

A Randomized Controlled Trial of Knowledge Sharing Practice with Empowerment Strategies in Pregnant Women to Improve Exclusive Breastfeeding during the First Six Months Postpartum

Jutamart Kupratakul BRN, MEd*, Surasak Taneepanichskul MD**,****,
Nipunporn Voramongkol MD***, Vorapong Phupong MD**,****

* *Research for Health Development (Multidisciplinary and International Programs),
Graduate School, Chulalongkorn University, Bangkok, Thailand*

** *College of Public Health Sciences, Chulalongkorn University, Bangkok, Thailand*

*** *Bureau of Health Promotion, Department of Health, Ministry of Public Health, Nonthaburi, Thailand*

**** *Department of Obstetrics and Gynecology, Faculty of Medicine, Chulalongkorn University, Bangkok, Thailand*

Background: Although there are many benefits to breastfeeding, its prevalence and duration in many countries is still lower than the international recommendation for 6-month exclusive breastfeeding. The objective of the present study was to investigate whether a knowledge sharing practices with empowerment strategies (KSPES) program on antenatal education and postnatal support strategies improves the rates of 6-month exclusive breastfeeding during the first six months postpartum compared with a standard knowledge of breastfeeding techniques.

Material and Method: A randomized controlled trial was conducted. Pregnant women of more than 32 weeks' gestation were randomly assigned to receive a routine standard knowledge of breastfeeding techniques alone (control group) or with KSPES on antenatal education and postnatal support strategies (study group). The primary outcome was the rate of exclusive breastfeeding at 6-month postpartum. The secondary outcomes were rates at 7 days, 14 days, 1, 2, 3, 4, and 5 months postpartum.

Results: Rates of exclusive breastfeeding in the study group were significantly higher when compared with those in the control group at 14 days (82.5% vs. 52.6%, $p = 0.005$), 1 month (77.5% vs. 52.6%, $p = 0.021$), 2 months (62.5% vs. 36.8%, $p = 0.023$), 4 months (35.0% vs. 7.9%, $p = 0.008$), 5 months (25.0% vs. 2.6%, $p = 0.012$), and 6 months postpartum (20.0% vs. 0%, $p = 0.005$).

Conclusion: KSPES on antenatal education and postnatal support strategies significantly improve rates of exclusive breastfeeding at 6-month postpartum. These strategies also significantly improve rates of exclusive breastfeeding at 14 days, 1, 2, 4, 5, and 6 months postpartum.

Keywords: Breastfeeding, Exclusive, Knowledge sharing practices with empowerment strategies, Standard knowledge

J Med Assoc Thai 2010; 93 (9): 1009-18

Full text. e-Journal: <http://www.mat.or.th/journal>

For time immemorial, infants have been nurtured at their mother's breast. Feeding is necessary for sustaining health, giving many advantages and for all the most important things, in every life cycle. It is generally accepted that human breast milk is the best

type of nutrition for neonates and infants⁽¹⁾. Most health organizations such as the World Health Organization (WHO) and the United Nations Children's Fund (UNICEF) have updated their recommendation that exclusive breastfeeding should be given until a baby is six months old before offering other additional food, and partial breastfeeding should be continued along with complementary feeding for at least the first two years of life⁽²⁾. Exclusive breastfeeding consists of only breast milk being given to infants. Medicine, vitamins, and oral rehydration solution may be given but no

Correspondence to:

Phupong V, Department of Obstetrics and Gynecology,
Faculty of Medicine, Chulalongkorn University, Rama IV Rd,
Pathumwan, Bangkok 10330, Thailand.
Phone: 0-2256-4241, Fax: 0-2254-9292
E-mail: vorapong.p@chula.ac.th

formula or water⁽³⁾. Breast milk promotes sensory and cognitive development, and protects the infant against infectious and chronic diseases. Exclusive breastfeeding reduces infant mortality resulting from common childhood illnesses such as diarrhea or pneumonia and aids for a quicker recovery from illness⁽⁴⁾. It could reduce infant mortality by 13%⁽⁵⁾ and decrease the risk of morbidity from infection^(6,7). Moreover, it increases infant immunity through generous nutrients for growth and development and provides physiological and social psychological benefit as well as learning interactions and communication between parents and their infants⁽⁸⁾.

Although there are many benefits to breastfeeding, its prevalence and duration in many countries is still lower than the international recommendation for exclusive breastfeeding for the first six months of life⁽⁴⁾. In the United States, data from the national survey in 2004 demonstrated that only 30.5% and 11.3% of mothers exclusively breastfed at the three and six months, respectively⁽⁴⁾. In Sri Lanka, the median duration of exclusive breastfeeding was four months. The rates of exclusive breastfeeding at four and six months were 61.6% and 15.5%, respectively⁽⁹⁾. In Hong Kong, only 10% and 2% of mothers exclusively breastfed at three and six months, respectively⁽¹⁰⁾.

