INFLUENCE OF HEALTH EDUCATION STRATEGY MEDIATED BY A SELF-EFFICACY BREASTFEEDING SERIAL ALBUM[1]

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ABSTRACT: The objective was to verify the self-efficacy of new mothers before and after an educational intervention. We opted for a quantitative study involving 100 new mothers of a public maternity hospital in Fortaleza-CE, Brazil. Before and after the application of the serial album "I can breastfeed my child", interviews were performed using two forms: the first was used to collect identification data of the participants and the second was the Breastfeeding Self-Efficacy Scale Short Form. We found an increase in scores on the scale after the educational intervention, particularly in mothers with specific characteristics, with a statistically significant association between the following variables: age between 20 and 29 years; married/consensual union; from five to seven household members; engaged in paid work outside the home; and family income from two to eight minimum wages. We concluded that the educational intervention implemented with women who had just given birth was effective in increasing maternal breastfeeding self-efficacy, which may result in improving breastfeeding rates.

DESCRIPTORS: Breastfeeding. Self-efficacy. Postpartum period. Health education. Nursing.

INFLUÊNCIA DE ESTRATÉGIA DE EDUCAÇÃO EM SAÚDE MEDIADA POR ÁLBUM SERIADO SOBRE A AUTOEFICÁCIA MATERNA PARA AMAMENTAR

RESUMO: Objetivou-se verificar a autoeficácia da puérpera em amamentar, antes e após a intervenção educativa. Optou-se por um estudo quantitativo, desenvolvido com 100 puérperas de uma maternidade pública de Fortaleza-CE. Antes e após aplicação do álbum seriado "Eu posso amamentar o meu filho", foram realizadas entrevistas utilizando dois formulários abordando dados de identificação da puérpera e a *Breastfeeding Self-Efficacy Scale Short Form*. Constatou-se um aumento dos escores da escala após a utilização da intervenção educativa, sobretudo em puérperas com características específicas, já que se observou associação estatisticamente significante entre as seguintes variáveis: idade entre 20-29 anos; estado civil casado/união consensual; número de cinco a sete moradores na casa; puérperas que exerciam atividades remuneradas fora do lar e rendas familiares de dois a oito salários mínimos. Conclui-se que a tecnologia educativa implementada às puérperas foi eficaz no aumento da autoeficácia materna em amamentar, podendo resultar, consequentemente, no alcance de boas taxas de aleitamento materno.

DESCRITORES: Aleitamento materno. Autoeficácia. Período pós-parto. Educação em Saúde. Enfermagem.

INFLUENCIA DE ESTRATEGIA DE EDUCACIÓN EN SALUD MEDIADA POR ÁLBUM ILUSTRADO ACERCA DE LA AUTOEFICACIA MATERNA PARA AMAMANTAR

RESUMEN: El objetivo fue verificar la autoeficacia de puérperas en amamantar, antes y después de la intervención educativa. Estudio cuantitativo, con 100 mujeres de maternidad pública de Fortaleza-CE, Brasil. Antes y después de la aplicación del álbum ilustrado "Yo puedo amamantar a mi hijo", fueron realizadas entrevistas con dos encuestas para abordar datos de identificación de la puérpera y *Breastfeeding Self-Efficacy Scale Short Form*. Hubo aumento en las puntuaciones de la escala después de la intervención educativa, especialmente en las madres con características específicas, con asociación estadísticamente significativa entre las variables: edades entre 20-29 años; estado civil casado/unión libre; número de cinco a siete miembros del hogar; madres que realizaban trabajo remunerado fuera del hogar; rentas familiares de dos a ocho sueldos mínimos. La tecnología educativa implementada a las puérperas fue eficaz cuanto al aumento de la autoeficacia materna en amamantar, resultando, por lo tanto, en el alcance de buenos índices de lactancia materna.

DESCRIPTORES: Lactancia materna. Autoeficacia. Periodo de posparto. Educación en salud. Enfermería.

