



Flipchart application for promoting maternal self-efficacy in breastfeeding

Aplicação de álbum seriado para promoção da autoeficácia materna em amamentar

Aplicación de álbum ilustrado para promoción de la autoeficacia materna en lactancia

Anne Fayma Lopes Chaves¹, Glyciane Pinheiro de Lima², Gleicia Martins de Melo¹, Rebeca Silveira Rocha¹, Hérica Cristina Alves de Vasconcelos¹, Mônica Oliveira Batista Oriá¹

Objective: evaluating the effects of using a flipchart as an educational intervention in improving maternal self-efficacy in breastfeeding. **Methods:** a quasi-experimental study with 41 postpartum women: Intervention Group (n = 20) and Control Group (n = 21) of a public hospital. The intervention consisted of implementing the flipchart “I can breastfeed my baby” in the immediate postpartum and were contacted by telephone after 15 days. For both groups, *Breastfeeding Self-Efficacy Scale-Short Form* was applied at baseline and after 30 days. **Results:** before the intervention, the intervention group was 75% with high self-efficacy and 71% of the mothers in the control group of had high self-efficacy. It was found that after educational intervention, all the mothers in the intervention group showed high self-efficacy, while the percentage remained similar to before in the control group (76%). **Conclusion:** the flipchart had a positive effect on the elevation of self-efficacy in nursing mothers.

Descriptors: Breast Feeding; Self-Efficacy; Health Education.

Objetivo: avaliar os efeitos do uso do álbum seriado como intervenção educativa na melhoria da autoeficácia materna na amamentação. **Métodos:** estudo quase experimental com 41 puérperas: Grupo Intervenção (n=20) e Grupo Controle (n=21) de uma maternidade pública. A intervenção consistiu na aplicação do álbum seriado “Eu posso amamentar o meu filho” no pós-parto imediato e contato telefônico após 15 dias. Para ambos os grupos, foi aplicada a *Breastfeeding Self-Efficacy Scale-Short Form* no momento inicial e após 30 dias. **Resultados:** antes da intervenção, no grupo intervenção havia 75% com elevada autoeficácia e no grupo controle 71% das mães tinham alta autoeficácia. Constatou-se que, após intervenção educativa, todas as puérperas do grupo intervenção apresentaram autoeficácia elevada, enquanto que o percentual se manteve semelhante ao início no grupo controle (76%). **Conclusão:** o álbum seriado teve efeito positivo na elevação da autoeficácia das mães em amamentar.

Descritores: Aleitamento Materno; Autoeficácia; Educação em Saúde.

Objetivo: evaluar efectos del uso del álbum seriado como intervención educativa en la mejora de la autoeficacia materna en amamantamiento. **Métodos:** estudio cuasi-experimental con 41 puérperas: Grupo de Intervención (n=20) y Grupo Control (n=21) de una maternidad pública. La intervención consistió en la aplicación del álbum ilustrado “Puedo alimentar a mi hijo” en el posparto y contacto por teléfono después de 15 días. Para ambos grupos, se aplicó la *Breastfeeding Self-Efficacy Scale-Short Form* al inicio del estudio y después de 30 días. **Resultados:** antes de la intervención, el grupo intervención obtuvo 75% de autoeficacia y, en el grupo control, 71% de las madres presentaron alta autoeficacia. Después de la intervención educativa, las madres del grupo intervención mostraron alta autoeficacia, mientras que el porcentaje se mantuvo similar a temprana en el grupo control (76%). **Conclusión:** el álbum ilustrado tuvo efecto positivo en la elevación de la autoeficacia de madres en lactancia.

Descriptores: Lactancia Materna; Autoeficacia; Educación en Salud.

*Extracted from the final paper in the Undergraduate Nursing Course “Aplicação de álbum seriado para promoção da autoeficácia materna em amamentar,” Faculdade Católica Rainha do Sertão, 2013.

¹Universidade Federal do Ceará. Fortaleza, CE, Brazil.

²Enfermeira. Quixadá, CE, Brazil.

Corresponding author: Gleicia Martins de Melo
Rua Marco, 67. Montese. CEP: 60425-150. Fortaleza, CE, Brazil. E-mail: gleiciamm@hotmail.com

Introduction

Breastfeeding is the most sensitive and economical way mothers feed their children, and is considered an effective intervention in reducing child mortality⁽¹⁾.

