



Acta Paulista de Enfermagem

ISSN: 0103-2100

ISSN: 1982-0194

Escola Paulista de Enfermagem, Universidade Federal de São Paulo

Carreiro, Juliana de Almeida; Francisco, Adriana Amorim; Abrão, Ana Cristina Freitas de Vilhena; Marcacine, Karla Oliveira; Abuchaim, Erika de Sá Vieira; Coca, Kelly Pereira
Dificuldades relacionadas ao aleitamento materno: análise de um serviço especializado em amamentação
Acta Paulista de Enfermagem, vol. 31, núm. 4, Julho-Agosto, 2018, pp. 430-438
Escola Paulista de Enfermagem, Universidade Federal de São Paulo

DOI: 10.1590/1982-0194201800060

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Breastfeeding difficulties: analysis of a service specialized in breastfeeding

Dificuldades relacionadas ao aleitamento materno: análise de um serviço especializado em amamentação

Dificultades relacionadas a la lactancia materna: análisis de un servicio especializado en el amamantamiento

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Keywords

Breast feeding; Weaning; Milk banks; Health promotion; Public policy

Descritores

Aleitamento materno; Desmame; Banco de leite humano; Promoção da saúde; Políticas públicas

Descriptores

Lactancia materna; Destete; Bancos de leche; Promoción de la salud; Política pública

Submitted

June 4, 2018

Accepted

August 16, 2018

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DOI

<http://dx.doi.org/10.1590/1982-0194201800060>

Abstract

Objective: To analyze the association between the type of breastfeeding and the difficulties related to this practice among women and children assisted in a clinic specialized in breastfeeding.

Methods: Cross-sectional retrospective study based on the analysis of medical records of women and children assisted in a clinic specialized in breastfeeding from 2004 to 2016. Medical records of women with multiple pregnancies and documents registered as nonstandard forms were excluded, which resulted in a sample with 1,608 records. The chi-square, nonparametric Mann-Whitney, and nonparametric Kruskal-Wallis tests were applied to compare the type of breastfeeding with categorical variables, frequency of exclusive breastfeeding, and days of life and maternal age, respectively.

Results: Exclusive breastfeeding was practiced by 72.6% of the assisted women in the first 30 days after childbirth. There was a significant association between this practice and the following difficulties: maternal perception regarding the volume of produced milk, full breasts before breastfeeding, milk leakage, and easy manual milk extraction; proper positioning of mother and child, latch, suction, and swallowing by the child; in addition to the following characteristics: higher level of education; stable marital status; previous experience with breastfeeding; protruding nipples; early skin-to-skin contact with the child; and children with a lower average number of days of life and who used pacifiers.

Conclusion: Exclusive breastfeeding prevailed in the first 30 days after childbirth and several maternal and neonatal variables were associated with this practice in the first appointment in the specialized clinic.

Resumo

Objetivo: Analisar a associação entre o tipo de aleitamento e as dificuldades relacionadas à essa prática entre mulheres e crianças assistidas em um ambulatório especializado em amamentação.

Métodos: Estudo transversal retrospectivo realizado por meio da análise de prontuários de crianças e mulheres atendidas entre 2004 e 2016 em um ambulatório especializado em aleitamento materno. Foram excluídos os registros referentes às mulheres com gestação múltipla e àqueles não realizados em formulário padrão, totalizando 1.608 prontuários. Utilizaram-se os testes Qui-Quadrado e Kruskal-Wallis para comparar o tipo de aleitamento materno com variáveis categóricas; e com os dias de vida e idade materna, respectivamente. O teste Mann-Whitney utilizou-se para comparar a frequência do aleitamento materno exclusivo.

Resultados: O aleitamento materno exclusivo foi praticado por 72,6% das mulheres atendidas, nos primeiros 30 dias após o parto. Houve associação significativa entre esta prática e as dificuldades: percepção materna quanto à quantidade de leite produzida, de mamas cheias antes das mamadas, de vazamento de leite e extração manual do leite com facilidade; posicionamento materno e da criança, preensão, sucção e deglutição da criança adequados; além das variáveis: maior escolaridade, situação conjugal estável; ter tido experiência prévia com aleitamento materno, ter mamilos protrusos, ter realizado contato precoce pele a pele, ter filhos com menor média de dias de idade e que faziam uso de chupeta.