In Thailand, the National Breastfeeding Project began in 1989. Its major objective was to promote postpartum mothers to exclusively breastfeed for the first six months and breastfeed with supplementary food until the infants are two years old. The main activities have been the promotion of the Baby-Friendly Hospital Initiative; legislation on maternity leave; and the Code of Marketing of Breast Milk Substitutes and related products. The development of the Baby-Friendly Hospital Initiative may in part explain the increase in the prevalence rate of breastfeeding. However, exclusive breastfeeding has not shown a favorable increase. The survey in 2005 found exclusive breastfeeding at 6-month was only 14.5% while the national target of the Ninth National Health Development Plan (NHDP) had been set at 30%⁽¹¹⁾. Recently, the prevalence of exclusive breastfeeding at 6-month in Bangkok was still low (11%)⁽¹²⁾. There are many factors affecting the success of breastfeeding promotion.

Although there have been many studies regarding intervention or instruments to increase the rates of exclusive breastfeeding for the recommended duration of six months^(3,13-16), the success rates were

still lower than the international recommendation⁽⁴⁾. Therefore, an additional special important strategy and technique for education and promoting the exclusive breastfeeding during the first six months among pregnant women are needed. From the compilation and review of various Knowledge Sharing Practices with Empowerment Strategies (KSPES)⁽¹⁷⁾, this should be the most appropriate method to change and motivate behavior of exclusive breastfeeding at 6-month postpartum. It is composed of Knowledge Sharing Practices (KSP) and Empowerment, which KSP is top management support has been very effective in the organization under study as indicated by the existence of KM (Knowledge Management) technologies. The explicit and tacit knowledge in the organization is shared through knowledge sharing practices. Explicit knowledge in an organization is represented in the form of databases, documents, best practices, or processes in the organizations. Tacit knowledge is not structured and more concrete, in invisible form. In this case, the transmission of sensations, feelings, or values plays an important role. Knowledge sharing practices model composed of communication, demonstration and display, best practices, and storytelling. Furthermore, empowerment process of Gibson⁽¹⁷⁾ who revealed that the mothers' commitment to, bond with, and love for, their child, which motivated and sustained the process of empowerment, consists of four steps as discovering reality, critical reflection, taking charge, and holding on. KSPES is never applied with promoting exclusive breastfeeding during the first six months of life. The objective of the present study was to compare the effectiveness of KSPES on antenatal education and postnatal support strategies versus the usual standard knowledge of breastfeeding technique on the rates of exclusive breastfeeding during the first six months postpartum.

Material and Method

Study population

Between January and March 2009, healthy pregnant women of more than 32 weeks' gestation who were attending antenatal care clinics at the Department of Obstetrics and Gynecology, King Chulalongkorn Memorial Hospital, Faculty of Medicine, Chulalongkorn University and Theptarin Hospital, Bangkok, Thailand were recruited. The eligible pregnant were those with more than 32 weeks' gestation, healthy, delivery of full term healthy infants, no disease or contraindications to breastfeeding, no nipple abnormalities, and infants

who had no sucking problems. They also had to be able to communicate with others, and had to have a telephone line. The authors excluded pregnant women with high-risk and multifetal pregnancies.

After the present study was approved by the Ethical Review Committee for Research Involving Human Research Subjects, the Health Science Group, the Ethics Committee of Faculty of Medicine, Chulalongkorn University, Thailand and the Ethics Committee on Researches Involving Human Subjects of Theptarin Hospital, eligible women who signed an informed consent were randomized into two groups, the study and control groups. A randomization scheme was generated using a random number table. The co-investigator generated the allocation sequence, and principal investigator enrolled participants and assigned participants to their groups. When a woman met the present study inclusion criteria, the principal investigator picked up a sequentially numbered opaque envelope that contained a ticket identifying the group. The woman was then assigned to either the study or the control group according to the ticket. Neither the provider nor the woman was blind to the treatment regimens.

A first self-administered anonymous written questionnaire that consisted of general information, knowledge about breastfeeding, attitudes towards breastfeeding and self-efficacy for self-management toward breastfeeding was completed. Then, the women in the control group received only routine standard knowledge of breastfeeding techniques, while the women in the study group received routine standard knowledge of breastfeeding techniques with knowledge sharing practices with an empowerment strategies (KSPES) program on antenatal education and postnatal support strategies. The KSPES program on antenatal education took about three hours by only the principal investigator. A second self-administered written questionnaire was completed after receiving the knowledge. They subsequently received routine intrapartum and postpartum obstetric care. All women in the present study group were followed-up with regard to exclusive breastfeeding by telephone interviews at 7 and 14 days, 1, 2, 3, 4, 5, and 6 months after delivery and by home visits in cases that had problems with exclusive breastfeeding. Pregnant women in the control group receive a routine breastfeeding education at least two times. At the first time antenatal check-up, their breasts and nipples were checked, and any abnormality corrected such as by using Hoffman's maneuver or using breast cups to