According to Research of Breastfeeding Prevalence II in Brazilian capitals and the Federal District⁽²⁾, breastfeeding rates have risen. The comparison of the percentage of children aged nine to twelve months breastfed in 1999 and 2008 showed an increase from 42.4% in 1999 to 58.7% in 2008. Despite these indicators, the profile of breastfeeding in the country is still considered unsatisfactory. A higher percentage of exclusive breastfeeding is in the North (45.9%) and the lowest is in the Northeast of Brazil (37%), and the capital city of Fortaleza had the worst exclusive breastfeeding situation (32.9%)⁽²⁾.

Several factors interfere in early weaning, including the mother's self-efficacy in nursing, which is defined as a maternal confidence in her ability to breastfeed her child being the fundamental aspect for the onset, duration and exclusivity of breastfeeding⁽³⁾.

Self-efficacy is considered a factor likely to change through health education activities⁽³⁾, so it is necessary to develop strategies that can generate exchange of experiences and knowledge between professionals and clients⁽⁴⁾.

A quasi-experimental study conducted in Japan aimed at measuring maternal self-efficacy from the Japanese version of the Breastfeeding Self-Efficacy Scale-Short Form (BSES-SF) before and after intervention involving brochures and audiovisual materials. Initially, the total postpartum breastfeeding rate was 90% for the intervention group and 89% for the control. In less than a month postpartum, full breastfeeding rate significantly decreased to 65% in the control group compared with 90% in the intervention group, suggesting that the intervention increases the duration of breastfeeding, reflecting the improvement of maternal self-efficacy⁽⁵⁾.

Currently in health care, technological tools

such as games, booklets and comic strips have helped professionals to expose their knowledge and exchange experiences. From this perspective, the flipchart "I Can Breastfeed my son" was created and validated, being focused on women's self-efficacy in nursing and made up of simple, attractive and visible illustrations and texts using simple vocabulary that aims to promote and increase maternal self-efficacy in the act of breastfeeding⁽⁶⁾.

It is therefore believed that the use of a flipchart on maternal self-efficacy to breastfeed can help to improve the adherence of this practice to reduce early weaning rates, since self-efficacy guides the mother's behavior as they need to feel confident and able to breastfeed their child successfully. Therefore, the aim of this study was to evaluate the effects of using the flipchart as an educational intervention in improving maternal self-efficacy in breastfeeding.

Method

A quasi-experimental study, which is the manipulation of the independent variable through an intervention, but without randomization⁽⁷⁾. We opted for the quasi-experimental model because even with an intervention group (educational intervention) and a control group (with conventional intervention of the institution), the groups were not randomly assigned.

The research was conducted within a public hospital accommodation unit in the city of Quixadá, Ceará, Brazil, from March to May 2014. The study population consisted of women interned in shared rooms. Inclusion criteria were: postpartum women (the period between the first and tenth day succeeding childbirth)⁽⁸⁾ accompanied by their babies who were breastfeeding them and those who had at least one telephone contact.

Women with pathologies that interfered with healthy breastfeeding, with children admitted to the neonatal intensive care unit or those who were hard of hearing were excluded. It is noteworthy that for mothers aged under 18, we requested authorization

from their responsible guardian.

Regarding discontinuance criteria, these consisted of mother's waiver to participate in it after starting collection, stopping breastfeeding or a change in phone contact.

To calculate the sample, we used the formula for studies with comparison groups, with "p" being considered the prevalence of exclusive breastfeeding in children under six months of 41%⁽²⁾ $Z\alpha=95\%$, $Z\beta=80\%$, and $d=15\%$. Thus, there was 66 mothers obtained for each group.

Due to the presence of some exclusion criteria (no phone contact and mothers of babies admitted to the neonatal intensive care unit), as well as prolonged detention of mothers for reasons such as antibiotics or a baby with low weight, these made it difficult to turnover beds in the unit, so it was not possible to achieve the calculated sample.

Thus, the sample was comprised of 46 mothers being equally distributed in the intervention and control groups. The women in the control group received nursing guidance on the routines of services on prenatal consultations and/or motherhood. The intervention group, in addition to guidelines on the routines of services also received guidance through an educational intervention, in which we used a flip chart on the self-efficacy of nursing. After carrying out the steps of the study, five women were excluded: three due to telephone contact difficulty and two due to ceasing to breastfeed. Thus, the final sample included 41 mothers, 20 belonging to the intervention group and 21 to the control group.