Conclusão: O aleitamento materno exclusivo foi o mais prevalente nos primeiros 30 dias pós-parto e diversas variáveis maternas e neonatais estiveram associadas à essa prática no primeiro atendimento em ambulatório especializado.

Resumen

Objetivo: Analizar la asociación entre el tipo de amamantamiento y las dificultades relacionadas con esta práctica entre las mujeres y los niños atendidos en una clínica especializada en la lactancia materna.

Métodos: Estudio transversal retrospectivo llevado a cabo por medio del análisis de expedientes de niños y mujeres atendidas entre 2004 y 2016, en una clínica especializada en lactancia materna. Se excluyeron los registros referentes a las mujeres con gestación múltiple y a los no realizados de forma estándar, totalizando 1.608 expedientes. Se utilizaron las pruebas Qui-cuadrado y Kruskal-Wallis para comparar el tipo de lactancia materna con variables categóricas; y con los días de vida y edad materna, respectivamente. La prueba Mann-Whitney fue utilizada para comparar la frecuencia de la lactancia materna exclusiva.

Resultados: La lactancia exclusiva fue practicada por el 72,6% de las mujeres atendidas en los primeros 30 días después del parto. Se observó una asociación significativa entre esta práctica y las dificultades: percepción materna en cuanto a la cantidad de leche producida, de mamas llenas antes de las tomas, de fuga de leche y extracción manual de leche con facilidad; posicionamiento materno y del niño, prensión, succión y deglución del niño adecuados; además de las variables: mayor escolaridad, situación conjugal estable; haber tenido experiencia previa con la lactancia materna, tener pezones sobresalientes, haber realizado contacto precoz piel a piel, tener hijos con menor promedio de días de edad y que hacían uso de chupete.

Conclusión: La lactancia materna exclusiva fue lo más prevalente en los primeros 30 días después del parto y diversas variables maternas y neonatales fueron asociadas con esta práctica en la primera atención en clínicas especializadas.

Como citar:

Carreiro JA, Francisco AA, Abrão AC, Marcacine KO, Abuchaim ES, Coca KP. Breastfeeding difficulties: analysis of a service specialized in breastfeeding. Acta Paul Enferm. 2018;31(4):430-8.

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Conflicts of interest: Francisco AA is an associate editor of Acta Paulista de Enfermagem and did not participate in the process of evaluation of the manuscript.



Introduction

The World Health Organization (WHO) recommends that breastfeeding be the exclusive source of food in the first six months of life and a dietary complement until children turn two years old.⁽¹⁾ This practice is considered the best choice for newborn nutrition, because it provides immunological protection against respiratory diseases and gastrointestinal infections, in addition to inducing an emotional bond between mother and child.⁽²⁾

Despite this recommendation and the benefits of this practice, breastfeeding rates worldwide are much lower than expected⁽³⁾, a fact that can be explained by several reasons.⁽⁴⁾ Women may wish to breastfeed, but face social, cultural, and political barriers during the pregnancy-postpartum cycle, which interfere in its beginning and continuity.⁽⁴⁾

In the individual sphere, mothers and children experience a learning period that may impact positively or negatively on the duration and choice of type of breastfeeding. Difficulties in the beginning of the breastfeeding process are common and pose a risk of early weaning.^(5,6) Factors that influence the continuity of breastfeeding relate to milk production, psychosocial aspects, the nutritional and satiety situation of children, women's lifestyle and health conditions,^(5,6) the presence of pain during breastfeeding, and problems associated with the positioning and latching on to the breast.^(5,7)

Regarding performance and incentive from health professionals, lack of support for early breastfeeding and mother-child contact, and the use of artificial milk and nipples are frequent after childbirth.⁽⁴⁾

