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Antenatal breastfeeding education for increasing breastfeeding duration (Review)

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[Intervention Review]

Antenatal breastfeeding education for increasing breastfeeding duration

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ABSTRACT

Background

Breast milk is well recognised as the best food source for infants. The impact of antenatal breastfeeding (BF) education on the duration of BF has not been evaluated.

Objectives

To assess the effectiveness of antenatal breastfeeding (BF) education for increasing BF initiation and duration.

Search methods

We searched Cochrane Pregnancy and Childbirth's Trials Register on 1 March 2016, CENTRAL (*The Cochrane Library,* 2016, Issue 3), MEDLINE (1966 to 1 March 2016) and Scopus (January 1985 to 1 March 2016). We contacted experts and searched reference lists of retrieved articles.

Selection criteria

All identified published, unpublished and ongoing randomised controlled trials (RCTs) assessing the effect of formal antenatal BF education or comparing two different methods of formal antenatal BF education, on the duration of BF. We included RCTs that only included antenatal interventions and excluded those that combined antenatal and intrapartum or postpartum BF education components. Cluster-randomised trials were included in this review. Quasi-randomised trials were not eligible for inclusion.

Data collection and analysis

We assessed all potential studies identified as a result of the search strategy. Two review authors extracted data from each included study using the agreed form and assessed risk of bias. We resolved discrepancies through discussion. We assessed the quality of the evidence using the GRADE approach.

Main results

This review update includes 24 studies (10,056 women). Twenty studies (9789 women) contribute data to analyses. Most studies took place in high-income countries such as the USA, UK, Canada and Australia. In the first five comparisons, we display the included trials according to type of intervention without pooling data. For the 'Summary of findings' we pooled data for a summary effect.

Five included studies were cluster-randomised trials: all of these adjusted data and reported adjustments as odds ratios (OR). We have analysed the data using the generic inverse variance method and presented results as odds ratios, because we were unable to derive a cluster-adjusted risk ratio from the published cluster-trial. We acknowledge that the use of odds ratio prevents the pooling of these cluster trials in our main analyses.

One method of BF education with standard (routine) care

There were no group differences for duration of any BF in days or weeks. There was no evidence that interventions improved the proportion of women with any BF or exclusive BF at three or six months. Single trials of different interventions were unable to show that education improved initiation of BF, apart from one small trial at high risk of attrition bias. Many trial results marginally favoured the intervention but had wide confidence intervals crossing the line of no effect. BF complications such as mastitis and other BF problems were similar in treatment arms in single trials reporting these outcomes.

Multiple methods of BF education versus standard care

For all trials included in this comparison we have presented the cluster-adjusted odds ratios as reported in trial publications. One three-arm study found the intervention of BF booklet plus video plus Lactation Consultant versus standard care improved the proportion of women exclusively BF at three months (OR 2.60, 95% CI 1.25 to 5.40; women = 159) and marginally at six months (OR 2.40, 95% CI 1.00 to 5.76; women = 175). For the same trial, an intervention arm without a lactation consultant but with the BF booklet and video did not have the same effect on proportion of women exclusively BF at three months (OR 1.80, 95% CI 0.80 to 4.05; women = 159) or six months (OR 0.90, 95% CI 0.30 to 2.70; women = 184). One study compared monthly BF sessions and weekly cell phone message versus standard care and reported improvements in the proportion of women exclusively BF at both three and six months (three months OR 1.80, 95% CI 1.10 to 2.95; women = 390; six months OR 2.40, 95% CI 1.40 to 4.11; women = 390). One study found monthly BF sessions and weekly cell phone messages improved initiation of BF over standard care (OR 2.61, 95% CI 1.61 to 4.24; women = 380).

BF education session versus standard care, pooled analyses for 'Summary of findings' (SoF)

This comparison does not include cluster-randomised trials reporting adjusted odds ratios. We did not downgrade any evidence for trials' lack of blinding; no trial had adequate blinding of staff and participants. The SoF table presents risk ratios for all outcomes analysed. For proportion of women exclusively BF there is no evidence that antenatal BF education improved BF at three months (RR 1.06, 95% CI 0.90 to 1.25; women = 822; studies = 3; moderate quality evidence) or at six months (RR 1.07, 95% CI 0.87 to 1.30; women = 2161; studies = 4; moderate quality evidence). For proportion of women with any BF there were no group differences in BF at three (average RR 0.98, 95% CI 0.82 to 1.18; women = 654; studies = 2; I^2 = 60%; low-quality evidence) or six months (average RR 1.05, 95% CI 0.90 to 1.23; women = 1636; studies = 4; I^2 = 61%; high-quality evidence). There was no evidence that antenatal BF education could improve initiation of BF (average RR 1.01, 95% CI 0.94 to 1.09; women = 3505; studies = 8; I^2 = 69%; high-quality evidence). Where we downgraded evidence this was due to small sample size or wide confidence intervals crossing the line of no effect, or both.

There was insufficient data for subgroup analysis of mother's occupation or education.

Authors' conclusions

There was no conclusive evidence supporting any antenatal BF education for improving initiation of BF, proportion of women giving any BF or exclusively BF at three or six months or the duration of BF. There is an urgent need to conduct a high-quality, randomised controlled study to evaluate the effectiveness and adverse effects of antenatal BF education, especially in low- and middle-income countries. Evidence in this review is primarily relevant to high-income settings.

PLAIN LANGUAGE SUMMARY

Antenatal breastfeeding education for increasing breastfeeding duration

What is the issue?

Breastfeeding (BF) can improve the child's health, the mother's health and mother-infant bonding. BF infants have lower rates of stomach and breathing problems, fewer ear infections and better speech, vision and overall development of physical and mental skills. The World Health Organization recommends that infants should be exclusively breastfed from birth to six months and then breastfed alongside age-appropriate, complementary feeding for two years and beyond. Many women are unable to follow these recommendations, and we want to know how to help women to breastfeed.

Why is this important?

Antenatal BF education is teaching women about BF during pregnancy, before the baby arrives. One reason women are unable to breastfeed has to do with lack of education and knowledge about how to breastfeed. We believe that improving pregnant women's knowledge of BF may help them to breastfeed longer, but we are unsure what types of education are most helpful to women.

What evidence did we find?

We included 24 studies with 10,056 women in the review, and 20 studies involving 9789 women contributed data to the analyses. Most studies took place in high-income countries including the USA, Canada, UK and Australia. Peer counselling, lactation consultation and formal BF education during pregnancy do not appear to improve uptake of BF or duration. However, some larger trials in different settings (one in Nigeria and one in Singapore) had some evidence that education may help.

What does this mean?

We are still unsure if antenatal BF education is able to help women; at present, there is no good evidence from randomised controlled trials to suggest these efforts to educate pregnant women translate into more and longer BF. Women who receive standard care before birth tend to choose BF at about the same rate as women who have extra BF education. We are confident in the results of studies measuring women's uptake of BF at birth and BF at six months; education does not appear to impact these decisions. We have some doubts about the impact of education on exclusive BF at three and six months; education does not seem to help women, but future studies may change our understanding. Future studies are likely to change our understanding of the impact of BF education during pregnancy on BF at three months. Most of the studies in this review took place in higher income countries, so we are not confident that our conclusions are relevant in other settings.

SUMMARY OF FINDINGS FOR THE MAIN COMPARISON [Explanation]

BF education versus standard/routine care

Patient or population: pregnant women
Setting: outpatient antenatal care at hospitals and clinics in Australia, Canada, Denmark, Hong Kong, Singapore, UK and USA
Intervention: any antenatal BF education
Comparison: standard/routine care

Outcomes	Anticipated absolute effects* (95% CI)		Relative effect (95% CI)	№ of participants (studies)	Quality of the evidence (GRADE)	Comments
	Risk with Standard/routine care	Risk with Summary of findings: One BF education				
Initiation of BF	Study population		average RR 1.01 (0.94 to 1.90)	3505 (8 RCTs)	⊕⊕⊕⊕ HIGH [1]	We have not downgraded any outcome for lack of blinding. No trial contributing data had adequate blinding of staff and participants
	750 per 1000	758 per 1000 (705 to 818)				
Proportion of women exclusively BF at 3 months	Study population		RR 1.06 (0.90 to 1.25)	822 (3 RCTs)	⊕⊕⊕◯ MODERATE [2]	
	376 per 1000	398 per 1000 (338 to 470)				
Proportion of women exclusively BF at 6 months	Study population		RR 1.07 (0.87 to 1.30)	2161 (4 RCTs)	⊕⊕⊕◯ MODERATE [3]	
	154 per 1000	165 per 1000 (134 to 201)				
Proportion of women any BF at 3 months	Study population		average RR 0.98 (0.82 to 1.18)	654 (2 RCTs)	⊕⊕◯◯ LOW [4,5]	
	609 per 1000	597 per 1000 (500 to 719)				

Proportion of women any BF at 6 months	Study population		average RR 1.05 (0.90 to 1.23)	1636 (4 RCTs)	⊕⊕⊕⊕ HIGH[6]	
	505 per 1000	531 per 1000 (455 to 621)				
Breastfeeding complications	Duffy 1997 (n = 70) reported no group differences for mastitis, but less nipple pain and less nipple trauma for women who had a lactation consultant.[2] Kronborg 2012 (n = 1162) reported no group differences as to whether women responded yes when asked about BF problems.[3]			(2 studies)	Moderate	Both trials compared the intervention with standard care

*__The risk in the intervention group__ (and its 95% confidence interval) is based on the assumed risk in the comparison group and the __relative effect__ of the intervention (and its 95% CI).

CI: Confidence interval; **RR:** Risk ratio; **OR:** Odds ratio;

GRADE Working Group grades of evidence
High quality: We are very confident that the true effect lies close to that of the estimate of the effect
Moderate quality: We are moderately confident in the effect estimate: the true effect is likely to be close to the estimate of the effect, but there is a possibility that it is substantially different
Low quality: Our confidence in the effect estimate is limited: the true effect may be substantially different from the estimate of the effect
Very low quality: We have very little confidence in the effect estimate: the true effect is likely to be substantially different from the estimate of effect

[1] Statistical heterogeneity I^2 = 69% (not downgraded)
[2] Downgraded for imprecision due to small sample size (-1).
[3] Downgraded for imprecision due to wide confidence intervals crossing the line of no effect (-1).
[4] Statistical heterogeneity I^2 = 60% (not downgraded)
[5] Wide confidence intervals crossing the line of no effect and small sample size (-2)
[6] Statistical heterogeneity I^2 = 61% (not downgraded)

BACKGROUND

Description of the condition

Breastfeeding (BF) is well recognised as the best food source for infants (Sankar 2015). Complementary foods offered before six months of age tend to displace breast milk and do not confer any health advantage over exclusive BF (Kramer 2012). BF has been advocated to improve child health, maternal health and mother-infant bonding (Ball 2001; Hanson 2002). BF has been associated with lower rates of gastrointestinal and respiratory diseases, otitis media and allergies, better visual acuity, and speech and cognitive development (Innis 2001; Quigley 2012; Renfrew 2012; Wold 2000). It is also cost effective (Renfrew 2012). Infants who are breastfed have a lower risk of developing insulin-dependent diabetes in childhood (Horta 2015), sudden infant death syndrome (Renfrew 2012) and childhood cancer (Amitay 2016). Recent research indicates that the type of infant feeding may contribute to children becoming overweight and obese in early and late childhood. BF has been shown to protect against child obesity and cardiovascular risk outcomes and is dose related - the longer the infant is breastfed, the lower the risk (Arenz 2004; Harder 2005; Owen 2005). A Cochrane Review by Kramer 2012 indicated that exclusive BF for six months has several advantages over exclusive BF for three to four months followed by mixed BF.

Delay in return of fertility has been associated with frequent and long periods of exclusive BF, as well as a lower risk of developing breast cancer (Chowdhury 2015). Women who had not breastfed their babies were four times more likely to have osteoporosis than women who had breastfed (Blaauw 1994). Better emotional health has also been attributed to women who breastfed. Virden 1988 found that, at one month postpartum, women who breastfed their infants had scores indicating less anxiety than women who had bottle fed their infants. The retrospective review of medical records of 800 pregnancies by Acheson 1995 revealed an association between lack of BF and physical and sexual abuse of the women or her children, or both. This was a small review, the results of which warrant further study. A recent published study found that women who breastfed for at least one year were less likely to develop Type 2 diabetes than women who did not breastfeed (Stuebe 2005). Some studies have shown a benefit of BF in enhancing couple and family relationships (Cohen 2002; Falceto 2004; Jordan 1993; Li 2004; Sullivan 2004).

In 1988, the World Health Organization (WHO) and UNICEF proposed the following standard terminology for the collection and description of data on BF behaviour; these were updated in 1991 (WHO 1991), and are now widely used (Dettwyler 1992).

Breastfeeding means the infant receives breast milk but allows the infant to receive any food or liquid including non-human milk.

Exclusive BF is defined as an infant being fed only breast milk, with the possible exception of vitamin D in certain populations and iron in infants of relatively low birthweight (Dewey 2001).

Predominant BF is when the infant receives breast milk as the predominant source of nourishment but allows the infant to receive liquids (water and water-based drinks, fruit juice, oral dehydration solutions) and drops or syrups (vitamins, minerals, medicines) but does not allow the infant to receive anything else (in particular, non-human milk and food-based fluids). Complimentary BF is the situation when the infant receives breast milk and solid or semi-solid foods and allows the infant to receive any food or liquid including non-human milk.

Despite the many advantages and extensive promotion of BF, Susin 1999 reported that the trend towards BF in many countries has been increasing slowly. However, according to the UNICEF report (UNICEF 2005), six million lives a year are being saved by exclusive BF and global BF initiation rates have risen by at least 15% since 1990. At the same time, women breastfeed for a shorter time than they intended or wished to (Adams 2001; Wagner 2002). The World Health Organization recommends that infants should be exclusively breastfed from birth to six months and then breastfed alongside age-appropriate, complementary feeding for two years and beyond (WHO 2001).

Description of the intervention

Antenatal BF education is defined as BF information being imparted during the pregnancy in a variety of forms. This could be on an individual or group basis, could include home visiting programmes, peer education programmes or clinic appointments specifically aimed at imparting BF knowledge and could involve prospective fathers or not. BF education is usually a formalised, defined, descriptive and goal-orientated programme with a specific purpose and target audience.

BF education differs from BF support. BF support is usually aimed at the individual person as the need arises and is defined as a person, a group or an organisation providing support in many ways. This could be psychological support (affirming and encouraging the mother), physical support (providing meals, caring for her other children, house cleaning and gardening), financial support or BF information services available to be tapped into when a BF question arises. BF support usually starts in the postnatal period, not antenatally.

Although we recognise the potential importance of interventions in the postnatal period on BF outcomes, the focus of this review is on antenatal BF education only, and we have not included trials examining interventions that also involve intrapartum or postpartum BF education. Other Cochrane Reviews examine BF education and support interventions in the intrapartum and postnatal periods (Britton 2007; Dyson 2005; Sikorski 2002).

How the intervention might work

Another Cochrane Systematic Review provides evidence that various forms of BF education are effective at increasing rates of BF initiation among women on low incomes in the USA and initiation will, therefore, not be the main focus in this review (Dyson 2005). The impact of antenatal BF education on the duration of BF, however, has not been widely reported. In Australia, more than 90% of mothers initiate BF; however, only 48% of mothers are BF at one month postpartum and only 23% maintain any form of BF at six months (Lund-Adams 1996). Similar BF duration rates have been reported in the USA (Raj 1998) and Britain (Griffiths 2005; Hoddinott 2000), as well as in low-income countries (UNICEF 1998). A variety of BF promotion methods including educational programmes have been studied to support the trend to increase BF duration. It is generally believed that, by improving the mothers' knowledge of BF antenatally, the rates and duration of BF would increase (McLeod 2002). Lack of antenatal information and education about BF has been one factor attributed by New Zealand mothers interviewed about discontinuing BF (McLeod 2002).

Why it is important to do this review

This is an update of a Cochrane Review first published in 2011, and previously updated in 2012. The earlier version of the review indicated that there were significant methodological limitations and the observed effect sizes were small, and there was no clear evidence to support any specific antenatal BF education. This current update will provide the most up-to-date evidence on the effectiveness of antenatal BF education.

OBJECTIVES

1. To assess the effectiveness of antenatal breastfeeding (BF) education for increasing BF initiation and duration.

2. To compare the effectiveness of various forms of education; for example, peer support, educational programme, didactic teaching session, workshop, booklets, etc, or a combination of these interventions for increasing BF initiation and duration.

3. To assess the effects of antenatal BF education on other maternal and infant outcomes, for example, BF complications, maternal satisfaction and neonatal sepsis.

METHODS

Criteria for considering studies for this review

Types of studies

All identified published, unpublished and ongoing randomised controlled trials (RCTs) comparing antenatal breastfeeding (BF) education programmes, with or without formal BF education. Randomised units could be clustered, for example, hospitals, communities or groups of pregnant women or individual women. We excluded quasi-RCTs. We did not include studies published only as abstracts.

Types of participants

Pregnant women or their partners, or both.

Types of interventions

Any type of antenatal education with BF components. Antenatal BF education is defined as BF information being imparted during pregnancy in a variety of forms. This could be on an individual or group basis, include home visiting programmes; peer education programmes or clinic appointments specifically aimed at imparting BF knowledge; brochures or booklets; electronic education programmes; or a combination of these, and could involve prospective fathers or not. Formal BF education is defined as BF education that was given formally in addition to any BF education that was given as part of standard antenatal care. We excluded RCTs examining interventions that included intrapartum or postpartum BF education in addition to antenatal BF education.
We examined five comparisons.

1. One type of BF education versus standard/routine care
2. One type of BF education versus a different type of BF education
3. Multiple methods of BF education versus a single method of BF education
4. Different combinations of multiple methods of providing BF education
5. Multiple methods of BF education versus standard/routine care

Types of outcome measures

Primary outcomes

1. Duration of any BF
2. Duration of exclusive BF
3. Proportion of women with any BF at three and six months
4. Proportion of women exclusively BF at three and six months
5. Initiation of BF

Secondary outcomes

1. Maternal satisfaction
2. BF complications such as mastitis and breast abscess
3. Infant growth by weight and head circumference
4. Neonatal sepsis
5. Taking child to doctor
6. Hospital admission for child

Search methods for identification of studies

The following methods section of this review is based on a standard template used by Cochrane Pregnancy and Childbirth.

Electronic searches

We searched Cochrane Pregnancy and Childbirth's Trials Register by contacting their Information Specialist (1 March 2016).
The Register is a database containing over 22,000 reports of controlled trials in the field of pregnancy and childbirth. For full search methods used to populate Pregnancy and Childbirth's Trials Register including the detailed search strategies for CENTRAL, MEDLINE, Embase and CINAHL; the list of handsearched journals and conference proceedings, and the list of journals reviewed via the current awareness service, please follow this link to the editorial information about the Cochrane Pregnancy and Childbirth Group in *The Cochrane Library* and select the '***Specialized Register***' section from the options on the left side of the screen.
Briefly, Cochrane Pregnancy and Childbirth's Trials Register is maintained by their Information Specialist and contains trials identified from:

1. monthly searches of the Cochrane Central Register of Controlled Trials (CENTRAL);
2. weekly searches of MEDLINE (Ovid);
3. weekly searches of Embase (Ovid);
4. monthly searches of CINAHL (EBSCO);
5. handsearches of 30 journals and the proceedings of major conferences;
6. weekly current awareness alerts for a further 44 journals plus monthly BioMed Central email alerts.

Search results are screened by two people and the full text of all relevant trial reports identified through the searching activities described above is reviewed. Based on the intervention described, each trial report is assigned a number that corresponds to a specific Pregnancy and Childbirth review topic (or topics), and is then added to the Register. The Information Specialist searches the Register for each review using this topic number rather than keywords. This results in a more specific search set which has been fully accounted for in the relevant review sections (Included studies; Excluded studies; Studies awaiting classification; Ongoing studies).
In addition, we also searched CENTRAL (*The Cochrane Library*, 2016, Issue 3), MEDLINE (1966 to 1 March 2016) and Scopus (January 1985 to 1 March 2016). We contacted experts and searched reference lists of retrieved articles using the search strategies detailed in Appendix 1.

Searching other resources

We contacted investigators (identified from the retrieved articles) and other content experts known to us for unpublished studies. Furthermore, we looked for relevant studies in the references of the retrieved articles.
We did not apply any language or date restrictions.

Data collection and analysis

For methods used in the previous version of this review, *see* Lumbiganon 2012.
For this update, we used the following methods for assessing the 42 reports that we identified as a result of the updated search.
The following methods section of this review is based on a standard template used by Cochrane Pregnancy and Childbirth.

Selection of studies

Two review authors independently assessed for inclusion all the potential studies identified as a result of the search strategy. We resolved any disagreement through discussion or, if required, we consulted the third review author.

Data extraction and management

We designed a form to extract data. For eligible studies, two review authors extracted the data using the agreed form. We resolved discrepancies through discussion or, if required, we consulted the third review author. Data were entered into Review Manager (RevMan) software (RevMan 2014) and checked for accuracy.
When information regarding any of the above was unclear, we attempted to contact authors of the original reports to provide further details.

Assessment of risk of bias in included studies

Two review authors independently assessed risk of bias for each study using the criteria outlined in the *Cochrane Handbook for Systematic Reviews of Interventions* (Higgins 2011a). We resolved any disagreement by discussion or by involving a third assessor.

(1) Random sequence generation (checking for possible selection bias)

We described for each included study the method used to generate the allocation sequence in sufficient detail to allow an assessment of whether it should produce comparable groups.

We assessed the method as:

- low risk of bias (any truly random process, e.g. random number table; computer random number generator);
- high risk of bias (any non-random process, e.g. odd or even date of birth; hospital or clinic record number);
- unclear risk of bias.

(2) Allocation concealment (checking for possible selection bias)

We described for each included study the method used to conceal allocation to interventions prior to assignment and assessed whether intervention allocation could have been foreseen in advance of, or during recruitment, or changed after assignment.
We assessed the methods as:

- low risk of bias (e.g. telephone or central randomisation; consecutively numbered sealed opaque envelopes);
- high risk of bias (open random allocation; unsealed or non-opaque envelopes, alternation; date of birth);
- unclear risk of bias.

(3.1) Blinding of participants and personnel (checking for possible performance bias)

We described for each included study the methods used, if any, to blind study participants and personnel from knowledge of which intervention a participant received. We considered that studies were at low risk of bias if they were blinded, or if we judged that the lack of blinding was unlikely to affect results. We assessed blinding separately for different outcomes or classes of outcomes.
We assessed the methods as:

- low, high or unclear risk of bias for participants;
- low, high or unclear risk of bias for personnel.

(3.2) Blinding of outcome assessment (checking for possible detection bias)

We described for each included study the methods used, if any, to blind outcome assessors from knowledge of which intervention a participant received. We assessed blinding separately for different outcomes or classes of outcomes.
We assessed methods used to blind outcome assessment as:

- low, high or unclear risk of bias.

(4) Incomplete outcome data (checking for possible attrition bias due to the amount, nature and handling of incomplete outcome data)

We described for each included study, and for each outcome or class of outcomes, the completeness of data including attrition and exclusions from the analysis. We stated whether attrition and exclusions were reported and the numbers included in the analysis at each stage (compared with the total randomised participants), reasons for attrition or exclusion where reported, and whether missing data were balanced across groups or were related to outcomes. Where sufficient information was reported, or could be supplied by the trial authors, we planned to re-include missing data in the analyses which we undertook.
We assessed methods as:

- low risk of bias (e.g. no missing outcome data; missing outcome data balanced across groups);
- high risk of bias (e.g. numbers or reasons for missing data imbalanced across groups; 'as treated' analysis done with substantial departure of intervention received from that assigned at randomisation);
- unclear risk of bias.

(5) Selective reporting (checking for reporting bias)

We described for each included study how we investigated the possibility of selective outcome reporting bias and what we found.
We assessed the methods as:

- low risk of bias (where it is clear that all of the study's pre-specified outcomes and all expected outcomes of interest to the review have been reported);
- high risk of bias (where not all the study's pre-specified outcomes have been reported; one or more reported primary outcomes were not pre-specified; outcomes of interest are reported incompletely and so cannot be used; study fails to include results of a key outcome that would have been expected to have been reported);
- unclear risk of bias.

(6) Other bias (checking for bias due to problems not covered by (1) to (5) above)

We described for each included study any important concerns we had about other possible sources of bias.

(7) Overall risk of bias

We made explicit judgements about whether studies were at high risk of bias, according to the criteria given in the *Handbook* (Higgins 2011a). With reference to (1) to (6) above, we planned to assess the likely magnitude and direction of the bias and whether we considered it is likely to impact on the findings. In future updates, we will explore the impact of the level of bias through undertaking sensitivity analyses - see Sensitivity analysis.