cover the nipples. At the second and subsequent antenatal check-ups, pregnant women received advice on breastfeeding education such as benefits of breastfeeding, significance of exclusive breastfeeding, techniques in successful of exclusive breastfeeding, importance of breastfeeding immediately, disadvantages of formula milk and water, and ways to make sure for breastfeed when mothers have to return to work outside the house. In addition, document on breastfeeding was provided, that affects breastfeeding behavior of postpartum mothers. All the women in the control group were followed up with regard to exclusive breastfeeding by routine visit at 1, 2, 4, and 6 months postpartum at Pediatrics clinic. The KSPES program in antenatal education class was explored for the purpose of formalization, sharing discussion of their knowledge by storytelling, experience by best practices, demonstrating and displaying the thoughts of the pregnant women, which are the steps of the Knowledge Sharing Practice (KSP) and applying them with empowerment based on Gibson's theory⁽¹⁷⁾. Gibson's theory consists of four steps, discovering reality, critical reflection, taking charge, and holding on (Fig. 1). In this way, it is the professional concept in leading to intrinsic and extrinsic development of the individuals to gain potential in accepting the situation and successful experience of exclusive breastfeeding. They could discover their own success in managing themselves to breastfeeding and learn about the others' experiences. The former strategies were the most appropriate methods in changing and motivating behavior in the pregnant women for improving exclusive breastfeeding during the first six months. The demographic data and delivery outcomes were recorded.

The primary outcome was the rate of exclusive breastfeeding at 6-month postpartum in study and control groups. The secondary outcomes were rates of exclusive breastfeeding at seventh and fourteen days, one, two, three, four, and five months postpartum. Exclusive breastfeeding was defined as only mothers' breast milk was the infants' food source, without the other oral rehydration solution including water. Predominant breastfeeding was defined as the infants were fed with the mothers' breast milk and water, sweetened water and juices without formula. Partial breastfeeding was defined as the infants who were fed with the mothers' breast milk and complementary food such as formula milk, gruel, semisolids, or solids. No breastfeeding meant the infants were fed only with formula milk and other liquids or food.

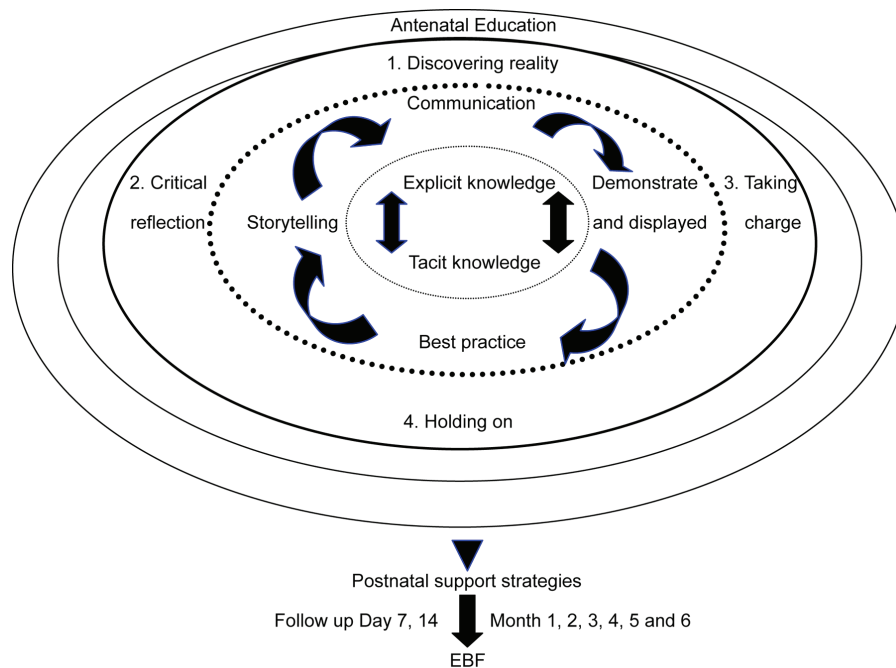


Fig. 1 A model for KSPES

Statistical analysis

The sample size calculation was based upon the estimated rates of exclusive breastfeeding at 6-month, 5% in the control group (from pilot survey), and 30% in the study group. Thus, the authors needed 36 women in each group to detect statistical difference ($\alpha = 0.05, \beta = 0.2$). With adjustments for a withdrawal rate of 10%, a minimum of 40 women in each group were required.

SPSS version 13 was used for statistical analysis (SPSS Inc., Chicago, IL, USA). Test-retest reliability was used for confirmation of the validity of the questionnaire. Categorical data was expressed by percentage and comparison was made by the Chi-square test or Fisher exact test. Continuous variables were expressed as mean and standard deviations or median and compared by student t-test or Mann-Whitney U test. Intra-group comparison of continuous variables was carried out using paired t-test and unpaired t-test for inter-group comparison. A p-value < 0.05 was considered statistically significant.

