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Interventions in the workplace to support breastfeeding for women in employment (Review)

Abdulwadud OA, Snow ME

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[Intervention Review]

Interventions in the workplace to support breastfeeding for women in employment

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ABSTRACT

Background

In recent years there has been a rise in the participation rate of women in employment. Some may become pregnant while in employment and subsequently deliver their babies. Most may decide to return early to work after giving birth for various reasons. Unless these mothers get support from their employers and fellow employees, they might give up breastfeeding when they return to work. As a result, the duration and exclusivity of breastfeeding to the recommended age of the babies would be affected.

Workplace environment can play a positive role to promote breastfeeding. For women going back to work, various types of workplace support interventions are available and this should not be ignored by employers. Notably, promoting breastfeeding in a workplace may have benefits for the women, the baby and also the employer.

Objectives

To assess the effectiveness of workplace interventions to support and promote breastfeeding among women returning to paid work after the birth of their children, and its impact on process outcomes pertinent to employees and employers.

Search methods

We searched the Cochrane Pregnancy and Childbirth Group's Trials Register (2 August 2012).

Selection criteria

Two authors independently assessed all identified studies for randomised controlled trials and quasi-randomised controlled trials that compared workplace interventions with no intervention or two or more workplace interventions against each other.

Data collection and analysis

Two authors planned to evaluate the methodological quality of the eligible trials and extract data.

Main results

There were no randomised controlled trials or quasi-randomised controlled trials identified.

Authors' conclusions

No trials have evaluated the effectiveness of workplace interventions in promoting breastfeeding among women returning to paid work after the birth of their child. The impact of such intervention on process outcomes is also unknown. Randomised controlled trials are

required to establish the benefits of various types of workplace interventions to support, encourage and promote breastfeeding among working mothers.

PLAIN LANGUAGE SUMMARY

Interventions in the workplace to support breastfeeding for women in employment

No trials to say if specific programs in the workplace help to increase the duration of breastfeeding.

Breastfeeding is beneficial for mothers and their infants. However, working mothers may return to work early after giving birth for various reasons. If not supported by their employers, they can be separated from their babies, have difficulty expressing and storing milk and thus not be able to maintain breastfeeding. Workplace programs could help women to continue to breastfeed, and some programs may help women to initiate breastfeeding. By promoting and supporting the programs, employers may be able to influence the duration of breastfeeding (including exclusive breastfeeding) and so improve the health of mother and baby, but also benefit from less work absenteeism, high productivity and increased employee morale and retention. This review aimed to assess workplace programs to promote breastfeeding among employed women returning to work after the birth of their child. There were no randomised controlled trials identified that evaluated this important public health intervention in a workplace. Trials are needed to establish the impact of workplace interventions (including creches and nurseries) to support or facilitate continuation, duration and exclusiveness of breastfeeding for employed women returning to work after giving birth.

BACKGROUND

Women of childbearing age constitute a high proportion of the workforce and make significant contributions to national economies. In industrialised countries where the collection of organised statistics allows the easy estimation of their numbers, women of childbearing age represent anywhere from 45% to 60% of the total labour force (ABS 2003; Statcan 2001; UK Office 2002; US Census 2002).

Women of childbearing age may become pregnant during employment and many of them may decide to return to work after the birth of their babies. Unless supported by their employers, this return to employment can be a barrier to breastfeeding because they can be separated from their babies and it may impact on the duration and exclusivity of breastfeeding (Osis 2004; Visness 1997). If they are not supported, women may decide to entirely wean their children when returning to work (Arthur 2003). It is encouraging to know that most women report the desire to continue breastfeeding after returning to work if they have access to facilities, work flexible hours and take rest breaks during working hours (Kosmala-Anderson2006). In addition, a large number of working mothers can continue breastfeeding for six months (Cohen 1994; Ortiz 2004) if the workplace is ideal and supportive.

Workplace intervention may also have a positive impact on breastfeeding initiation. A study from the US showed that among working mothers enrolled in an employer-sponsored lactation program, breastfeeding was initiated by 97.5% of the women (Ortiz 2004). Hence, workplace interventions could have a positive impact on both initiation and duration of breastfeeding.

The range of health benefits of breastfeeding for infants and mothers are well documented. The benefits of breastfeeding also extend to employers, as it reduces work absenteeism and increases employee morale and retention (Cohen 1994; Cohen 1995). Similarly, if employers support breastfeeding in the workplace, women who continue to breastfeed after returning to work miss less time from work because of baby-related illnesses, and have shorter absenteeism when they do miss work (Cohen 1995). The public health benefits of continued breastfeeding are improved maternal (CGHFBC 2002; Labbok 2001) and infant health (Bick 1999; Dewey 1995; Gillman 2001; Kramer 2001; Kramer 2002; Mortensen 2002; Wilson 1998).

