






Relation between prenatal education for breastfeeding and breastfeeding technique


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Abstract

Objectives: compare the evaluation of breastfeeding technique between binomials who did or did not receive prenatal education orientation.

Methods: original study based on the application of breastfeeding evaluation form on binomials in joint accommodation (JA) composing of twenty (20) Yes/No questions and the collection of bi categorized independent variables between August/2017-October/2018. Prenatal educational activities with nominal listing of those present and thus creation of the variable was: Prenatal Class Yes/No. Multivariate analysis by Logistic regression were performed with confidence interval at 95%.

Results: 180 binomials were included, of which 13 (7%) were exposed to prenatal activities and 167 (93%) were not exposed. In the exposed group, there was a predominance of married and multiparous women ($p<0.05$), in addition to lower educational level and higher rate of maternal pathologies and low birth weight ($p<0.05$). Regarding the breastfeeding evaluation, of the 20 questions observed, the exposed group was superior in 12 of them. Among the 4 questions about the Newborn's grip, the exposed group was superior in 3 (baby's mouth wide open, lip lowered and chin touching the breast), and the unexposed group was superior in the areola visualization above the upper lip with $p<0.05$. The limitation found in the study was attributed to quantitative and qualitative heterogeneity between groups.

Conclusions: prenatal education for breastfeeding did not alternate significantly the performance of binomials on the breastfeeding technique in this study.

Key words Prenatal education, Breastfeeding, Joint accommodation, Regression analysis



Introduction

Breastfeeding is considered one of the pillars for promoting and protecting children's health all over the world and the superiority of human breast milk as a source of food, defending against diseases and affection is inarguable.¹

Therefore, the World Health Organization (WHO) proposed in 1992 the *Iniciativa Hospital Amigo da Criança* (IHAC) (Child Friendly Initiative Hospital), whose objective is the implementation of Ten steps for the success of breastfeeding, a protocol that synthesizes the necessary practices to support breastfeeding in hospitals.²

Hospital Guilherme Álvaro (HGA) in Santos-SP is a tertiary center that is a reference in treating pregnant women and high-risk newborns (NB). It was the second hospital to be licensed as a Child Friendly Hospital in Brazil in 1994 and has a long tradition of supporting breastfeeding. Among the pioneer activities in this service, the promotion of breastfeeding during prenatal procedures and the monitoring of breastfeeding when in a joint accommodation (JA), are steps 3 and 5, respectively, of the ten steps of the IHAC.²

In order to accomplish step 3, since 1980, the educational activities are performed in the waiting rooms of prenatal appointments at the HGA. The baby's first feedings during the JA are monitored to prevent the inherent difficulties in the act of breastfeeding as predicted by step 5 of the IHAC.³

As a way to check this breastfeeding monitoring, an instrument was proposed by the IHAC evaluators, which is used in the accreditation of the hospital in the mother-baby binomials. This instrument assigns a score that identifies the difficulties that may affect nursing and serves, in this instance, to check the legitimacy of step 5 in the hospital.⁴

A lot is discussed on whether or not prenatal education is effective in protecting breastfeeding practice after birth and original studies evaluating this efficacy are always welcome.⁵ Therefore, the authors have proposed to perform an original study, in which the result of the application of the breastfeeding evaluation form at the HGA in a JA can be compared between mothers who did and did not receive prenatal educational orientation at the same hospital.

Methods

This is an original case study obtained from the application of the breastfeeding evaluation form with mother-baby binomials in a joint accommodation at the HGA in Santos (SP, Brazil). All the mothers have signed the Informed Consent Forms, and the study was approved by the Research Ethics Committee at the Institution, as well

as the National Research Ethics Committee through the *Plataforma Brasil* (Brazil Platform).

Between August 2017 and October 2018, 180 breastfeeding evaluations were performed observationally, without intervention, by trained and supervised students; followed by the collection of independent variables through interviews with the mothers. The inclusion criteria were: healthy mother and NB, admitted in a joint accommodation only, no more than 24 hours of separation, exclusive breastfeeding, and they have signed the Informed Consent Forms.