Results

Screening, randomization, discontinuation, and loss to follow-up are summarized in Fig. 2. Eighty women were enrolled in the present study. The women

were equally randomized into two groups (40 women were randomized in the study group, and 40 women in the control group). Sixty pregnant women were from King Chulalongkorn Memorial Hospital (75%), while 20 (25%) were from Theptarin Hospital. The follow-up was completed in October 2009. Seven women were lost to follow-up (3 in the study group and 4 in the control group). Two women in the control group were excluded, dead fetus in utero and neonatal death from heart disease at 1-month of age. Seventy-one (88.8%) women (37 in the study group and 34 in the control group) completed six months of follow-up. The demographic characteristics of the women according to group are summarized in Table 1. There was no statistical difference between the groups regarding age, religion, education, occupation, work place, family income, parity, family status, family's characteristics, intention, and plan to breastfeeding. Both groups were also similar in mode of delivery and the infants' birth weight (Table 2). Since seven women were lost to follow-up, an intention-to-treat analysis, counting all lost to follow-up women as non-exclusive breastfeeding, was performed.

Table 3 shows the score of KSPES before and after intervention between the study and control groups. The mean scores of knowledge, attitude, and

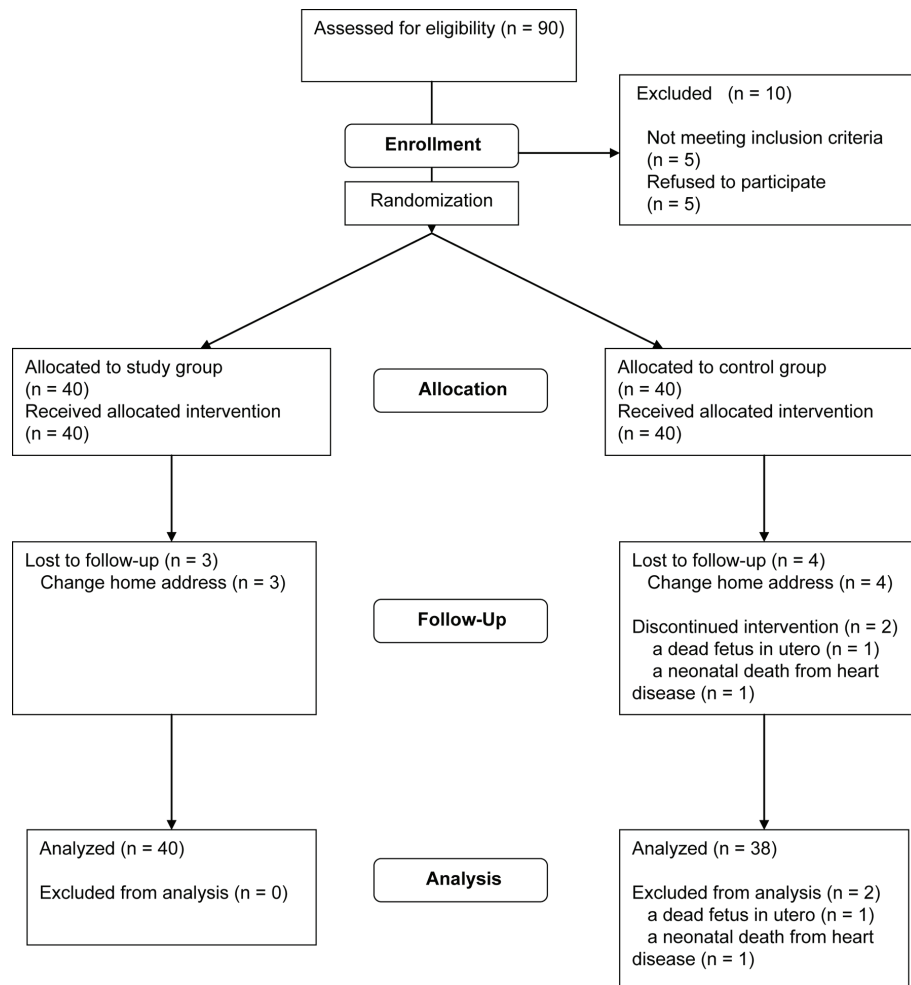


Fig. 2 Profile of patient recruitment and follow-up following randomization to either study or control group

self-efficacy for self-management before intervention in both groups were similar. The mean scores after intervention of the study group were significantly higher ($p < 0.001$).

Table 4 shows the mean scores of knowledge, attitude, and self-efficacy for self-management before and after intervention in the control group were similar. The mean scores after intervention were significantly higher than those before in the study group ($p < 0.001$).

Table 5 shows the rates of exclusive breastfeeding. Comparing with the control group, women in the study group had significantly higher rates of exclusive breastfeeding at 14 days, 1, 2, 4, 5, and 6 months. Rates of exclusive breastfeeding in the study group compared with those in the control group were 82.5% vs. 52.6%, $p = 0.005$ at 14 days, 77.5% vs.

