

NIPPLE TRAUMA IN PUERPERAL WOMEN IN ROOMING-IN: DESCRIPTIVE STUDY

TRAUMA MAMILAR EM PUÉRPERAS NO ALOJAMENTO CONJUNTO: ESTUDO DESCRITIVO

TRAUMATISMO DEL PEZÓN EN PUÉRPERAS EN HABITACIÓN CONJUNTA: ESTUDIO DESCRIPTIVO

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Objective: investigating the presence of nipple trauma in postpartum women at the hospital discharge from joint accommodation. **Method:** cross-sectional, retrospective and descriptive study, in joint accommodation of a public hospital. Sociodemographic data and data on childbirth, birth, breastfeeding and characterization of nipple injury were collected. The study covered all months of 2018. For analysis, we used the statistical software Statistical Analysis System (SAS), version 9.4, with significance level of 5%. **Results:** of the sample of 480 postpartum women, 56.04% had nipple traumas, and abrasion was the most frequent lesion (28.13%). Exclusive breastfeeding prevailed at discharge (96.46%) and the use of milk formula was more present when nipple trauma occurred. **Conclusion:** the high frequency of nipple trauma indicates that it is essential the instrumentalization of health professionals to deal with the difficulties experienced by women in the breastfeeding process, also contemplating identification and classification of nipple trauma.

Descriptors: Wounds and Injuries. Breast Feeding. Rooming-in Care. Postpartum Period. Nipples.

Objetivo: investigar a presença de trauma mamilar em puérperas na alta hospitalar de alojamento conjunto. Método: estudo transversal, retrospectivo e descritivo, em alojamento conjunto de um hospital público. Foram coletados dados sociodemográficos e do parto, nascimento, aleitamento e caracterização da lesão mamilar. O estudo abrangeu todos os meses de 2018. Para análise, utilizou-se o software estatístico Statistical Analysis System (SAS), versão 9.4, com nível de significância de 5%. Resultados: da amostra de 480 puérperas, 56,04% apresentaram traumas mamilares, sendo escoriação a lesão mais frequente (28,13%). O aleitamento materno exclusivo prevaleceu na alta (96,46%) e o uso de fórmula láctea esteve mais presente quando ocorreu trauma mamilar. Conclusão: a elevada frequência de trauma mamilar denota que é imprescindível a instrumentalização dos profissionais de saúde para lidarem com as dificuldades vivenciadas pelas mulheres no processo de amamentação, contemplando também identificação e classificação do trauma mamilar.

Descritores: Ferimentos e Lesões. Aleitamento Materno. Alojamento Conjunto. Período Pós-Parto. Mamilos.

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Objetivo: investigar la presencia de trauma de pezón en puérperas en el hospital de alojamiento conjunto. Método: estudio transversal, retrospectivo y descriptivo, en alojamiento conjunto de un hospital público. Se recogieron datos sociodemográficos y del parto, nacimiento, lactancia y caracterización de la lesión mamilar. El estudio abarcó todos los meses de 2018. Para análisis, se utilizó el software estadístico Statistical Analysis System (SAS), versión 9.4, con nivel de significación del 5%. Resultados: de la muestra de 480 puérperas, 56,04% presentaron traumas mamilares, siendo escoriación la lesión más frecuente (28,13%). La lactancia materna exclusiva prevaleció en el alta (96,46%) y el uso de fórmula láctea estuvo más presente cuando ocurrió trauma mamilar. Conclusión: la elevada frecuencia de trauma mamilar denota que es imprescindible la instrumentalización de los profesionales de salud para lidiar con las dificultades experimentadas por las mujeres en el proceso de lactancia, contemplando también identificación y clasificación del trauma mamilar.

Descriptores: Heridas y Lesiones. Lactancia Materna. Alojamiento Conjunto. Periodo Posparto. Pezones.

