

Prevalence of breastfeeding and factors associated with weaning from breastfeeding among military women

Prevalência do aleitamento materno e fatores associados à interrupção da amamentação em mulheres militares

Prevalencia de la lactancia materna y factores asociados a la interrupción de la amamentación en mujeres militares

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ABSTRACT

Objective: To assess the prevalence of breastfeeding and risk factors associated with weaning among military women in the metropolitan region of Belo Horizonte, Minas Gerais, Southeast Brazil.

Methods: A cross-sectional study with a convenience sample including 100 military mothers with children aged up to 24 months. Data were collected on the frequency of breastfeeding, socioeconomic profile, military career, health care, and maternal and child habits. The logistic regression analysis was performed to verify the association between discontinuation of breastfeeding and study variables. Mann-Whitney and *t* tests were used to verify the time of exclusive and maternal breastfeeding.

Results: Breastfeeding occurred in 94% of cases, with a median duration of 7.2 months. There was no significant difference on breastfeeding among mothers according to military rank, educational level, and operational activities. Multivariate analysis showed a positive association between weaning and the following variables: mother's marital status (married), information on the importance of breastfeeding during prenatal care and use of non-human milk. The variable that was positively related with the longer duration of

exclusive breastfeeding was the presence of two previous children.

Conclusions: The operational activity did not affect the prevalence of breastfeeding among military mothers. During prenatal care, planning action aiming to improve the information about breastfeeding can improve its prevalence and length in this population.

Key-words: breastfeeding/epidemiology; weaning; risk factors; military personnel.

RESUMO

Objetivo: Avaliar a situação do aleitamento materno e os fatores associados à interrupção da amamentação entre mulheres militares da região metropolitana de Belo Horizonte, Minas Gerais.

Métodos: Estudo transversal com amostra de conveniência, composta por 100 mães militares com crianças de até 24 meses. Foram coletados dados sobre frequência do aleitamento materno, perfil socioeconômico, carreira militar, assistência à saúde e hábito materno-infantil. A análise de regressão logística foi realizada para verificação da associação entre a interrupção do aleitamento materno e as variáveis do

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estudo. Os testes de Mann-Whitney e *t* foram utilizados para apresentação do tempo dos aleitamentos exclusivo e materno.

Resultados: O aleitamento materno ocorreu em 94% dos casos, com duração mediana de 7,2 meses. Não houve diferença significativa do aleitamento materno entre mães militares de acordo com a patente, o nível educacional e a atividade operacional. A análise multivariada apresentou associação positiva entre o desmame e as variáveis: estado civil da mãe (casada), informação sobre a importância da amamentação no pré-natal e utilização do leite não humano. A variável que se relacionou positivamente com duração maior do aleitamento materno exclusivo foi: mães com dois filhos prévios.

Conclusões: A atividade operacional não interferiu na prevalência do aleitamento materno entre mães militares. Os autores especulam que, durante o acompanhamento pré-natal, o planejamento de ações voltadas à informação da importância da amamentação pode melhorar a prevalência e a duração do aleitamento materno nesta população.

Palavras-chave: aleitamento materno/epidemiologia; desmame; fatores de risco; militares.

RESUMEN

Objetivo: Evaluar la situación de la lactancia materna y los factores asociados a la interrupción de la amamentación entre mujeres militares de la región metropolitana de Belo Horizonte, Minas Gerais (Brasil).

Métodos: Estudio transversal con muestreo de conveniencia compuesto por 100 madres militares con niños de hasta 24 meses. Se recogieron datos sobre frecuencia de la lactancia materna, perfil socioeconómico, carrera militar, asistencia a la salud y hábito materno infantil. El análisis de regresión logística fue realizado para verificar la asociación entre interrupción de la lactancia materna a las variables del estudio. Las pruebas de Mann Whitney y prueba T fueron utilizadas para verificar el tiempo de lactancia exclusiva y de la lactancia materna.

Resultados: La lactancia materna tuvo ocurrió en 94% de los casos y su duración mediana fue de 7,2 meses. No hubo diferencia significativa de la lactancia materna entre madres militares de acuerdo con la patente, el nivel educacional y la actividad operacional. El análisis multivariado presentó asociación positiva entre el destete y las variables: situación civil de la madre (casada), información sobre la importancia

de la amamentación en el prenatal y utilización de la leche no humana. La variable que se relacionó positivamente con una duración más grande de la lactancia materna exclusiva fue madres con dos hijos previos.

Conclusiones: La actividad operacional no interfirió en la prevalencia de la lactancia materna entre madres militares. Los autores especulan que durante el seguimiento prenatal la planificación de acciones dirigidas para la información de la importancia de la amamentación puede mejorar la prevalencia y la duración de la lactancia materna en esta población.