Initially patients were interviewed in their beds with the form created by the researchers containing socioeconomic and obstetric data, and then it was applied to BSES-SF. It is emphasized that this interview had an average duration of 10 minutes.

The BSES-SF is a Likert scale, consisting of two areas: the technical aspects of breastfeeding and interpersonal thoughts. The scale has 14 items which have scores ranging from one to five points, for a total of 14-70 points, being ranked as low self-efficacy (14-

32 points); average self-efficacy (33-51 points); and high self-efficacy (52 to 70 points)⁽⁹⁾.

BSES-SF was developed in Canada⁽¹⁰⁾ and validated in Brazil⁽⁹⁾, and aims to assess the mother's confidence in breastfeeding. The use of the scale enables the health professional to know in which domain (technical or interpersonal thoughts) women have lower self-efficacy, thus allowing the implementation of breastfeeding care and promotion strategies according to the needs of each woman⁽¹⁰⁾.

After the use of the instruments, the intervention group received the educational intervention through the flipchart "I can breastfeed my baby." This tool was created by a nurse from the reflection of BSES-SF items. It aims to promote and increase maternal self-efficacy in the act of breastfeeding. The flipchart is divided into seven figures and seven text boxes which address the theme of breastfeeding and areas of the BSES-SF scale (Technical and Intrapersonal Thoughts)⁽⁶⁾.

The flipchart is basically made up of simple, attractive and visible illustrations that reflect the reality, as well as texts in simple vocabulary, making it accessible to the target audience. Therefore, it is considered an easy tool which can be used in daily nursing, favoring the promotion of breastfeeding⁽⁶⁾.

The educational intervention through the use of the flipchart was performed by a single researcher, aiming at standardizing the intervention, with an average duration of 22 minutes.

After 15 days from the initial introduction of the intervention, we contacted mothers in the intervention group by telephone, reinforced directions from the flipchart and clarified any doubts. It is noteworthy that there were a few doubts which needed to be clarified, such as cracks in the nipple, excessive milk production and on-demand breastfeeding.

After 30 days, we contacted both groups by telephone and reapplied the BSES-SF scale. At that time, we used another form with questions about the child's diet, classified according to the definitions by the Ministry of Health⁽¹⁾.

The data were analyzed in Epiinfo software

version 3.5.3. The results were presented in tables and graphs and discussed according to the literature. Exploratory analysis consisted of absolute frequency, relative, mean and standard deviation. For analysis of the variables, we used Fisher's exact test to verify the association between variables.

It is emphasized that the women were invited to participate only after the study received approval from the Research Ethics Committee (Protocol 580.816), and the data collection was performed after the participants signed the Informed Consent form.

Results

The age of participants ranged from 15-38 years, with a mean of 25.7 years (SD= 6.03) in the intervention group and 24.6 years (SD= 7.37) in the control group. The socioeconomic characteristics of the study sample are presented in Table 1.

Table 1 - Distribution of participants in the intervention and control groups according to socioeconomic data

Variables	Intervention Group	Control Group
	n=20(%)	n=21(%)
Education (years)		
Illiterate	-	1(4.5)
1-4	4(20.0)	5(24.0)
5-8	15(75.0)	13(62.0)
≥ 9	1(5.0)	2(9.5)
Occupation		
Housewife	10(50.0)	13(62.0)
Other	10(50.0)	8(74.0)
Family Income (minimum wages)*		
< 1	11(55.0)	13(62.0)
1	7(35.0)	4(19.0)
>1	2(10.0)	4(19.0)
Marital Status		
Married/Stable Union	17(85.0)	17(81.0)
Single	3(15.0)	4(19.0)

*The minimum wage in the period from March to May 2014 in Brazil was R\$724.00

Table 2 shows the data of obstetric history, current pregnancy and postpartum.

Table 2 - Distribution of participants in the intervention and control groups according to historical obstetric/current pregnancy/postpartum data

Variables	Intervention Group	Control Group
	n=20(%)	n=21(%)
Breastfed previously		
No	10(50.0)	13(62.0)
Yes	10(50.0)	8(38.0)
Had prenatal care consultations		
Yes	20 (100.0)	21(100.0)
Received encouragement and guidance to breastfeed		
No	4(20.0)	9(43.0)
Yes	16(80.0)	12(57.0)
Breastfeeding Type		
Mixed / partial breastfeeding	7(35.0)	8(38.0)
Supplemented breastfeeding	1(5.0)	1(5.0)
Exclusive breastfeeding	12(60.0)	12(57.0)

In respect to previous breastfeeding, there was more time in the intervention group (7.3 months) (SD = 12.34) than in the control group (4.3 months) (SD= 9.72). The average number of prenatal consultations by participants was 8.2 (SD ± 2.44) in the intervention group and 7.2 (SD ± 2.21) in the control group.