Introduction

The World Health Organization (WHO) and the United Nations Children's Fund (UNICEF) recommend that breastfeeding (BF) be started within the first hour after birth and should be exclusive up to six months of the child's life and complemented up to two years or more⁽¹⁻²⁾.

Nipple trauma is described in several ways in the literature. In the context of assistance to puerperal women, the presence of erythematous lesion is observed, often accompanied by increased sensitivity of the nipple-areolar region or acute pain. Thus, it is considered as a change in the anatomy of the nipple skin, with the appearance of a primary lesion caused by the change in color, thickness or presence of liquid content⁽³⁾.

The appearance of lesions can be favored by oral dysfunctions of the newborn (NB), poor positioning of the infant by the mother, offering of the breast with areola-nipple region turgid, prolonged non-nutritive suction, use of intermediaries, inadequate use of pumps for expressing milk and not interrupting the sucking of the child before removing it from the breast⁽⁴⁾. Thus, it is common that, in the postpartum period, women complain of mild or moderate pain in the nipples, when starting breastfeeding, due to the sucking of the infant and his level of sensitivity, which usually ceases in the first weeks postpartum when there are no other problems involved⁽²⁾.

However, since nipple trauma compromises the integrity of the nipples, when not treated

correctly, the chance of evolving with bacterial infection increases, preventing complete wound healing^(2,5). Studies show that nipple-areolar grip correction positively contributes to pain relief and improvement of breast lesions. Thus, when discomfort is perceived, an immediate evaluation of the site, as well as the handle and suction of the NB is necessary⁽⁶⁾. Prompt action can prevent the development of trauma or prevent it from worsening.

Since prenatal care, it is necessary for the health professional to create a bond with the woman, so that she attends appointments regularly and feel free to share doubts and fears about how she intends to feed her child, as well as receive information on breastfeeding, breast care and where to seek support in case of difficulties⁽⁷⁾. In motherhood, the attention to the woman and her child in Joint Housing (JH), among other objectives, should offer continuity of this care.

The permanence of the binomial in the JH is an excellent opportunity for health professionals to ensure assistance to the puerperal woman and her child, promoting and supporting breastfeeding, investing in care and educational activities that favor the success of Exclusive Breastfeeding (EBF), both in JH and post-discharge⁽⁸⁻⁹⁾. The stimulus for the maintenance of EBF for the recommended period is one of the premises of JH. This is a system in which healthy NB remains close to the mother during their hospitalization, in the same environment, until

hospital discharge, when health professionals will be able to provide guidelines for self-care and care for the binomial⁽⁹⁻¹⁰⁾. In this context, professionals should develop the technical capacity to identify and correct factors that may trigger the development of nipple trauma, since it is a relevant event, because it negatively interferes with the process of establishing breastfeeding⁽³⁾.

In a study with 1,309 binomials, it was identified that the presence of nipple cleft behaved as a predictive factor for the cessation of EBF⁽¹¹⁾.

Considering the relevance of BF for the health of the population and the risk of early weaning related to nipple trauma, this study aimed to investigate the presence of nipple trauma in postpartum women at hospital discharge from joint accommodation.

Method

This is a cross-sectional, retrospective and descriptive study that investigated the presence of nipple trauma in the discharge of postpartum women in JH. The study site was the JH of a public teaching hospital in the city of Campinas (SP), using secondary data source. This JH is inserted in a hospital that serves women and newborns by the Unified Health System (SUS), as a reference for 42 municipalities. In addition, it is a hospital focused on research and teaching. It has been accredited as a Child-Friendly Hospital since 2003, which advocates promotion, protection and support to BF⁽¹²⁾.

The study was developed with hospital records on postpartum women who were in the JH during 2018. The sample size was determined by sample calculation methodology in which the objective is to estimate a proportion. In the calculation, a p proportion equal to 0.50 was considered, whose value represents the maximum variability of the binomial distribution, thus generating an estimate with the largest possible sample size⁽¹³⁻¹⁴⁾. Sample error of 4% and significance level of 5% were assumed. The sample size obtained was 472 individuals. For each hospitalization of

the month a number was assigned. Subsequently, 40 individuals were randomly generated by computer to be collected each month, totaling a final sample of 480 women. Thus, we had as a sample puerperal women who were in the JH in the 12 months of 2018.