The 09 bi categorized independent variables according to literature were: mother's age (above and below 18 years of age),^{6,7} mother's schooling (higher and lower than high school),⁸ mother's marital status (married and single),⁹ Parity (primiparous and multiparous),¹⁰ Number of prenatal consultations (below and above 06),¹¹ Obstetric pathology (present and absent),¹² Type of childbirth (natural and C-section),¹³ Newborn's sex male and female),^{10,14} and Newborn's weight (above and below 2.500g).¹⁵

The 20 yes or no questions from the form in step 5 of the IHAC are: 1. Mother looks healthy. 2. Mother looks comfortable. 3. Breasts look healthy. 4. Mother holds the breast correctly. 5. Baby looks healthy. 6. Baby looks comfortable. 7. Signs of bonding between mother and baby. 8. Baby searches for the breast. 9. Baby's head and body are aligned. 10. Baby is close to the mother's body. 11. Baby is facing the breast. 12. Baby is well supported. 13. More of the areola is seen above the upper lip. 14. Baby's mouth is wide open. 15. Lower lip is turned outwards. 16. Baby's chin touches the breast. 17. Suckling is slow, deep and paused. 18. Baby releases the breast when finishes breastfeeding. 19. Mother perceives the ejection reflex. 20. Breasts look lighter after breastfeeding.

During the same period, prenatal educational activities were performed with emphasis on the breastfeeding technique, conducted by the students who were not participating of the evaluation at JA, trained and supervised by the nurses' sector and, with a nominal list of pregnant women who were exposed to these activities, a variable was created: prenatal class yes or no.

The multivariate analysis through logistical regression with the Epi Info™ 7 software with a confidence interval of 95% was performed.^{16,17}

Results

After 84 prenatal activities to 345 pregnant women and 92 visits at the JA in the HGA with 180 breastfeeding evaluations, the sample reached 13 (7%) exposed binomials and 167 (93%) non-exposed binomials to the classes (Tables 1 and 2).

Table 1

Variables	Prenatal class						p
	Yes		No		Total		
	n	%	n	%	n	%	
Maternal age (years)							0.86
>18	13	100.0	160	95.0	173	96.0	
<18	0	-	7	5.0	7	4.0	
Maternal schooling							0.39
>High school	9	69.0	141	84.0	150	83.0	
<High school	4	31.0	26	16.0	30	17.0	
Maternal marital status							0.04
Married	13	100.0	116	69.0	129	72.0	
Single	0	-	51	31.0	51	28.0	
Parity							0.02
Primiparous	1	8.0	69	42.0	70	39.0	
Multiparous	12	92.0	97	58.0	109	61.0	
Prenatal consultations							0.19
>06	10	77.0	148	89.0	158	88.0	
<06	3	23.0	18	11.0	21	12.0	
Obstetric pathology							0.11
Present	13	100.0	132	79.0	145	80.0	
Absent	0	-	35	21.0	35	19.0	
Type of childbirth							0.28
Natural	3	23.0	76	46.0	79	44.0	
C-section	10	77.0	90	54.0	100	56.0	
NB sex							0.52
Female	6	46.0	74	44.0	80	44.0	
Male	7	54.0	93	56.0	100	56.0	
NB weight (g)							0.29
>2.500	11	85.0	153	92.0	164	91.0	
<2.500	2	15.0	14	8.0	16	9.0	

NB = Newborn.

Discussion

In 2012, Marra *et al.*¹⁸ described the complications of babies of high-risk pregnant women at the HGA. In this study, the prevalence of low birth weight (43%), admission to intensive care unit (67%) and admissions lasting over 28 days (13%) were considerable. Taking into consideration that such complications were exclusion criteria of our study, valid to presume a considerable amount of the binomials were exposed to the classes being excluded from the JA breastfeeding evaluations.