Assessment of the quality of the evidence using the GRADE approach

For this update the quality of the evidence was assessed using the GRADE approach as outlined in the GRADE handbook, in order to assess the quality of the body of evidence relating to the

following outcomes for comparison 6. Any BF education versus standard care:

1. Initiation of BF
2. Proportion of women exclusively BF at six months
3. Proportion of women exclusively BF at three months
4. Proportion of women with any BF at six months
5. Proportion of women with any BF at three months
6. BF complications such as mastitis and breast abscess

GRADEpro Guideline Development Tool was used to import data from RevMan (RevMan 2014) in order to create a 'Summary of findings' table. A summary of the intervention effect and a measure of quality for each of the above outcomes was produced using the GRADE approach. The GRADE approach uses five considerations (study limitations, consistency of effect, imprecision, indirectness and publication bias) to assess the quality of the body of evidence for each outcome. The evidence can be downgraded from 'high quality' by one level for serious (or by two levels for very serious) limitations, depending on assessments for risk of bias, indirectness of evidence, serious inconsistency, imprecision of effect estimates or potential publication bias.

Measures of treatment effect

For dichotomous data, we presented results as summary risk ratio (RR) with 95% confidence intervals (CI), with the exception of cluster-randomised trials that reported adjusted odds ratios (OR) (see note below). For continuous data we used the mean difference (MD) if outcomes were measured in the same way between trials. In future updates, if appropriate, we will use the standardised mean difference to combine trials that measured the same outcome, but use different methods.

Unit of analysis issues

Cluster-randomised trials

We included studies where individual women were randomised and cluster-randomised studies where, for example, clinics were the unit of randomisation. Five included studies were cluster-randomised trials (Flax 2014; Kools 2005; Lavender 2005; MacArthur 2009; Mattar 2007); all of these studies report results for review outcomes with adjustments made for clustering effects. For trials where cluster-adjusted data were reported as odds ratios (Flax 2014; Kools 2005; Lavender 2005; MacArthur 2009; Mattar 2007) we have analysed the data using the generic inverse variance method in RevMan 2014; we presented these results as odds ratios, because we were unable to derive a cluster-adjusted risk ratio from the published, cluster-adjusted odds ratio. We acknowledge that the use of odds ratios prevents the pooling of these cluster trials in our main analyses (comparison 6).

Where there was no adjustment for cluster design effect in the published report, or where raw data were available, we adjusted the data ourselves and have presented risk ratios, because we feel this statistic is more appropriate for BF outcomes. (For example, Lavender 2005 provides an intra-cluster correlation co-efficient (ICC) of 0.01, as well as mean cluster size and design effects for each BF outcome; we used these to adjust the sample size for outcome data in Analysis 1.5). If we adjusted data ourselves, we combined the adjusted data in analyses and report pooled risk ratios. We consider it reasonable to combine the results from both individual and cluster-randomised trials if there is little heterogeneity between the study designs and the interaction between the effect of intervention and the choice of randomisation unit is considered to be unlikely.

In future updates, if we identify any more cluster-randomised trials we will include them in the analyses along with individually-randomised trials. If adjustment for the cluster design effect has not already been made by the trial authors, we will adjust their sample sizes using the methods described in the *Cochrane Handbook for Systematic Reviews of Interventions; Section 16.3.4 or 16.3.6* (Higgins 2011b) using an estimate of the ICC derived from the trial (if possible), from a similar trial or from a study of a similar population. If we use ICCs from other sources, we will report this and conduct sensitivity analyses to investigate the effect of variation in the ICC.

We will also acknowledge heterogeneity in the randomisation unit, and, if there are sufficient numbers of trials, we will perform a subgroup analysis to investigate the effects of the randomisation unit.

Cross-over trials

Cross-over trials were not eligible for this review.

Other unit of analysis issues

Multiple pregnancies

In the studies that contributed data to this review, four excluded multiple pregnancies from their trial (Kellams 2016; Kronborg 2012; Mattar 2007; Wong 2014). Of the remaining studies, 12 did not mention multiple pregnancies (Duffy 1997; Flax 2014; Forster 2004; Kistin 1990; Kluka 2004; Kools 2005; Lavender 2005; MacArthur 2009; Olenick 2010; Schlickau 2005a; Schlickau 2005b; Wolfberg 2004). Serwint 1996 was the only study that reported a twin pregnancy and only included data from twin A. We have not made adjustments to any analyses to account for correlated outcomes due to multiple pregnancy.

Multiple-armed studies

Four studies contributing data to our review included multiple treatment arms (Forster 2004; Kistin 1990; Mattar 2007; Schlickau 2005a). Ryser 2004 also included multiple treatment arms but did not contribute any data to this review.

We treated trials with three arms as follows.

1. We included two intervention arms comparing one form of BF education versus another form (group antenatal BF class and individual antenatal counselling) in Comparison 2 (Kistin 1990). In this study, the third comparison arm was a control group which was not randomised and therefore not included in this review.
2. We included only the intervention arms comparing an information booklet, educational video and session with a lactation consultant versus the same information booklet and video without the lactation consultant session in Comparison 4 (Mattar 2007), the third comparison was a control group and was included in Comparison 5.
3. For comparisons 1 to 5, we included more than one intervention arm compared with control, so the study ID will appear in the forest plot twice (a footnote identifies the arms). We did not split the control groups for these analyses because the trials were not pooled.
4. We kept intervention arms separate and split the control group to avoid double counting for pooled data in Comparison 6 (Forster 2004).
5. Schlickau 2005a presented continuous data, and so we compared single intervention arms with control.

Dealing with missing data

For included studies, we noted levels of attrition. In future updates, if more eligible studies are included, we will explore the impact of including studies with high levels of missing data in the overall assessment of treatment effect by using sensitivity analysis.

For all outcomes, we carried out analyses, as far as possible, on an intention-to-treat basis, that is, we attempted to include all participants randomised to each group in the analyses. The denominator for each outcome in each trial was the number randomised minus any participants whose outcomes were known to be missing.

Assessment of heterogeneity

We assessed statistical heterogeneity in each meta-analysis using the Tau², I² (Higgins 2003) and Chi² statistics. We regarded heterogeneity as substantial if I² was greater than 30% and either Tau² was greater than zero, or there was a low P value (less than 0.10) in the Chi² test for heterogeneity. If we identified substantial heterogeneity (above 30%), we planned to explore it by pre-specified subgroup analysis (Deeks 2011).

Assessment of reporting biases

In future updates, if there are 10 or more studies in the meta-analysis we will investigate reporting biases (such as publication bias) using funnel plots. We will assess funnel plot asymmetry visually. If asymmetry is suggested by a visual assessment, we will perform exploratory analyses to investigate it.

Data synthesis

We carried out statistical analysis using the Review Manager (RevMan) software (RevMan 2014). We used fixed-effect meta-analysis for combining data where it was reasonable to assume that studies were estimating the same underlying treatment effect: that is, where trials were examining the same intervention, and the trials' populations and methods were judged sufficiently similar.

If there was clinical heterogeneity sufficient to expect that the underlying treatment effects differed between trials, or if substantial statistical heterogeneity was detected, we used random-effects meta-analysis to produce an overall summary if an average treatment effect across trials was considered clinically meaningful. The random-effects summary was treated as the average range of possible treatment effects and we discussed the clinical implications of treatment effects differing between trials. If the average treatment effect was not clinically meaningful, we planned not to combine trials. If we used random-effects analyses, the results were presented as the average treatment effect with 95% confidence intervals, and the estimates of Tau² and I².

Subgroup analysis and investigation of heterogeneity

Where we identified substantial heterogeneity, we planned to investigate it using subgroup analyses and sensitivity analyses. We used a random-effects model if the overall summary was meaningful.

We planned to carry out the following subgroup analyses.

1. Type of intervention
2. Study setting
3. Maternal education
4. Maternal occupation

We planned to restrict subgroup analysis to primary outcomes with sufficient numbers of trials in the relevant subgroups and to assess subgroup differences by interaction tests available within RevMan (RevMan 2014). We planned to report the results of subgroup analyses quoting the Chi² statistic and P value, and the interaction test I² value.

There were insufficient trials in relevant subgroups to analyse subgroups according to types of interventions or setting. There were insufficient trials reporting outcome data according to maternal education or maternal occupation to conduct these subgroup analyses.

Sensitivity analysis

We planned to explore the effect of trial quality assessed by concealment of allocation, high attrition rates, or both, with poor-quality studies being excluded from the analyses in order to assess whether this made any difference to the overall result. There were no studies at high risk of bias for allocation concealment, so we did not conduct this analysis. When we removed one trial at high risk of bias for attrition (Wolfberg 2004) results did not change for Analysis 6.1 (analysis not shown).

RESULTS

Description of studies

Results of the search

In the first published version of this review (Lumbiganon 2011) the search of the Pregnancy and Childbirth Group's Trials Register yielded 57 potential studies. Our additional search yielded one potential study. We explored the contents, and grouped together trial reports for the same study; from this we identified 17 studies (involving 7131 women) that met the inclusion criteria. We excluded 39 studies.

In the subsequent version (Lumbiganon 2012) of this review we searched the Pregnancy and Childbirth Group's Trials Register on 2 December 2011 and in addition, we searched CENTRAL (*The Cochrane Library,* 2011, Issue 11), MEDLINE (1966 to 30 November 2011) and Scopus (January 1985 to 30 November 2011) using the search strategies detailed in Appendix 1. We identified five additional potential studies, two studies (Kronborg 2012; Olenick 2010) were included, and three excluded (Kupratakul 2010; NCT01383070; Wockel 2009). We therefore included 19 studies involving 8506 women and excluded 42 studies in that update.

For this update (2016) we searched Pregnancy and Childbirth's Trials Register (1 March 2016), CENTRAL (*The Cochrane Library,* 2016, Issue 3), MEDLINE (1966 to 1 March 2016) and Scopus (January 1985 to 1 March 2016). We identified 42 citations of which there were nine potential included studies. We have included five more studies (Flax 2014; Kellams 2016; Pate 2009; Raeisi 2014; Wong 2014) at this update.

Two studies are awaiting translation and classification (Bahri 2013; Bastani 2009) and one study is ongoing (Maycock 2015). For the 2016 update we have included a total of 24 studies and excluded at total of 66 studies.

Included studies

We included 24 studies. We have provided full details of included studies in the Characteristics of included studies tables. Of these, 20 studies involving 9789 women contributed data to the analyses for primary and secondary outcomes; four included studies (Kaplowitz 1983; Noel-Weiss 2006; Pate 2009; Ryser 2004) met our inclusion criteria but did not report data on any of our prespecified outcomes. Kaplowitz 1983 described women's attitudes towards breastfeeding (BF) before and after the intervention and we have not included results from this study in the review. Ryser 2004 and Noel-Weiss 2006 report on BF at time points which we had not prespecified, and we have included a brief description of results from these studies following results for our primary and secondary outcomes. Pate 2009 reported self-efficacy outcomes which were not prespecified outcomes in this review.

Study design

We included 19 randomised controlled trials and five cluster randomised trials (Flax 2014; Kools 2005; Lavender 2005; MacArthur 2009; Mattar 2007). Five studies included multiple treatment arms (Forster 2004; Kistin 1990; Mattar 2007; Ryser 2004; Schlickau 2005a).

Sample sizes

We included 24 studies with 10,056 women in the review, and 20 studies involving 9789 women contributed data to the analyses. The sample size of studies that contributed data to the review ranged from 30 (Schlickau 2005a) to 2511 (MacArthur 2009) with an average of 419 women. Six of these studies had fewer than 100 women taking part (Duffy 1997; Finch 2002; Kistin 1990; Schlickau 2005a; Schlickau 2005b; Wolfberg 2004).

Setting

Eleven studies were conducted in the USA (Finch 2002; Kaplowitz 1983; Kellams 2016; Kistin 1990; Olenick 2010; Pate 2009; Ryser 2004; Schlickau 2005a; Schlickau 2005b; Serwint 1996; Wolfberg 2004), three in Australia (Duffy 1997; Forster 2004; Rossiter 1994), two in the United Kingdom (Lavender 2005; MacArthur 2009), two in Canada (Kluka 2004; Noel-Weiss 2006), one in Iran (Raeisi 2014), one in Nigeria (Flax 2014), one in the Netherlands (Kools 2005), one in Denmark (Kronborg 2012), one in Singpore (Mattar 2007), and one in Hong Kong (Wong 2014). Overwhelmingly the evidence in this review is relevant to higher income countries and settings.

Participants

All 24 studies recruited women in the antenatal period who were accessing antenatal care services with the exception of Flax 2014 who recruited women attending monthly microcredit meetings. Nine studies only recruited primigravida women (Forster 2004; Kluka 2004; Kronborg 2012; Noel-Weiss 2006; Pate 2009; Schlickau 2005a; Schlickau 2005b; Serwint 1996; Wong 2014). Kaplowitz 1983 included primigravida women, women who had bottle-fed previous children or who had previously had an unsuccessful BF experience.

The studies recruited at a range of gestations for example Rossiter 1994 recruited pregnant women who were at least 12 weeks' gestation, Forster 2004 and Kaplowitz 1983 at 16 to 24 weeks' gestation and Mattar 2007 at gestations above 36 weeks.

Kellams 2016; Pate 2009 and Ryser 2004 only recruited women on a low income, though only Kellams 2016 contributed data to the review.

None of the studies specified ethnicity except for Kistin 1990, who recruited only black women born in the USA, and Rossiter 1994, who only recruited Vietnamese or other women who were born and reared in Vietnam.

Four studies only recruited women with singleton pregnancies (Kronborg 2012; Mattar 2007; Noel-Weiss 2006; Wong 2014). Wolfberg 2004 and Raeisi 2014 recruited pregnant women's partners to antenatal BF education.

Interventions and comparisons

Interventions included BF education session, printed information, video, peer counselling and lactation consultation (LC), weekly cell phone BF text and voice messages to cell phone, web-based education, and support related to BF practices.

There were a total of 20 comparisons from the included studies which are described below (some studies with more than two experimental arms are included in more than one comparison).

Sixteen studies compared a single method of BF education with standard care (Duffy 1997; Forster 2004; Kaplowitz 1983; Kellams 2016; Kluka 2004; Kronborg 2012; Lavender 2005; MacArthur 2009; Noel-Weiss 2006; Olenick 2010; Raeisi 2014; Schlickau 2005a; Schlickau 2005b; Serwint 1996; Wolfberg 2004; Wong 2014). Two of these studies (Kaplowitz 1983; Noel-Weiss 2006) compared BF education session versus standard care but did not provide any information about BF practices. Seven studies (Forster 2004; Kronborg 2012; Lavender 2005; Olenick 2010; Raeisi 2014; Schlickau 2005a; Wong 2014) compared BF education session versus standard care. Two studies (Duffy 1997; Serwint 1996) compared LC versus standard care. Two studies (Kluka 2004; Schlickau 2005b) compared BF workshop versus standard care. One study (Kellams 2016) compared BF video versus standard care. Two studies (MacArthur 2009; Raeisi 2014) compared BF peer support versus standard care. Raeisi 2014 and Wolfberg 2004 both aimed interventions at partners of pregnant women.

There were two studies (Forster 2004; Kistin 1990) comparing one form of BF education versus other form of BF education. One study (Kistin 1990) compared group education versus individual education. One study (Forster 2004) compared BF practical skills versus BF attitude education.

Three studies (Finch 2002; Rossiter 1994; Schlickau 2005a) examined programmes involving multiple methods of providing education compared to those using a single method. Finch 2002 compared LC plus incentive plus handout with BF education session. Rossiter 1994 examined the effect of a video and BF education session versus a BF pamphlet. One study (Schlickau 2005a) compared BF education session and baby quarantine versus BF education session.

Two studies (Kools 2005; Mattar 2007) compared different combinations of multiple interventions. One study (Mattar 2007) compared a BF booklet plus a video and LC versus a BF booklet and video only. Another study (Kools 2005) compared LC and a BF booklet with BF booklet and phone number for BF questions.

There were four studies (Flax 2014; Mattar 2007; Ryser 2004; Schlickau 2005a) that compared programmes involving multiple methods of providing education versus standard care. Flax 2014 compared weekly cell phone BF text and voice messages to cell phone and monthly face-to-face BF information versus standard care. Mattar 2007 compared a BF booklet, video and LC versus no formal BF education. Ryser 2004 compared a counselling session plus viewing a video plus the provision of written materials addressing common BF barriers perceived by low-income women versus no formal BF education. This study did not provide any information on our proposed outcomes and has not been included in the analyses. Schlickau 2005a compared BF education session plus baby quarantine concept versus standard care.

In studies where BF education was compared with standard care, there was considerable variation in what was offered as part of usual care in terms of BF education. In many studies standard care was not described at all or the description was vague (e.g. provision of a leaflet or midwife advice). We have set out information about care for control groups in the Characteristics of included studies, and it is important that this is taken into account in the interpretation of results. Intrapartum and postpartum care could also have an impact on BF duration; these aspects of care also varied across included studies.

Comparisons in the studies were mostly reported as 'routine' or 'standard' antenatal care. In 13 studies standard/routine care included some form of BF education or support (Finch 2002; Forster 2004; Kluka 2004; Kools 2005; Lavender 2005; MacArthur 2009; Mattar 2007; Pate 2009; Rossiter 1994; Schlickau 2005a; Schlickau 2005b; Serwint 1996; Wong 2014). Two studies did not include any BF information (Flax 2014; Wolfberg 2004), and it was not clear in the remaining nine studies whether the control group participants received any BF education or support as part of standard care (Duffy 1997; Kaplowitz 1983; Kellams 2016; Kistin 1990; Kronborg 2012; Noel-Weiss 2006; Olenick 2010; Raeisi 2014; Ryser 2004).

Excluded studies

We excluded 66 studies. Reasons for exclusion included: the intervention was not confined to the antenatal period only or was not an educational intervention, or the paper did not report on a randomised controlled study. For further details, see the Characteristics of excluded studies tables.

We have not considered educational and support interventions to promote BF in the intrapartum and postnatal periods in this review; related Cochrane Reviews (Britton 2007; Dyson 2005) examine these topics.

Risk of bias in included studies

We have provided details of risk of bias in each study in the Characteristics of included studies tables and the methodological quality summary (Figure 1) and methodological quality graph (Figure 2).

Figure 1. Methodological quality summary: review authors' judgements about each methodological quality item for each included study

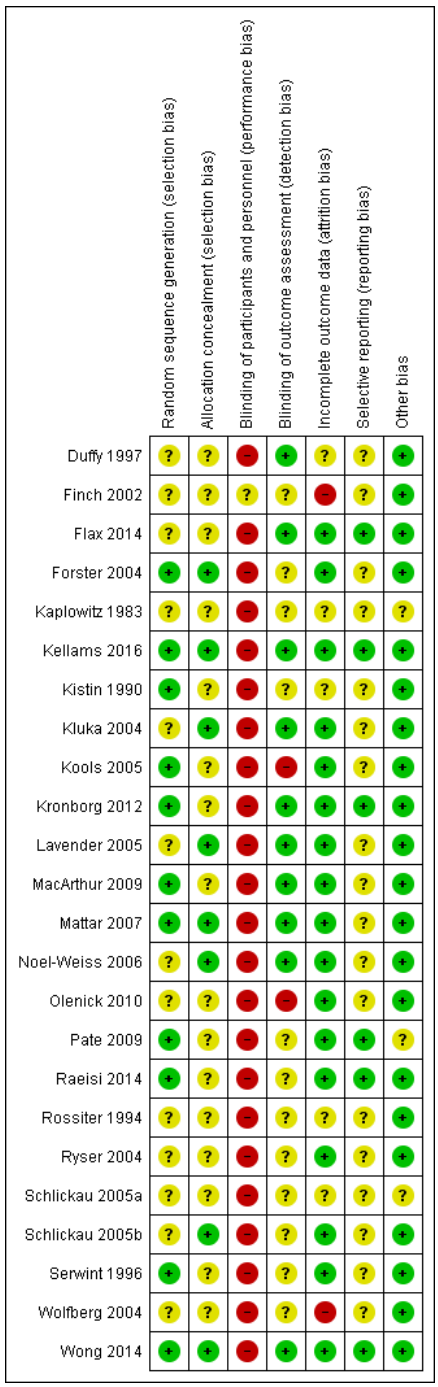
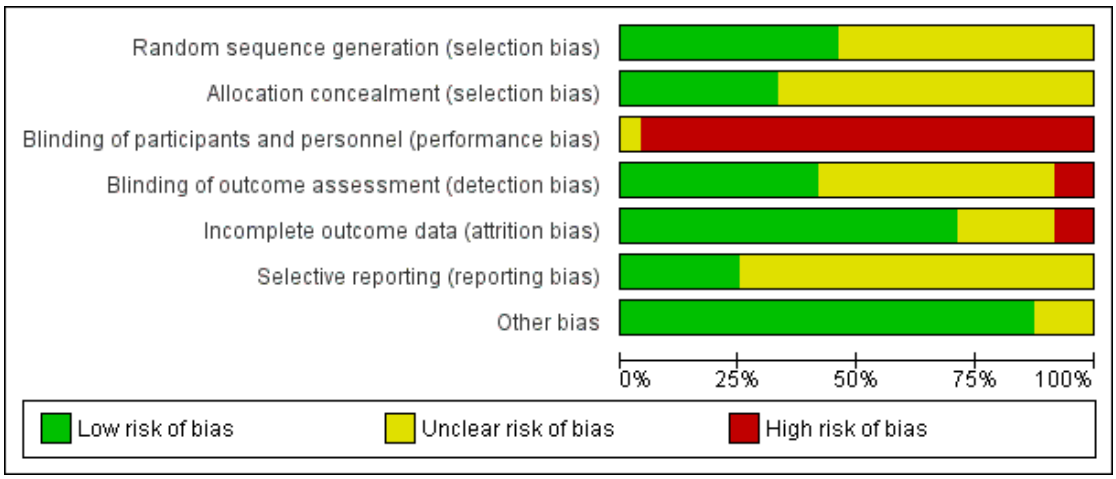


Figure 2. Methodological quality graph: review authors' judgements about each methodological quality item presented as percentages across all included studies



Allocation

Eleven out of 24 included studies (Forster 2004; Kellams 2016; Kistin 1990; Kools 2005; Kronborg 2012; MacArthur 2009; Mattar 2007; Pate 2009; Raeisi 2014; Serwint 1996; Wong 2014) had adequate sequence generation for randomisation.

Eight out of 24 included studies (Forster 2004; Kellams 2016; Kluka 2004; Lavender 2005; Mattar 2007; Noel-Weiss 2006; Schlickau 2005b; Wong 2014) had adequate allocation concealment.

Blinding

Only 10 included studies (Duffy 1997; Flax 2014; Kellams 2016; Kluka 2004; Kronborg 2012; Lavender 2005; MacArthur 2009; Mattar 2007; Noel-Weiss 2006; Wong 2014) had implemented blinding; however, this blinding was only for the outcome assessors. This is perhaps mainly due to the nature of the interventions in that it was not possible to blind both women and educators. All studies were judged at high risk of performance bias except for Finch 2002 where blinding of participants and personnel was unclear.

Incomplete outcome data

Seventeen out of 24 included studies (Flax 2014; Forster 2004; Kellams 2016; Kluka 2004; Kools 2005; Kronborg 2012; Lavender 2005; MacArthur 2009; Mattar 2007; Noel-Weiss 2006; Olenick 2010; Pate 2009; Raeisi 2014; Ryser 2004; Schlickau 2005b; Serwint 1996; Wong 2014) had low risk of attrition bias. Two studies (Finch 2002; Wolfberg 2004) had high risk of bias. Five studies (Duffy 1997; Kaplowitz 1983; Kistin 1990; Rossiter 1994; Schlickau 2005a) had unclear risk of bias.

Selective reporting

Since we did not have access to the protocols of most of the included studies, we assessed their risk of bias for selective reporting as unclear. In the current update, we assessed selective reporting as low risk of bias since all expected outcomes reported in the methods were reported in the results (Flax 2014; Kellams 2016; Pate 2009; Raeisi 2014; Wong 2014). We have also re-assessed one trial (Kronborg 2012) for this update and have changed risk of bias from unclear to low risk for selective reporting.

Other potential sources of bias

Three out of 24 included studies (Kaplowitz 1983; Pate 2009; Schlickau 2005a) had unclear risk of other potential sources of biases. All other studies had low risk of other sources of bias.

Effects of interventions

See: **Summary of findings for the main comparison** Antenatal breastfeeding (BF) education versus standard care

This review includes 24 studies with 10,056 women. However, for our primary and secondary outcomes only 20 studies with 9789 women contributed data for analyses and for most comparisons, only single studies contributed outcome data. For the first five comparisons in this review we display the included trials according to type of intervention without pooling data. However, for the 'Summary of findings' table we pooled data in order to provide evidence for a summary effect for the main comparison of BF eduction versus standard care. Some studies had more than two treatment arms and are included in more than one comparison (Forster 2004; Kistin 1990; Mattar 2007; Schlickau 2005a) and some studies were cluster-randomised trials (Flax 2014; Kools 2005; Lavender 2005; MacArthur 2009; Mattar 2007; Schlickau 2005a), and provided cluster-adjusted odds ratios and have been analysed using the generic inverse variance method.

We have presented effects of interventions for each comparison as follows.

1. One type of BF education versus standard/routine care

For this comparison we have presented evidence according to the type of intervention. We have not pooled the totals for this comparison.

