

## ORIGINAL ARTICLE

### BREASTFEEDING SELF-EFFICACY AND ITS RELATIONSHIP WITH BREASTFEEDING DURATION\*

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#### ABSTRACT

**Objective:** To evaluate maternal self-efficacy in breastfeeding and investigate its effect on breastfeeding duration in Botucatu - São Paulo.

**Method:** Prospective cohort study (n = 650 mothers/children). The mother-infant dyads were selected from July 2015 to February 2016, when the infants had on average 20 days. The short form of the Self-efficacy Scale in Breastfeeding was applied and the lactation status was evaluated at 2, 3, 4, 6, 9 and 12 months. The associations were evaluated through multiple logistic regression and Cox regression models.

**Results:** 77.9% of the mothers showed high self-efficacy in breastfeeding. Mothers with high self-efficacy are 71% (OR = 0.29) and those with medium self-efficacy 52% (OR = 0.47) less likely to stop breastfeeding before 12 months.

**Conclusion:** Breastfeeding self-efficacy has a positive impact on the duration of breastfeeding, supporting its evaluation and promotion in pre and postnatal nursing care.

**DESCRIPTORS:** Breastfeeding; Self-efficacy; Child Health; Infant; Confidence.

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## AUTOEFICÁCIA NA AMAMENTAÇÃO E A RELAÇÃO COM A DURAÇÃO DO ALEITAMENTO MATERNO

### RESUMO

**Objetivo:** avaliar a autoeficácia materna na amamentação e investigar seu efeito sobre a duração do aleitamento materno em Botucatu - São Paulo.

**Método:** estudo de coorte prospectiva (n=650 mães/filhos). A captação ocorreu de julho de 2015 a fevereiro de 2016, quando os lactentes tinham em média 20 dias. Aplicou-se Escala de Autoeficácia na Amamentação - Forma Curta e a situação de aleitamento foi avaliada aos 2, 3, 4, 6, 9 e 12 meses. As associações foram avaliadas mediante modelos de regressão logística múltipla e regressão de Cox.

**Resultados:** 77,9% das mães apresentaram alta autoeficácia na amamentação. Mães com alta autoeficácia tem 71% (OR=0,29) e com média 52% (OR=0,47) menos chances de cessarem o aleitamento antes dos 12 meses.

**Conclusão:** há influência positiva da autoeficácia em amamentação sobre a duração do aleitamento materno, apoiando sua avaliação e promoção na assistência de enfermagem pré e pós-natal.

**DESCRITORES:** Aleitamento Materno; Autoeficácia; Saúde da Criança; Lactente; Confiança.

## AUTOEFICACIA EN EL AMAMANTAMIENTO Y EN LA RELACIÓN CON LA DURACIÓN DE LA LACTANCIA MATERNA

### RESUMEN:

**Objetivo:** evaluar la autoeficacia materna en el amamantamiento así como investigar su efecto sobre la duración de la lactancia materna en Botucatu - São Paulo.

**Método:** estudio de cohorte prospectivo (n=650 madres/hijos). La obtención de datos ocurrió de julio de 2015 a febrero de 2016, cuando los lactantes tenían en promedio 20 días. Se utilizó la Escala de Autoeficacia en el Amamantamiento - Forma Corta y se evaluó la situación de amamantamiento a los 2, 3, 4, 6, 9 y 12 meses. Se analizaron las asociaciones por medio de modelos de regresión logística múltiple y regresión de Cox.

**Resultados:** 77,9% de las madres presentaron alta autoeficacia en el amamantamiento. Madres con alta autoeficacia tienen 71% (OR=0,29) menos probabilidad de interrumpir el amamantamiento antes de los 12 meses, mientras las con media autoeficacia quedan con 52% (OR=0,47).

**Conclusión:** hay influencia positiva de la autoeficacia en amamantamiento sobre la duración del amamantamiento materno, apoyándose su evaluación y promoción en la asistencia de enfermería pre y posnatal.