Palabras clave: lactancia materna/epidemiología; destete; factores de riesgo; militares.

Introduction

The worldwide recommendation is that all children be exclusively breastfed for the first six months of life, maintaining supplemented breastfeeding by at least 24 months⁽¹⁾. This recommendation is based on the benefits of breastfeeding, such as protection against cramps in the first six months of life, as well as against respiratory and gastrointestinal infections, reducing the need for hospitalizations⁽²⁻⁴⁾. Breastfeeding satisfies an infant's nutritional needs, providing a better child development, especially in the first two years of life⁽⁵⁾. Regarding to long-term effects, breastfed infants show lower mean arterial blood pressure and total cholesterol, lower prevalence of overweight/obesity and type II diabetes, as well as better performance in intelligence tests⁽⁶⁾.

In the last two decades, both numbers of women in military service and who breastfeed have increased⁽⁷⁻⁹⁾. Military women that combine breastfeeding and work may have a breastfeeding experience similar to civilian working mothers, despite the specific issues of military career⁽⁹⁾. However, studies have shown a lower chance of six-month breastfeeding maintenance among military mothers than among civilian mothers⁽¹⁰⁾.

The characteristics of military service - as operational activity that includes policing of public places, mission requirements and organizational barriers, can make breastfeeding difficult⁽¹¹⁾. Military career and family are institutions that require sacrifices, resources, loyalty and goals of its members. For some women, reconciling demands of military career and satisfaction of family life as a wife and mother is a challenge⁽¹²⁾.

Socioeconomic variables and medication use during lactation are associated with the success or failure of breastfeeding, but there is still need for evaluation of the effects of these variables on the duration of breastfeeding among military mothers⁽¹³⁾.

Considering the lack of studies on breastfeeding among military women in Brazil and that the responsibilities and demands of a military career may interfere with breastfeeding, this study aims to investigate the prevalence of breastfeeding among a military population and the factors associated with discontinuation of breastfeeding.

Methods

This was a cross-sectional study conducted among military mothers in the metropolitan region of Belo Horizonte who had deliveries between May 2007 and September 2011. The data of interest were obtained by Instituto de Previdência dos Servidores Militares (IPSM). The study was approved by the Research Ethics Committee of Universidade Federal de Minas Gerais (UFMG) and of Hospital da Polícia Militar de Minas Gerais (HPM).

Considering that, on average, 65 deliveries are performed per year among military women in the metropolitan region of Belo Horizonte and that this study was conducted among military mothers who had deliveries between May 2007 and September 2011, a total population of 275 women was considered for sample calculation. Simple random sampling was performed, expecting a 97.9% breastfeeding frequency⁽¹⁴⁾, requiring random sample of 40 women to obtain representativeness. The study sample was composed of 100 women. We decided for a convenience sample, whereas military women are often at work in the streets.

Data collection was performed between May 2009 and September 2011. The interviews were conducted with battalions, companies, boards and agencies in support of Polícia Militar de Minas Gerais (PMMG) of the metropolitan region of Belo Horizonte, through active search. Collected data was recorded on a validated questionnaire concerning the frequency, demographic and socioeconomic characteristics of breastfeeding, military work, health care and maternal and child habits. Interviewed mothers received information regarding the content, goals, and purpose of the survey and, after the presentation and signing of the consent form, the interview was performed with guaranteed confidentiality of information. For this

study, the term weaning was defined as total cessation of breastfeeding^(15,16).

The software used was SPSS, version 13.0. Characterization of data was done using a table of absolute and relative frequencies. Univariate analysis was performed using exact and asymptotic Pearson chi-square test, in order to analyze the relationship between weaning and the study variables. Variables that were statistically significant at a level of 0.20 were used on multivariate logistic regression analysis. To assess breastfeeding duration and exclusive breastfeeding, descriptive statistics were used, including mean and standard deviation (for parametric data) and medians and interquartile range (for non-parametric data), applying Mann Whitney test for comparing non-parametric samples and t test for comparing parametric data. Normality was assessed using Shapiro Wilk test.

Results

Of the 100 mothers who participated in the study, all were aged 22 years or less and had at least a high school degree, as well as a per capita income equal to or greater than military soldier's pay in Minas Gerais. Regarding the age of children, 7% had less than six months, 39% from 6 to 12 months, 54% from 12 to 24 months, among whom 53% were female and 47% male.

Among children, 94% initiated breastfeeding and 23% were exclusively breastfed. The median duration was four months for exclusive breastfeeding and 7.2 months for breastfeeding.

Among military mothers, 51 had maternity leave of four months and 49 licensed for six months. The duration of breastfeeding and exclusive breastfeeding among mothers who had leave of four months were longer, but without statistical significance on univariate analysis.