INTRODUCTION

Breastfeeding directly influences infant mortality, since it can reduce numbers of deaths in children under five years of age by 13%.[1] However, while recognizing the many benefits of breastfeeding for both mother and child, breastfeeding rates in Brazil remain low in view of the high rates of early weaning.[2]

The lack of mothers' knowledge regarding breastfeeding, their personality and their attitude toward breastfeeding,[3] in addition to breastfeeding self-efficacy, are significant factors that can directly interfere with early discontinuation of this practice.[4]

Recognizing that self-efficacy is the confidence in oneself that one can successfully execute the behavior required to produce a desired outcome related to health,[5] it is appropriate for nurses to consider this aspect, by means of health education strategies, particularly in the context of care provided to new mothers and their newborns.

Some researchers have achieved results from interventions in health education that were able to positively modify the sense of self-efficacy in breastfeeding in many contexts, including: Pelotas (in the state of Rio Grande do Sul), through videos, brochures and home visits by a breastfeeding support team;[6] in Australia through interactive books;[7] and in Japan through a program that utilized pamphlets and DVDs.[8]

While recognizing the importance of developing health education interventions regarding breastfeeding during pregnancy in order to avoid an excess of information in the postpartum period, the majority of professional support and guidance must occur in the postpartum period. During the postpartum period, the mother and family are faced with huge changes in their routine, coupled with anxiety.[9] Therefore, rooming-in can be considered a useful adjunct for breastfeeding promotion,[10] enabling the rendering of all basic care to both mother and child in the postpartum period, in addition to promoting the educational characteristics aimed at the practice of breastfeeding.[11]

The nurse who assists in rooming-in must reflect critically on educational practices, envisioning strategies for breastfeeding education. Given proximity to the mother, the nurse has the opportunity to supervise the first attempts at breastfeeding, getting to know the real needs of both mother and child, answering questions and caring for the mother promptly and avoiding future complications related to lactation, thus favoring the breastfeeding process.[12]

In view of the above, the following question arose: what is the impact of an educational strategy promoting self-efficacy in breastfeeding for postpartum women? It is believed that the existence of a health education strategy applicable to the context of rooming-in can be a tool to support the nurse who works in this area, in order to raise not only maternal self-efficacy in breastfeeding, but also increasing the Exclusive Breastfeeding (EB) rates and extension of supplementary breastfeeding. Thus, the present study aimed to compare maternal self-efficacy in breastfeeding before and after an educational intervention, according to the sociodemographic and obstetric profile of puerperal women.

METHOD

This is a pre-experimental study utilizing the pre-test/post-test model with one group,[13] using a quantitative approach. The study was developed in a large public maternity hospital, which is a tertiary referral center for prenatal and neonatal care, located in the city of Fortaleza-CE.

The sample included all women in the immediate postpartum period, who were hospitalized and who were rooming in during the period from February to July of 2011, resulting in a total of 100 postpartum women. The selection of these women occurred by convenience, according to the following inclusion criteria: postpartum women with term infants, who were rooming in with their children and were at least six hours postpartum. The exclusion criteria adopted were: females under 12 years of age, regardless of whether they had delivered a child; adolescents without the authorization and/or consent of their legal guardian to participate in the study; women who experienced clinical or obstetrical complications in the postpartum period; and women with a condition which precluded breastfeeding.

Data collection occurred in three phases: 1. Evaluation before the educational intervention (maternal self-efficacy in breastfeeding; sociodemographic and obstetric data); 2. Educational intervention mediated by the serial album "I can breastfeed my baby";[14] and 3. Evaluation after the

educational intervention (maternal self-efficacy in breastfeeding).

The first phase took place in the postpartum woman's room, with the participant comfortable in bed. An interview was performed using two instruments: a form covering sociodemographic data, obstetric history and data regarding the current pregnancy/delivery, and the Breastfeeding Self-Efficacy Scale – Short Form (BSES-SF) to assess maternal self-efficacy in breastfeeding.

