


# Impact of Male-Partner-Focused Interventions on Breastfeeding Initiation, Exclusivity, and Continuation

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## Abstract

Informal sources of support, particularly the male partner, have more influence on breastfeeding behaviors than formal support from health care providers. This systematic review examined the impact of male-partner-focused breastfeeding interventions on breastfeeding initiation, exclusivity, and continuation. Four unique interventions were identified that were tested through randomized controlled studies or quasi-experimental design. These 4 provided breastfeeding education to fathers, with breastfeeding outcomes reported by the mother. Three of the 4 studies compared initiation rates between intervention and control conditions, and 2 showed significantly higher rates of breastfeeding initiation in the intervention group. Although studies were inconsistent in their categorization and reporting of full, partial, or no breastfeeding, significantly higher rates of breastfeeding initiation, exclusivity, and/or continuation were seen for 2 interventions. Because all 4 interventions found at least 1 breastfeeding outcome to be superior in the treatment group, breastfeeding education should be offered to male partners. Future studies should test if intervention effectiveness can be increased if education is supplemented with other activities. Future studies also should use controlled designs and validated outcome measures.

## Keywords

breastfeeding, evidence-based practice, exclusive breastfeeding, health education, infant feeding, interpersonal relations, male, partner, social support

## Background

Exclusive breastfeeding for the first 6 months and continued breastfeeding for at least 6 more months with complementary foods are recommended by the American Academy of Pediatrics,<sup>1</sup> the United Nations International Children's Emergency Fund (UNICEF),<sup>2</sup> and the World Health Organization (WHO).<sup>3</sup> It is estimated that exclusive breastfeeding for the first 6 months of life could prevent 1.4 million deaths of children under the age of 5 in the developing world.<sup>2</sup> Breastfeeding can also result in positive benefits for the family, community, and society, because it is a low-cost, nutritionally sound method of feeding a child that results in decreased costs for both health care and public health programs.<sup>4</sup>

A comprehensive literature review about fathers and breastfeeding was published in 1997 by Bar-Yam and Darby.<sup>5</sup> They concluded that fathers are an important influence on breastfeeding initiation and continuation. Other research suggests that many male partners prefer breastfeeding and believe it is the most natural and healthy choice for mother and baby.<sup>6-9</sup> However, research also suggests that many men do not feel that the method of infant feeding is their decision, they feel left out of the mother–baby relationship, and they are uncomfortable with breastfeeding in public.<sup>7-12</sup> As noted

by Rempel and Rempel,<sup>6</sup> more needs to be done to help fathers recognize their important contributions to the breastfeeding team.

Enhancing social support is 1 of the main strategies identified by the WHO and UNICEF for increasing breastfeeding rates.<sup>2,3,13</sup> Interventions targeting male partners have been recommended but, to the authors' knowledge, no attempts have been made to investigate the impact of such interventions. Breastfeeding policy and program development require updates from literature to respond to current trends. Thus, the purpose of this review was to examine the impact of male-partner-focused breastfeeding interventions on breastfeeding initiation and continuation and effects on breastfeeding exclusivity.

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## Methods

Based on established guidelines for systematic reviews, published studies were identified in PubMed, PsycInfo, CINAHL, and the Cochrane Database of Systematic Reviews in January 2012.<sup>14,15</sup> Search terms used were *breast feeding, breastfeeding, infant feeding, father, partner, male, spouse, husband, intervention, education, and program* alone and in various combinations. Included articles were from English-language, peer-reviewed scientific journals and reported on interventions specifically developed for the male partner to increase breastfeeding initiation and continuation. Only studies reporting on intervention testing by true experimental or quasi-experimental design were included, however, no restrictions were placed on time of publication, age of participants, or country of research.

The quality of these studies was appraised using checklists from the Critical Appraisal Skills Programme (CASP) in the United Kingdom (<http://www.casp-uk.net/>). The 11-item checklist for evaluating randomized controlled trials (RCTs) was used to assess the studies tested through randomized controlled studies and quasi-experimental design.