Exclusive breastfeeding for at least the first six months of life is recommended by the World Health Organization (WHO) (WHO 2002). This recommendation is evidence-based and adherence to it improves infants' outcomes (Kramer 2001), such as decreased risk of gastrointestinal tract infections and atopic eczema in the first year of life (Kramer 2001). Unfortunately, a minority of the world's infants (35%) are exclusively breastfed beyond the first three to four months of age (WHO 2003), and even this is short of the duration recommended by the WHO. Information about breastfeeding by employed versus unemployed women is not available. However, the prevalence of exclusive breastfeeding rates for all women varies worldwide. In industrialised countries like Australia and the US, 54% and 41.1% of women exclusively breastfeed for three months, and 32% and 14.2% for six months, respectively (ABS 2004; CDC 2004). In developing countries such as Kenya, Bangladesh, Vietnam and Turkey, the exclusive breastfeeding rate for three months by working mothers ranges from 13% to 59% (Dearden 2002; Haider 1995; Lakati 2002; Yilmaz 2002). Overall, these rates are low.

To reach the WHO's recommendation of six months of exclusive breastfeeding, women need a supportive environment (at home and work) that protects and promotes breastfeeding. For women in the workforce, merging breastfeeding and paid work is difficult. Undoubtedly, workplaces are excellent settings for interventions to encourage and assist the initiation and continuation of exclusive breastfeeding (Cohen 1994; NSW 2004; Ortiz 2004). However, women face various barriers in the workplace, and the type of support and information needed to encourage them to continue breastfeeding (Zinn 2000) has yet to be fully identified and addressed by all parties. In this regard, policies at the level of both the government and employers may be warranted.

Various types of workplace strategies are available to support the promotion of breastfeeding. They include maternity leave provisions; flexible employment practices; lactation breaks; and physical facilities such as private rooms and access to refrigeration (NSW 2004; Rea 2004). To date, few workplace interventions have been implemented and their findings reported in the literature. In one study conducted at two separate sites, 75% of participants in a program which involved access to a worksite breast pump room, along with counselling from a lactation professional, continued to breastfeed their children to six months of age (Cohen 1994). Another study demonstrated that 58% of women provided with access to a worksite breast pump room, services of a certified lactation consultant and a class on the benefits of breastfeeding continued to breastfeed their children to six months of age (Ortiz 2004). In addition, a description of a breastfeeding promotion program targeted at fathers has been described in the literature (Cohen 2002). None of these studies, however, were experimental, as they did not compare the interventions to control groups. In general, to achieve high rates of both breastfeeding and women's employment, socio-cultural support and labour market, health and early childhood policies are vital (Galtry 2003).

The WHO and UNICEF have initiated the Global Strategy for Infant and Young Child Feeding. The strategy highlights the priority actions, duties and responsibilities of various organisations and calls for governments to pass imaginative legislation to protect the rights of working women to breastfeed, and to establish the means to enforce these policies, which are consistent with international labour standards (WHO/UNICEF 2003).

To date, various systematic reviews addressing issues associated with breastfeeding have been conducted and reported in the Cochrane Database of Systematic Reviews, including 'Early skin-to-skin contact for mothers and their healthy newborn infants' (Anderson 2003), 'Interventions for promoting the initiation of breastfeeding' (Dyson 2005), 'Optimal duration of exclusive breastfeeding' (Kramer 2002), and 'Breastfeeding or breast milk for procedural pain in neonates' (Shah 2006). In addition, one other review, on 'Breast feeding and development of childhood wheeze', is currently underway (Ram 2002). However, none of these reviews are explicit to mechanisms for facilitating breastfeeding among women in employment. This review assessed the interventions in the workplace to support, encourage and promote breastfeeding among working mothers.

OBJECTIVES

1. To assess the effectiveness of workplace interventions in assisting with the initiation, continuation, duration and exclusiveness of breastfeeding.

2. To evaluate the impact of workplace interventions on process outcomes pertinent to employees and employers.

METHODS

Criteria for considering studies for this review

Types of studies

Randomised controlled trials (including those using cluster randomisation) and quasi-randomised controlled trials comparing workplace interventions with no intervention or two or more workplace interventions against each other.