The BSES-SF was developed,[15] translated in Brazil[16] and validated using Cronbach's alpha (=0.74).[4] It consists of 14 items divided into two domains (Technical, eight items, and Intrapersonal Thinking, six items), whose pattern of response varies in a Likert scale pattern with five options (I totally disagree; I disagree; I sometimes agree; I agree; I fully agree). Total scale scores vary from 14 to 70 points, so that the higher the score the mother obtains in the sum of the items, the higher her breastfeeding self-efficacy.

The second phase of the study was the application of the educational strategy, implemented with the aid of the serial album "I can breastfeed my child".[14] This phase was held only once, individually with each postpartum woman, at her bedside in the Rooming-in Ward and lasting an average of 45 minutes.

The serial album is comprised of two parts: eight illustrations on the back, which are exposed to the postpartum woman; and seven script forms on the opposite side, which are visible to the professional. The illustrations and script forms included in the album were derived from the BSES_SF items based on the Theory of Self-efficacy,[5] and also from a literature survey regarding breastfeeding. This educational technology was submitted for evaluation by ten judges, resulting in a Content Validity Index of 0.92 for the figures and 0.97 for the script forms.[14]

Finally, the third phase occurred before the postpartum woman was discharged from the hospital. A second interview was held, and the BSES-SF was again administered. It should be noted that the researcher who introduced the serial album during phase 1 was not the same researcher who applied the scale in phase 3. This was done purposely to minimize bias or any kind of tendency during data collection.

The data were processed using Statistical Package for Social Sciences (version 18.0) software. The absolute frequency distribution, relative, averages and standard deviations were calculated, and the comparison of averages of the scale scores by means of the Student t test were performed for the data, which were compared with sociodemographic and obstetric variables, and those of pregnancy and actual delivery, chosen according to international studies.[8,17] A level of significance of below 0.05 was established. The results were analyzed in accordance with pertinent literature.

The study was approved by the Research Ethics Committee of Assis Chateaubriand Teaching Maternity Hospital, according to the expert opinion 42/08. All recommendations and legal requirements for research activities involving human beings were complied with. In addition, the participants signed the Informed Consent Form, agreeing to participate in the study.

RESULTS

Regarding the analysis of sociodemographic data regarding the 100 women included in the study, the majority were aged 20-29 years (48%), were married or living in a consensual union (70%), worked in the home exclusively (47%), had a family income of one minimum wage (41.4%), and contributed to the support of up to four people per household (64%).

In table 1, it can be observed that there was an increase in the average of the scores on the BSES-SF after the educational intervention, with a statistically significant association between the score on the BSES-SF and the following sociodemographic variables: age between 20-29 years (p=0.010); married/consensual union marital status (p=0.006); presence of five to seven residents in the household (p=0.004); working outside the home (p=0.001), family income of two minimum wages (p=0.013) and family income of three to eight (p=0.022) minimum wages.

Regarding the obstetric data, one can see a predominance of primiparous women (59%) who had only one child (64%) and previous experience in breastfeeding (92.1%). With regard to the current pregnancy, most had received prenatal care (94%), with an average of 6.41 visits (SD ± 2.25) and a vaginal delivery (52%).

Table 1 - Comparison between the mean scores on the BSES-SF before and after the educational intervention, according to the sociodemographic variables of the mothers. Fortaleza-CE, 2011