There was no significant difference between the prevalence or duration of breastfeeding according to rank, educational level or operational activities of military mothers.

According to univariate analysis, variables positively associated with weaning were: pay between five and ten minimum wages ($p=0.016$), mother's marital status (married) ($p=0.002$), information on the importance of breastfeeding during prenatal care ($p=0.081$), and use of non-human milk ($p=0.019$). The variables child's sex, mother's educational level, number of previous children, smoking, alcohol, complications in pregnancy, medication use, type of birth, child's permanence in hospital, father's influence,

family support, and consultation before two months had no statistically significant association with the duration of breastfeeding (Table 1).

As shown in Table 2, according to multivariate analysis, variables that were positively associated with weaning, with statistical significance ($p < 0.05$), were: mother's marital status (married) ($p = 0.003$), information on the importance of breastfeeding during prenatal care ($p = 0.041$), and use of non-human milk ($p = 0.039$).

On univariate analysis, the only variable positively associated with exclusive breastfeeding was: mothers with

a previous child ($p = 0.023$). Other variables showed no association with duration of exclusive breastfeeding. On multivariate analysis, the only variable positively associated with longer duration of exclusive breastfeeding, with statistical significance, was: mothers with two previous children ($p = 0.04$), as shown in Table 3.

Discussion

Considering the lack of studies about breastfeeding among military populations in Brazil, findings regarding

Table 1 - Odds Ratio (OR) of variables associated with weaning among military women, metropolitan region of Belo Horizonte, Minas Gerais, from 2007 to 2011

Variables	Weaning			OR (95%CI)	p-value
	Yes	No	Total		
Mother's marital status					
Married	64 (75.3)	21 (24.7)	85	6.10 (1.87–19.86)	0.002 ^a
Others	5 (33.3)	10 (66.7)	15	1	
Wage					
3–5 wages (R\$ 1746,81–3110)	2 (22.2)	7 (77.8)	9	1	0.016 ^b
5–10 wages (R\$ 3110–6220)	39 (75.0)	13 (25.0)	52	10.50 (1.51–72.81)	
10–15 wages (R\$ 6220–9330)	15 (68.2)	7 (31.8)	22	1.00 (0.27–3.65)	
≥15 wages	12 (75.0)	4 (25.0)	16	1.40 (0.33–5.93)	
Information on the importance of breastfeeding during prenatal care					
Yes	44 (75.9)	14 (24.1)	58	2.14 (0.90–5.06)	0.081 ^b
No	25 (59.5)	17 (40.5)	42	1	
Received non-human milk					
Yes	65 (73.0)	24 (27.0)	89	4.74 (1.27–17.65)	0.019 ^a
No	4 (36.4)	7 (63.6)	11	1	

^aExact Pearson chi-square test; ^bAsymptotic Pearson chi-square test; 95%CI: confidence interval of 95%; OR: Odds Ratio.

Table 2 - Variables associated with weaning on multivariate analysis, metropolitan region of Belo Horizonte, Minas Gerais, from 2007 to 2011

Variables	OR	95%CI	p-value
Received non-human milk			
Yes	4.456	1.078–18.423	0.039
No	1		
Received information on the importance of breastfeeding during prenatal care			
Yes	2.735	1.040–7.195	0.041
No	1		
Mother's marital status			
Married	7.083	1.985–25.269	0.003
Others	1		

95%CI: confidence interval of 95%

the prevalence of breastfeeding were also compared with published data from other countries. A limitation of the study was the use of a convenience sample. Thus, the sample results cannot be generalized to military populations.

The median duration of breastfeeding was 7.2 months. It was lower than the value found in Brazil, 11.2 months⁽¹⁷⁾. Among military mothers, 94% initiated breastfeeding, which is a higher value than that found on a military installation in North Carolina, in the United States, 92%⁽¹⁰⁾. The median duration of exclusive breastfeeding was four months, which is higher value than that found in Brazil, 1.8 months, and in a military hospital in Multan, Pakistan, three months^(17,18).

The duration of breastfeeding and exclusive breastfeeding was not associated with maternity leave on univariate analysis. In Oregon, in the United States, a study showed that exclusive breastfeeding declines when women return to work⁽¹⁹⁾. Research conducted with female soldiers on a military installation in the United States, in Fort Gordon, showed that reducing the license from 42 days to 30 days had no effect on the duration of breastfeeding⁽²⁰⁾.

The mother's military rank had no effect on breastfeeding. Another study showed that officers were three times more likely to breastfeed compared to soldiers⁽²¹⁾.

