perdue LA, Whitlock EP. Primary care interventions to support breastfeeding: Updated systematic review for the U.S. preventive services task force. *JAMA* 2016;316:1694-705.
- Sinelnikova EM, Dvoretzkova TV, Kagan ZS. Intermediate plateaux in kinetics of the reaction catalyzed by biodegradative L-threonine dehydratase from *Escherichia coli*. *Biokhimiia* 1975;40:645-51.
- de Almeida JM, de Araújo BL, da Veiga UF. Support of breastfeeding by health professionals: Integrative review of the literature. *Rev Paul Pediatr* 2015;33:355-62.
- Shakya P, Kunieda MK, Koyama M, Rai SS, Miyaguchi M, Dhakal S, et al. Effectiveness of community-based peer support for mothers to improve their breastfeeding practices: A systematic review and meta-analysis. *PLoS One* 2017;12:e0177434.
- Haroon S, Das JK, Salam RA, Imdad A, Bhutta ZA. Breastfeeding promotion interventions and breastfeeding practices: A systematic review. *BMC Public Health* 2013;13 Suppl 3:S20.
- Negin J, Coffman J, Vizintin P, Raynes-Greenow C. The influence of grandmothers on breastfeeding rates: A systematic review. *BMC Pregnancy Childbirth* 2016;16:91.
- Tsai SY. Influence of partner support on an employed mother's intention to breastfeed after returning to work. *Breastfeed Med* 2014;9:222-30.
- Chen H, Chai Y, Dong L, Niu W, Zhang P. Effectiveness and appropriateness of mHealth interventions for maternal and child health: Systematic review. *JMIR Mhealth Uhealth* 2018;6:e7.
- McFadden A, Siebelt L, Marshall JL, Gavine A, Girard LC, Symon A, et al. Counselling interventions to enable women to initiate and continue breastfeeding: A systematic review and meta-analysis. *Int Breastfeed J* 2019;14:42.
- Skouteris H, Bailey C, Nagle C, Hauck Y, Bruce L, Morris H. Interventions designed to promote exclusive breastfeeding in high-income countries: A systematic review update. *Breastfeed Med* 2017;12:604-14.
- WHO. Infant and Young Child Feeding Counselling: An Integrated Course a Trainer's Guide—Google Search; 2006. Available from: <https://www.google.com/>. [Last accessed on 2019 Feb 09].
- Hannula L, Kaunonen M, Tarkka MT. A systematic review of professional support interventions for breastfeeding. *J Clin Nurs* 2008;17:1132-43.
- UNICEF. Find Out More About Breastfeeding Progress | Nutrition | UNICEF. Global Breastfeeding Scorecard Country Profile; 2017. Available from: https://www.unicef.org/nutrition/index_100585.html.
- World Health Organisation. Health topics/Breastfeeding/WHO Response; 2020. Available from: <https://www.who.int/health-topics/breastfeeding>.
- THEWORLDBANK. Exclusive Breastfeeding (% of Children Under 6 Months) | Data; 2020. Available from: <https://data.worldbank.org/indicator/SH.STA.BFED.ZS>.
- Chai Y, Nandi A, Heymann J. Does extending the duration of legislated paid maternity leave improve breastfeeding practices? Evidence from 38 low-income and middle-income countries. *BMJ Glob Health* 2018;3:e001032.

34. Handayani L, Kosnin AM, Jiar YK. Breastfeeding education in term of knowledge and attitude through mother support group. J Educ Learn 2012;6:65-72.
35. Kamran A, Shrifirad G, Mirkarimi SK, Farahani A. Effectiveness of breastfeeding education on the weight of child and self-efficacy of mothers – 2011. J Educ Health Promot 2012;1:11.