Types of participants

Women in full-time or part-time employment in both private and public sectors returning to paid work after giving birth.

Types of interventions

Any type of workplace strategy (including lactation breaks, physical facilities, creches and nurseries) to encourage, assist and support breastfeeding (nursing or expressing) for women returning to work after giving birth. We planned to include studies if the intervention occurred on-site or outside the workplace, as long as it was delivered in the context of employment. We excluded interventions implemented during pregnancy.

Types of outcome measures

Primary outcomes

The rate, duration and prevalence of exclusive breastfeeding (breastfeeding defined as feeding a baby exclusively on breast milk, including expressed milk).

Secondary outcomes

- Employer-related (return rates after maternity leave, turnover following childbirth, retention following childbirth, work absenteeism associated with infant illness, productivity).
- Mother-related (health, emotional and physical well-being, job satisfaction, morale, sick leave, resignation from work).
- Infant-level outcomes (for example, health, emotional well-being, etc).

Search methods for identification of studies

Electronic searches

We searched the Cochrane Pregnancy and Childbirth Group's Trials Register by contacting the Trials Search Co-ordinator (2 August 2012).

The Cochrane Pregnancy and Childbirth Group's Trials Register is maintained by the Trials Search Co-ordinator and contains trials identified from:

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

Details of the search strategies for CENTRAL, MEDLINE and EMBASE, the list of handsearched journals and conference proceedings, and the list of journals reviewed via the current awareness service can be found in the 'Specialized Register' section within the editorial information about the Cochrane Pregnancy and Childbirth Group.

Trials identified through the searching activities described above are each assigned to a review topic (or topics). The Trials Search Co-ordinator searches the register for each review using the topic list rather than keywords.

For details of additional searches we carried out for the previous version of this review, see Appendix 1.

We did not apply any language restrictions.

Data collection and analysis

Selection of studies

Both authors independently assessed the identified studies from the search strategy for inclusion and any disagreements were resolved by consensus or advice from the editorial team.

Data extraction and management

We planned to use the form developed by the Cochrane Pregnancy and Childbirth Group for data extraction, independently extract the data and resolve discrepancies by discussion. For dichotomous outcomes, the plan was to abstract the number of per-group participants and the number experiencing the outcome, and for continuous variables the number of participants per group and the mean (and standard deviation) within each group. We intended to use the Review Manager software (RevMan 2003) to double enter all the data or a subsample.

If information regarding any of the above had been unclear, we planned to contact authors of the original reports to provide further details.

The following methods for conducting the review were planned. As no randomised or quasi-randomised controlled trials were found, these methods were not followed but are included here for subsequent updates of the review.

Assessment of methodological quality of included studies

Assess the validity of each included study using the criteria outlined in the *Cochrane Handbook for Systematic Reviews of Interventions* (Higgins 2005) and the guidelines of the Cochrane Pregnancy and Childbirth Group (Gates 2005). Describe methods used for generation of the randomisation sequence for each trial.

(1) Selection bias

Assign a quality score for each trial, using the following criteria:
(A) adequate concealment of allocation, such as telephone randomisation, consecutively-numbered, sealed opaque envelopes;
(B) unclear whether adequate concealment of allocation, such as list or table used, sealed envelopes, or study does not report any concealment approach;

(C) inadequate concealment of allocation, such as open list of random-number tables, use of case record numbers, dates of birth or days of the week;
(D) not used.

(2) Attrition bias

Assess completeness to follow up using the following criteria:

(A) less than 5% loss of participants;

(B) 5% to 9.9% loss of participants;

(C) 10% to 19.9% loss of participants;

(D) more than 20% loss of participants.

(3) Performance bias

Assess blinding using the following criteria:
(1) blinding of participants (yes/no/unclear);
(2) blinding of caregiver (yes/no/unclear);
(3) blinding of outcome assessment (yes/no/unclear).

Measures of treatment effect

We planned to conduct statistical analysis using the Review Manager software (RevMan 2003) and calculate summary statistics for outcomes. The plan was to use a fixed-effect meta-analysis for combining data if trials were sufficiently similar. If heterogeneity was found, we planned to investigate the reasons for heterogeneity using subgroup analyses or incorporate it using the random-effects model, or both.

Dichotomous data

For dichotomous data (primary and secondary), we planned to present results as relative risks with 95% confidence intervals or Peto odds ratios with 95% confidence intervals if events were rare.