Brazil stands out in the international scenario for having a set of coordinated breastfeeding incentive policies: *Iniciativa Hospital Amigo da Criança*, *Método Canguru*, paid maternity leaves for four to six months, *Unidade Básica Amiga da Amamentação*, breastfeeding support rooms, a law that addresses the commercialization of foods for infants, and the largest network of human milk banks in the world.⁽⁸⁾ Strategies to promote breastfeeding helped Brazil reach one of the highest exclusive breastfeeding rates for children younger than six months (41%) and a breastfeeding prevalence of 58.7% for children between nine and 12 months old. These numbers, however, are lower than those established in official recommendations.⁽⁹⁾

Despite some positive numbers, the short Brazilian maternity leave and lack of a proper structure in workplaces for the correct pumping and storage of breast milk may explain rates lower than those recommended by the WHO.⁽⁴⁾

Specialized breastfeeding outpatient follow-up allowed healthcare professionals who provide postpartum women with care to notice that many of these patients report to use infant formulas in the first appointment. To understand this reality and improve the professional practice oriented toward promoting breastfeeding, the present study had the objective to analyze the association between the type of breastfeeding and the difficulties related to this practice among women and children assisted in a clinic specialized in breastfeeding.

Methods

This was a cross-sectional retrospective study developed at the Ana Abrão Center – Care, Teaching, and Research on Breastfeeding and Human Milk Bank of the Federal University of São Paulo. The service, created in 2003, offers care to women who deliver their children at the teaching hospital of the same institution and those who seek the service spontaneously. Appointments are scheduled at the hospital and occur between seven and ten days after childbirth. Follow-up is carried out monthly by specialized nurses, nutritionists, and psychologists during the children's first six months of life, or more frequently depending on the professionals' evaluation. After this period, children are referred to the nutrition laboratory for guidance, follow-up of complementary food introduction, and nutritional evaluation.

Data collection happened from June to October 2017. The sample included all the medical records of the first appointment of women and children who went through the mentioned center between January 2004 and December 2016 to seek breastfeeding assistance. Records of women with a current multiple pregnancy and records presented in a format that did not match the institution's standard were excluded.

The dependent variable was set as the type of breastfeeding. Independent variables were: sociode-

mographic characteristics (age, level of education, occupation, and marital status), obstetric characteristics (number of pregnancies and miscarriages, parity, and type of childbirth in the last pregnancy), and neonatal characteristics (days of life, sex, birth weight, and Apgar scores at one and five minutes).

The variables related to breastfeeding and difficulties were: previous experience, skin-to-skin contact, use of a pacifier, type of nipple of the postpartum women, presence of nipple injury and breast engorgement, time interval between consecutive breastfeeding sessions, maternal perception regarding the volume of milk produced and consistency of breasts before and after breastfeeding, report of milk leakage, easiness to extract milk manually, position of mother and child, and latch, suction, and swallowing of the child during breastfeeding. The variables related to the observation of breastfeeding were classified as adequate and inadequate, in accordance with the standard evaluation procedure of the institution.⁽¹⁰⁾

For the descriptive analysis of the categorical variables, absolute and relative frequencies were calculated, whereas mean, standard deviation, and minimum and maximum values were obtained for continuous variables. The chi-square, nonparametric Mann-Whitney, and nonparametric Kruskal-Wallis tests were applied to compare the type of breastfeeding with categorical variables, the frequency of exclusive breastfeeding, and days of life and maternal age, respectively. A level of significance of 5% (p -value < 0.05) was considered in all tests.

In agreement with Brazilian Resolution 466, issued on December 8, 2012, the proposal of the present study was approved by the Research Ethics Committee of the Federal University of São Paulo as per protocol 2.362.050. Consent forms were not necessary given that only secondary data were analyzed.

Results

There were 1,673 medical records of women assisted in the first appointment in the service between January 2004 and December 2016, of which 65 were excluded (46 because data were registered in a form that did not meet the standards of the institution and 19 because

they referred to women who had a multiple pregnancy). Consequently, the sample was 1,608 forms.

