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The effect of a self-efficacy-based educational programme on maternal breast feeding self-efficacy, breast feeding duration and exclusive breast feeding rates: A longitudinal study



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ARTICLE INFO

Article history:

Received 16 April 2015
Received in revised form
19 January 2016
Accepted 6 March 2016

Keywords:

Self-efficacy
Education
Hong Kong
Breast feeding duration
Exclusive breast feeding

ABSTRACT

Background: breast feeding has a number of well-documented benefits. Numerous studies have been conducted to investigate an effective approach to increase the breast feeding rate, duration and exclusive breast feeding rate, in which maternal breast feeding self-efficacy was determined as one of the major contributors. Although numerous breast feeding educational programmes have been developed to enhance maternal breastfeeding self-efficacy, results on the effectiveness of these programmes remain inconclusive.

Objective: this study aims to investigate the effectiveness of a self-efficacy-based breast feeding educational programme (SEBEP) in enhancing breast feeding self-efficacy, breast feeding duration and exclusive breast feeding rates among mothers in Hong Kong.

Methods: eligible pregnant women were randomized to attend a 2.5-hour breast feeding workshop at 28–38 weeks of gestation and receive 30–60 minutes of telephone counselling at two weeks post partum, whereas both intervention and control groups received usual care. At two weeks postpartum, the Breast feeding Self-Efficacy Scale-Short Form (BSES-SF) and a self-developed post partum questionnaire were completed via telephone interviews. The breast feeding duration, pattern of breast feeding and exclusive breast feeding rates were recorded at two weeks, four weeks, eight weeks and six months post partum.

Results: results of analyses based on an intention-to-treat (ITT) assumption showed a significant difference ($p < 0.01$) in the change in BSES-SF mean scores between the mothers who received SEBEP and those who did not receive SEBEP at two weeks post partum. The exclusive breast feeding rate was 11.4% for the intervention group and 5.6% for the control group at six months post partum.

Conclusion: the findings of this study highlight the feasibility of a major trial to implement breast feeding education targeted at increasing breast feeding self-efficacy and exclusive breast feeding rates in Hong Kong.

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Background

Breast feeding benefits not only the infants but also the mothers, families and society in terms of nutritional, developmental, economic and environmental factors. The benefits of breast feeding include a low incidence of pre-menopausal breast and/or ovarian cancer among mothers who have breast fed (Beral

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et al., 2002). Extensive research has demonstrated overwhelming advantages of breast feeding or the use of human milk for infant feeding (Bachrach et al., 2003; Quigley et al., 2006; Ip et al., 2007). Despite the promulgation of the benefits of breast feeding worldwide, many mothers from various countries prematurely discontinue breast feeding. The prevalence of breast feeding in both developed and developing countries remains suboptimal. A local study reported rates of breast feeding at 53.9%, mixed feeding at 14.8%, and artificial feeding at 31.3% in Hong Kong (Lau, 2010).

In examining factors that influence women's decisions on sustained breast feeding, maternal age, education level, marital

status, family income and socio-economic status are regarded as non-modifiable (Scott and Binns, 1999; Taveras et al., 2003). In contrast, factors that are closely related to breast feeding prevalence and duration, such as maternal attitudes, timing of the decision to breast feed, timing of first feeding, breast feeding knowledge and breast feeding self-efficacy, are regarded as modifiable. Among these, maternal breast feeding self-efficacy has increasingly been identified as an important modifiable factor for successful breast feeding.

Maternal breast feeding self-efficacy is derived from the self-efficacy concept of Bandura (1977). According to Dennis (1999), maternal breast feeding self-efficacy is defined as a mother's perceived ability to breast feed her child, which influences her decision on breast feeding, such as whether to breast feed or not, how much effort to exert on breast feeding, and how to respond to challenges during breast feeding. Mothers with high self-efficacy are more likely to choose breast feeding, persist when confronted with difficulties, employ self-encouraging thoughts, and react positively to challenges (Dennis, 1999).

Breast feeding self-efficacy is influenced by four sources of information: (a) performance accomplishments (e.g., past breast feeding experiences), (b) vicarious experiences (e.g., watching other women breast feed), (c) verbal persuasion (e.g., encouragement from others, such as friends, family and lactation consultants), and (d) physiological responses (e.g., somatic reactions due to autonomic stimulation during an experience or in anticipation of a potentially stressful event) (Bandura, 1986; Dennis, 1999).

A positive correlation between maternal self-efficacy and breast feeding duration has been demonstrated in many studies (Dennis and Faux, 1999; Chezem et al., 2003; Blyth et al., 2004; Dunn et al., 2006; Gregory et al., 2008). Thus, many health care researchers and breast feeding educators have integrated the theoretical framework of self-efficacy into breast feeding educational programmes.