52.6%, $p = 0.021$ at 1 month, 62.5% vs. 36.8%, $p = 0.023$ at 2 months, 35.0% vs. 7.9%, $p = 0.008$ at 4 months, 25.0% vs. 2.6%, $p = 0.012$ at 5 months, and 20.0% vs. 0%, $p = 0.005$ at 6 months. Rates of predominant breastfeeding were also significantly higher in the study group than those in the control group at 3, 5, and 6 months. However, the rates of partial breastfeeding were no difference between groups. Rates of “no breastfeeding” were significantly higher in the control group than those in the study group at 2, 3, 4, 5, and 6 months.

Discussion

The present study showed that KSPES on antenatal education and postnatal support strategies could significantly improve rates of

Table 1. Demographic characteristic of the study and the control group

Characteristics	Study group (n = 40) n (%)	Control group (n = 40) n (%)	p-value
Age (years), mean \pm SD	27.8 \pm 6.5	28.8 \pm 6.3	0.508
Religion			0.314
Buddhists	40 (100%)	39 (97.5%)	
Muslims	0	1 (2.5%)	
Education status			0.198
Primary school level	8 (20%)	7 (17.5%)	
Secondary school level	16 (40%)	17 (42.5%)	
Vocational education and Bachelor or higher level	16 (40%)	16 (40.0%)	
Occupation			0.376
Student and housewives	8 (20.0%)	9 (22.5%)	
Employees	11 (27.5%)	17 (42.5%)	
Private officials	8 (20.0%)	8 (20.0%)	
Government officials	4 (10.0%)	4 (10.0%)	
Business owners and trading	9 (22.5%)	2 (5.0%)	
Work place			0.626
At their house	13 (32.5%)	11 (27.5%)	
Outside their house	27 (67.5%)	29 (72.5%)	
Median of family income (Bahts/month) (interquartile range)	12,500 (8,500-20,000)	16,000 (10,000-30,000)	0.151*
Parity			0.653
Primiparous	23 (57.5%)	21 (52.5%)	
Multiparous	17 (42.5%)	19 (47.5%)	
Family's status			0.589
Stay with husband (every day)	35 (87.5%)	33 (82.5%)	
Stay with husband (some days)	4 (10.0%)	4 (10.0%)	
Separated from husband (widow/divorce)	1 (2.5%)	3 (7.5%)	
Family's characteristic			0.369
Single family (composed of wife and husband)	20 (50.0%)	24 (60.0%)	
Extended family (composed of wife, husband and relatives)	20 (50.0%)	16 (40.0%)	
Intention to breastfeeding			1.000
Having Intention	38 (95.0%)	37 (92.5%)	
Not having intention	2 (5.0%)	3 (7.5%)	
Plan to breastfeeding			1.000
Having plan	31 (77.5%)	31 (77.5%)	
Not having plan	9 (22.5%)	9 (22.5%)	

* Data was presented as median and comparison by Mann-Whitney U test

exclusive breastfeeding during the first six months after delivery when compared with routine standard knowledge. The results of this study provided new information regarding first use of KSPES on exclusive breastfeeding, which has been used only in patients with diabetes⁽¹⁸⁾.

World Health Organization (WHO) and other organizations have endorsed the importance of promoting and supporting breastfeeding as the best feeding method used exclusively for at least six months and continued along with complementary feeding for not less than two years of life⁽²⁾. Similarly, in Thailand,

the Ministry of Public Health has supported the importance of at least exclusive breastfeeding and the operational target is made at least 30% of postpartum mothers⁽¹¹⁾. However, rates of exclusive breastfeeding in the study group were still lower than the operational target, but higher than the national rates for exclusive breastfeeding (14.5%). The reason may be explained by the use of a standard knowledge of breastfeeding techniques in the national strategies.

There have been studies to evaluate the effect of intervention on rates of exclusive breastfeeding. However, the rates of exclusive breastfeeding are not

Table 2. Mode of delivery and infants' birth weight

Characteristics	Study group (n = 40)	Control group (n = 40)	p-value
Mode of delivery			0.116
Normal delivery	25 (62.5%)	18 (45.0%)	
Instrumental vaginal delivery and Caesarean section	15 (37.5%)	22 (55.0%)	
Infants' birth weight (grams)	3,267.3 ± 331.5	3,149.5 ± 504.1	0.221

Table 3. Mean scores of various topics related to women pregnancy in the studying group before and after intervention

Topics	Study group (n = 40)	Control group (n = 40)	p-value
Knowledge about breastfeeding			
Before	8.8 ± 2.8	9.7 ± 3.2	0.175
After	18.7 ± 0.7	9.5 ± 2.7	<0.001*
Attitude toward breastfeeding			
Before	3.3 ± 0.7	3.5 ± 0.4	0.054
After	4.5 ± 0.4	3.5 ± 0.5	<0.001*
Self-efficacy for self-management toward breastfeeding			
Before	3.2 ± 0.4	3.4 ± 0.4	0.056
After	4.4 ± 0.2	3.3 ± 0.5	<0.001*