## Results

Of the 535 articles identified, 489 papers were rejected after the titles or abstracts suggested that they were not relevant to this review, and 46 papers were read in full. Of the 46 papers, 33 were rejected because the male partner was not included in the intervention or education or because breastfeeding was not the main focus of the intervention. The 13 remaining articles reported on 10 unique partner-focused interventions. However, 6 of the interventions discussed in the articles were either descriptive or were tested by nonexperimental design.

Thus, this review includes 6 articles reporting on 4 unique male-partner breastfeeding interventions that were tested using a rigorous design—2 by randomized controlled trial<sup>16-18</sup> and 2 by quasi-experimental design.<sup>19-21</sup> These 4 interventions are summarized in Table 1.

Two interventions were implemented in the United States,<sup>16-18</sup> 1 in Italy,<sup>19</sup> and 1 in Brazil.<sup>20,21</sup> Three were conducted in hospitals<sup>18-21</sup> and 1 in a clinic offering the Special Supplemental Program for Women, Infants, and Children (WIC).<sup>16</sup> All 4 targeted relatively low-income populations.<sup>16-21</sup> One study restricted participation to couples who had already initiated breastfeeding,<sup>20,21</sup> 1 recruited fathers of newly born infants,<sup>19</sup> and 2 recruited couples prior to giving birth.<sup>16-18</sup>

Sciaccia and colleagues' RCT randomized couples enrolled in a WIC clinic in Arizona into 2 groups.<sup>16,17</sup> Both the control (n = 29) and intervention (n = 26) couples received breastfeeding education. However, intervention couples received incentives for attending classes and achieving specific milestones prenatally and postpartum. The intervention group was significantly more likely to breastfeed at discharge and at 2, 6, and 12 weeks than the control.

Wolfberg and colleagues conducted a hospital-based RCT in Baltimore, Maryland.<sup>18</sup> Intervention partners of expectant mothers received a peer-led breastfeeding education class (n = 30), while control partners received a class on baby care (n = 27). Although the study suffered from high attrition rates, the initiation rates of breastfeeding by the couples in the intervention group were higher than in the control group.

In Italy, Pisacane and colleagues conducted a hospital-based quasi-experimental study.<sup>19</sup> Randomization was by month of birth. Intervention fathers (with infants born in October-November, n = 140) received breastfeeding education, while control fathers (with infants born in December-January, n = 140) received child care education. The couples participating in the intervention were significantly more likely to be exclusively breastfeeding at 6 months than couples in the control group.

In Brazil, Susin and colleagues conducted a hospital-based quasi-experimental study restricted to women who had initiated breastfeeding.<sup>20,21</sup> Control and intervention groups were created based on baby's birth month. No-treatment control couples (n = 208) were tracked first. Next, the intervention (breastfeeding education) was provided to mothers (n = 197). Finally, the intervention was provided to couples (n = 196). Exclusive breastfeeding was significantly higher for participants in the couple intervention group at 4 months. At 6 months, however, significantly higher rates of exclusive breastfeeding were seen in the mothers-only intervention.

## Intervention Components

**Education.** All 4 identified interventions provided breastfeeding education to fathers. Educational sessions were similar in that each intended to increase breastfeeding rates by teaching male partners about (1) breastfeeding health benefits for mother, baby, and family; (2) why male partners are an important and necessary part of the infant feeding decision-making process; and (3) strategies they could use to support breastfeeding.

Three interventions used similar delivery methods for breastfeeding education, with a professional (eg, physician, midwife, or educator) providing education in the Arizona WIC-based interventions<sup>16,17</sup> and in the hospital-based interventions in Italy<sup>19</sup> and Brazil.<sup>20,21</sup> The intervention fathers (or couples) received breastfeeding education and the control fathers (or couples) received a general class in child care. In contrast, the Baltimore hospital-based intervention<sup>18</sup> trained a peer educator to lead the breastfeeding class. The facilitator was a father of successfully breastfed children who was trained to address fears and give guidance to new fathers in a non-didactic, open-discussion format.