Regarding the women's sociodemographic characteristics, women presented an average age of 29 years (standard deviation or SD = 7.1), most studied up to eight years (83.4%), developed paid activities (62%), and lived with their partners (69.9%). Analysis of the women's obstetric characteristics revealed that they had had, on average, two pregnancies (SD = 1.56; minimum = 1 and maximum = 13) and two childbirths (SD = 1.18; minimum = 1 and maximum = 11). Around one quarter (27.6%) of the women had a history of miscarriage (minimum = 0 and maximum = 7), and more than half (51.9%) had undergone a cesarean in the last pregnancy (Table 1).

Table 1. Characterization of women and children in the first appointment at a clinic specialized in breastfeeding incentive and support

Variable	Total
Women's characteristics	
Age (years)	
Mean(SD)	29.03(7.13)
Level of education (years of education) (n = 1,590) n(%)	
Up to 8	1,327(83.5)
≥ 9	263(16.5)
Paid activity (n = 1,570) n(%)	
Yes	973(62)
No	597(38)
Marital status (n = 1,594) n(%)	
Has a partner	1,114(69.9)
Does not have a partner	480(30.1)
Number of pregnancies (n = 1,605)	
Mean(SD)	2.34(1.56)
Number of childbirths (n = 1,605)	
Mean(SD)	1.93(1.18)
Miscarriages (n = 1,601) n(%)	
Yes	442(27.6)
No	1,159(72.4)
Type of childbirth (n = 1,604) n(%)	
Vaginal	771(48.1)
Cesarean	833(51.9)
Children's characteristics	
Days of life (n = 1,608)	
Mean(SD)	20.59(16.13)
Sex (n = 1,604) n(%)	
Female	803(50.1)
Male	801(49.9)
Birth weight (g) (n = 1,597)	
Mean(SD)	3,083.05(510.86)
Apgar score at one minute (n = 1,518) n(%)	
0-7	182(12)
8-10	1,336(88)
Apgar score at five minutes (n = 1,518) n(%)	
0-7	17(1.1)
8-10	1,501(98.9)
Type of breastfeeding (n = 1,607) n(%)	
No breastfeeding	40(2.5)
EB*	1,167(72.6)
PB+CB+Mixed**	400(24.9)

*EB - exclusive breastfeeding; **PB - predominant breastfeeding; CB - complementary breastfeeding

Regarding the children's characteristics, the average age in the first appointment was 20.6 days (SD = 16.1) and 50.1% were females. The average birth weight was 3,083.05 grams (SD = 510.86), and most babies presented Apgar scores at one and five minutes between eight and ten (88% and 98.9%, respectively). Most children (72.6%) were undergoing exclusive breastfeeding (Table 1).

Regarding breastfeeding-related variables, most women did not have a previous breastfeeding experience and did not carry out early skin-to-skin contact (54.4% and 58.5%, respectively), and most children (60.2%) did not use a pacifier. Around 80% of the patients considered the amount of produced milk as normal or excessive, more than 80% reported milk leakage, and more than 90% declared it was easy to extract milk manually. Most women perceived their breasts as being full before breastfeeding and sagging immediately after it. Nearly all

postpartum women presented protruding nipples and had no breast engorgement. Around half the women had nipple injuries. Concerning the observation of mother and child during breastfeeding, most patients had no problems involving the maternal position and the position, latch, suction, and swallowing of the child (Tables 2 and 3).