Besides that, HGA is a state sponsored hospital of the *Sistema Único de Saúde* (SUS) (Public Health System), subject to the rules of the *Central de Regulação de Oferta de Serviços de Saúde* (CROSS) (Central for Regulation and Supply of Health Services) and, as described by Vilarins *et al.*,¹⁹ the CROSS regulation guarantees the balance between supply and

demand, which means there is no guarantee that the pregnant woman will give birth in the same hospital where she performed her prenatal evaluations. Therefore, it is possible that part of the pregnant women who took part in the educational activities during prenatal evaluations did not give birth at the same hospital and, for this reason, were not included in this study.

These two factors might explain the numerical difference of 13 (7%) to 167 (93%) between the groups that were exposed and non-exposed to prenatal activities in the breastfeeding evaluations at JA.¹⁹

Furthermore, considering the significant difference between the groups of exposed and non-exposed to the classes in the variables of marital status, married (100% to 69% - $p=0.04$) and multiparous (92% to 58% - $p=0.02$) it is likely that there is also a qualitative discrepancy between the groups with consequent difficulty to analyze.

Table 2

Questions	Prenatal class						p
	Yes		No		Total		
	n	%	n	%	n	%	
Does the mother look healthy?							0.06
Yes	13	100.0	162	97.0	175	97.0	
No	0	-	5	3.0	5	3.0	
Does the mother look comfortable?							0.31
Yes	11	85.0	150	89.0	161	89.0	
No	2	15.0	17	11.0	19	11.0	
Do the breasts look healthy?							0.09
Yes	13	100.0	149	89.0	162	90.0	
No	0	-	18	11.0	18	10.0	
Does the mother hold the breast correctly?							0.37
Yes	10	77.0	112	67.0	122	68.0	
No	3	23.0	55	33.0	58	32.0	
Does the baby look healthy?							0.01
Yes	12	92.0	165	99.0	177	98.0	
No	1	8.0	2	1.0	3	2.0	
Does the baby look comfortable?							0.46
Yes	12	92.0	160	96.0	172	96.0	
No	1	8.0	7	4.0	8	4.0	
Are there signs of bonding between mother and baby?							0.84
Yes	12	92.0	155	93.0	167	93.0	
No	1	8.0	12	7.0	13	7.0	
Does the baby search for the breast?							0.18
Yes	11	85.0	157	94.0	168	93.0	
No	2	15.0	10	6.0	12	7.0	
Is the baby's head and body aligned?							0.45
Yes	12	92.0	132	79.0	144	80.0	
No	1	8.0	35	21.0	36	20.0	
Is the baby held close to the mother's body?							0.50
Yes	12	92.0	139	83.0	151	84.0	
No	1	8.0	28	17.0	29	16.0	
Does the baby face the breast?							0.74
Yes	13	100.0	164	98.0	177	98.0	
No	0	-	3	2.0	3	2.0	
Is the baby's body supported?							0.67
Yes	13	100.0	158	95.0	171	95.0	
No	0	-	9	5.0	9	5.0	
Is the areola seen above the baby's top lip?							0.01
Yes	7	54.0	134	80.0	141	78.0	
No	6	46.0	33	20.0	39	22.0	
Is the baby's mouth wide open?							0.38
Yes	10	77.0	120	72.0	130	72.0	
No	3	23.0	47	28.0	50	28.0	
Is the baby's lower lip turned outwards?							0.51
Yes	10	77.0	116	69.0	126	70.0	
No	3	23.0	51	31.0	54	30.0	
Does the baby's chin touch the breast?							0.99
Yes	12	92.0	147	88.0	159	88.0	
No	1	8.0	20	12.0	21	12.0	