**Open discussion.** All interventions<sup>16-21</sup> mentioned the promotion of open discussion with the educator, so fathers could ask questions and get help with challenges they were facing.

**Table 1.** Characteristics of 4 Experimentally Tested Interventions

Author (Year)	CASP Score	Design	Setting	Location	Participants	Intervention Characteristics and Components	Breastfeeding Measures	Breastfeeding Outcomes
Sciaccia, Dube, et al (1995) <sup>6</sup> ; Sciaccia, Phipps, et al (1995) <sup>17</sup>	10/11	RCT	WIC clinics	Flagstaff, AZ, USA	68 first-time expectant mothers and partners; study completed by 26 intervention and 29 control couples	Received usual level of WIC breastfeeding education (education, printed material, peer-counseling, infant t-shirts) plus incentive program including one 2-hr group prenatal couples BF class. Incentives provided (breast pump, gift bag, diapers) after completing first posttest, after attending 3+ group educational sessions, contacting peer counselor within 2 d of birth, and reporting BF for any time at 6 and 12 wk postpartum.	Maternal report of exclusive BF or exclusive FF at discharge, 2, 6, and 12 wk postpartum	Intervention couples significantly <ul style="list-style-type: none"> <li>More likely to be exclusively BF at discharge (88% vs 55%),<sup>a</sup> 2 wk (81% vs 35%),<sup>a</sup> 6 wk (50% vs 24%), and 12 wk (42% vs 17%)<sup>a</sup></li> <li>Less likely to exclusively FF at discharge (0% vs 21%),<sup>a</sup> 2 wk (4% vs 45%),<sup>a</sup> 6 wk (19% vs 69%),<sup>a</sup> and 12 wk (62% vs 24%)<sup>a</sup></li> </ul>
Wolfberg et al (2004) <sup>8</sup>	10/11	RCT	Hospital	Baltimore, MD, USA	Completed by 27 control and 30 intervention couples	Intervention partners received 2-hr group baby care and BF class (with videos, discussion, and role play). Control partners received baby care class only (injury control, immunization). Both classes taught by same father facilitator. Partners received \$25 stipend for attendance and mother's also received \$25 for providing follow-up information.	Maternal report of any BF at 2, 4, and 8 wk postpartum	Intervention couples more likely to initiate BF (74% vs 41%) <sup>3</sup> ; no significant difference in BF rates at 2, 4, and 8 wk
Piscane et al (2005) <sup>9</sup>	9/11	Quasi-experimental	Hospital	Italy	140 fathers of infants born Oct-Nov in intervention group; 140 fathers of infants born Dec-Jan in control group	Intervention partners received individual private 40-min BF education and printed material. Control fathers received individual private 40-min child care education and printed material. All mothers received education and printed material on benefits and management of BF within 2 d of birth.	Maternal report of exclusive or partial BF at discharge, 6 and 12 mo postpartum	Intervention couples had significantly higher rate of exclusive BF at 6 mo (25% vs 15%) <sup>3</sup> ; no differences at complementary feeding at 12 mo (19% vs 11%)
Susin et al (1999) <sup>21</sup> ; Susin & Giugliani (2008) <sup>20</sup>	9/11	Quasi-experimental	Hospital	Brazil	Study restricted to BF couples; first 208 couples in no-treatment control; next 197 couples in mothers-only intervention; final 196 couples in couples intervention	Mothers-only and couple intervention received private BF education and watched 18-minute video developed for this study that included BF education and importance of paternal participation in supporting BF and contributing to household and child care duties.	Maternal report of exclusive or partial BF at 1, 2, 4, and 6 mo or until BF ceased	Compared to no-treatment control: <ul style="list-style-type: none"> <li>4 mo (but not 6 mo) exclusive BF significantly higher in couple (16% than mother-only (11%) and control (6%) groups<sup>a</sup></li> <li>6 mo BF higher in mother-only (60%) than couple (50%) and control (46%) groups<sup>a</sup></li> </ul>

Abbreviations: BF, breastfeeding; CASP, Critical Appraisal Skills Programme; FF, formula feeding; RCT, randomized controlled trial; WIC, Special Supplemental Nutrition Program for Women, Infants, and Children.