Before implementing the intervention, the intervention group had 25% of mothers with average self-efficacy and 75% with high self-efficacy. While in the control group, 29% of mothers had average self-efficacy and 71% high self-efficacy at baseline.

Table 3 shows the association of BSES-SF scores in the intervention group before the intervention, with the socioeconomic and obstetric variables.

Table 3 - Association between BSES-SF scores in the intervention group before the intervention and the socioeconomic and obstetric variables in the intervention group

Variable	Average efficiency	High efficiency	P*
	n(%)	n(%)	
Age group (years)			
≤ 18	-	2(100.0)	0.550
> 18	5(28.0)	13(72.0)	
Marital Status			
Single	1(34.0)	2(66.0)	0.600
Married/Stable Union	4(23.0)	13(77.0)	
Occupation			
Housewife	3(30.0)	7(70.0)	0.500
Other	2(20.0)	8(80.0)	
Education level**			
High	5(31.0)	11(69.0)	0.280
Low	-	4(100.0)	
Family Income (Minimum wages)			
< 1	3(27.0)	8(73.0)	0.600
≥ 1	2(22.0)	7(78.0)	
Previous Breastfeeding practice			
No	4(40.0)	6(60.0)	0.150
Yes	1(10.0)	9(90.0)	
Has received encouragement and guidance during prenatal care			
No	4(27.0)	11(73.0)	0.630
Yes	1(20.0)	4(80.0)	

*Fisher Test; **Low Education Level: 1 to 4 years of schooling; Average Education Level: 5 to 8 years of schooling; High Education Level: over 9 years of schooling

It can be seen in the correlations between the scores of BSES-SF scale and sociodemographic and obstetric variables that there was no statistical significance in any of the associations.

Figure 1 shows the comparison between groups after the intervention.

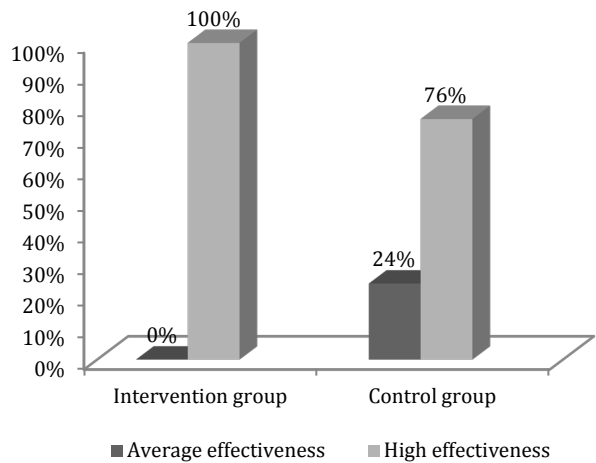


Figure 1 - Comparison of maternal self-efficacy between the intervention and control groups after intervention

Discussion

It was found that both groups were similar with respect to socioeconomic and obstetric variables, showing that the intervention and control groups are homogeneous and similar. Therefore, the discussion of the data will be carried out jointly between the groups.

The findings of this research are similar to the intervention study based on the influence of maternal self-efficacy theory, which found that the intervention and control groups also did not differ statistically in age variable, with its age group ranging from 19-44 years, with the average of 29 years for the intervention group and 29.4 years for the control group⁽¹¹⁾.

Regarding the level of education, it can be seen that over 90% of women in both groups were illiterate or had average schooling, showing a shortage in level of education. Scholars said the low knowledge closely related to reduced education suggests greater abandonment of breastfeeding by mothers⁽¹²⁾.

With regard to occupation, the data revealed that the majority of mothers were “working in the home.” Although research has shown no statistically significant association between breastfeeding at six months and employment status⁽¹³⁾, another study showed that working at home favors the practice of breastfeeding, as well as the mother-infant bond due to maternal availability⁽¹⁴⁾.