**DESCRIPTORES:** Amamantamiento Materno; Autoeficacia; Salud del Niño; Lactante; Confianza.

## INTRODUCTION

Exclusive breastfeeding up to the sixth month of the child's life and introduction of complementary liquid or solid foods at this age and continued breastfeeding up to 2 years of age or more has a protective effect against many diseases in childhood and adulthood, resulting in benefits to the mothers, families and society<sup>(1)</sup>. Despite the recognition of the importance of exclusive breastfeeding and the mobilization and efforts made by governments and society regarding its promotion, protection and support, breastfeeding (BF) and exclusive breastfeeding (EBF) rates and duration are still below the levels recommended by the World Health Organization (WHO) and the Ministry of Health (MS)<sup>(2)</sup>. Therefore, it is worth investigating other possible factors that influence BF. The present study conducted such investigation with the purpose of evaluating a variable that has received little attention so far: breastfeeding self-efficacy.

Breastfeeding self-efficacy or mother's confidence in her ability to breastfeed is a topic of interest to many child health experts because of their potential to impact the initial success of breastfeeding and its duration<sup>(3)</sup>. Moreover, researchers believe that this self-confidence may vary and have investigated ways to enhance it, by stating that interventions conducted by health professionals may increase self-confidence and thereby pave the way for new interventions in pre and postnatal care<sup>(4-5)</sup>.

Self-efficacy is defined as the individuals' belief in their ability to successfully perform a given activity/or adopt a given behavior. This belief can affect their choices as well as the investment needed to implement them<sup>(6)</sup>. Therefore, breastfeeding self-efficacy concerns women's expectations or perceptions of themselves as having the necessary knowledge and skills to breastfeed their infants successfully and for as long as they wish<sup>(7)</sup>.

The building of this self-confidence relies on different sources of information, such as previous positive experiences (personal experience), observation of other breastfeeding mothers, watching videos about breastfeeding (vicarious experience), support and encouragement from someone who is influential and respected by the woman (verbal persuasion) and psychological reactions to the act of breastfeeding (emotional and physiological state)<sup>(6,8)</sup>.

Breastfeeding self-confidence can be measured with the use of the Breastfeeding Self-Efficacy Scale (BSES), available in its original form with 33 items and in its short version, the Breastfeeding Self-Efficacy Scale - Short Form (BSES-SF), with 14 items<sup>(8)</sup>. Two components of self-efficacy are evaluated: technical aspects of BF, such as adequate positioning of the newborn during breastfeeding, comfortable position during breastfeeding, recognition of the signs of high quality lactation, suction of the nipple-areolar complex, among others. The second component concerns desire to breastfeed, internal motivation for breastfeeding and satisfaction with the experience of breastfeeding<sup>(9-10)</sup>.

A systematic review of studies in developed countries found only four cohort studies that used the BSES scale and concluded that mothers with higher scores in the scale sustained exclusive breastfeeding for longer than those with lower scores<sup>(11)</sup>. In a recent study, Iranian researchers monitored 767 mothers in the first and sixth postpartum weeks and found an association between breastfeeding self-efficacy and duration of breastfeeding, with a predictive value<sup>(12)</sup>.

Studies on the relationship between breastfeeding self-efficacy and duration of breastfeeding in Brazil are still scarce and with conflicting results. A small cohort study with 100 postpartum women from the city of São Paulo did not identify a predictive role of breastfeeding self-efficacy on the risk for early weaning<sup>(13)</sup>. Another study with adolescent mothers, conducted in Ribeirão Preto, also found no association between self-efficacy in breastfeeding and prevalence of EBF at 30, 60 and 180 days after delivery<sup>(14)</sup>. However, in Ceará, women with high breastfeeding self-efficacy were more likely to breastfeed (BF) and sustain exclusive breastfeeding (EBF) for a longer period<sup>(15)</sup>. These results show that the context should be considered in the analysis of this relationship between breastfeeding

self-efficacy and duration of breastfeeding, justifying the need for the development of more studies on this topic in Brazil.

Considering knowledge gaps and the controversies regarding its role in the Brazilian context, the present study aimed to evaluate breastfeeding self-efficacy and investigate its effect on breastfeeding duration. The following hypothesis was tested: the higher the breastfeeding self-efficacy, the lower the risk of cessation of EBF before 6 months and BF before 12 months.