There was a significant association between the type of breastfeeding registered in the first appointment and the variables: level of education, marital status, previous experience with breastfeeding, nipple type, early skin-to-skin contact, maternal perception regarding the volume of milk, maternal perception regarding the appearance of breasts before breastfeeding, report of milk leakage, easiness to extract milk manually, child's number of days of life, use of a pacifier, position of the mother during breastfeeding, position of the child during breastfeeding, latch of the child on to the breast, suction

Table 2. Comparison between the types of breastfeeding in progress at the time of the first appointment and variables of postpartum women and children

Variables	Type of breastfeeding at the first appointment			Total	p-value
	No breastfeeding	EB*	PB+CB+Mixed**		
Maternal age (n = 1,584) n(%)					
Mean(SD)	28.55(8)	28.89(7.19)	29.5(6.85)	29.03(7.13)	0.3252 [§]
Level of education (years) (n = 1,589) n(%)					
≤ 8	30(76.9)	989(85.8)	307(77.3)	1,326(83.4)	0.0003 [§]
≥ 9	9(23.1)	164(14.2)	90(22.7)	263(16.6)	
Paid activity (n = 1,569) n(%)					
Yes	20(54.1)	692(60.7)	260(66.3)	972(62)	0.0855 [§]
No	17(45.9)	448(39.3)	132(33.7)	597(38)	
Marital status (n = 1,593) n(%)					
Has a partner	22(56.4)	838(72.2)	253(64.2)	1,113(69.9)	0.0020 [§]
Does not have a partner	17(43.6)	322(27.8)	141(35.8)	480(30.1)	
Previous breastfeeding experience (n = 1,581) n(%)					
Yes	9(23.1)	576(50.1)	136(34.6)	721(45.6)	<0.0001 [§]
No	30(76.9)	573(49.9)	257(65.4)	860(54.4)	
Type of nipple R (n = 1,421) n(%)					
Protruding	21(58.3)	939(90.5)	286(82.2)	1,246(87.7)	<0.0001 [§]
Malformed/underdeveloped	15(41.7)	98(9.5)	62(17.8)	175(12.3)	
Type of nipple L (n = 1,417) n(%)					
Protruding	21(58.3)	935(90.4)	290(83.6)	1,246(87.9)	<0.0001 [§]
Malformed/underdeveloped	15(41.7)	99(9.6)	57(16.4)	171(12.1)	
Days of life of the child (n = 1,607) n(%)					
Mean(SD)	27.73(27.35)	19.23(14.93)	23.9(17.34)	20.6(16.13)	<0.0001 [§]
Early skin-to-skin contact (n = 1,502) n(%)					
Yes	10(32.3)	496(44.7)	118(32.7)	624(41.5)	0.0002 [§]
No	21(67.7)	614(55.3)	243(67.3)	878(58.5)	
Use of a pacifier (n = 1,523) n(%)					
Yes	20(58.8)	396(35.6)	190(50.5)	606(39.8)	<0.0001 [§]
No	14(41.2)	717(64.4)	186(49.5)	917(60.2)	

*EB - exclusive breastfeeding; **PB - predominant breastfeeding; CB - complementary breastfeeding; [§]Chi-squared test; [§]Mann-Whitney test; [§]Kruskal-Wallis test

Table 3. Comparison between the types of breastfeeding in progress at the time of the first appointment and breastfeeding-related variables