Variables			Before intervention		After intervention		
			BSES-SF Scores				
	n	%	M	DP	M	DP	p
Age (in years)							
14 – 19	36	36	54.7	7.49	56.4	4.96	0.114
20 – 29	48	48	55.1	5.96	57.7	5.88	**0.010**
30 – 45	16	16	57.3	5.97	59.6	5.62	0.214
Marital status							
Married/consensual union	70	70	55.8	6.73	57.9	5.33	**0.006**
Other	30	30	54.2	6.06	56.9	6.14	0.074
Occupation							
Student	20	20	55.2	5.93	57.2	5.19	0.216
Housewife	47	47	55.9	6.18	56.6	6.34	0.474
Fixed job	33	33	54.6	7.37	58.7	5.24	**0.001**
Family income* (n=99)							
1 SM (minimum wage)	41	41.4	55.9	6.42	56.6	5.32	0.508
2 SM	37	37.4	54.5	6.78	56.8	6.31	**0.013**
3–8 SM	21	21.2	55.6	6.39	60.1	5.15	**0.022**
Number of house dwellers							
≤ 4	64	64	56.1	6.05	57.3	5.66	0.134
5–7	32	32	53.2	6.76	57	6.13	**0.004**
8–12	4	4	59.2	8.73	61.7	4.57	0.650

* Minimum Wage (SM) during the study = R$ 545.00.

As for table 2, a statistically significant association between the mean scores on the BSES-SF before and after the educational intervention and obstetric history/current pregnancy data can be observed. Thus, self-efficacy in breastfeeding was influenced by the following variables: primiparity (p=0.027) and multiparity (p=0.037); having one living child (p=0.036) or two living children (p=0.054); having previously breastfed (p=0.034); having received prenatal care (p=0.004) and having had a caesarian section (p=0.021) or a vaginal delivery (p=0.045).

Table 2 - Comparison between the mean scores on the BSES-SF before and after the educational intervention, according to the variables and data regarding the current pregnancy/childbirth. Fortaleza-CE, 2011

Variable			Before intervention		After intervention		
			BSES-SF Scores				
	n	%	M	SD	M	SD	p
Primaparity							
Primipara	59	59	54.6	6.86	56.7	5.76	**0.027**
Multipara	41	41	56.3	5.93	58.4	5.75	**0.037**
Live children							
1	64	64	54.5	6.85	56.4	6	**0.036**
2	25	25	57.5	5.51	59.9	4.94	**0.054**
3–6	11	11	55	6.05	57.7	4.98	0.247
Previous breastfeeding (n=38)							
Yes	35	35	56	5.48	58.5	4.67	**0.034**
No	3	3	59.2	7.66	62	6.67	0.108

Variable			Before intervention		After intervention		
			BSES-SF Scores				
	n	%	M	SD	M	SD	p
Pregnancy/delivery							
Prenatal care							
Yes	94	94	55.3	6.52	57.4	5.86	**0.004**
No	6	6	54.8	7.22	57	4.74	0.189
Type of delivery							
Cesarean	48	48	54.8	5.53	57	5.83	**0.021**
Vaginal	52	52	55.8	7.32	57.8	5.79	**0.045**

When comparing the mean scores on the BSES-SF before and after the educational intervention, it can be seen from Table 3 that the use of the serial album was effective in promoting maternal self-efficacy because there was an increase in total scores on the BSES-SF, as well as an increase in the technical and intrapersonal thinking domains, with a statistically significant association between total scale scores (p=0.002) and the intrapersonal thinking domain (p < 0.001).

Table 3 – Comparison of the total scale score averages and the domains before and after educational intervention. Fortaleza-CE, 2011

Variables	Before intervention		After intervention		
	BSES-SF Scores				
	M	SD	M	SD	p
Total scale score	55.3	6.52	54.7	5.79	**0.002**
Intrapersonal domain	23.0	3.85	32.9	3.08	**< 0.001**
Technical domain	32.3	3.85	32.9	3.08	0.153

DISCUSSION

The development and implementation of certain educational technologies may favor behavioral changes, especially when working with specific concepts such as self-efficacy, which may result in the individual feeling more self-confident in performing certain health promotion behaviors routinely.

Self-efficacy may be affected by such interventions depending upon the specific characteristics of the population. Thus, in this study, it was found that health education, mediated by the serial album "I can breastfeed my child", influenced the increase in maternal self-efficacy, particularly among postpartum women who were between 20 and 29 years of age, married or living in a consensual union, living in residences with five to seven people, and who were employed and earning more than two minimum wages.