Since the self-efficacy construct is susceptible of modification, the recognition of its role in BF duration creates a new field of interventions within prenatal, birth and infant care, with a special focus on the work of the nursing team.

## METHOD

Population-based prospective cohort study. The participants were recruited in a health unit that provides medical and nursing care in the first week of life to all children born and living in the municipality, with high coverage. This is the site where BSES-SF was administered.

The mother-infant dyads were selected from July 2015 to February 2016. Inclusion criteria were mothers who had appointments in the previously mentioned municipal public service and lived in the city. Mothers of twins or babies, mothers with congenital disorders and mothers with HIV or with conditions that contraindicated breastfeeding were excluded. During the period of selection of the mothers for the cohort study, foreign or illiterate mothers were not assisted by the service, as they would find it difficult to complete the BSES.

Intentional sampling was used because all mother/infant dyads that met the inclusion criteria of the study in the period defined for the recruitment were eligible and invited to participate, totaling 650 mothers. For this, trained interviewers stayed from Monday to Friday throughout the entire recruiting period in the unit.

Breastfeeding was evaluated in the first interview conducted with the mothers within the first month of life of their infants; then later when the infants were aged 2 and 4 months, through telephone interviews, and, finally, when they were aged 3, 6, 9 and 12 months, during home interviews.

Regarding data processing, the recommendations of citing secondary sources (Dodt and Oriá)<sup>(9-10)</sup> were followed in the tabulation and evaluation of maternal responses to the scale questions.

To investigate the association between self-efficacy and breastfeeding of infants at different ages, this variable was tested with three versions: self-efficacy score as a continuous variable; category of self-efficacy, with three strata: low (14 to 32), medium (33 to 51) and high (52 to 70); tertiles of self-efficacy. This option is justified by the fact that the version that best expresses the relationship between breastfeeding self-efficacy and the outcomes is not known in advance.

Two analyzes were performed. In the first one, factors associated with the status of infants' feeding at the ages of 3, 6, 9 and 12 months were investigated; in the second, the relationship between self-efficacy and age of cessation of BF and EBF. Thus, the outcomes considered were:

1<sup>st</sup> - BF (yes, no) at 3, 6, 9 and 12 months; EBF (yes, no) at 3 and 6 months of age;

2<sup>nd</sup> - Age of the child, in days, when BF was stopped in the first year of life; Age of cessation of EBF in the first half of life.

Multiple logistic regression models were used in the first approach and Cox regression for the second approach, adjusted for the potential confounders identified, and  $p < 0.20$  was adopted as criterion in preliminary analyzes. The results were considered significant when  $p < 0.05$ . The Statistical Package for Social Sciences (SPSS), version 21.0, was used in all the analyzes.

The study was approved by the Research Ethics Committee of the Medical School of Botucatu-Unesp, Júlio de Mesquita Filho, under protocol no 1.659.829.

## RESULTS

Tables 1 and 2 present the sociodemographic, gestational, labor and newborn characteristics of the cohort at baseline. Most mothers were aged 20-34 years and had 11-16 years of schooling. White color was reported by 61.7% of the mothers and more than 87% lived with a companion (Table 1).

Table 1 – Sociodemographic characteristics of the mothers - CLaB study. Botucatu, SP, Brazil, 2015-2017

Variables	N	%
Schooling (years, n= 645)		
Up to 5	23	3.6
6-10	170	26.3
11-16	436	67.6
17 or more	16	2.5
Age (years, n= 645)		
< 20	95	14.7
20 - 34	459	71.2
35 or older	91	14.1
Work (n= 643)		
Does not work	276	42.9
Works and is currently on paid leave	314	48.8
Works and is currently on unpaid leave	17	2.7
Works and is not on a leave	36	5.6
Skin color (n= 645)		
White	398	61.7
Black	48	7.4
Brown	194	30.1
Yellow	5	0.8
Lives with a companion (n= 644)		
Yes	565	87.7
No	79	12.3
Is a beneficiary of the Bolsa família (family grant) program (n= 644)		
Yes	51	7.9
No	593	92.1

Asked about the acceptance of the pregnancy, 92.7% of the mothers gave positive answers; However, only 47.8% said yes when asked if the pregnancy was planned. Regarding breastfeeding guidance, it was provided during pregnancy to 64.3% of mothers and in the maternity ward to more than 89% of the mothers. There was a prevalence of full-term babies, and the birth weight of most babies ranged from 2500 to 4000g; about 65% of them had skin-to-skin contact with their mothers at birth, and began suckling within the first hour after birth. Also, 77% of the babies were aged 1-2 days when their mothers were discharged from the maternity ward, and most mothers (75.5%) reported having no breastfeeding problems (Table 2).