Variables	Type of breastfeeding at the first appointment			Total	p-value
	No breastfeeding	EB*	PB+CB+Mixed**		
Time interval between consecutive breastfeeding sessions (hours) (n = 1,330)					
Mean(SD)	-	2.44(0.83)	2.52(1.23)	2.45(0.9)	0.6120 [§]
Perception regarding the volume of milk produced (n = 1,559) n(%)					
Normal/excessive	13(46.4)	984(86.5)	244(62.1)	1,241(79.6)	<0.0001 [§]
Little	15(53.6)	154(13.5)	149(37.9)	318(20.4)	
Perception regarding the appearance of breasts before breastfeeding (n = 1,515) n(%)					
Sagging	9(60)	83(7.4)	88(23.5)	180(11.9)	<0.0001 [§]
Full/stiff	6(40)	1,043(92.6)	286(76.5)	1,335(88.1)	
Perception regarding the appearance of breasts after breastfeeding (n = 1,512) n(%)					
Sagging	14(93.3)	1,014(89.9)	346(93.8)	1,374(90.9)	0.0765 [§]
Full/stiff	1(6.7)	114(10.1)	23(6.2)	138(9.1)	
Report of milk leakage (n = 1,516) n(%)					
Yes	12(52.2)	968(86.8)	272(72)	1,252(82.6)	<0.0001 [§]
No	11(47.8)	147(13.2)	106(28)	264(17.4)	
Easiness to extract milk manually (n = 1,490) n(%)					
Yes	13(56.5)	1,075(97.6)	324(88.5)	1,412(94.8)	<0.0001 [§]
No	10(43.5)	26(2.4)	42(11.5)	78(5.2)	
Nipple injury (n = 1,411) n(%)					
Yes	18(54.5)	446(43.1)	148(43.1)	612(43.4)	0.4237 [§]
No	15(45.5)	589(56.9)	195(56.9)	799(56.6)	
Engorged breasts (n = 1,500) n(%)					
Yes	0(0)	32(2.9)	9(2.4)	41(2.7)	0.4976 [§]
No	39(100)	1,058(97.1)	362(97.6)	1,459(97.3)	
Position of the mother during breastfeeding (n = 1,502) n(%)					
Adequate	12(46.2)	802(72.1)	226(62.1)	1,040(69.2)	0.0001 [§]
Inadequate	14(53.8)	310(27.9)	138(37.9)	462(30.8)	
Position of the child during breastfeeding (n = 1,505) n(%)					
Adequate	8(30.8)	664(59.8)	187(50.8)	859(57.1)	0.0003 [§]
Inadequate	18(69.2)	447(40.2)	181(49.2)	646(42.9)	
Latch of the child (n = 1,486) n(%)					
Adequate	9(39.1)	766(69.6)	214(59)	989(66.6)	<0.0001 [§]
Inadequate	14(60.9)	334(30.4)	149(41)	497(33.4)	
Suction of the child (n = 1,483) n(%)					
Adequate	7(30.4)	799(72.8)	225(62.2)	1,031(69.5)	<0.0001 [§]
Inadequate	16(69.6)	299(27.2)	137(37.8)	452(30.5)	
Swallowing of the child (n = 1,470) n(%)					
Adequate	9(47.4)	801(73.2)	240(67.2)	1,050(71.4)	0.0061 [§]
Inadequate	10(52.6)	293(26.8)	117(32.8)	420(28.6)	

*EB - exclusive breastfeeding; **PB - predominant breastfeeding; CB - complementary breastfeeding; [§]Chi-squared test; [§]Mann-Whitney test; [§]Kruskal-Wallis test

of the child in the breast, and swallowing of the child (Tables 2 and 3).

Women who did not breastfeed presented a higher percentage of perception of low milk production, sagging breasts before breastfeeding, absence of milk leakage, difficulty in extracting milk manually, incorrect positioning of the mother and child during breastfeeding, and incorrect latch, suction, and swallowing of the child during the breastfeeding evaluation (Table 3).

Most women who provided their child with exclusive breastfeeding had complete or incomplete high school, a stable marital status, previous expe-

rience with breastfeeding, and early skin-to-skin contact with the child. Additionally, these women showed a higher percentage of perception of the volume of milk they produced being normal or excessive, of having full breasts before breastfeeding, milk leakage, and easiness to extract milk manually, and a prevalence of protruding nipples. Children undergoing exclusive breastfeeding showed a lower average age and percentage of use of a pacifier. This group also had a higher percentage of correct positioning of the mother and child during breastfeeding and adequate latch, suction, and swallowing (Tables 2 and 3).

There was no association between the type of breastfeeding and the factors maternal age and occupation, presence of nipple injury, breast engorgement, perception regarding the appearance of the breasts after breastfeeding, and the time interval between consecutive breastfeeding sessions (Tables 2 and 3).