Authors argue that greater accessibility to information, and living in better family socioeconomic conditions, favors higher rates of breastfeeding for a longer period of time.[18]

Even for the mothers in this study, within the ages of 20-29 years and with significant differences in breastfeeding self-efficacy, it is necessary to perform educational strategies mediated by self-efficacy and aimed at promoting breastfeeding, as research indicates that younger mothers have lower breastfeeding rates in relation to older women, in addition to decreased BSED-SF scores during their pregnancy. [19]

Another study corroborates this finding, having identified that adolescent mothers quite often lack confidence in themselves or experienced an unwanted pregnancy and do not have parental or partner support, causing them to disregard best feeding practices with their newborn,[20] thus contributing to early weaning.

Married women or women in a stable relationship may feel more confident about breastfeeding, emphasizing that the paternal element can be a predictor for both the start and duration of breastfeeding.[21] Nevertheless, some partners do not support EB, preferring baby formulas or mixed feeding. Some of the reasons reported by partners for failure to support exclusive breastfeeding are:

ease of preparation and administration of infant formula, the fact that they feel the infant is not feeding effectively or adequately when the infant requires frequent nursing and, in some cases, concerns regarding the mother's health when cracks in the nipples and mastitis occur.[22]

Factors such as low birth weight of the newborn, the mother's need to work outside the home and the difficulties experienced by the mother in breastfeeding during the first days following birth were identified as contributors to early weaning.[10] A study conducted in the municipality of Rio de Janeiro between the years 1998 and 2000 found that, among women working exclusively in the home, the frequency of EB was double in comparison to women who worked outside the home.[23]

However, the present study identified that maternal self-efficacy had a significant statistical association with women who worked at jobs outside their home (p=0.001). Thus, it is inferred that educational activity provided options regarding how to continue breastfeeding for the mothers who worked outside their home, even after starting back to work, making them feel more confident in continuing with breastfeeding.

Literature research found that, independent of maternal occupation, what really matters is the number of hours worked, with the highest rate of early weaning among mothers who exceed 20 hours per week, assuming double workloads; that is, in addition to performing domestic activities, they engage in occupational activities outside their home.[20]

The postpartum women in this study who had a household income between three and eight minimum wages showed a greater increase in maternal self-efficacy scores in breastfeeding after the educational intervention. Family income can influence the duration of breastfeeding, especially among mothers who have incomes higher than two minimum wages.[24] However, research conducted in Piauí showed that mothers of lower socioeconomic classes (C, D, E) residing in rural areas have a higher predominance of breastfeeding, while women of higher economic classes (A and B) have lower breastfeeding rates.[25]

The number of persons residing in the same household as the puerperal woman was a predictor of self-efficacy in breastfeeding (p=0.004), since it is known that verbal persuasion is an important element in facilitating positive behavior changes.[5] The participation of the community and family in favor of the promotion, protection and support of breastfeeding is essential for persistence in breastfeeding, especially when people who live with these women provide a quiet and comfortable environment that encourages bonding between mother and baby.[23,26]

Some obstetric factors may also influence the practice of breastfeeding. Regarding parity, it is important to highlight that although multiparous mothers are twice as likely to practice exclusive breastfeeding compared to first-time mothers,[27] the present study found that the educational intervention showed a statistically significant relationship among both first-time mothers and among multiparous mothers.