<sup>a</sup>p < .05.

**Educational materials.** The WIC-based study did not note using education materials.<sup>16,17</sup> However, educational materials were key components of the 3 hospital-based interventions. In Baltimore, Wolfberg<sup>18</sup> showed fathers videos of breastfeeding, baby care, and how men can support the new mother. In Italy, Pisacane and colleagues<sup>19</sup> developed a leaflet summarizing the key points from the one-on-one educational session for fathers to take home. In Brazil, Susin and colleagues<sup>20,21</sup> created an educational video that depicted fathers taking active roles in household chores and child care.

**Incentives.** Two interventions<sup>16-18</sup> provided incentives to attend the breastfeeding education programs, to meet certain breastfeeding goals, or to provide follow-up data. For example, the Arizona WIC-based intervention by Sciacca and colleagues<sup>16,17</sup> and the Baltimore hospital-based intervention by Wolfberg and colleagues<sup>18</sup> offered participants incentives to attend the educational programs and for meeting specific criteria postpartum. The Arizona WIC-based intervention by Sciacca and colleagues<sup>16,17</sup> also gave incentives for meeting different milestones specified by the intervention, like attending a prenatal childbirth preparation class and contacting a breastfeeding peer counselor within 2 days postpartum. While the incentives offered in the Arizona intervention were rated low as a motivator of breastfeeding among the participants, the authors mentioned that the incentives may have had an indirect influence on breastfeeding because intervention couples were much more likely than control couples to participate in the prenatal childbirth class (54% vs 21%) and peer counseling program postpartum (46% vs 14%).

**Follow-up support.** Participating mothers received follow-up visits or calls for data collection in all studies. For example, most WIC programs offer female clients access to Breastfeeding Peer Support programs, and mothers in the Arizona<sup>16,17</sup> control and intervention groups could access follow-up support for breastfeeding through this program. Follow-up data were collected through either home visits, as in the Brazil hospital-based intervention,<sup>20,21</sup> or by a phone call, as in the other 2 hospital-based interventions,<sup>18,19</sup> which may have been construed as supportive by participants.

### Study Recruitment and Retention Issues

Two of the interventions were tested through RCT,<sup>16-18</sup> and both scored 10/11 points on the CASP checklist. Each lost a point because neither the intervention providers nor the study participants were blind to the treatment condition. Both studies were also challenged by recruitment.

In Arizona, Sciacca and colleagues<sup>16,17</sup> recruited only 68 primiparous women through 2 WIC clinics who expressed interest in participating in the RCT with their male partners, with 54 (81%) completing the study.

In the Baltimore hospital-based intervention, Wolfberg and colleagues<sup>18</sup> approached 567 pregnant women, hoped to enroll 230 women and their partners, but completed the study with only 59 couples (30 intervention and 27 control).

Reasons for not participating or dropping out included mother's refusal, mother's lack of an involved partner, loss to follow-up, partner refusal, or partner failure to attend class after enrollment. The authors suggested that the men were reluctant to attend the classes individually and that opening classes to both partners, with separate sessions for mothers and fathers, might be more successful. The demographic characteristics of the women whose partners attended the class and the women whose partners did not attend the class were similar. However, authors noted that participating men were partners of women who were more likely to be employed (61% vs 38%) and less likely to receive welfare (19% vs 36%).