Discussion

The present study identified the association between the main difficulties experienced by mothers and children and the type of breastfeeding. The results pointed that some difficulties related to the perception regarding milk production (maternal perception of low milk production, sagging breasts before breastfeeding, lack of milk leakage, and difficulty to extract milk manually) were associated with nonexclusive breastfeeding. Regarding the difficulties during the practice, the incorrect positioning of mother and child and the latch, suction, and swallowing of the child were associated with early weaning. In addition to problems, maternal and neonatal sociodemographic variables (level of education, marital status, and age of the child) and obstetric characteristics (previous experience with breastfeeding, early skin-to-skin contact, use of a pacifier, and nipple type) were also associated with the type of breastfeeding.

The variables that contribute to early weaning according to the present study are the same indicated in the field literature. Low milk production is reported in investigations as a common difficulty in the beginning of the breastfeeding period.^(6,11) Women tend to associate this fact with the frequent crying of children and, because of a lack of knowledge, resort to dietary complementation through infant formulas, teas, and other items. This change may interfere with children's food satiety and lead to insufficient suction, which may trigger other problems such as breast engorgement, nipple injury, and ultimately early weaning.^(12,13) These difficulties tend to sort themselves out over time in women who can keep the exclusive breastfeeding practice, given that the suction stimulus that newborns ap-

ply to breasts will progressively increase milk production. This can explain the positive perception regarding the volume of milk reported by women who kept the practice of exclusive breastfeeding.^(6,14)

The difficulties related to the positioning of mother and child during breastfeeding are more evident on the first days after childbirth. In this period, both mother and newborn are adapting to a new phase, and healthcare professionals can help and guide patients to prevent future insecurities.^(11, 15) Inadequate positioning of one of them or both hinders proper latch, which affects the dynamics of suction and extraction of milk, potentially leading to difficulties in the emptying of the breasts and decreased milk production. These factors require intervention and amendment not to extend for long periods, thus preventing nipple injuries and pain during breastfeeding,^(6,16,17) and consequently decreasing the chances of early weaning.⁽¹⁸⁾

Contrarily to the findings of the present study, other problems such as breast engorgement and nipple injury are also risk factors for early weaning.⁽⁶⁾ These issues are directly related to incorrect positioning of the newborn in the breast, and the authors of the present investigation expected to obtain a different result, given that the field literature indicates breast-related complications as the most frequent difficulties regarding early weaning.^(17,19) Nevertheless, the specificities of the examined population, which was assisted by a technically trained team since childbirth until the first 20 days of the postpartum period, may explain the discrepancy between literature and results.

Concerning women's characteristics, the present study revealed that there was no correlation between maternal age and the type of breastfeeding practiced, contradicting the recent literature on the subject. Studies reported that early weaning is more common among younger women (< 20 years) than among older women (>30 years).^(20,21) This divergence may be explained by the higher number of women undergoing exclusive breastfeeding who had already had a breastfeeding experience.

The same disagreement occurred with the variable maternal occupation, frequently associated with early weaning, given that this practice can be related

to women's return to their work activities.⁽²¹⁾ The result described in the present study may be explained by the moment of the postpartum period in which women were assisted (around 20 days after childbirth) and the length of paid maternity leave (between four and six months) in Brazil.⁽⁸⁾

Regarding level of education, most postpartum women who were performing exclusive breastfeeding studied up to eight years, that is, finished their education at elementary school. This result is compatible with studies which report a higher level of education as a precursor of greater access to information on breastfeeding and motivation to carry it out, which resulted in a longer breastfeeding period.^(13,21)

In addition to women's characteristics, previous experience has been considered one of the factors that contribute to prolonged breastfeeding,⁽²⁵⁾ and may be more influential than maternal age. Previous experience proved significantly related to the maintenance of breastfeeding in the present investigation, reinforcing the findings of other studies.^(21,26) Having breastfed other children helps women face the first days of adaptation with the newborn more easily, which favors a long-lasting breastfeeding.^(20,21)

Regarding women's physical aspects, the present study showed that most women had protruding nipples, a characteristic that was associated with the breastfeeding practice. This finding helps support the evidence that the nipple anatomy can influence the difficulties experienced in the beginning of the breastfeeding period, especially when it is malformed and/or underdeveloped, which usually hinders latch and its maintenance, influencing the practiced type of breastfeeding. Conversely, protruding nipples facilitate latch and decrease the chances of nipple injury.^(16,27)