With regard to family income, studies show that low-income families tend to not exclusively breastfeed and introduce cow’s milk early in infant feeding⁽¹⁵⁾. Thus, the participants in the present study may have compromised breastfeeding since most participants from both groups have an income of less than one minimum wage salary. Thus, we reiterate the need for the use of educational technologies in relation to guiding mothers in feeding their children in the first six months of life.

Regarding marital status, married women/consensual union predominated. It is emphasized that the fact that mothers are married or living in common-law marriage is a beneficial factor because there is evidence that the father positively influences the mother’s decision to breastfeed⁽¹⁶⁾.

Many of the participants said they had breastfed previously, which proved to be a positive factor as a study that measured self-efficacy among adolescent mothers showed that mothers with previous breastfeeding experience had higher levels of self-efficacy⁽³⁾.

With respect to prior breastfeeding, it was 7.3 months in the intervention group and 4.3 months in the control group. Thus, it is clear that both groups had an average of less than the two years recommended by the Ministry of Health⁽¹⁾.

An important finding in this study was that all mothers had prenatal care, and a number of 8.2 consultations on average in the intervention group and 7.2 in the control group, values above those recommended by the Ministry of Health (minimum of six visits)⁽¹⁷⁾. Thus, it is understood that these mothers were more likely to receive guidance about

the importance of breastfeeding.

Although the control group had not received the educational intervention, the mothers interviewed showed medium and high self-efficacy in nursing. This finding is similar to a cross-sectional study conducted in Santa Maria-RS⁽¹⁸⁾ in which the women studied did not show low self-efficacy. Thus, it is suggested that nurses should perform interventions in order to maintain that confidence in the act of breastfeeding.

The educational intervention using the flipchart had a positive effect because when comparing the two groups, it was found that the mothers in the intervention group had higher self-efficacy compared with mothers in the control group, with average and high self-efficacy. A study conducted in Japan which used a self-efficacy program for breastfeeding as an intervention also found a higher elevation of BSES-SF scores in the intervention group than in the control group⁽⁵⁾. Thus, we see the importance of nurses in using educational materials for the promotion of maternal self-efficacy in nursing.

Reiterating the importance of the use of educational technologies, a pilot study that occurred in Canada conducted a standardized and individualized intervention protocol through two workshop sessions and phone contact after birth, showed higher levels of maternal self-efficacy, duration and exclusivity of breastfeeding in mothers who received the intervention, but without statistical significance⁽¹⁹⁾.

Furthermore, research conducted in Fortaleza which aimed to study the perception of mothers on self-efficacy in nursing, there was no statistically significant associations between the scores of BSES-SF and the studied variables⁽²⁰⁾.

There was no significant difference in the type of child’s diet in the intervention group or control group, showing that exclusive breastfeeding predominated in both. Thus, with regard to the type of child’s diet, we observed that the intervention with the flipchart had a similar impact as the guidelines that the women in the control group received during the prenatal care and/or maternity.

Conclusion

Therefore, it was concluded that the use of the flipchart had a positive effect on elevating the self-efficacy of nursing mothers, given that the participants who had average self-efficacy before the intervention progressed to high self-efficacy.

An important research finding was that exclusive breastfeeding was predominant in both groups, demonstrated by the fact that none of the mothers of the two groups had shown low self-efficacy influences in the type of child's diet, thereby showing the importance of mother's confidence in the act of breastfeeding. However, this finding may have been influenced by the short interval between the first and the last stage of data collection. Perhaps if the range had been expanded to four months, the groups would have behaved differently. Therefore that is the subject of another study that is in progress.

Thus, it is clear that nurses should make use of educational technologies to contribute to better self-efficacy in nursing mothers, thereby reducing premature weaning rates and resulting in a better effect on mother and child.

Sample loss and the inability to follow up for a longer period were considered limitations of this research. Therefore, the replication of the methodology used in larger populations and/or longer periods and the application of other educational technologies is suggested.

Collaborations

Chaves AFL and Melo GM contributed with guidance, study design, statistical analysis, data interpretation, writing and the final paper. Lima GP contributed in the research design, data collection, organization and interpretation of data. Rocha RS, Vasconcelos HCA and Oriá MOB contributed to the drafting and final version of the article to be published.