Did not participate in the study: postpartum women with NB with gestational age <37 weeks, according to the Capurro Method; NB mothers who have been referred to the Neonatal Hospitalization Unit at any time of their stay in the hospital and mothers who required admission to the Intensive Care Unit (ICU) in the immediate postpartum period. Preterm infants were excluded because neuromuscular immaturity, with consequent limitation in the ability to suction efficiently, could be a confounding factor.

Data were collected at the study site from a notebook intended for records made at the time of discharge, and their completion a responsibility of the nurse. Medical records consultations complemented the data. Thus, the postpartum women were not addressed directly by the researchers.

For the present study, a form was developed to collect maternal and neonatal data. Maternal data were age, skin color, marital status, schooling, number of prenatal visits, delivery route, obstetric complications, breast conditions on the day of hospital discharge, type of nipple, presence of nipple trauma, type of nipple trauma and presence of escort. As for the NB, it was collected: date of birth, weight, sex, gestational age according to the Capurro Method, use of milk formula during stay in the JH and type of breastfeeding at discharge.

The notebook containing data on discharge was consulted in the room of the supervisor of the JH. To complement the missing data, the medical record was consulted at the Medical and Statistical Archive Service (SAME) of the study hospital. Data were collected from November 2018 to February 2019.

The form was applied after the first researcher received guidance and follow-up. The collected data were entered in a database, using the

Microsoft Excel[®] software, and reviewed to avoid typos.

The description of the qualitative variables was made by calculating frequencies and percentages. For the quantitative variables, measures of central tendency and dispersion were calculated. For comparisons between participants who presented and did not present nipple trauma in relation to quantitative variables, the unpaired Student's t-test or the Mann-Whitney test⁽¹⁵⁾ were applied, according to the distribution of the data. This was assessed using the Shapiro-Wilk test. To study the associations between the qualitative variables, the Chi-square test was applied⁽¹⁵⁾. For the analysis, the statistical software Statistical Analysis System (SAS), version 9.4, with a significance level of 5% was used.

The study was approved by the Research Ethics Committee (CAAE: 22438619.5.0000.5404;

Opinion: 3,658,775/2019) and the recommendations of Resolution N 466 of the National Health Council of 12 December 2012 were followed. Because it is a retrospective study, involving data from medical records, it was requested, and approved, exemption from the Informed Consent Term.

Results

The sample consisted of 480 mothers. Their ages ranged from 12 to 44 years, with a mean age of 27.42 years (SD=7.04). Most women declared themselves white (266=55.42%). Regarding marital status, 270 (56.25%) women did not have a partner. Regarding schooling, 227 (47.29%) had completed high school. During hospitalization, 439 (91.46%) had a companion (Table 1).

Table 1 – Characteristics of puerperal women and newborns cared for in rooming-in. Campinas, São Paulo, Brazil – 2018. (N=480) (continued)

Variable	n	%
Self-declared color		
White	266	55.42
Black	39	8.13
Brown	174	36.25
Yellow	1	0.21
Marital status		
With partner	210	43.75
Without partner	270	56.25
Education		
No study	3	0.63
Incomplete Elementary Education	50	10.42
Complete Primary Education	52	10.83
Incomplete High School	73	15.21
Complete High School	227	47.29
Incomplete Higher Education	26	5.42
Complete Higher Education	49	10.21
With companion		
Yes	439	91.46
No	41	8.54
Delivery route		
Vaginal	279	58.25
Cesarean section	200	41.75
Obstetric complications		
Hassle free	203	34.23
Maternal diabetes	108	18.21
Urinary tract infection	97	16.36
Gestational Hypertensive Syndrome	57	9.61