Table 2 – Characteristics of gestation, delivery and newborns – ClaB study. Botucatu, SP, Brazil, 2015-2017 (continues)

<b>Variables</b>	<b>N</b>	<b>%</b>
Planned pregnancy (n= 630)		
Yes	301	47.8
No	329	52.2
Accepted pregnancy (n= 630)		
Yes	584	92.7
No	46	7.3
Guidance on breastfeeding during prenatal care (n= 645)		
Yes	230	35.7
No	415	64.3
Gestational age at childbirth (weeks, n= 625)		
< 37	38	6.1
37 - 38	240	38.4
39 - 40	271	43.3
41 - 42	76	12.2
Type of delivery (n=643)		
Vaginal	305	47.4
C-section	338	52.6
Skin-to-skin contact at birth (n= 644)		
Yes	421	65.4
No	223	34.6
Infant suckled in the first hour of life (n= 643)		
Yes	420	65.3
No	223	34.7
Mother received guidance on breastfeeding in the maternity ward (n= 645)		
Yes	576	89.3
No	69	10.7
Infant's age at discharge (days, n= 634)		
1-2	489	77.1
3-4	105	16.6

5-6	19	3
7 or older	21	3.3
Mother reported breastfeeding problems (n= 645)		
Yes	158	24.5
No	487	75.5

The impact of breastfeeding self-efficacy on the status of infants, considering BF at 3, 6, 9 and 12 months of age is presented in Table 3. When breastfeeding self-efficacy is considered as a continuous variable, each 1 point increase in the score increases the chance of BF by 8% at 3 months; at 6 months, each 1 point increase in the score increases the chance of BF by 5% and at 9 and 12 months, each 1 point increase in the self-efficacy scale increases the chance of BF by 4%.

Table 3 – Impact of maternal breastfeeding self-efficacy on the status of BF of infants at 3, 6, 9 and 12 months of age - CLaB study (Multivariate Logistic Regression). Botucatu, SP, Brazil, 2015-2017

Age	3 Months <sup>†</sup>		6 Months <sup>‡</sup>		9 Months <sup>‡</sup>		12 Months <sup>§</sup>	
	OR	p	OR	p	OR	p	OR	P
Continuous	CI 95%		CI 95%		CI 95%		CI 95%	
Self-efficacy	1.08	<b>0</b>	1.05	<b>0</b>	1.04	<b>0</b>	1.04	<b>0</b>
	1.04-1.11		1.03-1.08		1.02-1.07		1.01-1.07	
Categories								
Low		<b>0</b>		<b>0</b>		0.05		<b>0.04</b>
Medium	3.14	0.21	2.32	0.33	1.28	0.78	0.73	0.72
	0.53-18.54		0.42-12.67		0.23-7.08		0.13-4.19	
High	9.42	0.01	5.11	0.06	2.34	0.32	1.51	0.63
	1.62-54.94		0.96-27.25		0.44-12.55		0.28-8.24	
Tertiles								
1st		<b>0</b>		<b>0</b>		<b>0</b>		<b>0.01</b>
2nd	2.22	0.01	1.61	0.05	1.91	0.01	1.68	0.05
3rd	1.18-4.18		0.99-2.61		1.18-3.10		0.99-2.82	
	5.01	<b>0</b>	2.31	<b>0</b>	2.38	<b>0</b>	2.24	<b>0</b>
	2.29-10.95		1.38-3.85		1.45-3.89		1.33-3.77	

†Adjusted for variables: Maternal employment; Pregnancy accepted; Pre-natal site; Place of birth; Gestational age; Baby's age at discharge from maternity; Problems with breastfeeding.

‡Adjusted for variables: Maternal employment; Guidance on breastfeeding in PN; Skin-to-skin contact; Infant's age at discharge from maternity; Problems with breastfeeding.