Although primiparous mothers are more likely to start breastfeeding, they often continue breastfeeding for a shorter amount of time, introducing complementary foods earlier because they are inexperienced mothers and therefore have more doubts and concerns regarding their ability to continue breastfeeding. They may also suffer under the influence of family members and people who are close to them regarding practices that may favor early weaning.[28]

Self-efficacy in breastfeeding was influenced by the number of children the mother already had, to the detriment of those with three or more children. Some authors have found that breastfeeding tends to be more effective and lasting when the mother has been pregnant before and has had a positive experience with breastfeeding, which results in increased self-efficacy.[20]

Regarding the number of children, authors find that most newborn babies who were breastfed within the first hour of life,[29] or who were breastfed for a longer period of time,[30] were children of women who had four or more children. The study also confirmed that mothers who breastfeed their children beyond one year of life had more children than mothers who weaned their children before six months of age.[31]

Previous breastfeeding experience and its duration are directly and proportionally related to maintenance of prolonged breastfeeding.[32] Thus, having had previous experience with breastfeeding for over six months can increase the predominance of exclusive breastfeeding by 27%.[33] Such findings are corroborated by this current study, where it was found that the relationship between mothers' self-efficacy scores and prior experience with breastfeeding was statistically significant.

Prenatal care was a predicting factor for self-efficacy in breastfeeding because the prenatal visits exert great influence on the decision to adhere to this practice.[9]

In terms of type of delivery, the study noted that, once breastfeeding is instituted, the type of delivery has no material effect on the duration of same.[32] In addition, no statistically significant association between type of delivery and duration of breastfeeding was found.[31] These studies confirm the findings of this research, considering that the educational activity mediated by the serial album resulted in an increase in the woman's self-efficacy in breastfeeding her child, irrespective of the type of labor experienced.

The BSES-SF Scale used in this study was designed to identify the scores of self-efficacy in relation to breastfeeding, applied before and after the educational intervention. All 100 postpartum women who participated in the educational intervention utilizing the serial album titled "I can breastfeed my child" showed an increase in BSES-SF scores in both domains (intrapersonal and technical thinking), from which one can infer that the mothers in this study acquired higher confidence in their ability to breastfeed and achieved good breastfeeding rates.

A study conducted in Queensland, Australia, used a primer based on self-efficacy as an educational intervention, noting that in the intervention group there was a significant increase in the BSES-SF scores, directly implying an increase in the number of days of breastfeeding.[7] Such a situation was also seen in a quasi-experimental study developed in Japan that used pamphlets and educational videos with the women in the intervention group, observing both an improvement in breastfeeding self-efficacy and a satisfactory effect on the continuity of breastfeeding.[8]

Furthermore, research conducted with primiparous women in Ontario, Canada, identified an increase in BSES-SF scores and duration of EB and breastfeeding due to the use of an intervention based on the theory of self-efficacy.[17]

Thus, from this study, one can see the positive influence of educational interventions on maternal self-efficacy in breastfeeding, making it imperative that this type of educational technology be used as a strategy to enable women in the puerperal period to acquire confidence and experience in breastfeeding, allowing for better adhesion and duration of EB.

CONCLUSIONS

With this study, we found that educational strategies guided by self-efficacy are relevant to programs that support breastfeeding, and it is appropriate that nurses consider the context in which women are inserted in relation to sociodemographic and obstetric conditions. A large number of the variables studied in this research presented a statistically significant association, considering that after the educational intervention there was an increase in the self-efficacy scores on the BSES-SF.

The findings indicate how this educational technology mediated by self-efficacy may be feasible. However, it would be wise to consider using interventions at other times of the pregnancy/childbirth cycle, with subsequent follow-up of the evolution of breastfeeding. Therefore, it is urgent that further research be carried out in other national areas that enhance self-efficacy using different technologies designed for women and their families, since the latter can be useful in encouraging women to breastfeed.

Based on the results of this study, we recommend the use of the serial album "I can breastfeed my child" by nurses, since they are professionals committed to promoting the health of the mother, the child and the family, and they are in the best position to minimize possible difficulties in the breastfeeding process. With this in mind, these professionals can provide support to women who are rooming-in, and can also make use of other technologies to improve not only knowledge about the benefits of human milk, but the attitudes and practices of these mothers, so that they are discharged from the maternity hospital feeling more secure with regards to breastfeeding.

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