Table 1 – Characteristics of puerperal women and newborns cared for in rooming-in. Campinas, São Paulo, Brazil – 2018. (N=480) (conclusion)

Variable	n	%
Obstetric complications		
Acute fetal distress	40	6.74
Gestational hypothyroidism	24	4.05
Other pathologies	64	10.76
Intrauterine growth		
Small for gestational age	42	8.66
Suitable for gestational age	413	85.15
Large for gestational age	30	6.19
Newborn sex		
Feminine	237	48.77
Masculine	249	51.23
Birth weight		
< 2,500 g	21	
> 2,500 g		
Use of milk formula		
No	419	87.29
Translation	21	4.38
Cup	30	6.25
Translactation and cup	10	2.08

Source: created by the authors.

Women had 2 to 21 prenatal follow-up visits, with an average of 9.51 consultations (SD=2.83). A single pregnant woman performed a total of 21 consultations, due to Leiden's personal history of thrombophilia and factor V. This same woman developed preeclampsia in the current pregnancy, being followed up in the Basic Health Unit (BHU) of reference and High Risk Prenatal Care in the hospital studied.

As shown in Table 1, during pregnancy, most women (279=58.25%) had vaginal delivery and did not present obstetric complications (203=34.23%); some had more than one complication, with maternal diabetes – Diabetes Mellitus (DM) developed during pregnancy – the most recurrent (108=18.21%), followed by urinary

tract infection (97=16.36%) and gestational hypertensive syndrome (57=9.61%).

In relation to newborns, birth weight ranged from 2,000g to 4,570g, with a mean of 3,251g (SD=428.9) and gestational age by the Capurro Method between 37 and 42 weeks. Most had adequate weight for gestational age (413=85.15%), were male (249=51.23%) and did not receive formula during the time they were in the JH (419=87.29%). (Table 1).

At hospital discharge, 269 women (56.04%) presented nipple trauma, with the most frequent abrasion (135=28.13%). The most prevalent type of nipple was protrusion (66.04%). At discharge, the type of BF that prevailed was EBF (96.46%). (Table 2).

Table 2 – Characterization of breasts, nipples and type of breastfeeding of puerperal women on the day of hospital discharge. Campinas, São Paulo, Brazil – 2018. (N=480) (continued)

Variable	n	%
Nipple trauma		
No	211	43.96
Yes	269	56.04
Type of nipple trauma		
No trauma	208	43.33
Excoriation	135	28.13

Table 2 – Characterization of breasts, nipples and type of breastfeeding of puerperal women on the day of hospital discharge. Campinas, São Paulo, Brazil – 2018. (N=480)

Variable	n	%	(conclusion)
Type of nipple trauma			
Hyperemia	62	12.92	
Fissure	10	2.08	
Hyperemia and excoriation	50	10.42	
Excoriation and fissure	9	1.88	
Hyperemia, excoriation and fissure	4	0.83	
Hyperemia and craving	2	0.42	
Breast conditions on the day of hospital discharge			
Soft	426	88.75	
Turgid	52	10.83	
Engorged	2	0.42	
Types of nipples			
Protrudes	317	66.04	
Semiprotrudes	147	30.63	
Pseudoinverted	1	0.21	
Inverted	5	1.04	
Protrusus and semiprotrusus	4	0.83	
Protruded and inverted	3	0.63	
Protrusus and pseudoinverted	2	0.42	
Semi-protrusive and inverted	1	0.21	
Type of breastfeeding			
Exclusive breastfeeding	463	96.46	
Mixed breastfeeding	14	2.92	
Infant Formula	3	0.63	

Source: created by the authors.

Women who underwent prenatal care at the research institution had a lower frequency of developing nipple trauma when compared to those who did so in the basic and private network. The use of milk formula during the

period of hospitalization of the NB was also associated with the higher number of nipple traumas. The other variables studied were not related to the occurrence or protection of nipple trauma (Table 3).