We have reported results from cluster trials that presented cluster-adjusted odds ratios separately (Lavender 2005; MacArthur 2009).

Primary outcomes

Duration of any BF

One study (Olenick 2010) involving 165 women reported the comparison of BF education session with standard care. The mean difference (MD) in duration of any BF in the two groups was very similar in both groups (MD 0.0 weeks, 95% CI -2.78 to 2.78 weeks; Analysis 1.1). Another study (Schlickau 2005a) involving 16 women reported the comparison of BF education session with standard care. The intervention group had a slightly longer mean duration of BF compared with the standard care group but the CI was wide and crossed the line of no effect (MD 6.20 months, 95% CI -10.84 to 23.24 months; Analysis 1.1).

Proportion of women any BF at three and six months

Any BF at three months Analysis 1.2: Kluka 2004 compared a BF education workshop with standard care. This study reported data for 185 women and no increases were found in BF at three months (RR 1.07, 95% CI 0.92 to 1.24; women = 185). Wong 2014 found no group differences with a BF education session (RR 0.90, 95% CI 0.75 to 1.07; women = 469).

Any BF at six months Analysis 1.3: In Kluka 2004 there was very little difference in proportion of women exclusively BF at six months between the BF education group and the standard care group (RR 1.15, 95% CI 0.87 to 1.51; women = 178). Forster 2004 compared practical skills education with attitude education and standard care; there were no group differences in the intervention arms (skills: RR 1.01, 95% CI 0.87 to 1.17; women = 596; attitudes: RR 0.92, 95% CI 0.79 to 1.07; women = 592). Wong 2014 and Raeisi 2014 compared BF education session with standard care (Raeisi 2014 targeted the intervention at partners of pregnant women) and found no evidence of group differences (RR 1.01, 95% CI 0.86 to 1.19; women = 569; studies = 2).

Proportion of women exclusively BF at three and six months

Exclusive BF at three months Analysis 1.4: Kluka 2004 compared a BF education workshop with standard care. This study reported data for 185 women and no differences were found in exclusive BF at three months (RR 1.08, 95% CI 0.84 to 1.38; women = 185). Olenick 2010 and Wong 2014 both tested BF education sessions against standard care with no evidence of group differences (RR 1.05, 95% CI 0.85 to 1.30; women = 637; studies = 2).

Exclusive BF at six months Analysis 1.5: In Kluka 2004 there were 178 women remaining in the sample at six months and proportion of women exclusively BF in each group was very similar (RR 1.13, 95% CI 0.70 to 1.80; women = 178). Forster 2004 tested both skills education and attitudes education with no evidence for an impact on exclusive BF at this time point (skills: RR 1.19, 95% CI 0.69 to 2.05; women = 596; attitudes: RR 1.16, 95% CI 0.67 to 2.01; women = 592). Wong 2014 and Lavender 2005 did not detect group differences after an education session versus standard care (RR 1.02, 95% CI 0.80 to 1.31; women = 1094).

Initiation of BF

Single studies of different interventions were unable to show that education improved initiation of BF, apart from one small trial at high risk of attrition bias (Wolfberg 2004). Many trial results favoured the intervention but had wide confidence intervals crossing the line of no effect.

One study (Schlickau 2005b) involving 80 women compared a BF education workshop with standard care**.** There were no differences in initiation of BF between the two groups (RR 1.19, 95% CI 0.97 to 1.45; women = 80; Analysis 1.6). A study by Wolfberg 2004 involving partners of 59 women comparing peer counselling versus standard care showed an increase in the initiation of BF in the intervention group (RR 1.82, 95% CI 1.13 to 2.93; women = 59; Analysis 1.6). Another study (Forster 2004) compared BF practical skills education versus standard care and BF attitudes education versus standard care. Again, the number of women initiating BF was similar in both groups (skills: RR 1.01, 95% CI 0.98 to 1.04; women = 616; attitude: RR 0.99, 95% CI

0.95 to 1.02; women = 618; Analysis 1.6). Two further studies (Kronborg 2012; Olenick 2010) compared BF education sessions with standard care and showed no differences in initiation rate of BF between the two groups (pooled subtotal RR 1.03, 95% CI 0.98 to 1.09; women = 1327; Analysis 1.6). One study (Kellams 2016) with 346 women compared BF education video with standard care and, again, showed no difference in numbers of women initiating BF (RR 0.99, 95% CI 0.80 to 1.23; Analysis 1.6). Another study (Serwint 1996) with 144 women compared LC with standard care also showed no difference between the groups in initiation of BF (RR 1.33, 95% CI 0.86 to 2.07; Analysis 1.6).
Two cluster-randomised trials reported adjusted odds ratios for this outcome, and reported peer counselling (MacArthur 2009) and group LC session (Lavender 2005) versus standard care. Both studies found women who received the intervention were slightly more likely to initiate BF, however both studies had wide confidence intervals, which crossed the line of no effect (MacArthur 2009 OR 1.11, 95% CI 0.86 to 1.43; women = 2398; Lavender 2005 OR 1.20, 95% CI 0.80 to 1.80; women = 1249; Analysis 1.7).

Duration of exclusive BF

This was not reported in any trials in this comparison.

Secondary outcomes

BF complications (mastitis, nipple trauma and pain)

Duffy 1997 compared LC versus standard care. There was no difference in numbers of women with mastitis between the groups (RR 0.20, 95% CI 0.01 to 4.02; women = 70; Analysis 1.8). However, a reduction in nipple pain as measured by visual analogue scale (VAS) scores was recorded (MD -19.80, 95% CI -23.23 to -16.37; women = 70; Analysis 1.9). The VAS ranged from 0 to 10 with a '0' representing 'no pain' and an increase to a maximum of 10 representing 'pain as bad as it could possibly be'. In the same study, less nipple trauma measured by nipple trauma index (NTI) scores was reported for the LC group (MD 38.65, 95% CI 32.95 to 44.35; women = 70; Analysis 1.10). The possible range of NTI was 0 to 34 with a higher NTI score indicating less trauma. One study (Kronborg 2012) with data for 1162 women compared group training programme with standard care and showed no differences in numbers of women reporting BF problems (RR 1.00, 95% CI 0.70 to 1.43; women = 1162; Analysis 1.11).
Secondary outcomes **maternal satisfaction, neonatal sepsis, taking child to doctor, and hospital admission for child** were not reported by any trials in this comparison. Raeisi 2014 reported no difference in infant weight gain between the intervention and control groups but the data was not in a format that could be included in an analysis.

Non-prespecified outcomes

Two studies reported BF practices at time points not pre-specified for this review. One study (Noel-Weiss 2006) compared a BF education workshop with standard care. It involved 92 women and no significant increases were reported for BF at eight weeks (RR 0.91, 95% CI 0.75 to 1.11) and exclusive BF at eight weeks (RR 0.82, 95% CI 0.60 to 1.12) (data not shown in data and analyses tables). Another study (Ryser 2004) compared a BF education programme with standard care. It involved 54 women and outcomes were reported at seven days; at this time point significant increases were reported in BF (RR 1.21, 95% CI 1.03 to 1.42) (data not shown in data and analyses tables).

2. One type of BF education versus a different type of BF education

Primary outcomes

Proportion of women any BF at three and six months

Any BF at three months: one study (Kistin 1990) involving 74 women compared group discussion versus individual discussion and reported the women who received group discussion were very slightly more likely to be BF at three months but the CIs for this data were very wide and crossed the line of no effect (RR 2.84, 95% CI 0.61 to 13.18; Analysis 2.1).
Any BF at six months: Forster 2004 compared BF practical skills education versus BF attitudes education. This study reported data for 590 women and found similar proportions of women were BF at six months in each group (RR 1.09, 95% CI 0.94 to 1.28; Analysis 2.2).

Proportion of women exclusively BF at three and six months

No trial included in this comparison reported exclusive BF at three months.
Exclusive BF at six months: Forster 2004 also reported no differences between the women receiving practical skills education versus BF attitudes education who were exclusively BF at six months (RR 1.03, 95% CI 0.61 to 1.73; women = 590; Analysis 2.3).

Initiation of BF

One study (Forster 2004) involving 614 women compared BF practical skills education versus BF attitudes education. There was no difference between the numbers of women in each group who initiated BF (RR 1.02, 95% CI 0.99 to 1.06; women = 614; Analysis 2.4).
Duration of any BF, duration of exclusive BF, and**proportion of women exclusively** BF**at three months** were not reported in any trials in this comparison.

Secondary outcomes

No secondary outcomes were reported in this comparison.

3. Multiple methods of BF education versus a single method of BF education

There were limited trials available for this comparison, with most outcomes not reported.

Primary outcomes

Duration of any BF

One study (Schlickau 2005a) involving 18 women compared BF education session plus commitment to exclusive BF versus BF education session. Although women receiving multiple interventions appeared to breastfeed for slightly more days than those receiving a single intervention, the CI was wide and crossed the line of no effect (MD 8.00 days, 95% CI -6.84 to 22.84 days; Analysis 3.1).

Proportion of women any BF at three and six months

Any BF at six months: the study by Rossiter 1994, involving 175 women compared video plus BF education session with the provision of pamphlets. There was no evidence of a difference in BF at six months between the two groups (RR 1.59, 95% CI 0.86 to 2.94; Analysis 3.2).

Duration of exclusive BF, proportion of women any BF at three months, proportion of women exclusively BF at three and six months, and **initiation of BF** were not reported in any trials in this comparison.

Secondary outcomes

No secondary outcomes were reported in this comparison.

4. Different combinations of multiple methods of providing BF education

All trials contributing data for this comparison at this update were cluster-randomised trials. We have presented the cluster-adjusted odds ratios as reported (Kools 2005; Mattar 2007).

Primary outcomes

Proportion of women any BF at three and six months

Three months: Kools 2005, with 698 women, compared LC plus BF booklet plus 24-hour free LC versus BF booklet plus phone number for BF questions and problems; the trial reported similar rates of BF in both groups (adjusted OR 0.82, 95% CI 0.58 to 1.16; Analysis 4.1).

Proportion of women exclusively BF at three and six months

Three months: Kools 2005 also reported no evidence of a difference in exclusive BF at three months (adjusted OR 0.79, 95% CI 0.57 to 1.09; women = 698; Analysis 4.2). Another study (Mattar 2007) compared BF booklet plus video plus LC versus BF booklet plus video. Again, the study reported no evidence of a difference in exclusive BF at three months (OR 1.40, 95% CI 0.70 to 2.80; women = 150; Analysis 4.2).

Six months: Mattar 2007 reported a marginal increase in exclusive BF in the group receiving a booklet plus video plus LC compared with the group who received a booklet plus video only (OR 2.50, 95% CI 1.00 to 6.25; women = 169; Analysis 4.3).

Duration of any BF, duration of exclusive BF, proportion of women any BF at six months, and **initiation of BF** were not reported in any trials in this comparison.

Secondary outcomes

No secondary outcomes were reported in this comparison.

5. Multiple methods of BF education versus standard/routine care

Two trials (Flax 2014; Mattar 2007) included in this comparison at this update were cluster-randomised trials. For categorical variables we have presented the cluster-adjusted odds ratios as reported in trial publications.

Primary outcomes

Duration of any BF

One study (Schlickau 2005a) involving 16 women compared BF education session plus commitment to BF versus standard care. Women in the BF education session plus commitment group breastfed for more days than those who only received standard care, however, the data for this outcome had a wide CI, which crossed the line of no effect (MD 14.20 days, 95% CI -2.97 to 31.37 days; Analysis 5.1).

One study (Finch 2002) involving 48 women compared LC plus incentive versus standard care; there were no significant differences in duration of BF between intervention and control group (median 12 versus six weeks, data not shown in the analysis).

Proportion of women exclusively BF at three and six months

Exclustive BF at three months Analysis 5.2: one three-arm study (Mattar 2007) involving 234 women. We have reported each intervention arm compared with control, so Mattar 2007 appears twice in the forest plot. The intervention of BF booklet plus video plus LC versus standard care improved rates of exclusive BF (OR 2.60, 95% CI 1.25 to 5.40; women = 159). The intervention arm without a LC but with the BF booklet and video did not have the same effect on exclusive BF at three months (OR 1.80, 95% CI 0.80 to 4.05; women = 159). Flax 2014, involving 461 women, compared monthly BF sessions plus weekly cell phone message versus standard care and reported women in the intervention group were more likely than those in the standard care group to be exclusively BF at three months (OR 1.80, 95% CI 1.10 to 2.95; women = 390).

Exclusive BF at six months Analysis 5.3: at six months similar patterns of increase in exclusive BF of the three comparisons were presented. Mattar 2007 had marginal results for the intervention arm including an LC, but not otherwise (with LC OR 2.40, 95% CI 1.00 to 5.76; women = 175; without LC OR 0.90, 95% CI 0.30 to 2.70; women = 184). Flax 2014 found no group differences (OR 2.40, 95% CI 1.40 to 4.11; women = 390).

Initiation of BF

One study (Flax 2014), involving 461 women, compared monthly BF sessions plus weekly cell phone message versus standard care and reported that those in the intervention group were more likely to initiate of BF (OR 2.61, 95% CI 1.61 to 4.24; women = 380; Analysis 5.4).

Duration of exclusive BF and**proportion of women any BF at three and six months** were not reported in any trials in this comparison.

Secondary outcomes

No secondary outcomes were reported in this comparison.

6. Summary of findings: one type of BF education versus standard/routine care

There was no evidence that antenatal education of any sort could improve the initiation or duration of BF over the standard care offered to pregnant women. It is important to bear in mind that of the 20 studies contributing data to this review, 13 had BF education or support as part of the standard care comparator. Cluster trials presenting adjusted odds ratios were not included in this comparison. We expected substantial heterogeneity due to the different interventions and settings of trials. We used a random-effects model for all analyses with high heterogeneity (Analysis 6.1; Analysis 6.4; and Analysis 6.5). For the summary of findings we used pooled effects of any BF education versus standard care.

No differences were observed between groups for any of the following outcomes.

1. Initiation of BF (average RR 1.01, 95% CI 0.94 to 1.09; women = 3505; studies = 8; I^2 = 69%; Analysis 6.1; high-quality evidence)
2. Proportion of women exclusively BF at three months (RR 1.06, 95% CI 0.90 to 1.25; women = 822; studies = 3; I^2 = 0%; Analysis 6.2; moderate-quality evidence)
3. Proportion of women exclusively BF at six months (RR 1.07, 95% CI 0.87 to 1.30; women = 2161; studies = 4; I^2 = 0%; Analysis 6.3; moderate-quality evidence)
4. Proportion of women any BF at three months (average RR 0.98, 95% CI 0.82 to 1.18; women = 654; studies = 2; I^2 = 60%; Analysis 6.4; low-quality evidence)
5. Proportion of women any BF at six months (average RR 1.05, 95% CI 0.90 to 1.23; women = 1636; studies = 4; I^2 = 61%; Analysis 6.5; high-quality evidence)
6. Breastfeeding problems (Duffy 1997 (n = 70) reported no group differences for mastitis, but less nipple pain and less nipple trauma for women who had a lactation consultant. Kronborg 2012 (n = 1162) reported no group differences as to whether women responded 'yes' when asked about BF problems; Analysis 1.9; Analysis 1.10; Analysis 1.11; Analysis 1.8; moderate-quality evidence)

Sensitivity analysis

For the outcomes included in our 'Summary of findings', there were no trials assessed to be of high risk of bias for allocation concealment. We did not, therefore, conduct sensitivity analysis based on removing trials of high risk of bias.

Subgroup analysis

There were insufficient trials reporting outcome data by maternal education or occupation for us to conduct this analysis. For type of intervention, all of the first five comparisons of this review displayed the type of intervention in forest plots. There were too few trials in each subgroup to compare the groups in a meaningful analysis. For this update, due to time constraints, we have not conducted subgroup analysis by trial setting.

DISCUSSION

Summary of main results

In this update we have included 24 studies with 10,056 women. Twenty studies involving 9789 women contributed data to the analyses. There was no evidence that antenatal breastfeeding (BF)

education of any sort could improve the initiation of BF, the proportion of women with any BF and exclusive BF at three or six months as well as duration of BF over the standard care. However, It is important to mention here that of the 20 studies contributing data to this review, 13 had BF education or support as part of the standard care comparator. We have presented cluster trials with adjusted odds ratios separately in comparisons 4 and 5; most cluster trials did not contribute to the pooled effects in Summary of findings for the main comparison.

Overall completeness and applicability of evidence

Twenty-two out of 24 studies were from high-income countries, mainly the USA, Australia, Canada and the UK. The only two included studies not from a high-income country were from Nigeria and Iran. Applying the results to low- and middle-income countries should be done cautiously. Although we have 24 included studies, there were diverse interventions among these studies. The overall completeness of evidence in this review is therefore too limited to make any strong conclusions or generalisations.

Quality of the evidence

For the comparison BF education versus standard care, we assessed five outcomes according to GRADE methodology. We did not downgrade any trial for lack of blinding, and no included trial had adequate blinding of participants or staff. We did not downgrade for substantial heterogeneity, though we have noted this on the 'Summary of findings' (SoF) table. Evidence for two outcomes was of high quality (initiation rate of BF and proportion of women with any BF at six months). A grade of high quality suggests confidence that the result is robust to future studies. Future trials should also find that antenatal education does not appear to improve uptake of BF or BF at six months. We assessed evidence for two further outcomes as of moderate quality, suggesting some doubt about the robustness of the observed effect due to small sample size in one analysis (proportion of women exclusive BF at three months) and a wide confidence interval crossing the line of effect in another (proportion of women exclusive BF at six months). Future studies may improve our understanding of the impact of antenatal education on exclusive BF at these time points. Lastly, we assessed evidence for the outcome of proportion of women with any BF at three months as of low quality, having the most uncertainly. Please see Summary of findings for the main comparison for further details.

Potential biases in the review process

We strictly followed the review process recommended by Cochrane (Higgins 2011c). We obtained all relevant studies identified from search results. We independently reviewed all potentially relevant studies and resolved disagreement by discussion. Potential bias in the review process should be minimal.

Agreements and disagreements with other studies or reviews

A systematic review of professional support interventions for BF concluded that interventions expanding from pregnancy to the intrapartum period and throughout the postnatal period were more effective than interventions concentrating on a shorter period. In addition, intervention packages using various methods of education and support from well-trained professionals are more effective than interventions concentrating on a single method (Hannula 2008). However, this review included not only educational but also support interventions and did not restrict the included studies to randomised controlled trials.

Another Cochrane Review found that health education and peer support interventions can result in some improvements in the number of women beginning to breastfeed (Dyson 2005). This review is currently being updated (Dyson 2005). We we were unable to confirm if peer counselling was significantly better than formal BF education for initiation of BF due to small single trials in our subgroups.

AUTHORS' CONCLUSIONS

Implications for practice

There was not enough evidence to suggest that any antenatal BF education was more effective than standard care or any other BF education method for improving BF initiation, any BF or exclusive BF at three or six months and BF duration.

Implications for research

There is an urgent need to conduct a high-quality, randomised controlled study with an adequate sample size and that is free from commercial influence to evaluate the effectiveness and adverse effects of antenatal BF education, especially in low- and middle-income countries where BF should have a more significant impact. It is recommended that such trials initially test the effect of individual interventions against no BF educational interventions. The no educational interventions group could be defined as no breastfeeding information or any breastfeeding information that is given in a non-formal and non-standardised way during the course of normal antenatal care consultation and would not involve any formal methods such as videos, written materials, a specific curriculum, involvement of fathers or a consultation with a lactation consultant or peer counsellor. The intervention and standard care provided in the no interventions group should be

described in detail. Outcomes should include the duration of any and exclusive breastfeeding and the proportion with any or exclusive breastfeeding at 3 or 4 and 6 months as well as adverse breastfeeding outcomes such as engorgement and adverse neonatal and infant outcomes such as sepsis and respiratory infections.

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* *Indicates the major publication for the study*

CHARACTERISTICS OF STUDIES

Characteristics of included studies *[ordered by study ID]*

Duffy 1997

Methods	RCT. Using a sealed envelope containing group allocation in blocks of 12, with 6 in the control and 6 in the experimental group. Random assignment was carried out by the lactation consultant giving the educational session.
Participants	**Number of women randomised:** 75 **Inclusion criteria** Attended antenatal classes in the study hospital, and intended to BF Verbal and written explanation was given Explained the completely voluntary and confidential nature of the study **Exclusion criteria** Delivered less than 37 weeks With medical complications
Interventions	**Experimental group** (n = 37) An additional 1-h teaching session for nulliparas more than 36 weeks pregnant. The teaching intervention was through a lactation consultant, not involved in the data collection. The content of the teaching session was correct positioning and attachment of the baby on the breast for feeding **Control group** (n = 38) Standard educational programme of the study hospital
Outcomes	**Outcome measures (dichotomous)** Primary 1. Incidence of BF at 6 weeks postpartum Secondary 1. Mastitis **Outcome measures (continuous)** Primary 1. LATCH score Secondary 1. Nipple pain (VAS) 2. Nipple trauma (NTI score)
Notes	Loss of participants to follow-up: < 10% Blinding: outcome assessors This study was conducted in Western Australia

Risk of bias

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	Not described

Duffy 1997 (*Continued*)

Allocation concealment (selection bias)	Unclear risk	Sealed envelope (not described whether it was opaque or not)
Blinding of participants and personnel (performance bias) All outcomes	High risk	Not blinded
Blinding of outcome assessment (detection bias) All outcomes	Low risk	Only outcome assessors
Incomplete outcome data (attrition bias) All outcomes	Unclear risk	No details available
Selective reporting (reporting bias)	Unclear risk	No information
Other bias	Low risk	No other obvious biases

Finch 2002

Methods	RCT
Participants	**Number of women randomised**: 60 **Inclusion criteria** English speaking, pregnant, HIV negative women **Exclusion criteria** Not specified
Interventions	**Experimental group** (n = 30) BF education by trained LC, incentive, instruction and discussion with handout **Control group** (n = 30) Prenatal educational regarding benefit and barriers to BF
Outcomes	1. Duration of BF 2. Feeding intentions
Notes	This study was conducted in New York, USA

Risk of bias

Bias	**Authors' judgement**	**Support for judgement**
Random sequence generation (selection bias)	Unclear risk	No information available
Allocation concealment (selection bias)	Unclear risk	No information available

Finch 2002 (*Continued*)

Blinding of participants and personnel (performance bias) All outcomes	Unclear risk	No information available
Blinding of outcome assessment (detection bias) All outcomes	Unclear risk	No information available
Incomplete outcome data (attrition bias) All outcomes	High risk	Loss to follow-up in intervention group 36.7% (11/30), in control group 3.3% (1/30)
Selective reporting (reporting bias)	Unclear risk	No information available
Other bias	Low risk	No other obvious biases

Flax 2014

Methods	Cluster-RCT
Participants	Setting: microcredit meetings, Bauchi state, Nigeria, Africa 77 microcredit meeting groups with 461 pregnant women, aged 15-45 years, attending monthly microcredit meetings for 7-10 months 39 meeting groups including 229 women were randomised to receive the monthly group BF learning sessions 38 meeting groups including 232 women were randomised to receive standard microcredit group meeting with no BF learning sessions
Interventions	**Experimental group (229 women)** Monthly group BF learning sessions including weekly cell phone BF text and voice messages to cell phone provided to each small microcredit group and monthly face-to-face BF information during microcredit monthly meeting. Information given included: exclusive BF to 6 months; initiation of BF within 1 h of birth; giving only breast milk not fluids during the first 3 days of life for 7-10 months The messages were generated via songs and dramas by participants Adult learning techniques and participatory principles used with 1-3 key messages each session including counselling cards for the intervention **Control group (232 women)** Women in the control clusters received only standard microcredit group meeting with no BF interventions
Outcomes	1. Exclusive BF to 1, 3, and 6 months 2. Initiation of BF within 1 h of delivery 3. Use of only colostrum or breast milk during the first 3 d of life
Notes	
Risk of bias	

Flax 2014 (*Continued*)

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	Block randomisation, process not described, other than it happened at the level of the monthly community meeting (clusters)
Allocation concealment (selection bias)	Unclear risk	Not described
Blinding of participants and personnel (performance bias) All outcomes	High risk	Not described, but highly unlikely that blinding was possible
Blinding of outcome assessment (detection bias) All outcomes	Low risk	Baseline and final survey interviews were conducted by an independent team of trained data collectors unaware of the clients' study arm assignment
Incomplete outcome data (attrition bias) All outcomes	Low risk	Eligible clients (n = 229 intervention, n = 232 control) were in the randomised meeting groups. At follow-up, 196 (86%) and 194 (84%) clients remained in the intervention and control arms, respectively
Selective reporting (reporting bias)	Low risk	Pre-specified outcomes were published and reported on
Other bias	Low risk	No other obvious biases