Are the suction slow, deep and paused?							0.70
Yes	12	92.0	150	90.0	162	90.0	
No	1	8.0	17	10.0	18	10.0	
Does the baby release the breast when finished?							0.51
Yes	9	69.0	132	79.0	141	78.0	
No	4	31.0	35	21.0	39	22.0	
Does the mother notice signs of ejection reflex?							0.97
Yes	9	69.0	105	63.0	114	63.0	
No	4	31.0	62	37.0	66	37.0	
Does the breast feel lighter after breastfeeding?							0.55
Yes	11	85.0	142	85.0	153	85.0	
No	2	15.0	25	15.0	27	15.0	
Total							0.55
Yes	183	70.0	2.320	69.0	2.503	69.0	
No	25	30.0	352	31.0	377	31.0	

At the same time, it might be difficult to document the impact of the educational activities in the breastfeeding evaluation due to the fact that this study is made in a Child Friendly Hospital with good success rates in breastfeeding before the study started. To exemplify, Sanches *et al.*²⁰ in 2000, used the breastfeeding evaluation form for the first time at HGA, using the first draft of the form, which was very similar to the current one. The authors opted to use global score percentage of positive answers which was at 60%, it was very low compared to the present data gathered. In that study, no hypothesis outcome was tested and the final values did not appear to be significantly different in any of the independent variables tested. The fact that our study achieved a much higher percentage of positive answers, 70% for the exposed group and 69% for the non-exposed group, shows that the quality of the breastfeeding support at the hospital maintained high, generating an additional difficulty in testing the outcome, given that an alteration higher than 69% is very difficult to attain using this model.²⁰

Another factor that might contribute to a lack of significant association between the observed factors is the kind of statistical analysis performed. A second study with the same form was conducted in Brazil by Vieira *et al.*,²¹ and these authors opted for an analysis of 05 groups in 04 question forms that are: General observation of the mother, General observation of the baby, Baby position, grip and suckling. We did not opt for this model of outcome because the association between the low number of exposed groups in the sample and the subdivision of outcomes in groups would lead to a lower statistical coherence.²¹

On the other hand, Carvalhaes *et al.*,⁴ also performed an analysis based on groups of question and, like us, totaled a positive percentage of 78%. These authors did not test any independent variables nor any outcomes

that might alter such results, which made it impossible to compare their results to ours, despite the significant percentage difference was higher.⁴

As for, Lumbiganon *et al.*,²² in a systematic meta-analysis of 17 studies already had indicated that the prenatal educational activities did not significantly affect the breastfeeding indices. These authors discussed the fact that prospective studies with this kind of question was difficult to conduct. This fact did occur in our study, especially because there is no guarantee that the exposed pregnant women of the educational activities would give birth at the same hospital where the breastfeeding evaluations occurred, and also because of the losses of the non-inclusion.²²

Either way, the analysis of the results of our study has showed statistically feasible, and the binomials exposed to the classes obtained superior results in the number of questions (12 and 8 – 60% to 40%) and in the percentage of global positive responses (79% to 60% - $p=0.55$), while the non-exposed binomials were better evaluated in the two questions: Areola is seen above the upper lip yes (80% to 54% - $p=0.01$) and Baby appears healthy yes (99% to 92% - $p=0.01$).

Therefore, it is possible to infer that prenatal education for breastfeeding was not capable of altering the performance of the mother-baby binomials when it comes to breastfeeding technique as measured by the breastfeeding evaluation form in this present study.

Prenatal education for breastfeeding has been performed at the HGA uninterruptedly since 1980, and several health professional teams have been trained to reproduce them since then. The value of these classes is, in our estimation, inarguable regardless of the results this study obtained. We suggest new studies to be made to continue to evaluate that these classes are indeed effective.

Authors' contribution

Baldin PEA: data analysis, writing and editing. Pedrosa FG and Luiz MFC: Breastfeeding evaluation form application, database research, writing and editing. Domingues GR, Reis MN and Gonçalves TH: Prenatal activities, database research, writing and editing. All of the authors have approved the final version of the article, and declare no conflict of interest.

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