Table 3 – Association of nipple trauma with qualitative variables in the sample. Campinas, São Paulo, Brazil – 2018. (N=480)

Variable	Presence of nipple trauma				p-value*
	No		Yes		
	n	%	n	%	
Prenatal care					0.0310
Study location	89	50.86	86	49.14	
Other location: primary or private care	119	40.61	174	59.39	
Intrauterine growth					0.9452
Small for gestational age	18	42.86	24	57.14	
Suitable for gestational age	181	43.83	232	56.17	
Large for gestational age	14	46.67	16	53.33	
Newborn sex					0.3730
Feminine	99	41.77	138	58.23	
Masculine	114	45.78	135	54.22	
Birth weight					0.1497
< 2,500g	6	28.57	15	71.43	
> 2,500g	207	44.52	258	55.48	

Table 3 – Association of nipple trauma with qualitative variables in the sample. Campinas, São Paulo, Brazil – 2018. (N=480) (conclusion)

Variable	Presence of nipple trauma				p-value*
	No		Yes		
	n	%	n	%	
Marital status					0.9538
With partner	92	43.81	118	56.19	
Without partner	119	44.07	151	55.93	
Education					0.7314
No study/Incomplete or complete fundamental	48	45.71	57	54.29	
Incomplete or complete medium	133	44.33	167	55.67	
Incomplete or complete higher education	30	40.00	45	60.00	
Delivery route					0.2382
Vaginal	116	41.58	163	58.42	
Cesarean section	94	47.00	106	53.00	
Use of milk formula in rooming-in					0.0004
No	197	47.02	222	52.98	
Yes	14	22.95	47	77.05	
Presence of companion in rooming-in					0.3273
No	21	51.22	20	48.78	
Yes	190	43.28	249	56.72	
Type of breastfeeding at discharge					0.2186
Exclusive breastfeeding	206	44.49	257	55.51	
Mixed/Formula	5	29.41	12	70.59	

Source: created by the authors.

* p-value obtained by means of the Chi-square test.

When comparing the quantitative variables with the presence or absence of nipple trauma, it was observed that age ($p=0.3715$), number of prenatal visits ($p=0.7126$), birth weight of NB ($p=0.7557$) and gestational age ($p=0.5327$) had nothing to do with the development of nipple trauma.

Regarding obstetric complications developed during pregnancy, it was found that both maternal diabetes ($p<0.0001$) and hypertensive syndromes ($p=0.0042$) behaved as factors that increased the chance of using milk formula during the period of hospitalization in the JH (Table 4), as well as implying the discharge of the binomial with mixed breastfeeding (MBF) (Table 5).

Table 4 – Association between the use of milk formula and obstetric complications. Campinas, São Paulo, Brazil – 2018. (N=480)

Variable	Made use of milk formula				p-value
	No		Yes		
	n	%	n	%	
Maternal Diabetes Mellitus					< 0.0001*
No	337	90.59	35	9.41	
Yes	82	75.93	26	24.07	
Gestational Hypertensive Syndrome					0.0042*
No	376	88.89	47	11.11	
Yes	43	75.44	14	24.56	
Gestational hypothyroidism					0.7546**
No	397	87.06	59	12.94	
Yes	22	91.67	2	8.33	

Source: created by the authors.

*p-value obtained by means of the Chi-square test.

**p-value obtained using Fisher's exact test.

Table 5 – Association between the type of breastfeeding at hospital discharge and obstetric complications. Campinas, São Paulo, Brazil – 2018. (N=480)

Variable	Type of breastfeeding				p-value
	Breast milk on demand		Mixed/Formula		
	n	%	n	%	
Maternal Diabetes Mellitus					0.0321**
No	363	97.58	9	2.42	
Yes	100	92.59	8	7.41	
Gestational Hypertensive Syndrome					0.0094**
No	412	97.40	11	2.60	
Yes	51	89.47	6	10.53	
Gestational hypothyroidism					1.0000**
No	439	96.27	17	3.73	
Yes	24	100.00	-	-	

Source: created by the authors.