Two hospital-based interventions were tested using a quasi-experimental design.<sup>19-21</sup> Each scored 9/11 on the CASP checklist because participants were not blind to treatment condition and because individuals were not randomized to condition. Rather, both based group assignment on the timing of the child's birth. In Italy, Pisacane and colleagues<sup>19</sup> enrolled all eligible fathers of infants born at the hospital over a 4-month period. The recruitment target was 280 and, in fact, 140 fathers completed each condition, with none lost to follow-up. The couples in the 2 groups were similar on relevant demographic characteristics like parity, type of delivery, education, and smoking.

In Brazil, Susin and colleagues<sup>20,21</sup> approached all parents who had given birth over a 9-month period and recruited consenting parents who had initiated breastfeeding. Retention was 91%, and loss to follow-up was similar across the 3 groups. More control couples were White, but the 3 groups were similar on other demographic and pre-pregnancy characteristics like age, education, income, prenatal care, type of delivery, and number of previous children. To reduce any possible bias or confounding due to differences in ethnicities, intervention effect also was tested (and demonstrated) through multivariate analysis. Because the study was conducted in a single setting and there were differences in the ethnicities, the authors suggested that the intervention be retested in different settings.

### Breastfeeding Outcomes

**Initiation.** One of the studies restricted participation to women who had already initiated breastfeeding.<sup>20,21</sup> The remaining 3 studies, however, tracked breastfeeding initiation. Sciacca and colleagues<sup>16,17</sup> found that 100% of mothers in the Arizona WIC-based and incentivized program initiated breastfeeding, compared to 83% in the control group ( $P = .03$ ). Based on survey data collected from class attendees immediately after birth and at 8 weeks postpartum, Wolfberg and colleagues<sup>18</sup> also realized higher initiation in mothers whose partners attended breastfeeding class (74%), compared to 41% in the control group ( $P = .01$ ). They noted that both groups had higher rates of initiation than the hospital average (25%). In contrast, Pisacane and colleagues<sup>19</sup>

in Italy found no difference in initiation in women whose partners attended the hospital-based intervention (96%) versus the control (92%).

**Breastfeeding exclusivity.** Three of the 4 studies realized a significant impact in breastfeeding exclusivity. In the Arizona WIC RCT,<sup>16,17</sup> significantly more intervention than control couples were exclusively breastfeeding at 2 weeks (81% vs 35%), 6 weeks (50% vs 34%), and 12 weeks (42% vs 17%) postbirth, and significantly fewer were exclusively formula feeding at 2 weeks (4% vs 45%), 6 weeks (19% vs 69%), and 12 weeks (24% vs 62%). In the Italy hospital study,<sup>19</sup> intervention couples had a significantly higher rate than controls of exclusive breastfeeding at 6 months (25% vs 15%), but not of complementary breastfeeding at 12 months (19% vs 11%). In the Brazil hospital study,<sup>20,21</sup> the couples group had a significantly ( $P = .003$ ) higher rate of exclusive breastfeeding at 4 months (16.5%) compared to 11% in the mothers-only group and 6% in the no-treatment control.

**Breastfeeding continuation.** At 12 months, the couples who participated in the Arizona WIC RCT<sup>16,17</sup> did not show any differences in rates of complementary breastfeeding (19% vs 11%). In the Brazil hospital study,<sup>20,21</sup> rates of any breastfeeding were significantly higher ( $P = .006$ ) in the mothers-only group (60%) compared to the couple (50%) and control (46%) groups. In contrast, the Baltimore RCT<sup>18</sup> that had been challenged by recruitment found no significant difference seen in breastfeeding rates at 2, 4, and 8 weeks.

## Discussion

Despite the recognition that the male partner has an important role in supporting the initiation and continuation of breastfeeding, this systematic search identified only 4 rigorously tested educational programs aimed to strengthen male partner support for breastfeeding. All 4 interventions resulted in significant improvement in breastfeeding outcomes, with 3 of the studies reporting a significant impact on breastfeeding exclusivity. Thus, it appears that breastfeeding education targeted to male partners has a positive impact on breastfeeding outcomes.