* Significant at the $p < 0.001$ level

Table 4. Mean scores of various topics related to women pregnancy in the studying group before and after intervention within the study and control groups

Topics	Study group (n = 40)		Control group (n = 40)	
	Mean ± SD of difference	p-value	Mean ± SD of difference	p-value
Knowledge about breastfeeding	10.0 ± 2.8	<0.001	0.18 ± 2.2	0.617
Attitude toward breastfeeding	1.2 ± 0.7	<0.001	0.01 ± 0.3	0.819
Self-efficacy for self-management toward breastfeeding	1.2 ± 0.5	<0.001	0.10 ± 0.3	0.059

high. Su et al⁽³⁾ performed a randomized controlled trial to evaluate antenatal education and postnatal support strategies for improving rates of exclusive breastfeeding. They found that antenatal breastfeeding education and postnatal lactation support both significantly improve rates of exclusive breastfeeding for up to six months after delivery. Rates of exclusive breastfeeding were 19%, 19%, and 9% in antenatal breastfeeding education, postnatal lactation support, and the control group, respectively. Anderson et al⁽¹³⁾ performed a randomized trial assessing the efficacy of peer counseling on exclusive breastfeeding in a predominantly Latina low-income community. They found that rates of exclusive breastfeeding throughout

the first three months were significantly higher for the peer-counseling group than the control group (21% vs. 1%). Susin et al⁽¹⁶⁾ performed a study of paternal inclusion in breastfeeding programs to promote breastfeeding. They found that rates of exclusive breastfeeding at four months were higher in the mothers' and fathers' intervention group (16.5% vs. 11.1% in the mothers' only intervention group and 5.7% in the control group). The result of the present study shows higher rates of exclusive breastfeeding than previous studies^(3,13,16).

In the present study, KSPES on antenatal education and postnatal support strategies was more effective than the routine standard knowledge of

Table 5. Relationship of breastfeeding practices during the first 7, 14 days, 1, 2, 3, 4, 5 and 6 months postpartum between the study and control groups

Sample group	Breastfeeding practices			
	EBF, n (%)	PDBF, n (%)	PBF, n (%)	NBF, n (%)
7 Days				
Study group	37 (92.5%)	3 (7.5%)	0	0
Control group	29 (76.3%)	3 (7.9%)	2 (5.3%)	4 (10.5%)
p-value	0.095	1.000	0.234	0.051
14 Days				
Study group	33 (82.5%)	5 (12.5%)	2 (5.0%)	0
Control group	20 (52.6%)	8 (21.1%)	6 (15.8%)	4 (10.5%)
p-value	0.005*	0.311	0.148	0.051
1 month				
Study group	31 (77.5%)	7 (17.5%)	2 (5.0%)	0
Control group	20 (52.6%)	7 (18.4%)	7 (18.4%)	4 (10.5%)
p-value	0.021*	0.915	0.083	0.051
2 months				
Study group	25 (62.5%)	10 (25.0%)	5 (12.5%)	0
Control group	14 (36.8%)	5 (13.2%)	5 (13.2%)	14 (36.8%)
p-value	0.023*	0.184	0.93	<0.0001*
3 months				
Study group	20 (50.0%)	13 (32.5%)	7 (17.5%)	0
Control group	13 (34.2%)	4 (10.5%)	8 (21.1%)	13 (34.2%)
p-value	0.158	0.018*	0.69	<0.0001*
4 months				
Study group	14 (35.0%)	11(27.5%)	10 (25.0%)	5 (12.5%)
Control group	3 (7.9%)	5 (13.2%)	10 (26.3%)	20 (52.6%)
p-value	0.008*	0.116	0.894	<0.0001*
5 months				
Study group	10 (25.0%)	12 (30.0%)	10 (25.0%)	8 (20.0%)
Control group	1 (2.6%)	2 (5.3%)	10 (26.3%)	25 (65.8%)
p-value	0.012*	0.004*	0.894	<0.0001*
6 month				
Study group	8 (20.0%)	16 (40.0%)	6 (15.0%)	10 (25.0%)
Control group	0	2 (5.3%)	6 (15.8%)	30 (78.9%)
p-value	0.005*	0.0002*	0.923	<0.001*

*Significant at the $p < 0.05$, EBF = Exclusive breastfeeding, PDBF = Predominant breastfeeding, PBF = Partial breastfeeding, NBF = No breastfeeding

breastfeeding techniques. This was supported by the mean scores of knowledge about breastfeeding, attitudes towards breastfeeding and self-efficacy for self-management toward breastfeeding after the intervention of the study group, which were significantly higher than those after routine standard knowledge of the control group. The mean scores of knowledge about breastfeeding, attitude toward breastfeeding, and self-efficacy for self-management toward breastfeeding after intervention were also significantly higher than those before intervention in the study group.