§Adjusted for variables: Maternal age; Maternal employment; Gestational age; Skin-to-skin contact; Infant's age at maternity leave; Breastfeeding problems.

There was an association between breastfeeding self-efficacy, categorized as high, medium and low, and BF when infants were aged 3-6 months. Women with high self-efficacy were 9.4 times more likely to breastfeed their babies at the age of 3 months compared to women with low self-efficacy. Compared to babies whose mothers had low breastfeeding self-efficacy, infants whose mothers had high breastfeeding self-efficacy were five times more likely to be breastfed at six months of age (odds ratio = 5.12, 95% CI = 0.957-27.254).

When analyzed in tertiles, breastfeeding self-efficacy also showed an association with BF of infants aged 3, 6, 9 and 12 months, and the chances of the infant being breastfed at these ages were higher in mothers with self-efficacy in the 3rd or 2nd tertile, compared to mothers with self-efficacy in the 1st tertile. The magnitude of the effect was greater at 3 months: odds ratio of around 5 compared to 2 at the other ages.

Considering the three versions of the variable, an association between self-efficacy and EBF status of infants aged 3 months, but not 6 months, can be seen in Table 4. Each 1 point increase in the self-efficacy score increases by 5% the chances of EBF of infants aged 3 months. Self-efficacy in tertiles was associated with the chances of the child being exclusively breastfed at 3 months, and both mothers with breastfeeding self-efficacy in the 2nd and 3rd tertiles were more likely to sustain exclusive breastfeeding of their infants at the age of 3 months, and the magnitude of the effect was significant: 1.7 and 2.2 (odds ratios), respectively. When breastfeeding self-efficacy was rated as low, medium and high, mothers with high self-efficacy were almost 6 times more likely to sustain their children in EBF at 3 months of age compared to mothers with low self-efficacy, and mothers with medium self-efficacy were twice as likely to sustain exclusive breastfeeding of their children at 3 months of age, but these results were not statistically significant, as it can be seen in the confidence intervals.

Table 4 – Impact of maternal breastfeeding self-efficacy on the status of EBF of children aged 3 and 6 months - CLaB study. Botucatu, SP, Brazil, 2015-2017

Age	3 months†			6 months‡		
	OR	CI 95%	p	OR	CI 95%	p
Continuous	1.05	1.02-1.07	0	1.04	0.97-1.12	0.27
Categories						
Low			0			0.97
Medium	2.22	0.25-19.86	0.48	64006618.56	0	0.99
High	5.76	0.67-49.66	0.11	54494174.78	0	0.99
Tertiles						
1st			0			0.55
2nd	1.74	1.08-2.79	0.02	2.21	0.52-9.42	0.28
3rd	2.21	1.37-3.57	0	1.93	0.43-8.63	0.39

†Adjusted for the variables: Marital status; Gestational age; Suckled in the first hour of life; Infant's age at discharge from maternity; Breastfeeding problems; Breast engorgement.

‡Adjusted for variables: Maternal schooling; Maternal employment; Planned pregnancy; Site of prenatal care.

Table 5 shows the results of multiple Cox regression models that assessed the association between maternal self-efficacy and BF and EBF duration. When breastfeeding self-efficacy is analyzed as a continuous variable, each 1 point increase in the score of

self-efficacy reduces the risk of cessation of BF in the first year of life by 3%; each 1 point increase in the score decreases by 2.5% the risk of cessation of EBF before 6 months of age.

Table 5 – Results of the Cox Regression Models for association between breastfeeding self-efficacy and duration of BF and EBF. CLaB study. Botucatu, SP, Brazil, 2015-2017

Breastfeeding	BF†			EBF‡		
	OR	CI 95%	p	OR	CI 95%	p
Continuous						
Self-efficacy	0.97	0.95-0.98	<b>0</b>	0.97	0.96-0.99	<b>0</b>
Categories						
Low			<b>0</b>			<b>0</b>
Medium	0.47	0.19-1.13	0.09	0.71	0.33-1.52	0.38
High	0.29	0.12-0.68	<b>0</b>	0.44	0.21-0.92	0.03
Tertiles						
1st			<b>0</b>			0.01
2nd	0.68	0.51-0.89	0.01	0.75	0.60-0.95	0.02
3rd	0.55	0.40-0.74	<b>0</b>	0.69	0.55-0.88	<b>0</b>

†Adjusted for variables: Maternal age; Maternal employment; Skin-to-skin contact; Infant's age at discharge from maternity; Breastfeeding problems.