Note: Conventional sign used:

- Numerical data equal to zero not resulting from rounding.

*p-value obtained by means of the Chi-square test.

** p-value obtained using Fisher's exact test.

Discussion

Considering the characterization of the sample, schooling and skin color of women were not significantly associated with the development of nipple trauma, which corroborates the results of other studies^(7,16). Similarly, the age and marital status of postpartum women were not variables related to trauma⁽¹⁶⁾.

A study that described 101 cases of nipple fissures and their risk factors pointed to the absence of a partner as a variable associated with nipple trauma⁽¹⁷⁾. However, the presence of a partner who does not support breastfeeding may have undesirable results in this process. In the present study, having a partner or not, as well as the presence or absence of a companion during the period of hospitalization, was not shown as a factor related to the absence or presence of nipple trauma.

Regarding the number of prenatal consultations, a cross-sectional study⁽¹⁶⁾, also performed in a teaching hospital, corroborated the present findings, stating that the number of consultations was not associated with nipple trauma. Another study⁽¹⁸⁾ showed prenatal care as a protective factor against the development of

trauma. Thus, further studies with similar designs and samples are needed to reach a conclusion.

The delivery route was also not a factor related to the appearance of nipple traumas, although some studies indicate that women undergoing cesarean section surgery were more likely to develop these traumas when compared to those undergoing vaginal delivery⁽¹⁶⁾.

Cross-sectional study, conducted with postpartum women under assisted hospital discharge, highlighted that the complications in pregnancy had a negative impact on BF, which can be explained by the emotional instability experienced in high-risk pregnancy, difficult adaptation to the role of mother and its demands⁽¹⁹⁾. In the present study, nipple trauma was related to complications such as diabetes and hypertensive syndrome.

The characteristics of the NB were not associated with the presence or absence of trauma in this sample. Birth weight, for example, did not interfere with the development of nipple trauma, being in line with the results presented in another study⁽¹⁶⁾.

The use of the milk formula was associated with cases of nipple trauma: the milk formula

was prescribed more frequently when the trauma was present, denoting the risk that this type of trauma represents for the continuity of BF, since the introduction of formula, period, was strongly related to the interruption of breastfeeding until the 60th day. This is often because the concerns or problems faced during breastfeeding are not fully resolved. Its persistence affects the continuity of EBF⁽²⁰⁾. Despite this, the most prevalent type of breastfeeding at hospital discharge was exclusive (96.46%). What can be explained by the fact that the study hospital is a Child Friendly Hospital, with routines focused on the promotion and protection of BF. A similar result was found in a study conducted at the Maternal and Child Institute of Pernambuco, the first hospital in Brazil to receive the title of Child-Friendly Hospital, in which the prevalence of EBF increased by 95%⁽¹²⁾.

There was also an association between higher frequency of use of formulas during the hospitalization period and MBF – offering other types of milk than the mother's milk – in the discharge of the binomial, in cases where women developed diabetes and hypertensive syndrome during pregnancy⁽²⁾. Women with diabetes require greater support from health professionals, as they are expected to have more problems related to the maintenance of breastfeeding, often due to physiological barriers⁽²¹⁾. Regarding hypertension, a secondary analysis study of prospective data conducted in Canada showed that women with hypertensive disorders of pregnancy have lower chances of EBF at 4 months after delivery, early discontinuation of breastfeeding when compared with mothers who did not present such disorders⁽²²⁾.

It was considered relevant that more than half of the women in the sample (269=56.04%) had developed nipple trauma at the end of their period of stay in JH. It was highlighted the possible association between prenatal care performed at the research institution and the lower frequency of nipple trauma, when compared to those that were followed in other services.