Forster 2004

Methods	RCT Random allocation to a control group or 1 or 2 intervention groups, randomised by an external computerised system accessed by telephone by a research midwife
Participants	**Number of women randomised:** 984 **Inclusion criteria** Women booked as public patients. Women who were primiparas. Women pregnant between 16 and 24 weeks. Women able to read and write in English **Exclusion criteria** Women with physical problems that prevented BF. Women who chose private obstetric care. Women choosing to give birth at birth centre
Interventions	**Experimental group** **Group 1 (n = 327)**: 1.5-h session on practical BF using teaching aids. Latch-on technique demonstrated with dolls and knitted breasts, also BF complications and management. Plus access standard care available **Group 2 (n = 329)**: two 1-h sessions that focused on changing attitudes to BF. Women were encouraged to bring their partners or a significant other. Session 1 included information about BF advantages, views and attitudes of participants, their friends and families and society. For session 2, participants were encouraged to interview their own mother or her partner's mother about attitudes of BF, which then was reflected and discussed in this session. Access standard care available

Forster 2004 (*Continued*)

	Control group (n = 328) Able to access standard care, which included formal BF education sessions etc
Outcomes	Duration of **any** BF at 2-4 d, excluded babies not yet feeding. Duration of **exclusive** BF at 2-4 days, excluded babies yet not feeding Number of mothers **any** BF at 6 months Number of mothers **exclusive** BF at 6 months
Notes	Loss of participants to follow-up and reasons: < 10% Blinding: unclear Intention-to-treat analysis: used Each intervention group was compared only with the group of women allocated to standard care; they were not compared with each other For this review we have presented separate intervention groups in Comparison 1; where we have totals in the analysis in Comparison 6 we have split the control group between the intervention arms Study was conducted in Melbourne, Australia

Risk of bias

Bias	**Authors' judgement**	**Support for judgement**
Random sequence generation (selection bias)	Low risk	"A computerized system of biased urn randomisation was accessed by telephone by the research midwife to ascertain women's group allocation."
Allocation concealment (selection bias)	Low risk	"A computerized system of biased urn randomisation was accessed by telephone by the research midwife to ascertain women's group allocation."
Blinding of participants and personnel (performance bias) All outcomes	High risk	Not described, but very unlikely to be blinded
Blinding of outcome assessment (detection bias) All outcomes	Unclear risk	Not described
Incomplete outcome data (attrition bias) All outcomes	Low risk	The follow-up rate in practical skill, attitudes, standard care we re 91%, 90% and 91%, respectively
Selective reporting (reporting bias)	Unclear risk	No information available
Other bias	Low risk	No other obvious biases

Kaplowitz 1983

Methods	RCT
Participants	44 consecutive women from 2 upstate New York Women, Infants and Children (WIC) programmes, at least 18 years old, in 4th to 6th month of pregnancy, primigravida or women who had bottle-fed previous children or who previously had an unsuccessful BF experience were randomly assigned to experimental (21 women) or control (23 women) groups
Interventions	**Experimental group (21 women)** 5 pamphlets providing information on the benefits of BF, basic physiology of lactation, proper nursing technique were mailed to the women's homes 1 at a time over 5 consecutive weeks **Control group (23 women)** Did not receive pamphlets
Outcomes	1. Women's knowledge about nursing after the intervention 2. Attitude toward BF before and after the intervention These outcomes were not relevant to the review objective.
Notes	This study was conducted in New York. No information about BF practice available

Risk of bias

Bias	**Authors' judgement**	**Support for judgement**
Random sequence generation (selection bias)	Unclear risk	Not described
Allocation concealment (selection bias)	Unclear risk	Not described
Blinding of participants and personnel (performance bias) All outcomes	High risk	Not described, but unlikely to be blinded
Blinding of outcome assessment (detection bias) All outcomes	Unclear risk	Not described
Incomplete outcome data (attrition bias) All outcomes	Unclear risk	Not described
Selective reporting (reporting bias)	Unclear risk	No information available
Other bias	Unclear risk	Inadequate information

Kellams 2016

Methods	RCT
Participants	**Setting:** At 4 participating prenatal clinics between the University of Virginia (UVA) Health System and the Virginia Commonwealth University (VCU) Health System, Virginia in the USA from 2009 to 2012 **Inclusion criteria** Pregnant women of 24-41 weeks' gestation who were WIC-eligible (income of 185% or less of the federal poverty income guidelines) **Exclusion criteria** Women with multiple-gestation pregnancy, any known contraindication to BF (e.g. HIV infection, drug use, or receipt of chemotherapy), or their primary language was not English Total numbers of 522 eligible pregnant women were enrolled (459 at UVA, 63 at VCU) . No information of how many randomised women of each group was reported
Interventions	**Experimental group** A 25-min educational BF video (*Better Breastfeeding*, Injoy Productions, 2008) provided general information about BF, including importance, latch, hunger cues, positioning, sore nipples, engorgement, how breast milk is made, and lifestyle issues Total number analysed: 249 **Control/Comparison intervention** A 20-min educational video about nutrition during pregnancy (*Healthy Pregnancy Nutrition*, Injoy Productions, 2007). It covered topics including healthy diet and the importance of exercise during pregnancy Total number analysed: 248
Outcomes	Breastfeeding initiation Time of first feeding Any infant complication (hypoglycaemia, rule-out sepsis, hypothermia, transient tachypnoea of the newborn, other breathing problems, cardiac problem, hyperbilirubinaemia, and others.) Unlikely to be related to the intervention. Also for maternal complications Infant length of stay in newborn nursery only and never NICU and/or intermediate care Nursery (ICN)
Notes	

Risk of bias

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	A computer-generated block randomisation sequence using random block sizes, stratified by prenatal clinic, was used
Allocation concealment (selection bias)	Low risk	One member of the study team with no direct contact with participants prepared all of the consecutively-numbered, sealed, opaque envelopes, which the research assistant opened just prior to loading the video for the participant to view

Kellams 2016 (*Continued*)

Blinding of participants and personnel (performance bias) All outcomes	High risk	Not described, but highly unlikely that blinding was possible
Blinding of outcome assessment (detection bias) All outcomes	Low risk	Research assistants abstracting data were blinded to the group to which the participant was assigned
Incomplete outcome data (attrition bias) All outcomes	Low risk	Eligible women were 1580, 522 were randomised but there was no information of assigned number to each group. Analysis was done in 497 women (249 in intervention and 248 in control) account for 95% of the randomised women However, BF outcomes were analysed in 346 (70%; 174/249 for intervention and 69%; 172/248 for control) These were only those who gave BF
Selective reporting (reporting bias)	Low risk	Pre-specified outcomes were published and reported on.
Other bias	Low risk	No other obvious biases

Kistin 1990

Methods	RCT Women in Monday clinic were randomised with a random number table into 2 intervention groups Friday clinic became control group (not randomised, therefore data could not be used, both intervention groups data could be compared, as they were randomised)
Participants	**Number of women randomised**: 74 **Inclusion criteria** Women 24 weeks' gestation or less Black women born in the USA **Exclusion criteria** None mentioned
Interventions	2 types of prenatal education. Individual BF and antenatal BF class **Experimental groups** Intervention group 1 (38 women): antenatal group BF class, 50-80 min, at least 1 session discussing myths, problems and benefits of BF Intervention group 2 (36 women): individual pre-counselling with a nurse practitioner or paediatrician, one-to-one, 15-30 minutes, between 30-40 weeks' gestation, similar topics discussed in IG1 **Control group** Normal antenatal care. No additional information but not randomised, therefore data were excluded, and not included in our analysis
Outcomes	1. Duration of any BF 2 weeks 2. Duration of any BF 6 weeks

Kistin 1990 (*Continued*)

	3. Any BF at 3 months
Notes	Loss of participants to follow-up: 18.2% Blinding: participants; no, counsellors; not feasible, outcome assessors; not clear Intention-to-treat analysis: not clear This study was conducted in Chicago, USA

Risk of bias

Bias	**Authors' judgement**	**Support for judgement**
Random sequence generation (selection bias)	Low risk	Table of random numbers was used
Allocation concealment (selection bias)	Unclear risk	Not described
Blinding of participants and personnel (performance bias) All outcomes	High risk	Not described, but highly unlikely
Blinding of outcome assessment (detection bias) All outcomes	Unclear risk	Not described
Incomplete outcome data (attrition bias) All outcomes	Unclear risk	Not enough information
Selective reporting (reporting bias)	Unclear risk	Information not available
Other bias	Low risk	No other obvious biases

Kluka 2004

Methods	RCT
Participants	**Number of women randomised**: 209 **Inclusion criteria** Primiparous women who were planning to BF their infants. **Exclusion criteria** None mentioned
Interventions	**Experimental group: 111 women** Usual care plus a self-assessment pre-workshop guide and an interactive, educational, antenatal workshop **Control group: 98 women** Usual care
Outcomes	BF at 3 and 6 months

Kluka 2004 (*Continued*)

Notes	This study was conducted in Canada	
Risk of bias		
Bias	**Authors' judgement**	**Support for judgement**
Random sequence generation (selection bias)	Unclear risk	Not described
Allocation concealment (selection bias)	Low risk	Opaque sealed envelopes
Blinding of participants and personnel (performance bias) All outcomes	High risk	Not feasible to blind
Blinding of outcome assessment (detection bias) All outcomes	Low risk	Outcome assessors
Incomplete outcome data (attrition bias) All outcomes	Low risk	Comparable loss to follow-up (< 20% at 6 months in both arms)
Selective reporting (reporting bias)	Unclear risk	No information available
Other bias	Low risk	No other obvious biases

Kools 2005

Methods	Cluster randomisation of 10 home healthcare centres. Coin flip determined which centres would receive intervention Clusters had comparable overall pre-randomisation rates and sizes
Participants	**Number of women randomised**: 781 **Inclusion criteria** Women considering BF All pregnant women using the identified 3 home healthcare organisations and from their 10 centres Women pregnant in their 7th month of pregnancy **Exclusion criteria** Women with babies weighing < 2000 g
Interventions	**Experimental group** 408 women received standard care and BF booklet, which was used and referred to by caregiver at each consultation (which included practical instructions on BF, discussion around how to cope with BF, motivational discussion to initiate and maintain BF and additional information if asked for). Opportunity to access 24-hour free lactation consultant **Control group**

Kools 2005 (*Continued*)

	373 received standard antenatal care and BF booklet and phone number for BF questions or BF problems
Outcomes	1. Number of mothers any BF at birth 2. Number of mothers BF exclusively at birth 3. Number of mothers any BF at 3 months 4. Number of mothers exclusive BF at 3 months
Notes	Loss of participants to follow-up: < 10% Blinding: participants; no, others unclear Intention-to-treat analysis: used This study was conducted in Maastricht, Netherlands

Risk of bias

Bias	**Authors' judgement**	**Support for judgement**
Random sequence generation (selection bias)	Low risk	Coin flip
Allocation concealment (selection bias)	Unclear risk	Coin flip was used
Blinding of participants and personnel (performance bias) All outcomes	High risk	Not described.Not blinded
Blinding of outcome assessment (detection bias) All outcomes	High risk	Not described. Not blinded
Incomplete outcome data (attrition bias) All outcomes	Low risk	Minimal loss to follow-up in experimental group and no loss to follow-up in control group
Selective reporting (reporting bias)	Unclear risk	No information available
Other bias	Low risk	No other obvious biases

Kronborg 2012

Methods	RCT
Participants	**Number of women randomised**: 1193 **Inclusion criteria** 1193 nulliparous women were recruited before week 21 + 6 days of gestation, 603 were randomised to the intervention group, and 590 to the reference group. The inclusion criteria were nullipara registered at the Aarhus Midwifery Clinic, older than 18 years of age at enrolment,with a singleton pregnancy, and the ability to speak and understand

Kronborg 2012 (*Continued*)

	Danish
Interventions	**Experimental group** Structured antenatal training programme for 9 h attended in mid-pregnancy **Control group** Usual practice (no antenatal training)
Outcomes	1. Initiation of BF 2. BF at 6 weeks and 1 year
Notes	This study was conducted in Denmark

Risk of bias

Bias	**Authors' judgement**	**Support for judgement**
Random sequence generation (selection bias)	Low risk	Quote: "Randomisation was assigned by one staff midwife using computer voice response system. Randomisation was through an algorithm generated by a data manager. Ratio of 1:1."
Allocation concealment (selection bias)	Unclear risk	Not described
Blinding of participants and personnel (performance bias) All outcomes	High risk	Not described, not possible
Blinding of outcome assessment (detection bias) All outcomes	Low risk	Postnatal midwives (personnel) were blinded
Incomplete outcome data (attrition bias) All outcomes	Low risk	16 out of 603 and 15 out of 590 women in the intervention and reference groups were lost to follow-up respectively
Selective reporting (reporting bias)	Low risk	Reported all outcomes as presented in methods
Other bias	Low risk	Baseline characteristics were quite comparable between intervention and reference groups. No other obvious biases

Lavender 2005

Methods	Cluster-RCT Unit of randomisation: 8 electoral wards in 1 county, pairs were matched according to Jarman Underprivileged area score (UPA) Within-pair randomised = 4 clusters each Opaque sealed envelopes

Lavender 2005 (*Continued*)

Participants	**Number of women randomised**: 1312 **Inclusion criteria** Women registered with a practice site/GP in one of the 8 electoral wards Women who expressed a desire to BF Women with no detected foetal abnormality at 20-week ultrasound **Exclusion criteria** Women with detected foetal abnormality Women who gave birth before 36 weeks' gestation Women who lived in potentially unsafe homes Women who planned to bottle feed Women who had previously BF for at least 6 weeks
Interventions	1 antenatal BF education session with the woman's attending community midwife. Midwives were trained for this intervention **Experimental group** (n = 633) Normal antenatal care plus during third trimester attendance of a single antenatal BF education session. Each session involved up to 8 women and was facilitated by a qualified infant feeding co-ordinator **Control group** (n = 679) Received standard antenatal care that included BF advice from attending clinic midwives
Outcomes	1. Number of mothers any BF at hospital discharge 2. Number of mothers any BF at 2 weeks 3. Number of mothers any BF at 4 weeks 4. Number of mothers any BFat 6 weeks 5. Number of mothers any BF at 4 months 6. Number of mothers exclusive BF at 4 months 7. Number of mothers any BF at 6 months 8. Number of mothers any BF at 12 months
Notes	Loss of participants to follow-up: < 10% Blinding: participants: not feasible, counsellors: no, outcome assessors: yes Intention-to-treat analysis: used This study was conducted in northwest UK

Risk of bias

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	Not described
Allocation concealment (selection bias)	Low risk	Opaque sealed envelopes were used
Blinding of participants and personnel (performance bias) All outcomes	High risk	The intervention was not feasible to be blinded

Lavender 2005 (*Continued*)

Blinding of outcome assessment (detection bias) All outcomes	Low risk	Outcome assessors were blinded
Incomplete outcome data (attrition bias) All outcomes	Low risk	Loss to follow-up < 10% in both arms
Selective reporting (reporting bias)	Unclear risk	No information available
Other bias	Low risk	No other obvious biases

MacArthur 2009

Methods	Cluster-RCT
Participants	**66 antenatal clinics with 2511 pregnant women** 33 clinics including 1140 women were randomised to receive the peer support worker service 33 clinics including 1371 women were randomised to receive standard care
Interventions	**Intervention group (1140 women)** An antenatal peer support worker service planning a minimum of 2 contacts with women to provide advice, information, and support from approximately 24 weeks' gestation within the antenatal clinic or at home. The trained peer support workers were of similar ethnic and socio-demographic backgrounds to their clinic population **Control group (1371 women)** Women in the control clusters received standard antenatal care, which included usual information and advice from midwives on BF without input from community peer support workers
Outcomes	Initiation of BF obtained from computerised maternity records of the hospitals where women from the primary care trust delivered
Notes	This study was conducted in Birmingham, UK

Risk of bias

Bias	**Authors' judgement**	**Support for judgement**
Random sequence generation (selection bias)	Low risk	Computer-generated
Allocation concealment (selection bias)	Unclear risk	Not described
Blinding of participants and personnel (performance bias) All outcomes	High risk	The intervention was not feasible to be blinded

MacArthur 2009 (*Continued*)

Blinding of outcome assessment (detection bias) All outcomes	Low risk	Data on outcome were supplied to the research team in an anonymous format
Incomplete outcome data (attrition bias) All outcomes	Low risk	113 out of 2511 women (4.5%) who participated in the trial were not available for primary outcome assessment
Selective reporting (reporting bias)	Unclear risk	No information available
Other bias	Low risk	No other obvious biases

Mattar 2007

Methods	Cluster-RCT A computer-generated list was used to randomise the women into the 3 groups. Each woman was allocated to the intervention group next on the list after written informed consent had been obtained. Singapore
Participants	**Number of women randomised**: 401 **Inclusion criteria** Singleton pregnancy, gestation of at least 36 weeks at recruitment, no uterine scar, and the absence of any obstetric complication that would contraindicate vaginal delivery, with informed consent **Exclusion criteria** Not described
Interventions	Multiple versus single **Experimental group** Group A (n = 123): received an information booklet describing the techniques and benefits of BF, which was written and published by the hospital's BF support group. It contained practical advice on feeding techniques, expressing breast milk, and management of common BF problems. Participants also watched a 16-min educational video entitled "14 Steps to Better BF" (InJoy Videos, Boulder, CO), in which the benefits of BF were introduced, correct positioning, latch-on, and breast care were demonstrated, and common concerns (such as nipple pain) discussed. In addition, each woman had one 15-minute session with a lactation counsellor who examined the woman's nipples to assess adequacy for BF and answered questions on BF Group B (n = 132) received the same booklet and watched the same video but did not have an individual session with the lactation counsellor **Control group** Group C (n = 146) Did not watch the video, and did not have counselling. The primary report stated that the control group did not receive the booklet, video or counselling (Mattar 2007 p. 74) All women in all randomised groups had standard care during pregnancy, including access to postnatal BF support
Outcomes	1. Number of mothers BF at 3 months 2. Number of mothers BF at 6 months

Mattar 2007 (*Continued*)

Notes	Loss of participants to follow-up: 10% Blinding: only outcome assessor Intention-to-treat analysis addressed: yes This study was conducted in Singapore Comparison 4 includes the 2 treatment arms A and B

Risk of bias

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Computer-generated list
Allocation concealment (selection bias)	Low risk	Each woman was allocated to the intervention group next on the list after written informed consent had been obtained
Blinding of participants and personnel (performance bias) All outcomes	High risk	The intervention was not feasible to be blinded
Blinding of outcome assessment (detection bias) All outcomes	Low risk	Outcome assessors were blinded
Incomplete outcome data (attrition bias) All outcomes	Low risk	Loss to follow-up 10%
Selective reporting (reporting bias)	Unclear risk	Information not available
Other bias	Low risk	No other obvious biases

Noel-Weiss 2006

Methods	RCT
Participants	**Number of women randomised**: 101 **inclusion criteria** Nulliparous women expecting a single child, an uncomplicated birth, and planning to BF The women had to read and write in English and have a telephone to complete the postpartum questionnaires. To remain in the study, a mother and her infant had to be discharged at the same time and be able to BF without restriction **Exclusion criteria** Not described
Interventions	Workshop **Experimental group** (n = 47) Standard care plus a 2.5-h prenatal BF workshop designed using Bandura's theory of

Noel-Weiss 2006 (*Continued*)

	self-efficacy and adult learning principles. The intervention involved the use of lifelike dolls, videos, and discussion in a comfortable atmosphere **Control group** (n = 45) Standard care
Outcomes	1. Maternal BF self-efficacy 2. BF duration measured at 4 weeks and 8 weeks postpartum
Notes	This study was conducted in Ontario, Canada

Risk of bias

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	Information not available
Allocation concealment (selection bias)	Low risk	Used sealed, sequentially numbered, opaque envelope containing a slip of paper stating either Control or Workshop
Blinding of participants and personnel (performance bias) All outcomes	High risk	The intervention was not feasible to be blinded
Blinding of outcome assessment (detection bias) All outcomes	Low risk	Only outcome evaluators
Incomplete outcome data (attrition bias) All outcomes	Low risk	Analysed the data with both the intention-to-treat assumption and using the actual workshop attendance. 101 randomised and 92 were available for analysis
Selective reporting (reporting bias)	Unclear risk	Protocol not available
Other bias	Low risk	No other obvious biases

Olenick 2010

Methods	RCT
Participants	**Number of women randomised**: 182 **Inclusion criteria** Pregnant women enrolled for prenatal care at 24 weeks (or beyond) who consented to participate **Exclusion criteria** Age < 18 years, stated intention to bottle-feed with formula, non-English speaking, those for whom BF was medically contraindicated, those whose newborns would be anticipated to be incapable of BF, no access to telephone for follow-up and those who were not planning to keep or raise their baby

Olenick 2010 (*Continued*)

Interventions	**Experimental group** 2-h BF self-efficacy theory-based class (86 women) **Control group** No class (96 women)
Outcomes	1. BF duration 2. BF exclusivity and confidence through 12 weeks
Notes	This trial was conducted in Texas, USA.

Risk of bias

Bias	**Authors' judgement**	**Support for judgement**
Random sequence generation (selection bias)	Unclear risk	Not described
Allocation concealment (selection bias)	Unclear risk	Not described
Blinding of participants and personnel (performance bias) All outcomes	High risk	Not feasible to blind
Blinding of outcome assessment (detection bias) All outcomes	High risk	Quote "A research assistant was used for all postpartum data collection by phone. Although she did have access to the information regarding the subjects' group assignment, she did not refer to this information when doing the phone interviews, in effect blinding her to their status. In this way, there was greater objectivity both by the interviewer and the interviewee."
Incomplete outcome data (attrition bias) All outcomes	Low risk	Quote "The overall dropout rate was 7.7%."
Selective reporting (reporting bias)	Unclear risk	No information available
Other bias	Low risk	No obvious baseline differences and other biases

Pate 2009

Methods	RCT in parallel arms
Participants	**Setting:** Arkansas department of Health USA **Inclusion criteria** Primiparous pregnant women on WIC with an expected due date greater than 2 months post-enrolment, ages of 20 and 30, have access to email and the Internet and provide written consent to participate to completion **Exclusion Criteria**

	Women identified as substance abusers on their ADH WIC-5 record, received WIC in counties served by BF peer counsellors and BF contraindicated for any of the following reasons: 1. takes street drugs or does not control alcohol use; 2. has an infant with galactosaemia; 3. has human immunodeficiency virus (HIV) infection; 4. has active, untreated tuberculosis; 5. takes certain medications that are contraindicated for BF; 6. currently undergoing treatment for breast cancer. 145 pregnant women on WIC were screened by Health Department nutritionists for eligibility and willingness to participate in the study. 23 participants completed consent and pre-test forms, were randomly assigned to groups, and participated in the study
Interventions	**Experimental group** 6 weeks of peer counsellor-guided web-based education and support related to BF practices. In addition, the usual care of nursing and nutrition visits at the health department local health unit and written materials per Arkansas Department of Health (ADH) policy and procedure guidelines were given to the participants **Control group** Usual care consisted of non-web-based interventions, such as face-to-face counselling and education and the distribution of written materials
Outcomes	Breastfeeding self-efficacy None of our pre-specified outcomes were reported
Notes	

Risk of bias

Bias	**Authors' judgement**	**Support for judgement**
Random sequence generation (selection bias)	Low risk	Eligible subjects were randomly assigned to either the intervention group or the control group using a computer-generated 2-block random number generator in a 1:1 ratio
Allocation concealment (selection bias)	Unclear risk	As above
Blinding of participants and personnel (performance bias) All outcomes	High risk	Intervention could not be blinded
Blinding of outcome assessment (detection bias) All outcomes	Unclear risk	No information available
Incomplete outcome data (attrition bias) All outcomes	Low risk	Data on all participants who were randomly assigned was analysed in the groups to which they were allocated on an intention-to-treat basis

Pate 2009 (*Continued*)

Selective reporting (reporting bias)	Low risk	Pre-specified outcomes were published and reported
Other bias	Unclear risk	No information available

Raeisi 2014

Methods	Single-centre RCT
Participants	**100 pregnant women and their partners randomised** **Inclusion criteria** Women in the second trimester of pregnancy with no underlying disease or pregnancy complication **Exclusion criteria** No details given
Interventions	**Intervention group** The case group was provided with an educational package on promoting fathers' participation. They attended 3 training sessions where they were trained by brochures **Control group** Given no intervention
Outcomes	1. Birth weight 2. Weight gain during the first 6 months 3. Jaundice 4. Duration of BF 5. Spouse's level of awareness
Notes	Trial conducted at family health research centre in Tehran, Iran

Risk of bias

Bias	**Authors' judgement**	**Support for judgement**
Random sequence generation (selection bias)	Low risk	"Randomization was performed according to the table of random numbers."
Allocation concealment (selection bias)	Unclear risk	No details given
Blinding of participants and personnel (performance bias) All outcomes	High risk	Not described but very unlikely to be blinded
Blinding of outcome assessment (detection bias) All outcomes	Unclear risk	Not described
Incomplete outcome data (attrition bias) All outcomes	Low risk	Results presented as text (no tables) but appears all data for all participants reported

Raeisi 2014 (*Continued*)

Selective reporting (reporting bias)	Low risk	All outcomes reported and published
Other bias	Low risk	No other obvious biases

Rossiter 1994

Methods	RCT, did not describe how randomisation was done
Participants	**Number of women randomised:** convenience sample of 194 pregnant women **Inclusion criteria** 1. Ethnic Vietnamese or other women who were born and reared in Vietnam. 2. Vietnamese speaking 3. At least 12 weeks pregnant 4. Gave consent to participate **Exclusion criteria** Unforeseen circumstances (miscarriage, stillbirth, change of address)
Interventions	Culture and language-specific educational programme **Experimental group** A 25-min videotape programme followed by a series of 3 x 2 h of small group discussion sessions conducted in Vietnamese **Control group** BF and childbirth pamphlets
Outcomes	1. Number of mothers BFat birth 2. Number of mothers BF at 4 weeks 3. Number of mothers BF at 6 months
Notes	Loss of participants to follow-up: < 10% Blinding: Participant: not feasible Clinician: unclear Outcome assessor: unclear Intention-to-treat analysis: unclear This study was conducted in Sydney, Australia.