‡Adjusted for variables: Maternal skin color; Maternal schooling; Maternal employment; Gestational age; Infant's age at discharge from maternity; Breastfeeding problems.

Compared to mothers with low breastfeeding self-efficacy, mothers with medium and high rates of self-efficacy are less likely to discontinue BF before 12 months, and the effects were significant: 53% and 71%, respectively. Regarding cessation of EBF before 6 months, mothers with medium or high self-efficacy were 28% and 56%, respectively, less likely to discontinue exclusive breastfeeding compared to the others. Considered as a categorical variable, in tertiles, self-efficacy was also independently associated with the risk of discontinuation of BF and EBF, and being in the third or second tertile reduces the risk of weaning compared to the risk of mothers in the first tertile of self-efficacy in breastfeeding.

## DISCUSSION

The results indicate that self-efficacy has its own effect and is independent of other determinants of BF and EBF duration. The magnitude of the effect of self-efficacy is considerable, with a high self-efficacy rate reducing the chance of discontinuation of BF in the first year by 70% and reducing by 66% discontinuation of EBF before 6 months. When categorized into tertiles, mothers in the highest tertile, compared to those in the lowest tertile, were 45% less likely to discontinue BF in the first year of life of the infant and 30% less likely to discontinue EBF in the first six months of life of their infants.

The influence of breastfeeding self-efficacy was also observed when the status of BF and EBF of infants at specific ages was analyzed; With the use of the three variable types (continuous, categorized and tertile), the higher the score or category of self-efficacy, the higher the chances of breastfeeding of infants aged 3, 6, 9 and 12 months and of exclusively

breastfeeding of infants aged 3 and 6 months.

The prospective design, which provided knowledge of the temporal relationship between exposure and outcome; frequent data collection, which reduced the chances of memory bias regarding information on BF and EBF duration; the small loss rate, control in the multivariate analyzes of the possible confounding effect of known factors associated with the outcome of the study support the validity of these results. One limitation of this study is the representative cohort of the population of mothers and infants from a given municipality, which does not allow the generalization of the results to other socioeconomic and cultural contexts.

The results corroborate previous studies<sup>(14-20)</sup> that showed the influence of maternal self-confidence on the duration of BF. Studies conducted in Africa, Canada, and Japan also reported that higher levels of self-efficacy in breastfeeding were associated to longer duration and a more exclusive pattern of breastfeeding<sup>(17-19)</sup>.

Studies conducted in the Northeastern and Southeastern regions of Brazil obtained results similar to studies conducted in other countries where mothers of children exclusively breastfed showed higher self-efficacy scores at breastfeeding, both in the prenatal and postnatal periods, reducing early weaning rates<sup>(15,16,20)</sup>. However, two Brazilian studies found no relationship between breastfeeding self-efficacy and duration of breastfeeding<sup>(13,21)</sup>. One possible explanation for the conflicting results of these studies is the fact that the mothers had specific characteristics: adolescents, in the case of the study in Ribeirão Preto<sup>(21)</sup> and of a high socioeconomic level, in the study carried out in São Paulo<sup>(13)</sup>. It should also be noted that unlike our study, the two referred Brazilian studies had small samples.

The BSES-SF is a valid, low-cost, self-administered instrument that can be used at various moments of pre and postnatal care for early detection of maternal self-confidence weaknesses regarding the ability to breastfeed. Thus, it is a useful tool in nursing care. Some ways of increasing breastfeeding self-efficacy have already been tested<sup>(4,5,22)</sup> and the results indicate that it can be modified through actions implemented by health professionals. After the evaluation of possible interventions in studies with small samples, further studies are recommended to investigate their impact on large-scale projects.