Analysis of neonatal characteristics revealed that the practice of exclusive breastfeeding was associated with a lower age of the child. It is believed that this association is related to risk factors for early weaning, such as use of artificial nipples and formulas after the first month of life.^(11,26)

The early contact of the newborn with the breast after childbirth is pointed as a potential influencing factor of the beginning, maintenance, and duration of breastfeeding,^(28,29) which agrees with the data of

the present study. A systematic review published by Cochrane⁽²⁹⁾ and recently revised⁽²⁸⁾ analyzed 38 randomized clinical trials with 3,472 healthy women and children carried out in 21 countries and demonstrated that mothers who established skin-to-skin contact had a higher probability of success in the first breastfeeding as well as of keeping exclusive breastfeeding for a longer period in comparison to women who did not perform this kind of contact. Although the examined studies have methodological limitations, the evidence supports the promotion of skin-to-skin contact to favor breastfeeding and the resulting guarantee of its various benefits to mother and child.⁽²⁸⁾

The use of artificial nipples and pacifiers is also considered one of the factors hindering breastfeeding and was cited in the ninth step of the WHO Ten Steps to Successful Breastfeeding, which recommends not to give artificial nipples and/or pacifiers to children who are undergoing breastfeeding. However, cultural habits are difficult to control. The justifications for offering pacifiers are almost always related to the objectives of calming down babies that cry constantly and increasing the time interval between consecutive breastfeeding sessions because of breast-related issues.⁽³⁰⁾ The results of the present study agree with most data in the literature, which indicate a connection between the use of artificial nipples and pacifiers and the type of breastfeeding and early weaning. A metaanalysis of two studies which investigated 1,302 children to evaluate the influence of restricted versus free use of pacifiers on breastfeeding showed no significant impact on the breastfeeding rate.⁽³¹⁾ The difference between this result and the findings of the present study may have been caused by the sample size and methodology used in the cited investigations.

The offer of pacifiers, usually associated with children's constant crying, may lead to spacing of breastfeeding sessions, lack of coordination in the suction process, partial emptying of the breasts, and a higher risk of breast engorgement, nipple injury, and reduction of milk production.^(21,30) Consequently, the findings of the present study emphasize most evidence regarding the negative relationship between the use of artificial nipples and early weaning.

Concerning the presence of a partner, literature indicates the need for further investigation on the topic. Some authors suggest that the presence of a spouse, helping and supporting women in the care to newborns, favors breastfeeding.^(13,22) Contrarily, other studies point to the help of a partner as an unfavorable factor until children turn two years old, and attribute this result to beliefs and taboos related to breast esthetic and the resumption of the sexual activities of the couple.^(23,24)

Given the results reported in the present study, the authors stress the importance of new investigations to promote changes based on effective interventions in the care to postpartum women to achieve successful breastfeeding.

Conclusion

Exclusive breastfeeding was practiced by 72.6% of the women assisted in the 30 days after childbirth. There was a significant association between this practice and the following difficulties: maternal perception regarding the volume of milk produced, of full breasts before breastfeeding, of milk leakage, and of easy manual milk extraction; adequate positioning of mother and child, latch, suction, and swallowing of the child. There was also a relationship with the variables: higher level of education, stable marital status, previous experience with breastfeeding, protruding nipples, early skin-to-skin contact, and having a child with a lower average age who used pacifiers. The findings contribute to understanding the most frequent breastfeeding difficulties, so nurses can orient their care since hospital discharge, thus preventing early weaning.

Collaborations

Coca KP, Francisco AA, and Carreiro JA contributed to the study conception, data analysis and interpretation, writing of the manuscript, critical review of its intellectual content, and final approval of the version to be published. Marcacine KO, Abuchaim ES, and Abrão ACFV contributed to the writing

of the manuscript, critical review of its intellectual content, and final approval of the version to be published.

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