Risk of bias

Bias	**Authors' judgement**	**Support for judgement**
Random sequence generation (selection bias)	Unclear risk	Not described
Allocation concealment (selection bias)	Unclear risk	Not described
Blinding of participants and personnel (performance bias) All outcomes	High risk	Not described but highly unlikely to be blinded

Rossiter 1994 (*Continued*)

Blinding of outcome assessment (detection bias) All outcomes	Unclear risk	Not described
Incomplete outcome data (attrition bias) All outcomes	Unclear risk	Loss to follow-up < 10% in both arms
Selective reporting (reporting bias)	Unclear risk	Information not available
Other bias	Low risk	No other obvious biases

Ryser 2004

Methods	RCT
Participants	**Total number of women randomised: 54** Pregnant women, at least 18 years old, English speaking, able to read and write, received prenatal care and could attend 4 visits before delivery, low income, having access to telephone, undecided about BF method during initial contact with researchers
Interventions	**Intervention group (26 women)** Educational program (Best Start) included: 1. counselling session 2. viewing video 3. written materials addressing common BF barriers perceived by low-income women **Control group (28 women)** No exposure to the programme
Outcomes	1. Attitude toward BF 2. Social and professional support 3. BF sense of control 4. Intention to BF 5. BF at 7 days delivery
Notes	This study was conducted in Houston, Texas, USA

Risk of bias

Bias	**Authors' judgement**	**Support for judgement**
Random sequence generation (selection bias)	Unclear risk	Not described
Allocation concealment (selection bias)	Unclear risk	Women selected a sealed envelope. No information about envelopes

Ryser 2004 (*Continued*)

Blinding of participants and personnel (performance bias) All outcomes	High risk	Not described, unlikely to be blinded
Blinding of outcome assessment (detection bias) All outcomes	Unclear risk	Not described
Incomplete outcome data (attrition bias) All outcomes	Low risk	No loss to follow-up
Selective reporting (reporting bias)	Unclear risk	No protocol was available
Other bias	Low risk	No other obvious biases

Schlickau 2005a

Methods	RCT. Method of randomisation was not described
Participants	**Number of women randomised: 30** **Inclusion criteria** Low-risk primigravida, Hispanic, in their third trimester, received care at Sedgwick, not planning to work outside the home for 6 months **Exclusion criteria** Not described
Interventions	Prenatal BF education **Experimental group** **Level 1:** the researcher approached the expectant mother. All participants confirmed that they planned to BF. Contents included benefits of BF. Charts and pictures were used to present supply-and-demand concept and prenatal breast preparation. Early and consistent BF practices were emphasised. A doll was used as a model for instruction about holding and positioning the baby and BF discreetly **Level 2:** completed first level. Participants were introduced the concept of "baby quarantine" (nothing enters the baby's mouth except the mother's breast for at least 40 days after birth. The benefits of avoiding bottles, pacifier and supplementation to promote establishment of milk for successful BF were reinforced. BF commitment was encouraged through the use of checklist **Control group** Standard care offered advice to BF and handouts were distributed during the initial prenatal visit
Outcomes	1. Number of mothers BF at 45 days 2. Duration of any BF
Notes	Loss of participants to follow-up: 17%. This study was conducted in Kansas, USA. Schlickau 2005b is a thesis which included three parts: **Part 1)** Qualitative study

	Part 2) Multiple arm study of 30 women with a control group, a BF workshop (level 1) , and a BF workshop with introduction to concept of 'baby quarantine' (level 2). Part 2 is reported in Schlickau 2005a **Part 3)** 86 women randomised to either control or BF education workshop Part 3 results are presented under Schlickau 2005b. Part 2 results are presented under Schlickau 2005a.

Risk of bias

Bias	**Authors' judgement**	**Support for judgement**
Random sequence generation (selection bias)	Unclear risk	Not described
Allocation concealment (selection bias)	Unclear risk	Not described
Blinding of participants and personnel (performance bias) All outcomes	High risk	Not described but unlikely to be blinded
Blinding of outcome assessment (detection bias) All outcomes	Unclear risk	Not described
Incomplete outcome data (attrition bias) All outcomes	Unclear risk	Loss of participants to follow-up: 17%
Selective reporting (reporting bias)	Unclear risk	No information available
Other bias	Unclear risk	Not enough information

Schlickau 2005b

Methods	RCT
Participants	**Number of women randomised**: 86 **Inclusion criteria** Primigravida, immigrant Hispanic women aged 15-45 , 32-36 weeks' gestation, stable family situation, had a work situation compatible with BF for 6 weeks, had normal nipple assessment **Exclusion criteria** Homeless, not in a temporary agencies or shelter, high-risk pregnancies, serious illness of the newborn or mother that precluded BF, stillbirth, unforeseen family situation
Interventions	Prenatal BF education **Experimental group (44)** BF education workshop **Control group (42)** Standard care

Schlickau 2005b (*Continued*)

Outcomes	1. Initiation of BF 2. Duration of any BF
Notes	This study was conducted in Kansas, USA. Schlickau 2005b is a thesis which included three parts: **Part 1)** Qualitative study **Part 2)** Multiple arm study of 30 women with a control group, a BF workshop (level 1) , and a BF workshop with introduction to concept of 'baby quarantine' (level 2). Part 2 is reported in Schlickau 2005a **Part 3)** 86 women randomised to either control or BF education workshop Part 3 results are presented under Schlickau 2005b. Part 2 results are presented under Schlickau 2005a.

Risk of bias

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	Not described
Allocation concealment (selection bias)	Low risk	Manila packet sealed envelopes
Blinding of participants and personnel (performance bias) All outcomes	High risk	Not described but unlikely to be blinded
Blinding of outcome assessment (detection bias) All outcomes	Unclear risk	Not described
Incomplete outcome data (attrition bias) All outcomes	Low risk	Loss to follow-up in intervention group (9.1%, 2/44), in control group (9.5 %, 4/42)
Selective reporting (reporting bias)	Unclear risk	Protocol not available
Other bias	Low risk	No other obvious biases

Serwint 1996

Methods	RCT. Random number table was used. Method of randomisation (allocation) was not described
Participants	**Number of women randomised**: 156 Nulliparous women, 18 years or older, with a foetus of gestational age of 28 weeks or less, who had not yet selected a paediatrician or wanted their infants to receive paediatric care at the hospital-based paediatric clinic
Interventions	LC plus standard BF education (81 women) versus standard BF education (75 women)

Serwint 1996 (*Continued*)

Outcomes	1. Number of mothers who initiated BF at birth 2. Number of mothers BF at 30 days 3. Number of mothers BF at 60 days
Notes	This study was conducted in Baltimore, USA

Risk of bias

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Random number table was used
Allocation concealment (selection bias)	Unclear risk	Not described
Blinding of participants and personnel (performance bias) All outcomes	High risk	Not described but unlikely to be blinded
Blinding of outcome assessment (detection bias) All outcomes	Unclear risk	Not described
Incomplete outcome data (attrition bias) All outcomes	Low risk	Loss to follow-up 7.7%
Selective reporting (reporting bias)	Unclear risk	No information available
Other bias	Low risk	No other obvious biases

Wolfberg 2004

Methods	RCT. Method of randomisation was not described
Participants	**Number randomised:** not clear (59 couples completed study) 567 expectant mothers were approached during 1^{st} and 2^{nd} trimester, refused to participate 24%; lost during prenatal period 36%; lack of involvement with father 8%; fathers refusal to participate 11%; fathers' failure after enrolling 9%, completed the study with 59 couples **Inclusion criteria** Women who sought prenatal care in the resident and faculty practices at Johns Hopkins Hospital **Exclusion criteria** Not described
Interventions	Classroom discussion on infant care and BF for expectant fathers **Experimental group (27 fathers)** Groups of 4-12 expectant fathers attending the classroom with open discussion about BF

	and support each other to be advocates for BF among fathers in the groups, facilitated by a man who was himself a father. 2-h classes used a variety of teaching media were held approximately every 2 weeks **Control group (32 fathers)** The class covered topics related to infant care and safety only using the same facilitator, and methods of interactive and informal education as of those the intervention group. These subjects did not receive the intervention class that contained the BF content
Outcomes	1. Number of mothers for initiated BF 2. Number of mothers BF at 4 weeks 3. Number of mothers BF at 6 weeks 4. Number of mothers BF at 8 weeks
Notes	Loss of participants to follow-up: 36% Blinding: Participant: not feasible Clinician: unclear Outcome assessor: unclear Intention-to-treat analysis: not used This study was conducted in Baltimore, USA

Risk of bias

Bias	**Authors' judgement**	**Support for judgement**
Random sequence generation (selection bias)	Unclear risk	Not described
Allocation concealment (selection bias)	Unclear risk	Not described
Blinding of participants and personnel (performance bias) All outcomes	High risk	Not described but unlikely to be blinded
Blinding of outcome assessment (detection bias) All outcomes	Unclear risk	Not described
Incomplete outcome data (attrition bias) All outcomes	High risk	Loss to follow-up 36%
Selective reporting (reporting bias)	Unclear risk	No information available
Other bias	Low risk	No other obvious biases

Wong 2014

Methods	RCT
Participants	**Setting:** 2 study hospitals based on the geographic representativeness and high volume of eligible mothers in Hong Kong **Inclusion criteria:** pregnant women with 1) 18 years of age or older; 2) Cantonese-speaking; 3) primiparous; 4) at least 35 weeks of gestation; 5) a singleton pregnancy; 6) no serious medical or obstetric complications; 7) intending to breastfeed; and 8) planning to stay in Hong Kong for at least 6 months after delivery **Exclusion criteria:** being not entitled to health benefits in Hong Kong, not a Hong Kong resident, or both **Recruitment period:** Jan-June 2013 **Follow-up completed:** Dec 2013 Total numbers of 469 eligible pregnant women were enrolled and randomised (233 to intervention and 236 to standard care)
Interventions	**Experimental group (233 women)** Standard care plus one-to-one (20-30 min) BF education and support session based on WHO guideline for baby-friendly hospitals and evidence-based maternity care. The intervention was given immediately after randomisation in a private room in the antenatal clinics to minimise contamination between the two treatment groups **Control group (236 women)** Standard antenatal care: standard maternal and foetal health checks by either clinic midwives or obstetricians along with health education to promote a healthy pregnancy
Outcomes	Exclusive BF at 6 weeks, 3 and 6 months postpartum. Overall duration of any and exclusive BF (age in weeks when the infant first ingested formula and ceased BF completely, respectively) across the first 6 months postpartum
Notes	This study was conducted in Hong Kong.

Risk of bias

Bias	**Authors' judgement**	**Support for judgement**
Random sequence generation (selection bias)	Low risk	An independent researcher who did not participate in participant recruitment or data collection generated the allocation sequence using the statistical software Stata13.1
Allocation concealment (selection bias)	Low risk	Allocation sequences were kept in sequentially numbered, opaque, sealed envelopes. The research nurse opened up the next envelope in the sequence to determine the assigned group after a pregnant woman had agreed to participate and had signed the written consent form
Blinding of participants and personnel (performance bias) All outcomes	High risk	Blinding of the research nurse or the participants was not possible given the nature of the intervention

Wong 2014 (*Continued*)

Blinding of outcome assessment (detection bias) All outcomes	Low risk	The BF follow-up data were collected by a research assistant who was blinded to the participants' group allocation
Incomplete outcome data (attrition bias) All outcomes	Low risk	443 (94.5% of 469), 222 (95.3% of 233) in intervention and 221 (93.6% of 236)in standard care, completed all follow-up to 6 months postpartum or until weaned
Selective reporting (reporting bias)	Low risk	Pre-specified outcomes were published and reported on.
Other bias	Low risk	Comparable baseline characteristics between intervention and standard care groups presented

BF: breastfeeding
LC: lactation consultation
NTI: nipple trauma index
RCT: randomised controlled trial
VAS: visual analogue scale

Characteristics of excluded studies *[ordered by study ID]*

Study	Reason for exclusion
Ahmad 2012	Not RCT
Aidam 2005	Not only antenatal BF education. 9 home visits were provided in the 6-month postpartum period
Anderson 2005	Not only antenatal BF education. Peer counsellors also gave postpartum visits
Barlow 2006	Not only antenatal BF education. Home visits extended to 6 months postpartum
Bonuck 2005	Not only antenatal BF education. Lactation consultants also made postpartum hospital or home visits
Bonuck 2013	Included both pre and postnatal interventions.
Brent 1995	Not only antenatal BF education. Lactation consultants provided support in the postpartum period and until infants up to 1 year of age
Caulfield 1998	Not only antenatal BF education. Peer counsellors followed up women in the postpartum period as long as they continued to breastfeed
Chapman 2004	Not only antenatal BF education. Peer counselling extended to postpartum period

(*Continued*)

Chapman 2013	Included both pre and postnatal interventions
Edwards 2013a	Not only antenatal BF education. Doula home visits extended to postpartum period
Edwards 2013b	Animated computer agent used prenatally during a third trimester office visit and perinatally at discharge from the hospital plus usual care. The perinatal dialogue, delivered in the hospital, focused on essential information that mothers need the most in their first 3 days of BF ("breastfeeding 101"). The perinatal dialogue also focused on addressing the most commonly asked questions by new BF mothers and motivating adherence to the CDC-recommended 6 months of exclusive BF goal
Ekstrom 2006	Not only antenatal BF education. Support was also provided at 3-day, 3-month and 9-month postpartum
Eneroth 2007	Not RCT, objective not relevant
Finch 2015	Not related to BF
Gijsbers 2006	Not only antenatal BF education; a home visit was also provided postnatally
Graffy 2004	Not only antenatal BF education. Lactation counsellors provided postnatal support by telephone or home visits
Grossman 1988	Not RCT (letter to editor commenting on non-RCT papers).
Hall 2007	Not RCT
Hanafi 2014	Not RCT
Howell 2014	Post-natal interventions
Isselmann 2006	Intervention was not antepartum BF education
Jahan 2013	Nutritional education not BF education
Jenner 1988	Not RCT
Johnston 2001	Not RCT
Kafatos 1991	Not only antenatal BF education. Home visits continued after delivery until the infant was 12 months
Kamau-Mbuthia 2013	Included pregnant and post-partum women and 3-month postpartum intervention
Kimani-Murage 2013	Not antenatal BF education (only protocol)
Kimani-Murage 2015	Included both pre and postnatal interventions (Only protocol)
Kupratakul 2010	Not only antenatal BF education. Document on BF was provided, that affects BF behaviour of postpartum mothers

(*Continued*)

Loh 1997	Not RCT
Mattar 2003	Not RCT (letter to editor with comments on non-RCT papers).
Memmott 2006	Not RCT
Moore 2007	Not RCT, did not evaluate antenatal BF education
Morrow 1999	Not only prenatal BF education intervention. Peer counsellors also visited mothers at 1st, 2nd, 4th and 8th week postpartum
Muirhead 2006	Not only prenatal BF education intervention. Peer supporters provided support up to 16 weeks postpartum
NCT01383070	Not only prenatal BF education intervention. Counseling during the antenatal period, at delivery and during the immunisation visits
Nekavand 2014	Postnatal education intervention
Ochola 2013a	Included postnatal intervention
Ochola 2013b	Not RCT
Otsuka 2014	Not RCT
Petrova 2009	Not only prenatal BF education intervention. Lactation consultant also provided support postnatally
Rea 1999	Participants were not pregnant women.
Redman 1995	Not only antenatal BF educational intervention. Lactation counsellors also visited women after delivery
Reeve 2004	Not RCT
Reifsnider 1997	Not RCT (systematic assignment)
Ross 1983	Not RCT
Sandy 2009	Not only antenatal BF education. Following the birth of a prenatally enrolled target child, the Family Support Workers (FSW) typically made a visit to the newborn's mother in the hospital. During this visit, the FSW assisted programme group mothers with any problems initiating BF. After hospital discharge, FSWs continued to offer programme group mothers information and support in the home on a weekly basis
Sciacca 1995	Not only antenatal BF education. BF incentives were given pre and postnatally
Spinelli 2013	Not RCT of antenatal BF education.
Srinivas 2015	Peer counsellor, the intervention was performed at pre and post delivery
Stockdale 2008	Included antenatal and postnatal interventions.

(*Continued*)

Stuebe 2016	Included antenatal and postnatal interventions.
Su 2007	Not only antenatal BF education. Lactation support was also provided in the postpartum period
Taddei 2000	Participants were not pregnant women. They were health professionals
Uauy 2013	Not yet recruited
Walkup 2009	Not only antenatal BF education. Paraprofessional delivered home visit education during the postpartum period
Waller 1946	Not RCT
Wambach 2009	Not only antenatal BF education. Lactation consultant and peer counselling extended through 4 weeks postpartum
Webb 2013	Included antenatal and postnatal interventions.
Wen 2011	Not antenatal BF education.
Westdahl 2008	Intervention was not antenatal BF education.
Westphal 1995	Participants were not pregnant women.
Wiles 1984	Not RCT
Wockel 2009	Participants were not pregnant women.

BF: breastfeeding
RCT: randomised controlled trial

Characteristics of studies awaiting assessment *[ordered by study ID]*

Bahri 2013

Methods	
Participants	
Interventions	
Outcomes	
Notes	Awaiting translation

Bastani 2009

Methods	
Participants	
Interventions	
Outcomes	
Notes	Awaiting translation

BF: breastfeeding

Characteristics of ongoing studies *[ordered by study ID]*

Maycock 2015

Trial name or title	A study to prolong BF duration: design and rationale of the Parent Infant Feeding Initiative (PIFI) randomised controlled trial
Methods	Four-arm, factorial randomised controlled trial of partners of pregnant women
Participants	Male partners of pregnant women
Interventions	Control group (CG) - usual care Medium intensity intervention 1 (MI1) - specialised antenatal classes for partners with supporting printed materials Medium intensity intervention 2 (MI2) - antenatal and postnatal social support delivered via smartphone application (exclude- involves postnatal intervention) High intensity intervention - specialised antenatal classes and antenatal and postnatal social support delivered via smartphone application (exclude- involves postnatal intervention)
Outcomes	**Primary outcomes** Duration of any BF Duration of exclusive BF **Secondary outcomes** Age of introduction of formula Age of introduction of complementary foods ('solids') Infant feeding attitudes of both partners. Maternal BF self-efficacy
Starting date	
Contact information	jane.scott@curtin.edu.au School of Public Health, Curtin University, GPO Box U1987, Perth 6845, Australia Collaboration for Evidence, Research and Impact in Public Health (CERIPH), Curtin University, Perth,

Maycock 2015 (*Continued*)

	Australia
Notes	

DATA AND ANALYSES

Comparison 1. One type of BF education versus standard/routine care

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
1 Duration of any breastfeeding	2		Mean Difference (IV, Fixed, 95% CI)	Subtotals only
1.1 BF education session versus standard care (weeks)	1	165	Mean Difference (IV, Fixed, 95% CI)	0.0 [-2.78, 2.78]
1.2 BF education session versus standard care (days)	1	16	Mean Difference (IV, Fixed, 95% CI)	6.20 [-10.84, 23.24]
2 Any breastfeeding at 3 months	2		Risk Ratio (M-H, Fixed, 95% CI)	Subtotals only
2.1 BF education workshop versus standard care	1	185	Risk Ratio (M-H, Fixed, 95% CI)	1.07 [0.92, 1.24]
2.2 BF education session versus standard care	1	469	Risk Ratio (M-H, Fixed, 95% CI)	0.90 [0.75, 1.07]
3 Any breastfeeding at 6 months	4		Risk Ratio (M-H, Fixed, 95% CI)	Subtotals only
3.1 BF education workshop versus standard care	1	178	Risk Ratio (M-H, Fixed, 95% CI)	1.15 [0.87, 1.51]
3.2 BF practical skills versus standard care	1	596	Risk Ratio (M-H, Fixed, 95% CI)	1.01 [0.87, 1.17]
3.3 BF attitude education versus standard care	1	592	Risk Ratio (M-H, Fixed, 95% CI)	0.92 [0.79, 1.07]
3.4 BF education session versus standard care	2	569	Risk Ratio (M-H, Fixed, 95% CI)	1.01 [0.86, 1.19]
4 Exclusive breastfeeding at 3 months	3		Risk Ratio (M-H, Fixed, 95% CI)	Subtotals only
4.1 BF education workshop versus standard care	1	185	Risk Ratio (M-H, Fixed, 95% CI)	1.08 [0.84, 1.38]
4.2 BF education session versus standard care	2	637	Risk Ratio (M-H, Fixed, 95% CI)	1.05 [0.85, 1.30]
5 Exclusive breastfeeding at 6 months	4		Risk Ratio (M-H, Fixed, 95% CI)	Subtotals only
5.1 BF education workshop versus standard care	1	178	Risk Ratio (M-H, Fixed, 95% CI)	1.13 [0.70, 1.80]
5.2 BF practical skills versus standard care	1	596	Risk Ratio (M-H, Fixed, 95% CI)	1.19 [0.69, 2.05]
5.3 Formal BF attitude versus standard care	1	592	Risk Ratio (M-H, Fixed, 95% CI)	1.16 [0.67, 2.01]
5.4 BF education session versus standard care	2	1094	Risk Ratio (M-H, Fixed, 95% CI)	1.02 [0.80, 1.31]
6 Initiation of breastfeeding	7		Risk Ratio (M-H, Fixed, 95% CI)	Subtotals only
6.1 BF education workshop versus standard care	1	80	Risk Ratio (M-H, Fixed, 95% CI)	1.19 [0.97, 1.45]
6.2 Peer counselling versus standard care	1	59	Risk Ratio (M-H, Fixed, 95% CI)	1.82 [1.13, 2.93]
6.3 BF practical skills versus standard care	1	616	Risk Ratio (M-H, Fixed, 95% CI)	1.01 [0.98, 1.04]

6.4 BF attitude education versus standard care	1	618	Risk Ratio (M-H, Fixed, 95% CI)	0.99 [0.95, 1.02]
6.5 BF education session versus standard care	2	1327	Risk Ratio (M-H, Fixed, 95% CI)	1.03 [0.98, 1.09]
6.6 BF education video versus standard care	1	346	Risk Ratio (M-H, Fixed, 95% CI)	0.99 [0.80, 1.23]
6.7 LC versus standard care	1	144	Risk Ratio (M-H, Fixed, 95% CI)	1.33 [0.86, 2.07]
7 Initiation of BF (cluster-randomised trial)	2		Odds Ratio (Fixed, 95% CI)	Subtotals only
7.1 Peer counselling versus standard care	1	2398	Odds Ratio (Fixed, 95% CI)	1.11 [0.86, 1.43]
7.2 Group LC session versus standard care	1	1249	Odds Ratio (Fixed, 95% CI)	1.20 [0.80, 1.80]
8 Mastitis	1		Risk Ratio (M-H, Fixed, 95% CI)	Subtotals only
8.1 LC versus standard care	1	70	Risk Ratio (M-H, Fixed, 95% CI)	0.2 [0.01, 4.02]
9 Breastfeeding complication (nipple pain)	1		Mean Difference (IV, Fixed, 95% CI)	Subtotals only
9.1 LC versus standard care	1	70	Mean Difference (IV, Fixed, 95% CI)	-19.8 [-23.23, -16.37]
10 Breastfeeding complication (nipple trauma)	1		Mean Difference (IV, Fixed, 95% CI)	Subtotals only
10.1 LC versus standard care	1	70	Mean Difference (IV, Fixed, 95% CI)	38.65 [32.95, 44.35]
11 Breastfeeding problems	1	1162	Risk Ratio (M-H, Random, 95% CI)	1.00 [0.70, 1.43]
11.1 BF education session versus standard care	1	1162	Risk Ratio (M-H, Random, 95% CI)	1.00 [0.70, 1.43]