## CONCLUSION

The results obtained showed that breastfeeding self-efficacy increased the chances of exclusive breastfeeding up to three months of age and of breastfeeding up to twelve months. Thus, the present study provides a positive contribution, by suggesting that nurses evaluate breastfeeding self-efficacy in health care to pregnant women, postpartum women and mothers of infants, particularly in prenatal nursing consultations, in the immediate postpartum period and in the first medical appointment of the infant after discharge from the maternity, in order to identify the mothers that need extra help to successfully breastfeed their children.

## REFERENCES

1. Horta B, Victora C. Long-term health effects of breastfeeding. [Internet] Geneva: World Health Organization; 2013 [access 22 jan 2018]. Available at: [https://apps.who.int/iris/bitstream/handle/10665/79198/9789241505307\\_eng.pdf;jsessionid=E87217858EF7C90AB926136F31286658?sequence=1](https://apps.who.int/iris/bitstream/handle/10665/79198/9789241505307_eng.pdf;jsessionid=E87217858EF7C90AB926136F31286658?sequence=1).
2. Ministério da Saúde (BR). II Pesquisa de Prevalência de Aleitamento Materno nas Capitais Brasileiras e Distrito Federal. Série C. Projetos, Programas e Relatórios. [Internet]. Brasília (DF): Ministério da Saúde; 2009 [access 20 jan 2018]. Available at: [http://bvsmms.saude.gov.br/bvs/publicacoes/pesquisa\\_prevalencia](http://bvsmms.saude.gov.br/bvs/publicacoes/pesquisa_prevalencia)

[aleitamento\\_materno.pdf](#).

3. Margotti E, Epifanio M. Exclusive maternal breastfeeding and the Breastfeeding Self-efficacy Scale. *Rev Rene*. [Internet]. 2014 [access 17 jan 2018]; 15(5). Available at: <http://dx.doi.org/10.15253/2175-6783.2014000500006>.
4. Rodrigues AP, Nascimento LA, Dodt RCM, Oriá MOB, Ximenes LB. Validation of a flipchart for promotion of self-efficacy in breastfeeding. *Acta Paul Enferm*. [Internet]. 2013 [access 10 jan 2018]; 26(6). Available at: <http://dx.doi.org/10.1590/S0103-21002013000600013>.
5. Chaves AFL, Lima GP, Melo GM, Rocha RS, Vasconcelos HCA de, Oriá MOB. Flipchart application for promoting maternal self-efficacy in breastfeeding. *Rev Rene*. [Internet]. 2015 [access 20 dez 2017]; 16(3). Disponível em: <http://dx.doi.org/10.15253/2175-6783.2015000300014>.
6. Bandura A. Self-efficacy: Toward a unifying theory of behavioral change. *Psychol Rev*. [Internet]. 1977 [acesso 23 dez 2019]; 84(2). Available at: <http://dx.doi.org/10.1037/0033-295X.84.2.191>.
7. Chezem JC, Friesen C, Boettcher J. Breastfeeding knowledge, breastfeeding confidence, and infant feeding plans: effects on actual feeding practices. *J Obstet Gynecol Neonatal Nurs* [Internet]. 2003 [access 12 jan 2018]; 32(1). Disponível em: <http://dx.doi.org/10.1177/0884217502239799>.
8. Dennis CL, Faux S. Development and Psychometric Testing of the Breastfeeding Self-Efficacy Scale. *Res Nurs Health Internet*. 1999 [access 20 dez 2017]; 22(5). Available at: [https://doi.org/10.1002/\(SICI\)1098-240X\(199910\)22:5<399::AID-NUR6>3.0.CO;2-4](https://doi.org/10.1002/(SICI)1098-240X(199910)22:5<399::AID-NUR6>3.0.CO;2-4).
9. Oriá MOB. Tradução, adaptação e validação da Breastfeeding Self- Efficacy Scale: aplicação em gestantes[Tese]. Fortaleza: Faculdade de Farmácia, Odontologia e Enfermagem. Universidade Federal do Ceará; 2008.
10. Dodt RCM. Aplicação e validação da Breastfeeding Self-Efficacy Scale – Short Form (BSES – SF) em puérperas. *Rev. Rene* [Internet]. 2008 [access 12 out 2018]; 9(2) [acesso 12 out 2018]. Available at: <http://periodicos.ufc.br/rene/article/view/5058/3712>.
11. Rocha IS, Fujimaki M, Rocha MB, Gasparetto A, Lolli LF. Influência da autoconfiança materna sobre o aleitamento materno exclusivo aos seis meses de idade: uma revisão sistemática. *Cienc Saude Colet* [Internet]. 2016 [access 20 jan 2018]; 23(11). Available at: <http://dx.doi.org/10.1590/1413-812320182311.20132016>.
12. Pakseresht S, Pourshaban F, Khalesi ZB. Comparing maternal breastfeeding self-efficacy during first week and sixth week postpartum. *Electron physician* [Internet]. 2017 [access 22 jan 2018]; 9(2). Available at: <http://www.ephysician.ir/2017/3751.pdf>.
13. Souza EFC, Fernandes R. Autoeficácia na amamentação: um estudo de coorte. *Acta Paul Enferm*. [Internet]. 2014 [access 20 jan 2018]; 27(5). Available at: <http://dx.doi.org/10.1590/1982-0194201400076>.
14. Conde RG, Guimarães CMS, Gomes-Sponholz FZ, Oriá MOL, Monteiro JCS. Autoeficácia na amamentação e duração do aleitamento materno exclusivo entre mães adolescentes. *Acta paul. enferm*. [Internet]. 2017 [access 15 dez 2017]; 30(4). Available at: <http://dx.doi.org/10.1590/1982-0194201700057>.
15. Uchoa JL, Joventino ES, Javorski M, Almeida PC, Oriá MOB, Ximenes LB. Associação entre a autoeficácia no ciclo gravídico puerperal e o tipo de aleitamento materno. *Aquichan*. 2017 [access 20 jan 2018]; 17(1). Available at: <http://dx.doi.org/10.5294/aqui.2017.17.1.8>.
16. Margotti E. Fatores associados ao desmame precoce : auto eficácia no aleitamento Materno e depressão Pós-Natal [Tese]. Porto Alegre: Pontificia Universidade Católica do Rio Grande do Sul; 2013.
17. Dennis CL, Heaman M, Mossman M. Psychometric testing of the breastfeeding self-efficacy scale-short form among adolescents. *J Adolesc Health* [Internet]. 2011 [access 12 dez 2017]; 49. Available at: <https://doi.org/10.1016/j.jadohealth.2010.12.015>.
18. McCarter-Spaulding D, Gore R. Breastfeeding self-efficacy in women of African descent. *J Obstet*