Continuous data

For continuous outcomes (primary: breastfeeding duration), we planned to use the weighted mean difference with 95% confidence intervals if the outcomes were measured in the same way across trials. Otherwise, we planned to use the standardised mean difference to combine trials that measured the same outcome, but used different methods. If there was evidence of skewness, this would have been reported.

Assessment of heterogeneity

We planned to evaluate heterogeneity by visual inspection of tabulated outcomes and by applying tests of heterogeneity between trials, using I^2 statistic (Higgins 2002). If high levels of heterogeneity among trials, (exceeding 50%), had been observed, we would have explored it by prespecified subgroup analysis. A random-effects meta-analysis had been used as an overall summary if this was considered appropriate.

Subgroup analyses

We planned to conduct subgroup analyses to establish the overall effect of any workplace strategy on breastfeeding, and to compare:

- onsite and off-site studies;
- randomised and quasi-randomised controlled trials;
- studies recruiting professional women and non-professional women.

We planned to conduct subgroup analyses classifying whole trials by interaction tests as described by Deeks 2001, and by trial quality (trials with adequate concealment of allocation versus others). We considered using funnel plots to examine publication bias as recommended in the *Cochrane Handbook for Systematic Reviews of Interventions* (Higgins 2005).

We planned to explore the effects of trial quality. This would have involved analysis based on an A, B, C or D rating of selection bias and attrition bias. We would have excluded studies of poor quality in the analysis (those rating B, C or D) in order to assess for any substantive difference to the overall result. If the trial quality was related to selection bias alone, the plan was to perform sensitivity analysis to explore the effect of trial quality assessed by concealment of allocation, by excluding studies with clearly inadequate allocation of concealment (rated C).

RESULTS

Description of studies

There are no included or excluded studies.

Risk of bias in included studies

There are no included studies.

Effects of interventions

We identified no randomised controlled trials or quasi-randomised controlled trials from the search strategy investigating the effect of workplace interventions for promoting breastfeeding in employed women.

DISCUSSION

We identified no randomised controlled trials or quasi-randomised controlled trials that compared the effects of workplace intervention on initiation, continuation, duration or exclusiveness of breastfeeding among employed women returning to work after giving birth. Likewise, the impact of such intervention on outcomes related to mothers, infants or employers, are unknown.

This systematic review has some potential limitations. First, we excluded workplace interventions during pregnancy and focused only on interventions postdelivery. Second, we only searched for published trials and did not attempt to identify or search for unpublished or ongoing trials. However, the strengths of this review have to be highlighted: first, our search was comprehensive and included several social science databases; second, we applied no language restrictions; third, we planned to consider both randomised and quasi-randomised controlled trials for inclusion.

There are several questions to be answered regarding workplace interventions for promoting breastfeeding in employed women returning to work after delivery. Explicitly, the type of intervention most effective in assisting women to continue breastfeeding their babies until six months of age, as recommended by the WHO.

In conclusion, supporting and promoting breastfeeding in the workplace carries a range of benefits to working mothers, and to their infants and employers as well. There is a need for

methodologically rigorous randomised controlled trials to provide evidence on the relative benefits of workplace interventions to promote breastfeeding for mothers returning to work after the birth of a child.

AUTHORS' CONCLUSIONS

Implications for practice

There is no evidence from randomised controlled trials or quasi-randomised controlled trials to indicate the effectiveness of any type of workplace intervention to promote breastfeeding among employed women returning to paid work after the birth of a child. Current sources of information on this important public health topic are limited to two US-based nonexperimental studies (Cohen 1994; Cohen 1995). In both studies, the participants were self-selected and there were no true control groups.

Implications for research

In most industrialised countries, there is workplace-related legislation or regulation, or both, to support women employees to continue breastfeeding when they return to work. Legislation has been passed to have an effect on breastfeeding. However no systematic evaluation has yet been done to assess the effects expected from the existing legislation and regulation. Hence, randomised controlled trials are required to evaluate and provide reliable evidence on the effectiveness of workplace-support intervention to promote breastfeeding among working mothers, in particular on the rate and duration, and whether breastfeeding is exclusive or partial. Future trials should also compare workplace intervention with no intervention, or two or more workplace interventions against each other, and assess the impact of the intervention on employer-related, mother-related and infant-level outcomes.

ACKNOWLEDGEMENTS

As part of the pre-publication editorial process, this review has been commented on by four peers (an editor and three referees who are external to the editorial team), one or more members of the Pregnancy and Childbirth Group's international panel of consumers and the Group's Statistical Adviser.