Comparison 2. One type of BF education versus a different type of BF education

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
1 Any breastfeeding at 3 months	1		Risk Ratio (M-H, Fixed, 95% CI)	Subtotals only
1.1 Group education versus individual education	1	74	Risk Ratio (M-H, Fixed, 95% CI)	2.84 [0.61, 13.18]
2 Any breastfeeding at 6 months	1		Risk Ratio (M-H, Fixed, 95% CI)	Subtotals only
2.1 BF practical skills versus BF attitude education	1	590	Risk Ratio (M-H, Fixed, 95% CI)	1.09 [0.94, 1.28]
3 Exclusive breastfeeding at 6 months	1		Risk Ratio (M-H, Fixed, 95% CI)	Subtotals only
3.1 BF practical skills versus BF attitude education	1	590	Risk Ratio (M-H, Fixed, 95% CI)	1.03 [0.61, 1.73]
4 Initiation of BF	1		Risk Ratio (M-H, Fixed, 95% CI)	Subtotals only
4.1 BF practical skills versus BF attitude education	1	614	Risk Ratio (M-H, Fixed, 95% CI)	1.02 [0.99, 1.06]

Comparison 3. Multiple methods of BF education versus a single method of BF education

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
1 Duration of any breastfeeding (days)	1		Mean Difference (IV, Fixed, 95% CI)	Subtotals only
1.1 BF education session plus commitment to exclusive BF versus BF education session	1	18	Mean Difference (IV, Fixed, 95% CI)	8.0 [-6.84, 22.84]
2 Any breastfeeding at 6 months	1		Risk Ratio (M-H, Fixed, 95% CI)	Subtotals only
2.1 Video + education session versus pamphlets	1	175	Risk Ratio (M-H, Fixed, 95% CI)	1.59 [0.86, 2.94]

Comparison 4. Different combinations of multiple methods of providing BF education

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
1 Any breastfeeding at 4 months (cluster-randomised trial)	1		Odds Ratio (Fixed, 95% CI)	Subtotals only
1.1 LC + BF booklet + 24 h free LC versus BF booklet + phone number for BF questions and problems	1	698	Odds Ratio (Fixed, 95% CI)	0.82 [0.58, 1.16]
2 Exclusive breastfeeding at 3 months	2		Odds Ratio (Fixed, 95% CI)	Subtotals only
2.1 LC + BF booklet + 24 hrs free LC versus BF booklet + phone number for BF questions and problems	1	698	Odds Ratio (Fixed, 95% CI)	0.79 [0.57, 1.09]
2.2 BF booklet + video + LC versus BF booklet + video	1	150	Odds Ratio (Fixed, 95% CI)	1.40 [0.70, 2.80]
3 Exclusive breastfeeding at 6 months	1		Odds Ratio (Fixed, 95% CI)	Subtotals only
3.1 BF booklet + video + LC versus BF booklet + video	1	169	Odds Ratio (Fixed, 95% CI)	2.50 [1.00, 6.25]

Comparison 5. Multiple methods of BF education versus standard/routine care

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
1 Duration of any breastfeeding (days)	1		Mean Difference (IV, Fixed, 95% CI)	Subtotals only
1.1 BF education session plus commitment to exclusive BF versus standard care	1	16	Mean Difference (IV, Fixed, 95% CI)	14.20 [-2.97, 31.37]
2 Exclusive breastfeeding at 3 months	2		Odds Ratio (Fixed, 95% CI)	Subtotals only
2.1 BF booklet + video + LC versus standard care	1	159	Odds Ratio (Fixed, 95% CI)	2.60 [1.25, 5.40]
2.2 BF booklet + video versus standard care	1	159	Odds Ratio (Fixed, 95% CI)	1.80 [0.80, 4.05]
2.3 Monthly BF session + weekly cell phone message versus standard care	1	390	Odds Ratio (Fixed, 95% CI)	1.80 [1.10, 2.95]
3 Exclusive breastfeeding at six months	2		Odds Ratio (Fixed, 95% CI)	Subtotals only
3.1 BF booklet + video + LC versus standard care	1	175	Odds Ratio (Fixed, 95% CI)	2.40 [1.00, 5.76]
3.2 BF booklet + video versus standard care	1	184	Odds Ratio (Fixed, 95% CI)	0.90 [0.30, 2.70]
3.3 Monthly BF session + weekly cell phone message versus standard care	1	390	Odds Ratio (Fixed, 95% CI)	2.40 [1.40, 4.11]
4 Initiation of breastfeeding	1		Odds Ratio (Fixed, 95% CI)	Subtotals only
4.1 Monthly BF session + weekly cell phone message versus standard care	1	380	Odds Ratio (Fixed, 95% CI)	2.61 [1.61, 4.24]

Comparison 6. Summary of findings: one type of BF education versus standard/routine care

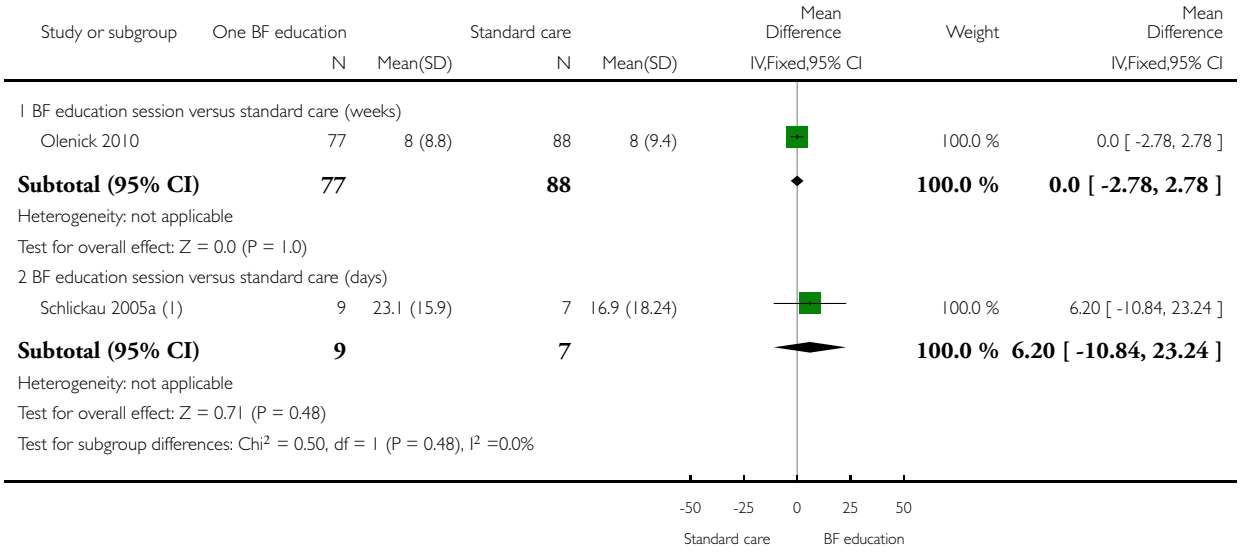
Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
1 Initiation of breastfeeding	8	3505	Risk Ratio (M-H, Random, 95% CI)	1.01 [0.94, 1.09]
2 Exclusive breastfeeding at 3 months	3	822	Risk Ratio (M-H, Fixed, 95% CI)	1.06 [0.90, 1.25]
3 Exclusive breastfeeding at 6 months	4	2161	Risk Ratio (M-H, Fixed, 95% CI)	1.07 [0.87, 1.30]
4 Any breastfeeding at 3 months	2	654	Risk Ratio (M-H, Random, 95% CI)	0.98 [0.82, 1.18]
5 Any breastfeeding at 6 months	4	1636	Risk Ratio (M-H, Random, 95% CI)	1.05 [0.90, 1.23]

Analysis 1.1. Comparison 1 One type of BF education versus standard/routine care, Outcome 1 Duration of any breastfeeding.

Review: Antenatal breastfeeding education for increasing breastfeeding duration

Comparison: 1 One type of BF education versus standard/routine care

Outcome: 1 Duration of any breastfeeding



(1) First level PBE versus control

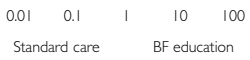
Analysis 1.2. Comparison 1 One type of BF education versus standard/routine care, Outcome 2 Any breastfeeding at 3 months.

Review: Antenatal breastfeeding education for increasing breastfeeding duration

Comparison: 1 One type of BF education versus standard/routine care

Outcome: 2 Any breastfeeding at 3 months

Study or subgroup	One BF education n/N	Standard care n/N	Risk Ratio M-H,Fixed,95% CI	Weight	Risk Ratio M-H,Fixed,95% CI
1 BF education workshop versus standard care					
Kluka 2004	82/101	64/84		100.0 %	1.07 [0.92, 1.24]
Subtotal (95% CI)	**101**	**84**		**100.0 %**	**1.07 [0.92, 1.24]**
Total events: 82 (One BF education), 64 (Standard care)					
Heterogeneity: not applicable					
Test for overall effect: Z = 0.82 (P = 0.41)					
2 BF education session versus standard care					
Wong 2014	116/233	131/236		100.0 %	0.90 [0.75, 1.07]
Subtotal (95% CI)	**233**	**236**		**100.0 %**	**0.90 [0.75, 1.07]**
Total events: 116 (One BF education), 131 (Standard care)					
Heterogeneity: not applicable					
Test for overall effect: Z = 1.24 (P = 0.22)					

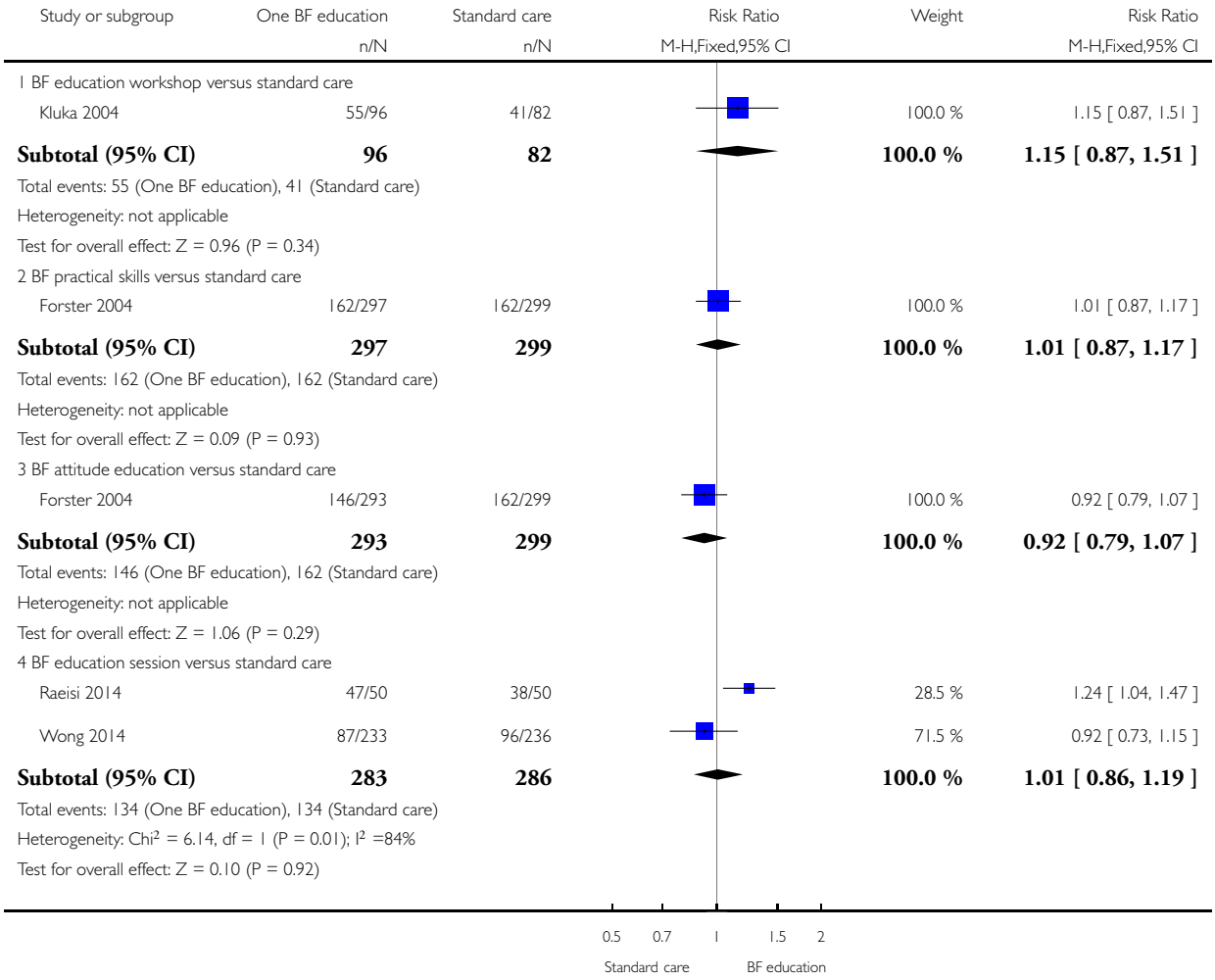


Analysis 1.3. Comparison 1 One type of BF education versus standard/routine care, Outcome 3 Any breastfeeding at 6 months.

Review: Antenatal breastfeeding education for increasing breastfeeding duration

Comparison: 1 One type of BF education versus standard/routine care

Outcome: 3 Any breastfeeding at 6 months

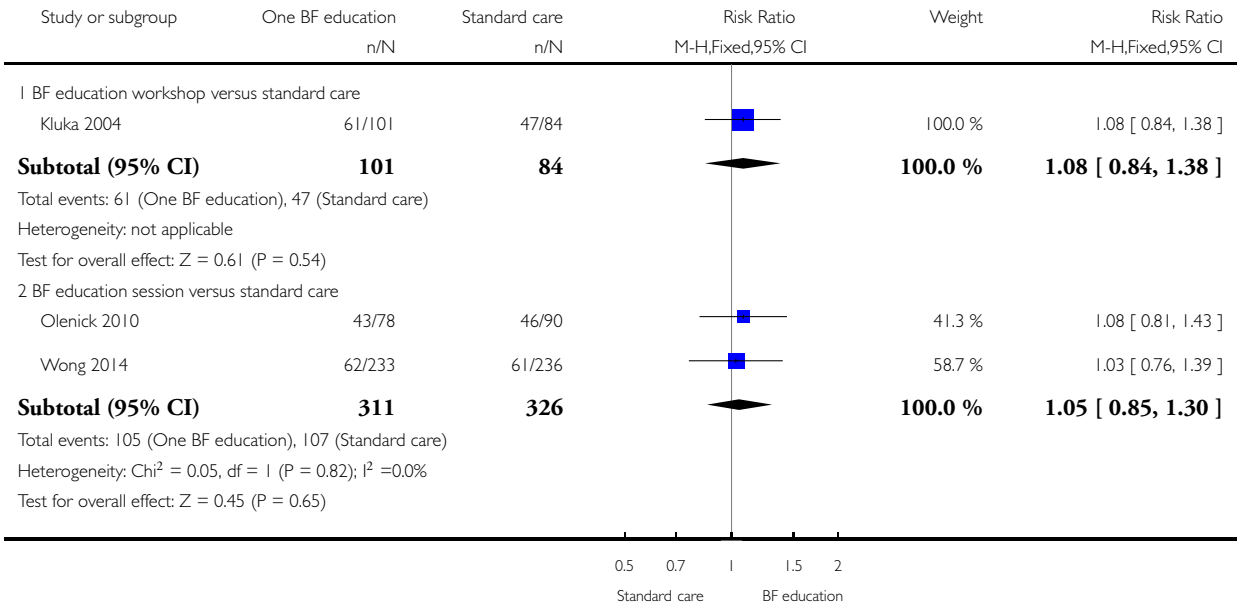


Analysis 1.4. Comparison 1 One type of BF education versus standard/routine care, Outcome 4 Exclusive breastfeeding at 3 months.

Review: Antenatal breastfeeding education for increasing breastfeeding duration

Comparison: 1 One type of BF education versus standard/routine care

Outcome: 4 Exclusive breastfeeding at 3 months

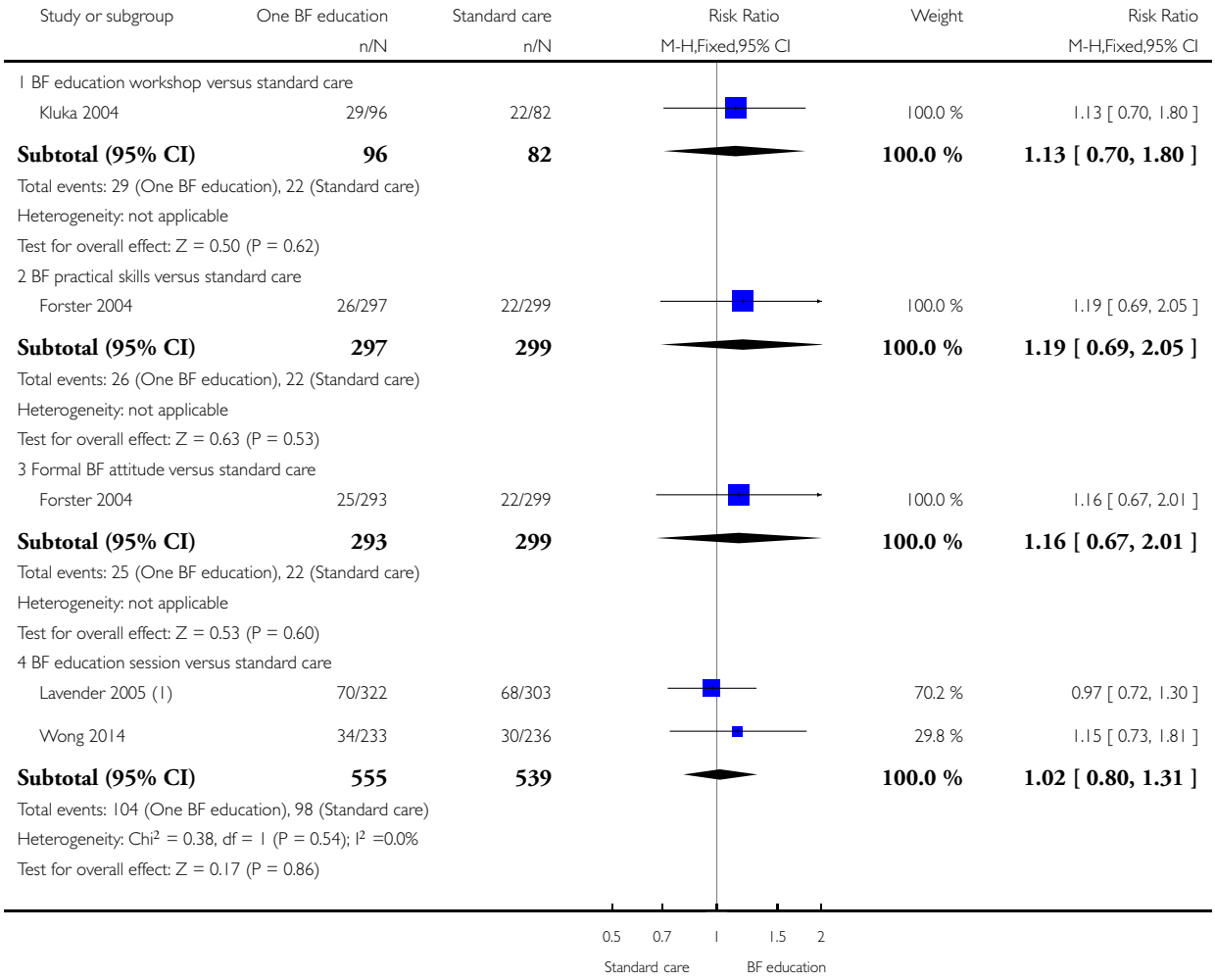


Analysis 1.5. Comparison 1 One type of BF education versus standard/routine care, Outcome 5 Exclusive breastfeeding at 6 months.

Review: Antenatal breastfeeding education for increasing breastfeeding duration

Comparison: 1 One type of BF education versus standard/routine care

Outcome: 5 Exclusive breastfeeding at 6 months



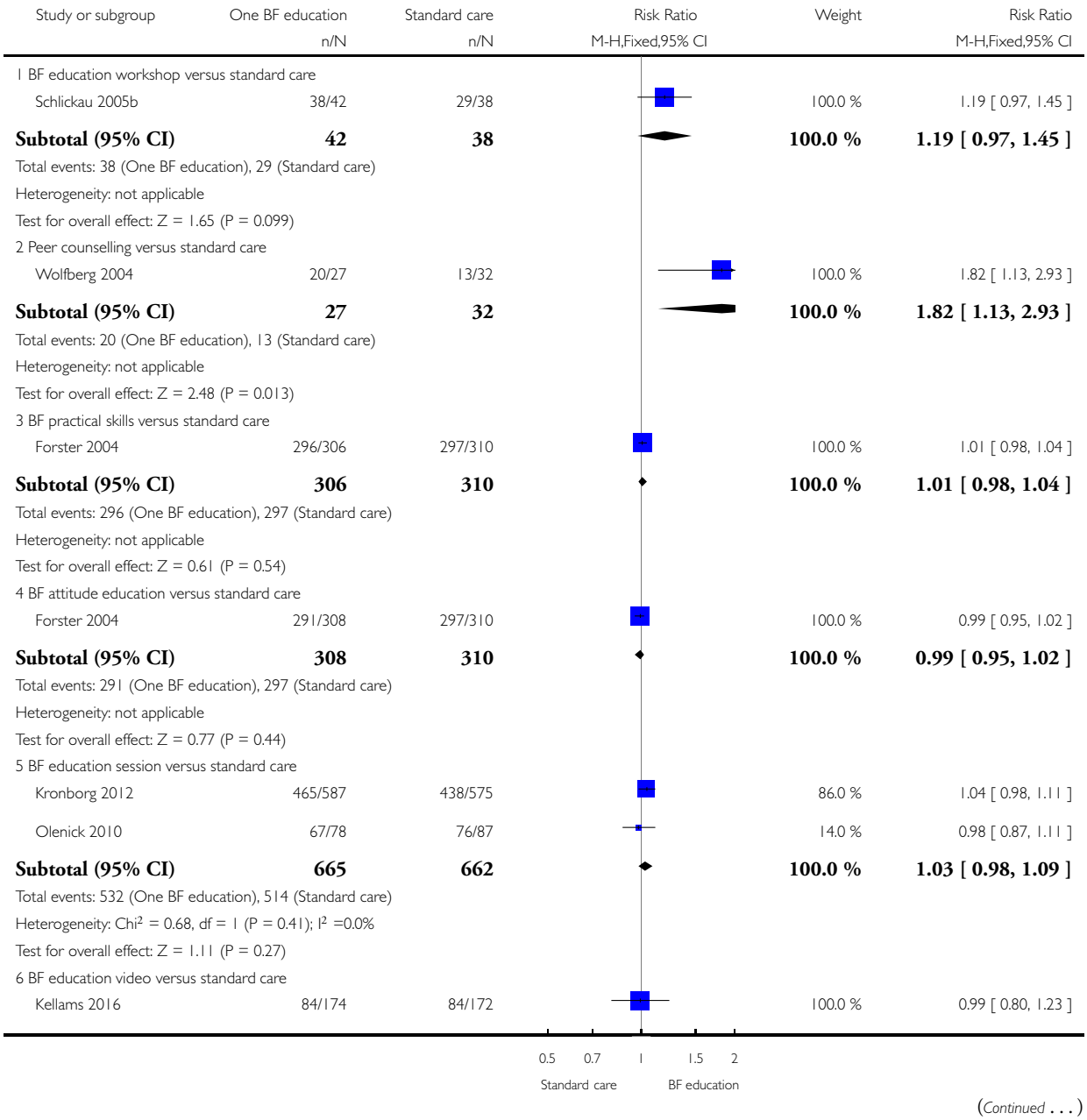
(1) Cluster-adjusted using a design effect of 2. Raw data 140/644 education and 138/605 standard care.

Analysis 1.6. Comparison 1 One type of BF education versus standard/routine care, Outcome 6 Initiation of breastfeeding.