In addition to these 4 interventions, 6 other male-targeted interventions were described in the literature.<sup>22-28</sup> Although they were not experimentally tested, reports of these interventions present strategies that could be useful for future intervention development. Examples of potentially useful strategies include a male-focused breastfeeding program at the work-site,<sup>26</sup> a home-based breastfeeding education program,<sup>27,28</sup> and a perinatal breastfeeding program for male partners delivered by peer fathers where participants receive follow-up calls and incentives to promote continued breastfeeding.<sup>25</sup>

Three major recommendations emerge from this review. First, the findings suggest that male-targeted education is an effective way to increase breastfeeding initiation and

exclusivity. However, further research is needed to examine if breastfeeding outcomes can be improved if (1) education is delivered by a “peer dad,” as suggested by Wolfberg and colleagues<sup>18</sup>; (2) education is supplemented by follow-up visits, as suggested by Susin and colleagues<sup>20,21</sup>; or (3) participants receive incentives, as suggested by Sciacca and colleagues.<sup>16,17</sup> Testing of various components could be improved if interventions were based in theory.<sup>29,30</sup> As suggested by research, an intervention to increase male partner support of breastfeeding needs to intervene in multiple ways, for example, by enhancing knowledge, empowering men to be more involved in the breastfeeding decision, providing specific tips on how men can be involved in breastfeeding, and increasing comfort with breastfeeding in public.<sup>7-12</sup> All 4 interventions in this review included strategies reflective of elements of social cognitive theory (SCT), which may be a promising theory upon which to base male-targeted breastfeeding interventions, as it calls for promotion of knowledge, skills, self-efficacy, observational learning, goal setting, and reinforcements.<sup>31</sup>

Second, interventions need to be tested through controlled designs. If possible, couples should be randomly assigned to intervention and control groups, although the RCTs reported here were challenged by sample accrual. Perhaps a future RCT could randomize and compare outcomes by group. In this case, male partners could be recruited for breastfeeding education in childbirth classes, since they often attend. Or, childbirth classes attended by couples could be randomized to receive intensive breastfeeding education or not. If it is not possible to recruit enough participants to adequately test the intervention using a randomized controlled design, equivalent groups should be constructed through other means. For example, Pisacane and colleagues<sup>19</sup> and Susin and colleagues<sup>20,21</sup> assigned subjects based on timing of birth, and this approach yielded samples that were larger and more robust than those accrued in the RCTs.<sup>16-18</sup>

Also, it is important that outcome measures include consistent indicators of breastfeeding initiation, exclusivity, and continuation. All 4 studies collected data on breastfeeding outcomes directly from the mother. However, studies varied on the timing of follow-up, measures used, and categorization of breastfeeding. Pisacane and colleagues<sup>19</sup> in Italy used questions recommended by the WHO to assess breastfeeding at 6 and 12 months postpartum and categorized breastfeeding as full (exclusive plus predominant), complementary, or bottle. The 3 other studies did not share specifics on the questions used to assess continuation and exclusivity. We recommend that future researchers categorize breastfeeding outcomes based on WHO definitions established in 2008.<sup>32</sup>

## Conclusion

Despite recommendations to target male partners in breastfeeding education, this review found only 10 interventions

targeting the partner, and only 4 were rigorously tested. Although differences in study design and breastfeeding measures limited cross-study comparison of outcomes, we conclude that interventions providing breastfeeding education to fathers are effective in increasing breastfeeding initiation and exclusivity, although more research should be done to determine if they are effective in increasing breastfeeding continuation. More effort is needed to understand how educational interventions can best be delivered (eg, by professionals or peer dads) and supplemented (eg, by follow-up contacts or incentives) to improve outcomes. Testing interventions based on SCT may help in answering this question. Larger RCTs are needed, and we recommend use of the validated measures and standardized definitions of breastfeeding in future studies.

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