References

1. Ministério da Saúde (BR). Secretaria de Atenção à Saúde, Departamento de Atenção Básica. Saúde da criança: nutrição infantil, aleitamento materno e alimentação complementar. Brasília; 2009.
2. Ministério da Saúde (BR). Secretaria de Atenção à Saúde, Departamento de Ações Programáticas e Estratégicas. Pesquisa de prevalência de aleitamento materno em municípios brasileiros. Brasília; 2010.
3. Dennis CL, Heaman M, Mossman M. Psychometric testing of the breastfeeding self-efficacy scale-short form among adolescents. *J Adolesc Health*. 2011; 49(3):265-71.
4. Dodt RCL, Ferreira AMV, Nascimento LA, Macêdo AC, Joventino ES, Ximenes LB. Influência de estratégia de educação em saúde mediada por álbum seriado sobre a autoeficácia materna para amamentar. *Texto Contexto Enferm*. 2013; 22(3):610-8.
5. Awano M, Shimada K. Development and evaluation of a self-care program on breastfeeding in Japan: a quasi-experimental study. *I Breast J*. 2010; 5(9):1-10.
6. Dodt RCM, Ximenes LB, Oriá MOB. Validation of a flip chart for promoting breastfeeding. *Acta Paul Enferm*. 2012; 25(2):225-30.
7. Polit DF, Beck CT, Hungler BP. Fundamentos de pesquisa em enfermagem. 7ª ed. Porto Alegre: Artmed; 2011.
8. Vieira F, Bachion MM, Salge AKM, Munari DB. Diagnósticos de enfermagem da NANDA no período pós-parto imediato e tardio. *Esc Anna Nery*. 2010; 14(1):83-9.
9. Dodt RCM, Ximenes LB, Almeida PC, Oriá MOB, Dennis CL. Psychometric and maternal socio-demographic assessment of the breastfeeding self-efficacy scale-short form in a Brazilian sample. *J Nurs Edu Pract*. 2012; 2(3):66-73.
10. Oriá MOB, Ximenes LB. Translation and cultural adaptation of the Breastfeeding Self-Efficacy Scale to Portuguese. *Acta Paul Enferm*. 2010; 23(2):230-8.

11. Nichols J, Schutte NS, Brown RF, Dennis CL, Price I. The impact of a self-efficacy intervention on short-term breast-feeding outcomes. *Health Educ Behav.* 2009; 36(2):250-9.
12. Roig AO, Martínez MR, García JC, Hoyos SP, Navidad GL, Álvarez JCF, et al. Factors associated to breastfeeding cessation before 6 months. *Rev. Latino-Am. Enfermagem.* 2010; 18(3):373-80.
13. Barge S, Carvalho M. Prevalência e fatores condicionantes do aleitamento materno – Estudo ALMAT. *Rev Port Clin Geral.* 2011; 27(6):518-25.
14. Azevedo DS, Reis ACS, Freitas LV, Costa PB, Pinheiro PNC, Damasceno AKC. Conhecimento de primíparas sobre os benefícios do aleitamento materno. *Rev Rene.* 2010; 11(2):53-62.
15. Strassburger SZ, Vitolo MR, Bortolini GA, Pitrez PM, Jones MH, Stein RT. Nutritional errors in the first months of life and their association with asthma and atopy in preschool children. *J Pediatr.* 2010; 86(5):391-9.
16. Silva BT, Santiago LB, Lamonier JA. Fathers support on breastfeeding: an integrative review. *Rev Paul Pediatr.* 2012; 30(1):122-30.
17. Ministério da Saúde (BR). Secretaria de Atenção à Saúde, Departamento de Atenção Básica. Atenção ao pré-natal de baixo risco. Brasília: Ministério da Saúde; 2012.
18. Rodrigues AP, Padoin SMM, Guido LA, Lopes LFD. Pre-natal and puerperium factors that interfere on self-efficacy in breastfeeding. *Esc Anna Nery.* 2014; 18(2):257-61.
19. McQueen KA, Dennis CL, Strempler R, Norman CD. A pilot randomized controlled trial of a breastfeeding self-efficacy intervention with primiparous mothers. *J Obstet Gynecol Neonatal Nurs.* 2011; 40(1):35-46.
20. Tavares MC, Aires JS, Dodt RCM, Joventino ES, Oriá MOB, Ximenes LB. Application of Breastfeeding Self-Efficacy Scale-Short Form to post-partum women in rooming-in care: a descriptive study. *Online Braz J Nurs.* [Internet] 2010 [cited 2014 Jan 15];9(1). Available from: <http://www.objnursing.uff.br/index.php/nursing/article/view/j.1676-4285.2010.2717/599>