Review: Antenatal breastfeeding education for increasing breastfeeding duration

Comparison: 1 One type of BF education versus standard/routine care

Outcome: 6 Initiation of breastfeeding



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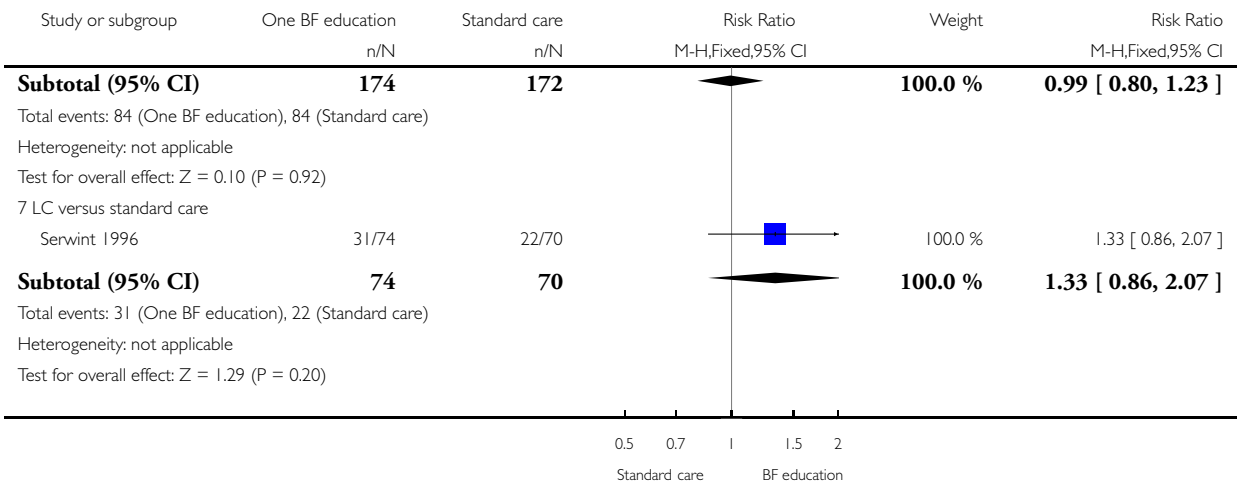
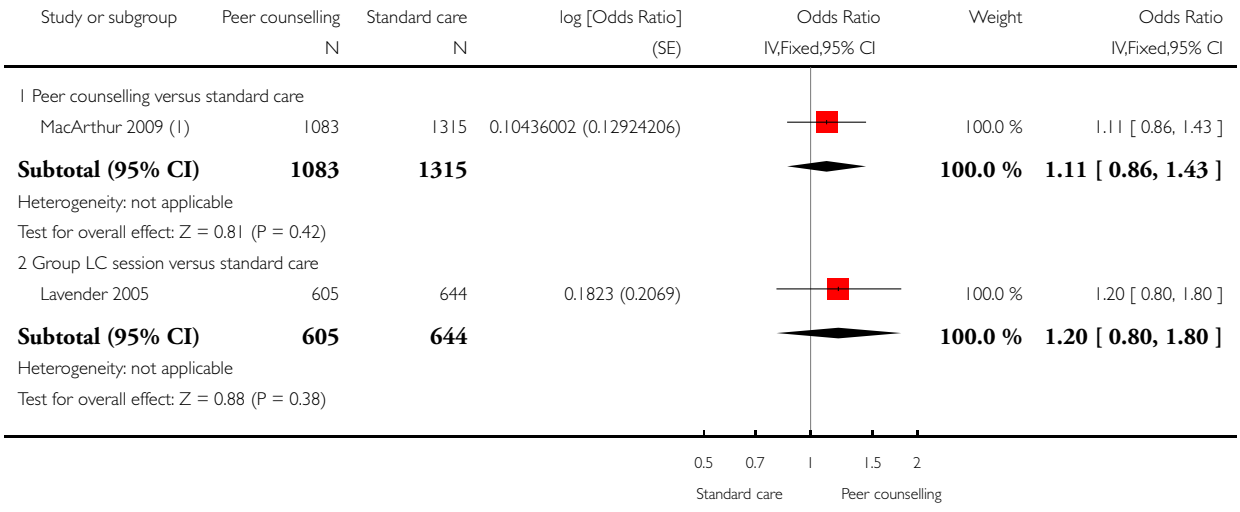


Analysis 1.7. Comparison 1 One type of BF education versus standard/routine care, Outcome 7 Initiation of BF (cluster-randomised trial).

Review: Antenatal breastfeeding education for increasing breastfeeding duration

Comparison: 1 One type of BF education versus standard/routine care

Outcome: 7 Initiation of BF (cluster-randomised trial)



(1) Adjusted for clustering.

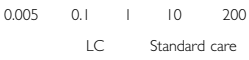
Analysis 1.8. Comparison 1 One type of BF education versus standard/routine care, Outcome 8 Mastitis.

Review: Antenatal breastfeeding education for increasing breastfeeding duration

Comparison: 1 One type of BF education versus standard/routine care

Outcome: 8 Mastitis

Study or subgroup	LC n/N	Standard care n/N	Risk Ratio M-H,Fixed,95% CI	Weight	Risk Ratio M-H,Fixed,95% CI
1 LC versus standard care					
Duffy 1997	0/35	2/35		100.0 %	0.20 [0.01, 4.02]
Subtotal (95% CI)	**35**	**35**		**100.0 %**	**0.20 [0.01, 4.02]**
Total events: 0 (LC), 2 (Standard care)					
Heterogeneity: not applicable					
Test for overall effect: Z = 1.05 (P = 0.29)					

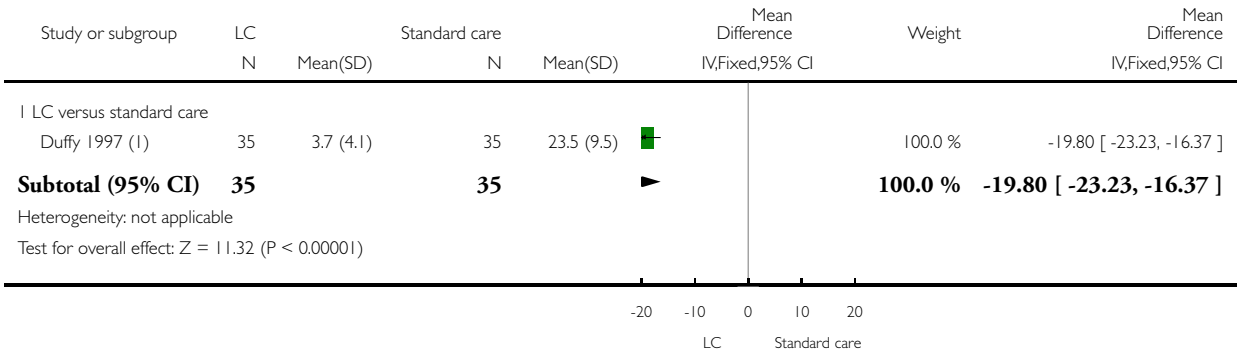


Analysis 1.9. Comparison 1 One type of BF education versus standard/routine care, Outcome 9 Breastfeeding complication (nipple pain).

Review: Antenatal breastfeeding education for increasing breastfeeding duration

Comparison: 1 One type of BF education versus standard/routine care

Outcome: 9 Breastfeeding complication (nipple pain)



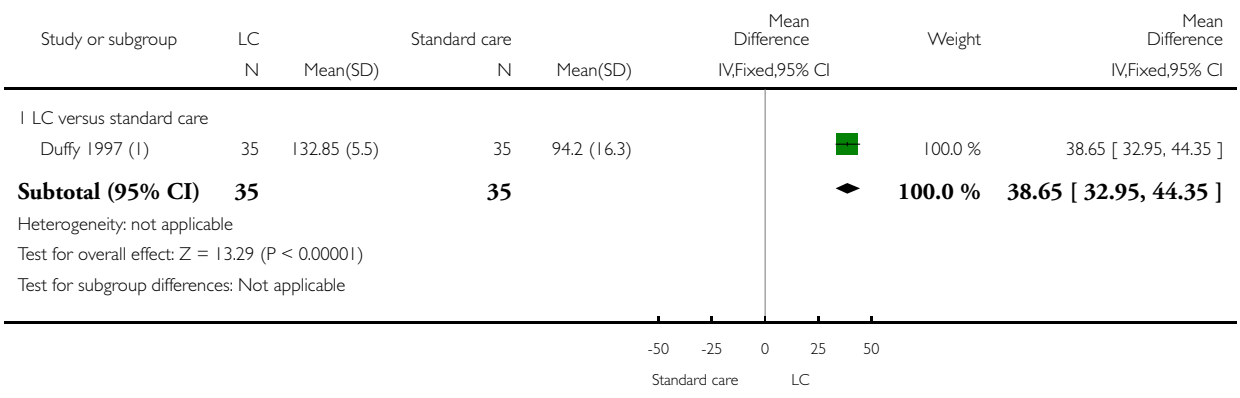
(1) VAS score 0-10 with 10 greatest pain possible, scored daily for four days and added together (possible 0-40).

Analysis 1.10. Comparison 1 One type of BF education versus standard/routine care, Outcome 10 Breastfeeding complication (nipple trauma).

Review: Antenatal breastfeeding education for increasing breastfeeding duration

Comparison: 1 One type of BF education versus standard/routine care

Outcome: 10 Breastfeeding complication (nipple trauma)



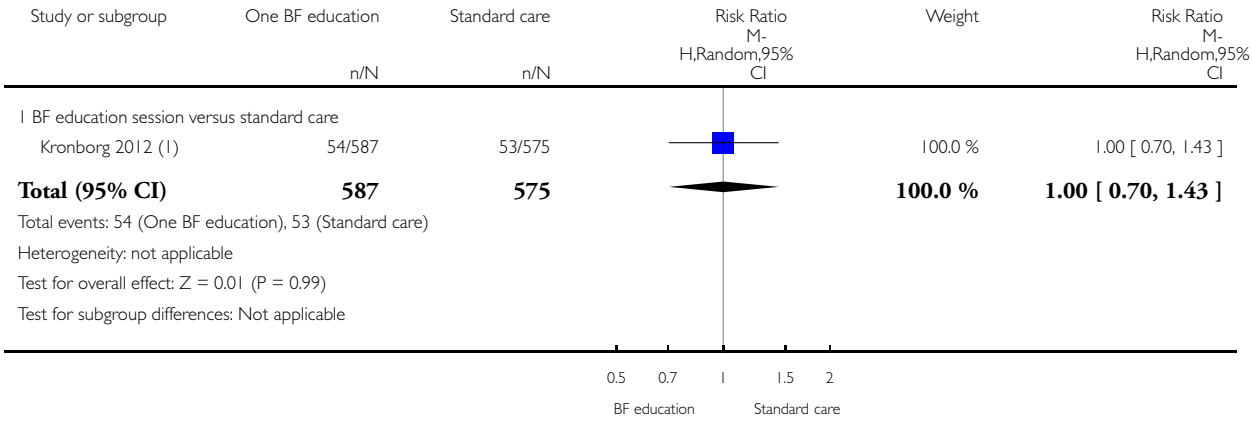
(1) A higher score indicates less nipple trauma. Possible daily range 0-36. The score is a composite of the first 4 days post birth.

Analysis 1.11. Comparison 1 One type of BF education versus standard/routine care, Outcome 11 Breastfeeding problems.

Review: Antenatal breastfeeding education for increasing breastfeeding duration

Comparison: 1 One type of BF education versus standard/routine care

Outcome: 11 Breastfeeding problems



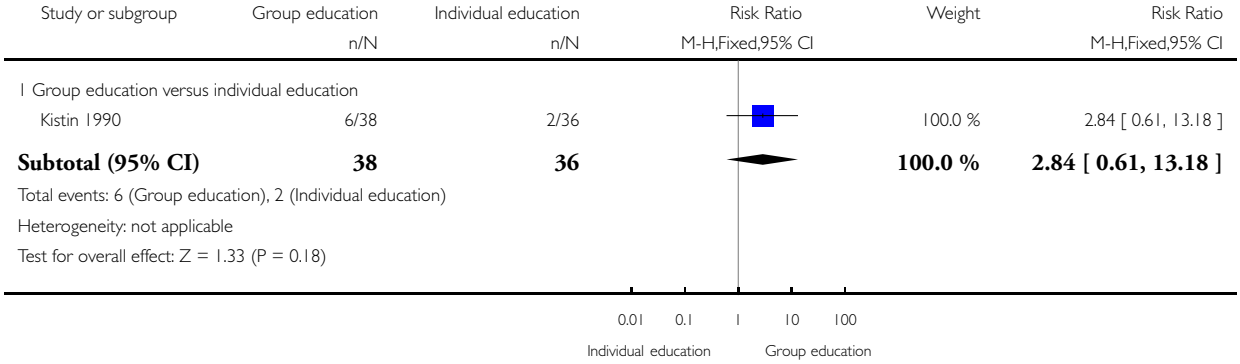
(1) BF problems as measured with the following yes no question: If it has been difficult or very difficult what was the reason. Has it been breastfeeding problems?

Analysis 2.1. Comparison 2 One type of BF education versus a different type of BF education, Outcome 1 Any breastfeeding at 3 months.

Review: Antenatal breastfeeding education for increasing breastfeeding duration

Comparison: 2 One type of BF education versus a different type of BF education

Outcome: 1 Any breastfeeding at 3 months

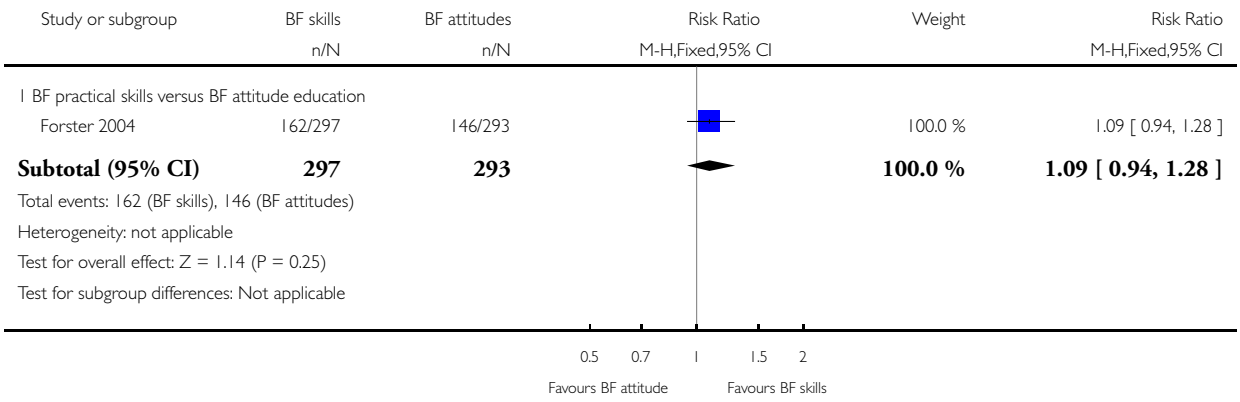


Analysis 2.2. Comparison 2 One type of BF education versus a different type of BF education, Outcome 2 Any breastfeeding at 6 months.

Review: Antenatal breastfeeding education for increasing breastfeeding duration

Comparison: 2 One type of BF education versus a different type of BF education

Outcome: 2 Any breastfeeding at 6 months

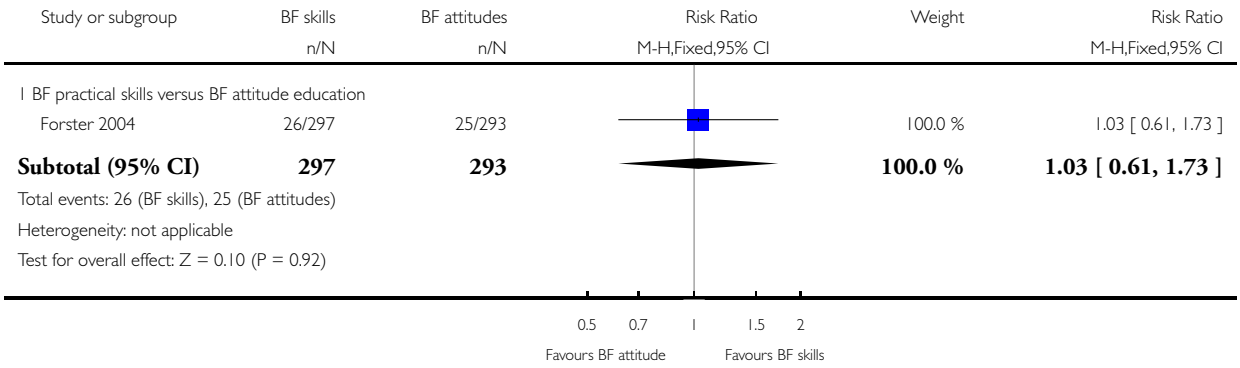


Analysis 2.3. Comparison 2 One type of BF education versus a different type of BF education, Outcome 3 Exclusive breastfeeding at 6 months.

Review: Antenatal breastfeeding education for increasing breastfeeding duration

Comparison: 2 One type of BF education versus a different type of BF education

Outcome: 3 Exclusive breastfeeding at 6 months

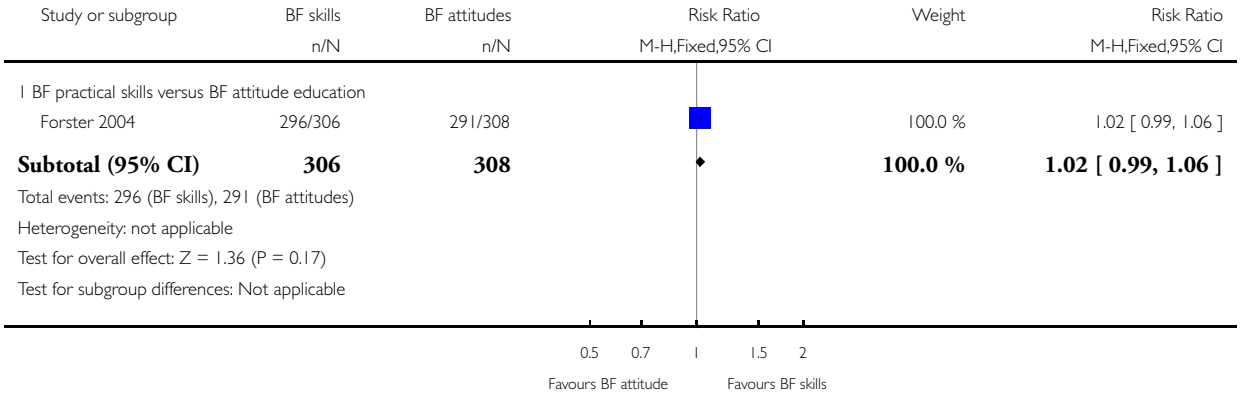


Analysis 2.4. Comparison 2 One type of BF education versus a different type of BF education, Outcome 4 Initiation of BF.

Review: Antenatal breastfeeding education for increasing breastfeeding duration

Comparison: 2 One type of BF education versus a different type of BF education

Outcome: 4 Initiation of BF

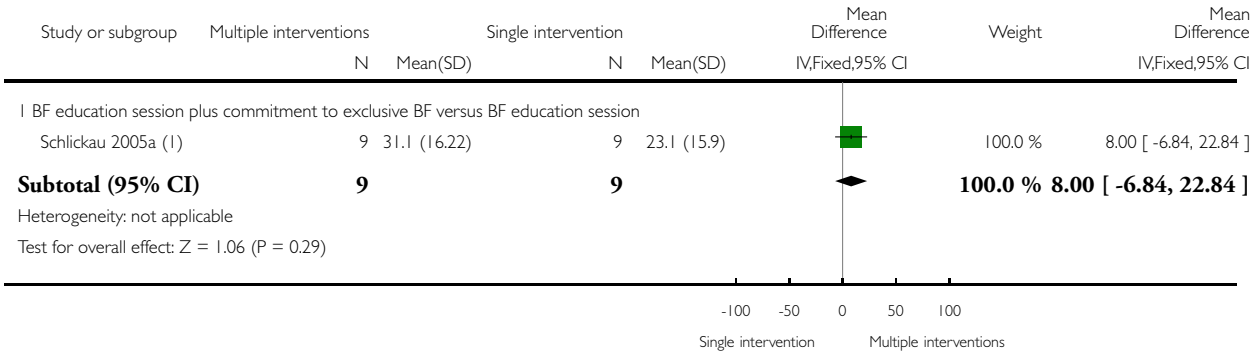


Analysis 3.1. Comparison 3 Multiple methods of BF education versus a single method of BF education, Outcome 1 Duration of any breastfeeding (days).

Review: Antenatal breastfeeding education for increasing breastfeeding duration

Comparison: 3 Multiple methods of BF education versus a single method of BF education

Outcome: 1 Duration of any breastfeeding (days)



(1) Two level intervention versus control

Analysis 3.2. Comparison 3 Multiple methods of BF education versus a single method of BF education, Outcome 2 Any breastfeeding at 6 months.

Review: Antenatal breastfeeding education for increasing breastfeeding duration

Comparison: 3 Multiple methods of BF education versus a single method of BF education

Outcome: 2 Any breastfeeding at 6 months

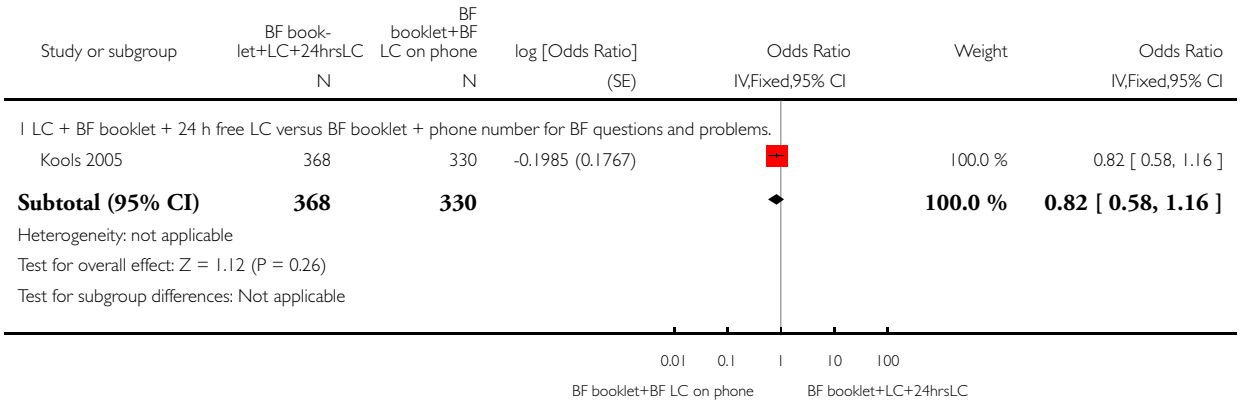
Study or subgroup	Multiple interventions n/N	Single intervention n/N	Risk Ratio M-H,Fixed,95% CI	Weight	Risk Ratio M-H,Fixed,95% CI
1 Video + education session versus pamphlets					
Rossiter 1994	26/101	12/74		100.0 %	1.59 [0.86, 2.94]
Subtotal (95% CI)	**101**	**74**		**100.0 %**	**1.59 [0.86, 2.94]**
Total events: 26 (Multiple interventions), 12 (Single intervention)					
Heterogeneity: not applicable					
Test for overall effect: Z = 1.47 (P = 0.14)					

Analysis 4.1. Comparison 4 Different combinations of multiple methods of providing BF education, Outcome 1 Any breastfeeding at 4 months (cluster-randomised trial).

Review: Antenatal breastfeeding education for increasing breastfeeding duration

Comparison: 4 Different combinations of multiple methods of providing BF education

Outcome: 1 Any breastfeeding at 4 months (cluster-randomised trial)

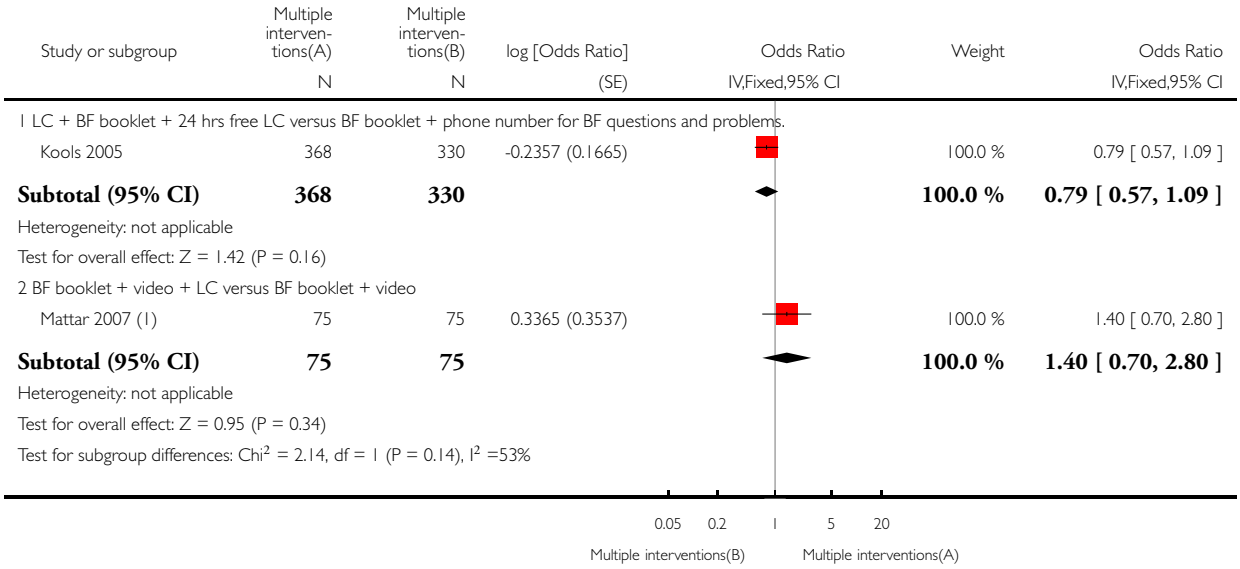


Analysis 4.2. Comparison 4 Different combinations of multiple methods of providing BF education, Outcome 2 Exclusive breastfeeding at 3 months.