Gynecol Neonatal Nurs. [Internet]. 2009 [access 20 jan 2018]; 38(2). Available at: <https://doi.org/10.1111/j.1552-6909.2009.01011.x>.

19. Otsuka K, Taguri M, Dennis CL, Wakutani K, Awano M, Yamaguchi T, et al. Effectiveness of a breastfeeding self-efficacy intervention: Do hospital practices make a difference? *Matern Child Health J* [Internet]. 2014 [access 20 dez 2017]; 18(1). Available at: <https://doi.org/10.1007/s10995-013-1265-2>.

20. Santos LMD, Rocha RS, Chaves AFL, Dodou HD, Castelo ARP, Feitoza SR, et al. Application and Validation of Breastfeeding Self-Efficacy Scale – Short Form (BSES - SF) in Adolescent Mothers. *Int Arch Med*. [Internet]. 2016 [access 20 dez 2017];9(207):1–9. Available at: <http://dx.doi.org/10.3823/2078>.

21. Amaral LJX, Sales dos SS, Carvalho DP de SRP, Cruz GKP, Azevedo IC de, Ferreira Junior MA. Fatores que influenciam na interrupção do aleitamento materno exclusivo em nutrizes. *Rev Gaúcha Enferm*. [Internet]. 2015 [access 22 jan 2018]; 36(spe):127–34. Available at: <http://www.scielo.br/pdf/rgenf/v36nspe/0102-6933-rgenf-36-spe-0127.pdf>.

22. Chan MY, Ip WY, Choi KC. 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. *Midwifery*. [Internet]. 2016 [access 20 jan 2018]; 36. Available at: <https://doi.org/10.1016/j.midw.2016.03.003>.

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