Rates of exclusive breastfeeding at 6 months in the present study were 20%. This rate was comparable with the study from Singapore (21.1%)⁽¹⁹⁾. This rate was higher than the studies without intervention from Laisiruangrai et al (11.0%)⁽¹²⁾ and Wong et al (2%)⁽¹⁰⁾. The differences of population studied, sample size, geographic location, having intervention or not, as well as the year of survey might be possible explanations for the difference of exclusive breastfeeding rates among these studies.

The strength of the present study was the randomized controlled trial of the KSPES program on

antenatal education and postnatal support strategies to improve exclusive breastfeeding during the first six months postpartum, which was first used in the present study. The KSPES program is an effective program or important strategy because it explores for the purpose of formalization, sharing discussion of their knowledge by storytelling, experience by best practice, demonstrating and displaying with thoughts within the pregnant women, in addition to applying the four steps of empowerment based on Gibson's theory⁽¹⁷⁾. Furthermore, postnatal support strategies are also important strategies to follow-up by telephone interview at seven days until six months postpartum that motivate and stimulate the mother's behavior and improve rates of exclusive breastfeeding over a longer period. The limitation of the present study was that it took a long time to follow-up. Thus, the present study had 11.2% of women who were lost to follow-up.

Conclusion

KSPES on antenatal education and postnatal support strategies significantly improve rates of exclusive breastfeeding at 6 months postpartum. These strategies also significantly improve rates of exclusive breastfeeding at 14 days, 1, 2, 4, 5, and 6 months postpartum.

Competing Interests

The authors declare that they have no conflict of interests.

Acknowledgements

The authors wish to thank Associate Professor Ganyadar Prachusilpa, Ph.D.(Nursing) and Mrs. Meena Sobsamai (International Board Certified Lactation Consultant, USA 2001) for providing helpful advice regarding the KSPES program, King Chulalongkorn Memorial Hospital and Theptarin Hospital staff and the participating mothers.

References

- Gartner LM, Morton J, Lawrence RA, Naylor AJ, O'Hare D, Schanler RJ, et al. Breastfeeding and the use of human milk. *Pediatrics* 2005; 115: 496-506.
- World Health Organization. The prevalence and duration of breast-feeding: a critical review of available information. Division of Family Health World Health Organization. *World Health Stat Q* 1982; 35: 92-116.
- Su LL, Chong YS, Chan YH, Chan YS, Fok D, Tun KT, et al. Antenatal education and postnatal support strategies for improving rates of exclusive breast feeding: randomised controlled trial. *BMJ* 2007; 335: 596.
- World Health Organization. The optimal duration of exclusive breastfeeding: a systematic review. Geneva: WHO; 2002.
- Beasley A, Amir LH. Infant feeding, poverty and human development. *Int Breastfeed J* 2007; 2: 14.
- Huffman SL, Zehner ER, Victora C. Can improvements in breast-feeding practices reduce neonatal mortality in developing countries? *Midwifery* 2001; 17: 80-92.
- Huffman SL, Combest C. Role of breast-feeding in the prevention and treatment of diarrhoea. *J Diarrhoeal Dis Res* 1990; 8: 68-81.
- Bottorff JL. Persistence in breastfeeding: a phenomenological investigation. *J Adv Nurs* 1990; 15: 201-9.
- Agampodi SB, Agampodi TC, Piyaseeli UK. Breastfeeding practices in a public health field practice area in Sri Lanka: a survival analysis. *Int Breastfeed J* 2007; 2: 13.
- Wong EH, Nelson E, Choi KC, Wong KP, Ip C, Ho LC. Evaluation of a peer counselling programme to sustain breastfeeding practice in Hong Kong. *Int Breastfeed J* 2007; 2: 12.
- Hangchaovanich Y, Voramongkol N. Breastfeeding promotion in Thailand. *J Med Assoc Thai* 2006; 89 (Suppl 4): S173-7.
- Laisiruangrai P, Wiriyasirivaj B, Phaloprakarn C, Manusirivithaya S. Prevalence of exclusive breastfeeding at 3, 4 and 6 months in Bangkok Metropolitan Administration Medical College and Vajira Hospital. *J Med Assoc Thai* 2008; 91: 962-7.
- Anderson AK, Damio G, Young S, Chapman DJ, Perez-Escamilla R. A randomized trial assessing the efficacy of peer counseling on exclusive breastfeeding in a predominantly Latina low-income community. *Arch Pediatr Adolesc Med* 2005; 159: 836-41.
- Huang MZ, Kuo SC, Avery MD, Chen W, Lin KC, Gau ML. Evaluating effects of a prenatal web-based breastfeeding education programme in Taiwan. *J Clin Nurs* 2007; 16: 1571-9.
- Hopkinson J, Konefal GM. Assignment to a hospital-based breastfeeding clinic and exclusive breastfeeding among immigrant Hispanic mothers: a randomized, controlled trial. *J Hum Lact* 2009; 25: 287-96.
- Susin LR, Giugliani ER. Inclusion of fathers in an