Review: Antenatal breastfeeding education for increasing breastfeeding duration

Comparison: 4 Different combinations of multiple methods of providing BF education

Outcome: 2 Exclusive breastfeeding at 3 months



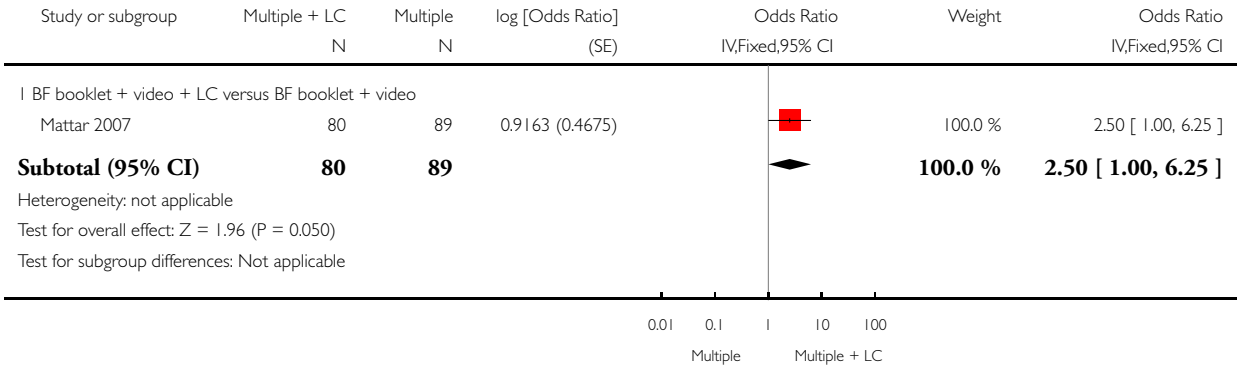
(1) Compares intervention arms A and B.

Analysis 4.3. Comparison 4 Different combinations of multiple methods of providing BF education, Outcome 3 Exclusive breastfeeding at 6 months.

Review: Antenatal breastfeeding education for increasing breastfeeding duration

Comparison: 4 Different combinations of multiple methods of providing BF education

Outcome: 3 Exclusive breastfeeding at 6 months

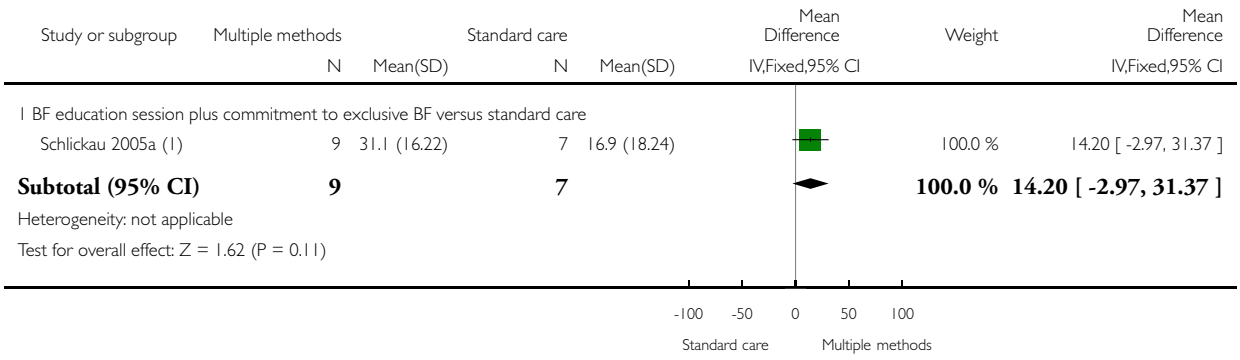


Analysis 5.1. Comparison 5 Multiple methods of BF education versus standard/routine care, Outcome 1 Duration of any breastfeeding (days).

Review: Antenatal breastfeeding education for increasing breastfeeding duration

Comparison: 5 Multiple methods of BF education versus standard/routine care

Outcome: 1 Duration of any breastfeeding (days)



(1) Two level intervention versus control

Analysis 5.2. Comparison 5 Multiple methods of BF education versus standard/routine care, Outcome 2 Exclusive breastfeeding at 3 months.

Review: Antenatal breastfeeding education for increasing breastfeeding duration

Comparison: 5 Multiple methods of BF education versus standard/routine care

Outcome: 2 Exclusive breastfeeding at 3 months

Study or subgroup	Multiple methods N	Standard care N	log [Odds Ratio] (SE)	Odds Ratio IV,Fixed,95% CI	Weight	Odds Ratio IV,Fixed,95% CI
1 BF booklet + video + LC versus standard care						
Mattar 2007 (1)	75	84	0.9555 (0.3729)		100.0 %	2.60 [1.25, 5.40]
Subtotal (95% CI)	**75**	**84**			**100.0 %**	**2.60 [1.25, 5.40]**
Heterogeneity: not applicable						
Test for overall effect: Z = 2.56 (P = 0.010)						
2 BF booklet + video versus standard care						
Mattar 2007 (2)	75	84	0.5878 (0.4137)		100.0 %	1.80 [0.80, 4.05]
Subtotal (95% CI)	**75**	**84**			**100.0 %**	**1.80 [0.80, 4.05]**
Heterogeneity: not applicable						
Test for overall effect: Z = 1.42 (P = 0.16)						
3 Monthly BF session + weekly cell phone message versus standard care						
Flax 2014	196	194	0.5878 (0.2513)		100.0 %	1.80 [1.10, 2.95]
Subtotal (95% CI)	**196**	**194**			**100.0 %**	**1.80 [1.10, 2.95]**
Heterogeneity: not applicable						
Test for overall effect: Z = 2.34 (P = 0.019)						
Test for subgroup differences: Chi^2 = 0.73, df = 2 (P = 0.69), I^2 =0.0%						

(1) Compares arms A and C

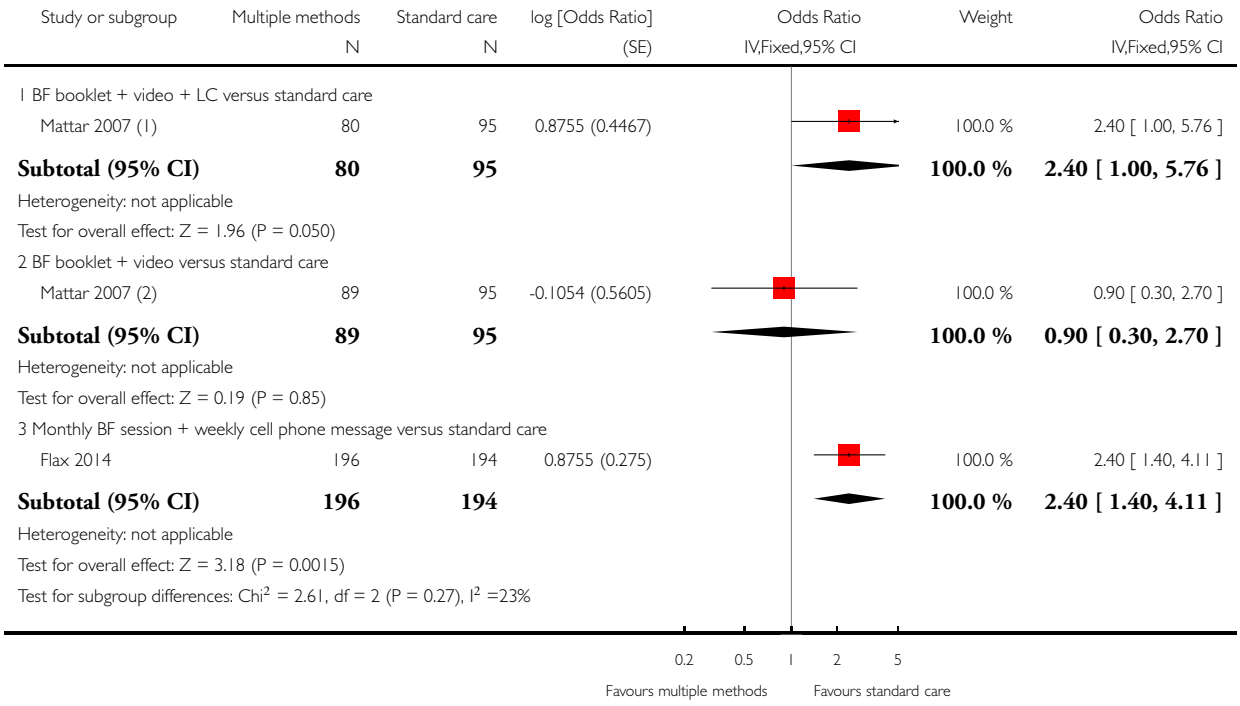
(2) Compares arms B and C

Analysis 5.3. Comparison 5 Multiple methods of BF education versus standard/routine care, Outcome 3 Exclusive breastfeeding at six months.

Review: Antenatal breastfeeding education for increasing breastfeeding duration

Comparison: 5 Multiple methods of BF education versus standard/routine care

Outcome: 3 Exclusive breastfeeding at six months



(1) Compares arms A and C

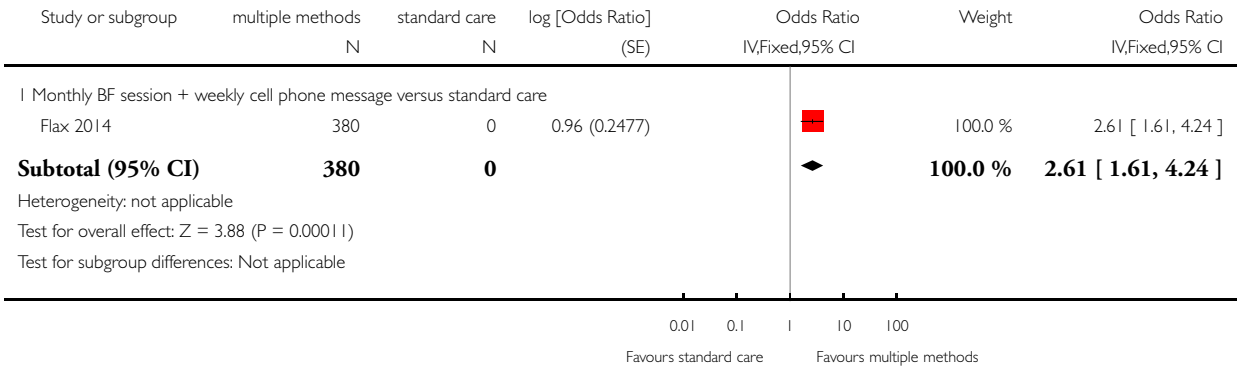
(2) Compares arms B and C

Analysis 5.4. Comparison 5 Multiple methods of BF education versus standard/routine care, Outcome 4 Initiation of breastfeeding.

Review: Antenatal breastfeeding education for increasing breastfeeding duration

Comparison: 5 Multiple methods of BF education versus standard/routine care

Outcome: 4 Initiation of breastfeeding



Analysis 6.1. Comparison 6 Summary of findings: one type of BF education versus standard/routine care, Outcome 1 Initiation of breastfeeding.

Review: Antenatal breastfeeding education for increasing breastfeeding duration

Comparison: 6 Summary of findings: one type of BF education versus standard/routine care

Outcome: 1 Initiation of breastfeeding

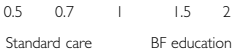
Study or subgroup	One BF education n/N	Standard care n/N	Risk Ratio M-H,Random,95% CI	Weight	Risk Ratio M-H,Random,95% CI
Forster 2004 (1)	587/614	297/310		24.9 %	1.00 [0.97, 1.03]
Kellams 2016	84/174	84/172		7.8 %	0.99 [0.80, 1.23]
Kronborg 2012	465/587	438/575		21.8 %	1.04 [0.98, 1.11]
Lavender 2005 (2)	208/322	232/303		17.1 %	0.84 [0.76, 0.93]
Olenick 2010	67/78	76/87		15.1 %	0.98 [0.87, 1.11]
Schlickau 2005b	38/42	29/38		8.6 %	1.19 [0.97, 1.45]
Serwint 1996	31/74	22/70		2.5 %	1.33 [0.86, 2.07]
Wolfberg 2004	20/27	13/32		2.1 %	1.82 [1.13, 2.93]
Total (95% CI)	**1918**	**1587**		**100.0 %**	**1.01 [0.94, 1.09]**

Total events: 1500 (One BF education), 1191 (Standard care)

Heterogeneity: $Tau^2 = 0.01$; $Chi^2 = 22.84$, df = 7 (P = 0.002); $I^2 = 69\%$

Test for overall effect: Z = 0.27 (P = 0.79)

Test for subgroup differences: Not applicable



(1) Groups with practical skills + group with attitude versus standard care

(2) Breastfeeding at discharge: adjusted with design effect of 2. Original data 463/605 standard care and 517/644 education.

Analysis 6.2. Comparison 6 Summary of findings: one type of BF education versus standard/routine care, Outcome 2 Exclusive breastfeeding at 3 months.

Review: Antenatal breastfeeding education for increasing breastfeeding duration

Comparison: 6 Summary of findings: one type of BF education versus standard/routine care

Outcome: 2 Exclusive breastfeeding at 3 months

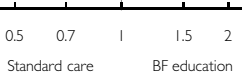
Study or subgroup	One BF education n/N	Standard care n/N	Risk Ratio M-H,Fixed,95% CI	Weight	Risk Ratio M-H,Fixed,95% CI
Kluka 2004	61/101	47/84		33.2 %	1.08 [0.84, 1.38]
Olenick 2010	43/78	46/90		27.6 %	1.08 [0.81, 1.43]
Wong 2014	62/233	61/236		39.2 %	1.03 [0.76, 1.39]
Total (95% CI)	**412**	**410**		**100.0 %**	**1.06 [0.90, 1.25]**

Total events: 166 (One BF education), 154 (Standard care)

Heterogeneity: $Chi^2 = 0.07$, df = 2 (P = 0.96); $I^2 = 0.0\%$

Test for overall effect: Z = 0.69 (P = 0.49)

Test for subgroup differences: Not applicable

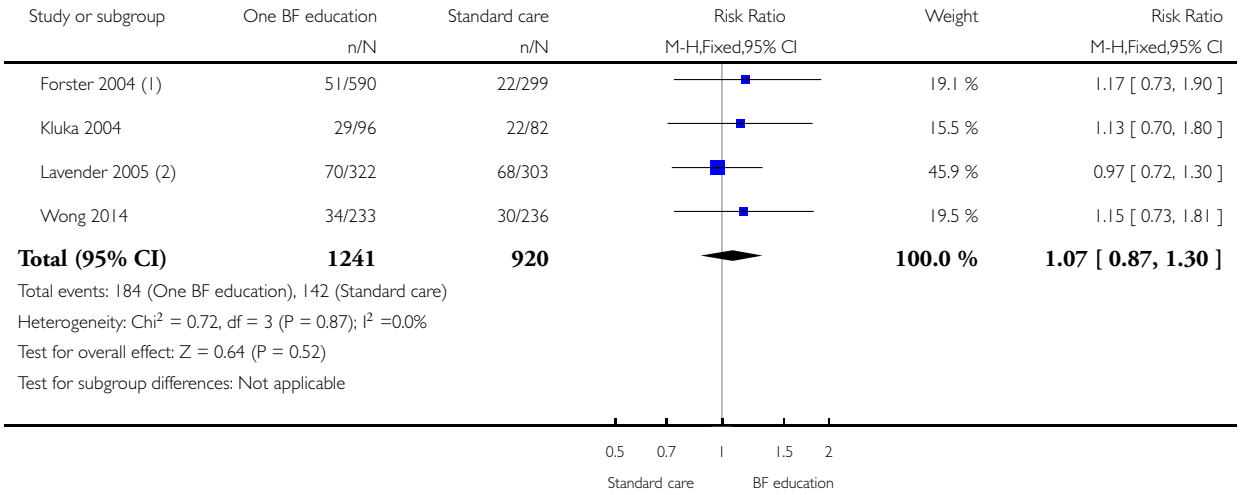


Analysis 6.3. Comparison 6 Summary of findings: one type of BF education versus standard/routine care, Outcome 3 Exclusive breastfeeding at 6 months.

Review: Antenatal breastfeeding education for increasing breastfeeding duration

Comparison: 6 Summary of findings: one type of BF education versus standard/routine care

Outcome: 3 Exclusive breastfeeding at 6 months



(1) Skills + Attitudes arms versus standard care

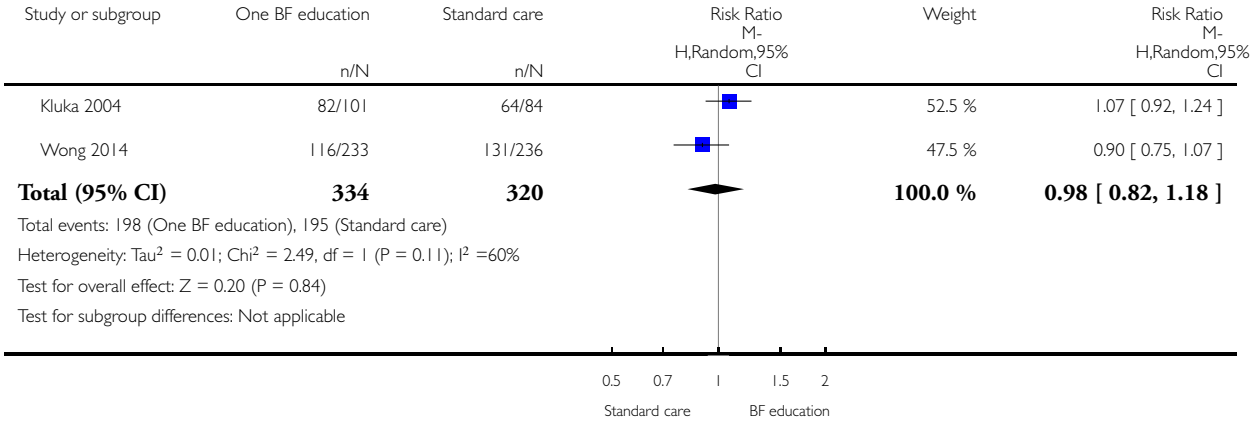
(2) Cluster-adjusted using a design effect of 2. Raw data 140/644 education and 138/605 standard care.

Analysis 6.4. Comparison 6 Summary of findings: one type of BF education versus standard/routine care, Outcome 4 Any breastfeeding at 3 months.

Review: Antenatal breastfeeding education for increasing breastfeeding duration

Comparison: 6 Summary of findings: one type of BF education versus standard/routine care

Outcome: 4 Any breastfeeding at 3 months

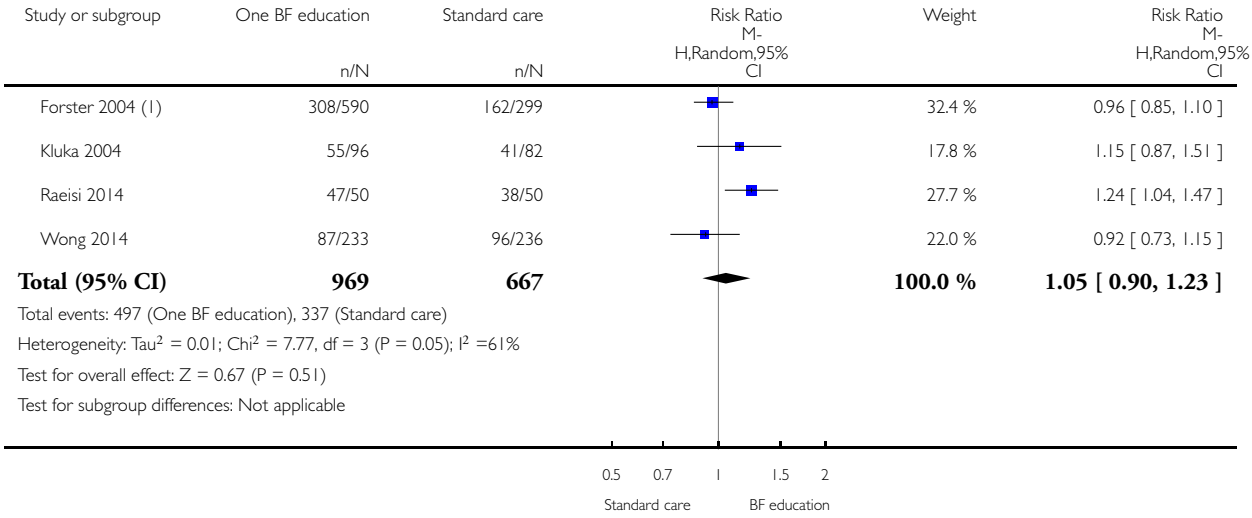


Analysis 6.5. Comparison 6 Summary of findings: one type of BF education versus standard/routine care, Outcome 5 Any breastfeeding at 6 months.

Review: Antenatal breastfeeding education for increasing breastfeeding duration

Comparison: 6 Summary of findings: one type of BF education versus standard/routine care

Outcome: 5 Any breastfeeding at 6 months



(1) Skills + Attitudes arms versus standard care.

APPENDICES

Appendix 1. Search strategies

Authors wrote and ran these searches.

CENTRAL (*The Cochrane Library 2016, Issue 3)*

#1 antenatal (MeSH)
#2 prenatal (MeSH)
#3 education*
#4 BF
#5 (breast next feeding)
#6 breastfeeding
#7 lactation*
#8 nursing
#9 (#1 or #2)
#10 (#4 or #5 or #6 or #7 or #8)
#11 (#9 and #3 and #10)

MEDLINE (January 1966 to 1 March 2016) and SCOPUS (January 1985 to 1 March 2016)

#1 antenatal[tiab]

#2 prenatal care[mh]
#3 (#1 or #2)
#4 breastfeeding
#5 breast feeding
#6 lactation
#7 nursing
#8(#4 or #5 or #6 or #7)
#9 randomised controlled trial[pt]
#10 controlled clinical trial[pt]
#11 randomised[tiab]
#12 placebo[tiab]
#13 groups[tiab]
#14 cluster[tiab]
#15(#9 or #10 or #11 or #12 or #13 or #14)
#16 education
#17 (#3 and #8 and #15 and #16)

WHAT'S NEW

Last assessed as up-to-date: 1 March 2016.

Date	Event	Description
1 March 2016	New citation required but conclusions have not changed	Five new trials incorporated, 'Summary of findings' table added, analyses re-structured to provide meaningful data for 'Summary of findings' table
1 March 2016	New search has been performed	Search updated and five new trials added (Flax 2014; Kellams 2016; Pate 2009; Raeisi 2014; Wong 2014).

HISTORY

Protocol first published: Issue 2, 2007

Review first published: Issue 11, 2011

Date	Event	Description
2 June 2012	New citation required but conclusions have not changed	Review updated.
2 June 2012	New search has been performed	Search updated in November 2011. Two new studies included (Kronborg 2011; Olenick 2010) and three excluded (Kupratakul 2010; NCT01383070; Wockel 2009).
7 October 2011	Amended	Sources of support edited.

(*Continued*)

17 April 2008	Amended	Converted to new review format.

CONTRIBUTIONS OF AUTHORS

P Lumbiganon (PL) and M Laopaiboon (ML) screened Titles and Abstracts to select potential studies. Ruth Martis (RM), Jacqueline Ho (JH) Mario Festin (MF), ML and PL selected potential studies to include or exclude. ML and PL revised data analysis, drafted the update review. All review authors approved the final version of the review.

DECLARATIONS OF INTEREST

Pisake Lumbiganon: none known

Ruth Martis: A bursary from the Cochrane Health Promotion and Public Health Field was provided to support Ruth Martis to travel to a review authors meeting in Australia. The bursary was administrated by the SEA-ORCHID project.

Malinee Laopaiboon: none known

Mario R Festin: I was employed as Medical officer and as fixed term staff from 2007 to early 2008 at the WHO and as professional staff (Lead Specialist) at the WHO HQ in Geneva from early 2009 to present. I received payment from United Laboratories Philippines from 2006 to 2007 on use of antibiotics in gynecologic surgery.

Jacqueline J Ho: none known

Mohammad Hakimi: none known

SOURCES OF SUPPORT

Internal sources

- Khon Kaen University, Thailand.
- The University of Adelaide, Australia.
- University of Philippines, Philippines.
- Gadjah Mada University, Indonesia.
- Royal College of Medicine Perak, Malaysia.
- Penang Medical College, Malaysia.

External sources

- Thailand Research Fund (Outstanding Professor Award), Thailand.
- Wellcome Trust, UK.
- Cochrane Health Promotion and Public Health (HPPH) Field, Australia.
- Evidence and Programme Guidance Unit, Department of Nutrition for Health and Development, World Health Organization, Switzerland.

DIFFERENCES BETWEEN PROTOCOL AND REVIEW

We added one more comparison of 'programmes involving multiple methods of providing education versus no formal education' to our subgroup analysis. We searched SCOPUS instead of Embase because our university subscribed to SCOPUS but not Embase.

Non-prespecified outcomes

Two studies reported BF practices at time points not pre-specified for this review. One study (Noel-Weiss 2006) reported any BF at eight weeks and exclusive BF at eight weeks. Another study reported BF outcomes at seven days (Ryser 2004).
A 'Summary of findings' table has been incorporated in this update (2016).

INDEX TERMS

Medical Subject Headings (MeSH)

*Breast Feeding [statistics & numerical data]; Counseling [methods]; Mothers [*education]; Peer Group; Prenatal Care [*methods]; Randomized Controlled Trials as Topic; Time Factors

MeSH check words

Female; Humans; Pregnancy