We thank the staff at the Australasian Cochrane Centre for their assistant and support during the preparation of the review.

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ADDITIONAL TABLES

Table 1. Search strategies

Database	Search strategy
CINAHL	#1. Exp clinical trials/ #2. clinical trial.pt. #3. (clinic$ adj trial$1).tw. #4. ((singl$ OR doubl$ OR trebl$ OR tripl$) adj (blind$3 OR mask$3)).tw. #5. Randomi?ed control$ trial$.tw. #6. Random assignment/ #7. Random$ allocat$.tw. #8. Placebo$.tw. #9. Placebos/ #10. Quantitative studies/ #11. Allocat$ random$.tw. #12. Or/1-11 #13. Exp breastfeeding/ OR breastfeeding.mp #14. *Lactation/ OR lactation.mp #15. *Milk, Human/ OR human milk.mp #16. (Breastfe$ OR Breast-fe$ OR breast fe$ OR lactati$ OR human milk).tw. #17. Or/13-16 #18. Exp employment/ OR employment.mp #19. *work/ OR work.mp #20. Exp occupations and professions/ OR occupation.mp #21. Exp corporations/ OR corporation.mp #22. (employ$ OR work OR labourforce OR labour-force OR labour force OR laborforce OR labor-force OR labor force OR occupation OR workplace OR work-place OR work place OR corporat$).tw. #23. Or/18-22 #24. #12 AND #17 AND #23
LILACS	#1. Search filter for finding clinical trials in LILACS (see: http://bases.bvs.br) #2. (Breastfe* OR Breast-fe* OR breast fe* OR lactati* OR human milk) #3. (employ* OR work* OR labourforce OR labour-force OR labour force OR laborforce OR labor-force OR labor force OR occupation OR workplace OR work-place OR work place OR corporat*) #4. #1 AND #2 AND #3
C2-SPECTR (http://www.Campbellcollaboration.org/)	#1. {breastfeeding} or {breast-feeding} or{breast feeding} or {lactation} or {breastfe*} or {breast-fe*} or {breast fe*} or {lactati*} or {human milk} #2. {employ*} or {work} or {labourforce} or {labour-force} or {labour force} or {laborforce} or {labor-force} or {labor force} or{occupation} or {workplace} or {work-place} or {work place} or {corporat*} #3. {rct} or {crt} #4. #1 AND #2 AND #3
All other databases (modified accordingly to reflect the characteristics and specification of the search engine)	#1. (Breastfe* OR Breast-fe* OR breast fe* OR lactati* OR human milk) #2. (employ* OR work* OR labourforce OR labour-force OR labour force OR laborforce OR labor-force OR labor force OR occupation OR workplace OR work-place OR work place OR corporat*) #3. #1 AND #2

APPENDICES

Appendix 1. Previous searches conducted by authors

In addition, we searched CINAHL (1982 to November week 1 2006), LILACS (2 August 2006), Social Services Abstracts (1979 to November 2006), Sociological Abstracts (1952 to November 2006), Australian Public Affairs Information Service (2003 to 2006), Australian Family and Society Abstracts (2003 to 2006), International Bibliography of the Social Sciences (1951 to 2006), ProQuest Social Science Journals (1994 to 2006), Middle Eastern and Central Asian Studies (1900 to 2006) and the Campbell Collaboration Register (C2-SPECTR - http://www.Campbellcollaboration.org/) (November 2006).

See Table 1for search strategies used.

We also scanned the reference section of the CDC guide to breastfeeding interventions (Shealy 2005) (12 November 2006).

WHAT'S NEW

Date	Event	Description
7 August 2012	New citation required but conclusions have not changed	Review updated.
7 August 2012	New search has been performed	Search updated. No trials identified.

HISTORY

Protocol first published: Issue 4, 2006
Review first published: Issue 3, 2007

Date	Event	Description
13 August 2008	Amended	Converted to new review format.

CONTRIBUTIONS OF AUTHORS

The protocol and review were primarily compiled by Abdulwadud OA with substantial contribution from the co-author (Snow ME) in the form of literature search for the background section of the protocol.

DECLARATIONS OF INTEREST

None known.

SOURCES OF SUPPORT

Internal sources

- Department of Health Sciences, School of Primary Health Care, Monash University Peninsula Campus, Melbourne, Australia.

External sources

- No sources of support supplied

INDEX TERMS

Medical Subject Headings (MeSH)

*Breast Feeding; *Women, Working; *Workplace; Program Evaluation

MeSH check words

Female; Humans