The literature points to insufficient or inadequate support in primary care, during

prenatal and postpartum care, about BF, as well as insufficient team preparation to encourage and support women according to their individual needs⁽²³⁾. This inadequate support could be related to the most frequent nipple traumas in women who had prenatal care in other services, since the studied hospital is accredited to the Child Friendly Hospital Initiative (CFHI) and his team goes through frequent educational processes about BF, contributing to the development of knowledge and skills to assist pregnant women, puerperal women and RNs. Thus, in this context, nipple trauma would be expected to be less frequent than that identified. This occurrence denotes the need for investment in greater monitoring of feedings and identification of the specificities of the binomials to better assist them.

In the sample of the present study, nipple traumas were classified by nurses, mostly as abrasions. However, the analyses on this data are limited, since it was counted with the experience and previous knowledge of each professional, without having occurred an educational process that would guarantee the standardization of this evaluation and the due registration. An integrative literature review study showed the need for elaboration and validation of content to define and classify nipple trauma, to make its evaluation more accurate⁽³⁾, as well as records.

When checking the records on the type of nipple, there is the same question: the difficulty of the team to assess and record, in a standardized way, since, in the medical record, differences were identified as to the type of nipple of the same woman in the registration of different professionals.

The register of nurses, on the conditions of discharge of women, is an interesting strategy to retrieve data related to care, until there is electronic record, which has the potential to be used as a substrate for the investigation of this quality indicator in JH: nipple trauma. To do so, there is a need to include some data to support this investigation: parity, previous experience of BF of the woman, number of days of stay in JH, better gestational age of the NB according to the date of the last menstruation or ultrasound of the

first trimester, alterations of the lingual frenulum of the RN, weight of the RN in the high.

In addition, it is recommended to develop in-service education for nurses to promote early intervention to prevent nipple trauma. When it occurs, the educational process will also favor the standardization of classification, both nipple trauma and nipple type, making evaluation and registration more standardized and accurate. It was observed in a randomized intervention study with 180 postpartum women that measures such as the use of an audiovisual resource tool and instruments such as guinea pigs and dolls contributed positively to demonstrate the correct technique for breastfeeding⁽²⁴⁾. For this, the nurse must be trained to pass on these important guidelines for the prevention of nipple trauma to the puerperal women and implement such resources in their routine.

Conclusion

Of a total of 480 postpartum women, nipple trauma was present in 269 (56.04%) of them. The prenatal follow-up performed at the institution studied, which is a Child-Friendly Hospital and where educational groups on BF occur, was identified as a protective factor for the development of nipple trauma. The use of milk formula was more frequent for the children of women who developed nipple trauma, denoting the importance of the latter as a risk factor for the introduction of artificial milk and consequent early weaning. In addition, its use during hospitalization in JH was more present in diabetic women or with hypertensive syndromes, as well as the prescription of MBF at the discharge of the binomial.

Considering the findings of the present study, it is of great importance the implementation of educational activities with health professionals, to instrumentalize them regarding the clinical management of breastfeeding, identify and manage the difficulties experienced by women, considering their needs in the pre and post-natal

period. Such educational activities should cover not only professionals who work in maternity hospitals, but also those of primary health care. Quality improvement studies should also be carried out in hospitals accredited to BFHI, to investigate the effectiveness of the implementation of the strategy for promotion and support to BF. In addition, such studies should cover the investigation of nipple trauma in the context of health care quality indicators, given its negative impact on the well-being of the nursing mother and the establishment of BF.

Collaborations:

1 – conception and planning of the project: Gabriela Machado Martins, Elenice Valentim Carmona and Erika Zambrano;

2 – analysis and interpretation of data: Gabriela Machado Martins, Elenice Valentim Carmona and Erika Zambrano;

3 – writing and/or critical review: Gabriela Machado Martins, Elenice Valentim Carmona and Erika Zambrano;

4 – approval of the final version: Gabriela Machado Martins, Elenice Valentim Carmona and Erika Zambrano.

Conflicts of interest

There are no conflicts of interest.

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