Although many breast feeding educational programmes are aimed to promote and encourage a longer duration of breast feeding, the findings on their effectiveness remain inconclusive. Furthermore, local data on the effect of breastfeeding education on maternal breast feeding self-efficacy and breast feeding duration are lacking.

A study was therefore designed and implemented locally to investigate the effectiveness of a self-efficacy-based breast feeding educational programme (SEBEP) in increasing breast feeding self-efficacy, breast feeding duration and exclusive breast feeding rates among Hong Kong mothers.

Methods

This research was conducted in the obstetric unit of a university-affiliated public hospital in Hong Kong. The majority of women served by this hospital were Chinese (95%). Only 5% of the pregnant women came from other countries, including Indonesia, Pakistan and Thailand. This hospital has the highest birth rate among Hong Kong public hospitals. More than 7000 mothers give birth at this hospital every year. The sample size was determined to give the study 80% power to detect a large effect size of the intervention group over control group with Cohen's $d=0.8$ (Cohen, 1988) at 5% level of significance. Using the power analysis software PASS 12.0 (NCSS, Kaysville, Utah, US), it was estimated that a sample size of $n=26$ per group would be required. Further allowing for attrition rate up to 25% (Hatamleh, 2006), it was targeted to recruit at least 35 participants per group into the study.

Those eligible for inclusion were primigravidas who were 18 years of age or older, married, with normal breast and nipple

examination results as recorded at the antenatal assessment, without anticipated medical or pregnancy complications that inhibit breast feeding, able to understand and communicate in Chinese and willing to participate in the study.

Pregnant women were excluded from the study if 1) they developed health complications after birth, such as acute uterine inversion, post partum haemorrhage or post partum depression; 2) their infants were admitted to the neonatal intensive care unit or their infants were diagnosed with cleft palate, had low birth weight (< 2500 g), or were born prematurely (< 37 weeks of gestation); 3) they were non-Hong Kong Chinese residents; and 4) they had no access to a telephone for follow-up.

The group allocation of each participant was assigned sequentially according to her sequence of enrolment in the study by opening the corresponding serially numbered opaque sealed envelope to ensure concealment. The serially numbered envelopes containing the grouping identifier (either I [intervention] or C [control]) were prepared by an independent researcher not involved in the trial, using computer-generated random codes prior to subject recruitment. The participants in the intervention group were invited to attend the SEBEP, whereas both the intervention and control group continued to receive usual care. The usual care provided by the study hospital includes breast feeding support that was provided by midwives in the hospital, seeking help from a lactation consultant, and post partum follow-up by midwives or doctors. Blinding of the participants was not possible due to the nature of the intervention.

The SEBEP comprised a 2.5 hour breast feeding workshop provided between 28 and 38 weeks of gestation, with small groups of six–eight mothers at each interactive session. A comfortable lecture room facilitated the group discussion and the sharing of experience with multimedia equipment, including a computer, LCD projector and a DVD player. Life-like dolls and blankets were provided to each participant for practice. The interaction motivated the participant to acquire more information about breast feeding. At home, the participants were encouraged to practice what they learned from the breast feeding workshop. The breast feeding workshop protocol is shown in Table 1.

Telephone counselling was provided to the participants at two weeks post partum, focusing on evaluating their emotional/physiological condition and breast feeding status. Each call lasted for 30–60 minutes. The researcher addressed problems, such as fear and pain, with the aim of correcting misconceptions. Coping strategies were reinforced and emotional support was provided to the participants. The researcher evaluated the participants based on their description of positioning, infant cues of hunger, and frequency of breast feeding. Appropriate advice was given and breast feeding practices were encouraged. The telephone counselling protocol is shown in Table 2.

Data were obtained at five time points, namely 20–38 weeks of gestation/baseline at pregnancy, and two weeks, four weeks, eight weeks and six months post partum. Socio-demographic data were collected. The items of the questionnaire comprised age, marital status, gestational age, education level, occupation, economic status, whether living with family, intention to breast feed and experience of breast feeding. In addition, the Breast feeding Self-Efficacy Scale-Short Form (Chinese Hong Kong version) was used to measure breast feeding self-efficacy (Ip et al., 2012). The content validity and reliability of BSES-SF (Chinese Hong Kong version) was well validated among Chinese pregnant women (Cronbach's Alpha=0.95). Thus, in this study, the BSES-SF was appropriate for measuring the same concept among Hong Kong mothers. A post partum questionnaire was developed to collect information about the infant's condition after birth, including infant birth weight, method of birth, infant gender, history of admission to neonatal unit, timing of initial breast feeding after birth, and the duration

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