- intervention to promote breastfeeding: impact on breastfeeding rates. *J Hum Lact* 2008; 24: 386-92.
17. Gibson CH. A concept analysis of empowerment. *J Adv Nurs* 1991; 16: 354-61.
18. Funnell MM, Nwankwo R, Gillard ML, Anderson RM, Tang TS. Implementing an empowerment-based diabetes self-management education program. *Diabetes Educ* 2005; 31: 53, 55-6, 61.
19. Foo LL, Quek SJ, Ng SA, Lim MT, Deurenberg-Yap M. Breastfeeding prevalence and practices among Singaporean Chinese, Malay and Indian mothers. *Health Promot Int* 2005; 20: 229-37.

การวิจัยแบบสุ่มตัวอย่างของการแลกเปลี่ยนเรียนรู้ร่วมกับการเสริมสร้างพลังอำนาจในหญิงตั้งครรภ์ต่อการส่งเสริมอัตราการเลี้ยงลูกด้วยนมมารดาอย่างเดียวยุติเวลา 6 เดือนแรกหลังคลอด

จุฑามาศ คุประตกุล, สุรศักดิ์ ฐานิพานิชสกุล, นิพรรณพร วรมงคล, วรพงศ์ ภู่งศ์

วัตถุประสงค์: เพื่อศึกษาว่าการใช้โปรแกรม การแลกเปลี่ยนเรียนรู้ร่วมกับการเสริมสร้างพลังอำนาจในหญิงตั้งครรภ์เพิ่มอัตราการเลี้ยงลูกด้วยนมมารดาอย่างเดียวยุติเวลา 6 เดือนแรกหลังคลอดหรือไม่เมื่อเปรียบเทียบกับ การได้รับความรู้ของการเลี้ยงลูกด้วยนมมารดาแบบมาตรฐาน

วัสดุและวิธีการ: โดยศึกษาในหญิงตั้งครรภ์ที่มีอายุครรภ์มากกว่า 32 สัปดาห์ ซึ่งจัดแบ่งกลุ่มตัวอย่างจากการสุ่ม เป็น 2 กลุ่ม จำนวนที่เท่ากันคือ กลุ่มทดลองและกลุ่มควบคุม กลุ่มละ 40 คน กลุ่มทดลองได้รับความรู้ของโปรแกรม การแลกเปลี่ยนเรียนรู้ร่วมกับการเสริมสร้างพลังอำนาจและการเลี้ยงลูกด้วยนมมารดาตามปกติ ส่วนกลุ่มควบคุม ได้รับเพียงความรู้ของการเลี้ยงลูกด้วยนมมารดาแบบมาตรฐาน ผลลัพธ์ของการศึกษาหลักคืออัตราการเลี้ยงลูก ด้วยนมมารดาอย่างเดียวยุติเวลา 6 เดือน แรกหลังคลอด ผลลัพธ์ของการศึกษารอง คือ อัตราการเลี้ยงลูกด้วยนม มารดาอย่างเดียวยุติเวลาหลังคลอด 7, 14 วัน, 1, 2, 3, 4 และ 5 เดือนแรก

ผลการศึกษา: อัตราการเลี้ยงลูกด้วยนมมารดาอย่างเดียวยุติเวลา 6 เดือนแรกหลังคลอด ในกลุ่มทดลอง สูงกว่า กลุ่มควบคุมอย่างมีนัยสำคัญทางสถิติที่ 14 วันแรก (82.5% และ 52.6%, $p = 0.005$), 1 เดือนแรก (77.5% และ 52.6%, $p = 0.021$), 2 เดือนแรก (62.5% และ 36.8%, $p = 0.023$), 4 เดือนแรก (35.0% และ 7.9%, $p = 0.008$), 5 เดือนแรก (25.0% และ 2.6%, $p = 0.012$) และ 6 เดือนแรกหลังคลอด (20.0% และ 0%, $p = 0.005$)

สรุป: โปรแกรมการแลกเปลี่ยนเรียนรู้ร่วมกับการเสริมสร้างพลังอำนาจในการอบรมก่อนคลอดและกลยุทธ์ ในการติดตามช่วยเหลือการเลี้ยงลูกด้วยนมมารดาภายหลังคลอด สามารถเพิ่มอัตราการเลี้ยงลูกด้วยนมมารดา อย่างเดียวยุติเวลา 6 เดือน แรกหลังคลอด และอัตราการเลี้ยงลูกด้วยนมมารดาอย่างเดียวยุติเวลา 6 เดือน แรกหลังคลอด ในกลุ่มทดลองสูงกว่ากลุ่มควบคุมอย่างมีนัยสำคัญทางสถิติที่ 14 วันแรก, 1, 2, 4, 5 และ 6 เดือน แรกหลังคลอด