The operational activity did not affect breastfeeding rates, because military mothers, instead of engaging in an operational activity as they return to work, are probably relocated to administrative duties during the period in which they are still breastfeeding or because the operational activity, despite its peculiar characteristics, is not a factor that interferes with the duration of breastfeeding.

Married mothers' higher chance of weaning can be justified by the belief that sexual intercourse can interfere with breastfeeding⁽²²⁾. The study found that the father's influence is important in the initiation and continuation of breastfeeding⁽²³⁾. Military mothers that introduced non-human milk in their infant's feeding were more likely to wean their children. Other studies have also shown that early introduction of non-human milk and baby bottle decrease the frequency of feeding and reduce duration of breastfeeding^(24,25). Mothers who received information on the importance of breastfeeding during prenatal care were negatively related to duration

Table 3 - Variable associated with exclusive breastfeeding among military women on multivariate analysis, metropolitan region of Belo Horizonte, Minas Gerais, from 2007 to 2011

Variables	OR	95%CI	p-value
Number of previous children			
0	1		
1	1.31	0.22–7.79	0.770
2	5.94	1.08–32.63	0.040

95%CI = 95% confidence interval

of breastfeeding. For better understanding of this reality, we need to check pediatricians' knowledge about breastfeeding. The fact that pediatricians in child care have training in breastfeeding is positively associated with breastfeeding⁽²⁶⁾. According to a study conducted in Australia, it is important to know about the experiences of women concerning the advices received from health professionals, in order to know if there is consistency in the recommendations⁽²⁷⁾.

Among the variables associated with weaning, factors related to health care and maternal and child habits were predicted in other studies and are amenable to intervention⁽¹³⁻¹⁴⁾.

Mothers with two previous children were more likely to breastfeed exclusively, fact that coincides with the published data^(13,28). Study conducted in a military hospital in the United States showed that previous experience with breastfeeding was positively associated with breastfeeding up to six months⁽¹⁰⁾.

The knowledge of rates and factors that determine the duration of breastfeeding among military populations is an important instrument for the conception of a plan aimed at protecting and supporting breastfeeding. The study's results showed that breastfeeding rates among military populations are far from the values considered ideal and also that unmarried mothers, with more experience in breastfeeding and that did not offer non-human milk for their children, breastfed for longer. A longer duration of breastfeeding in case of mothers who received no guidance about breastfeeding during prenatal care reveals the need for a deeper study about this practice among military populations.

References

1. Brasil. Ministério da Saúde. Saúde da criança: nutrição infantil. Aleitamento materno e alimentação complementar [Caderno de Atenção Básica, n° 23]. Brasília: Ministério da Saúde; 2009.
2. Saavedra MA, da Costa JS, Garcias G, Horta BL, Tomasi E, Mendonça R. Infantile colic incidence and associated risk factors: a cohort study. *J Pediatr (Rio J)* 2003;79:115-22.
3. Balaban G, Silva GA, Dias ML, Dias MC, Fortaleza GT, Morotó FM *et al*. Does breast feeding prevent childhood overweight? *Rev Bras Saude Mater Infant* 2004;4:263-8.
4. César JA, Victora CG, Barros FC, Santos IS, Flores JA. Impact of breast feeding on admission for pneumonia during postneonatal period in Brazil: nested case-control study. *BMJ* 1999;318:1316-20.
5. De Almeida JA, Novak FR. Breastfeeding: a nature-culture hybrid. *J Pediatr (Rio J)* 2004;80 (Suppl 5):S119-25.
6. Horta BL, Bahl R, Martínés JC, Victora CG. Evidence on the long-term effects of breastfeeding: systematic reviews and meta-analysis. Geneva: World Health Organization; 2007.
7. Gancho MB. A inserção da mulher em postos de comando na polícia [tese de mestrado]. Osasco (SP): FIEO; 2010.
8. Rodrigues MH. Intenção de amamentar: fatores que influenciam [tese de mestrado]. Porto (Portugal): Universidade do Porto; 2002.
9. Stevens KV, Janke J. Breastfeeding experiences of active duty military women. *Mil Med* 2003;168:380-4.
10. Haas DM, Howard CS, Christopher M, Rowan K, Broga MC, Corey T. Assessment of breastfeeding practices and reasons for success in a military community hospital. *J Hum Lact* 2006;22:439-45.
11. Bell MR, Ritchie EC. Breastfeeding in the military: Part II. Resource and policy considerations. *Mil Med* 2003;168:813-6.
12. Wahl CK, Rundall VF. Military women as wives and mothers. *Womens Health Issues* 1996;6:315-9.
13. Vieira GO, Almeida JA, Silva LR, Cabral VA, Santana Netto PV. Breast feeding and weaning associated factors, Feira de Santana, Bahia. *Rev Bras Saude Mater Infant* 2004;4:143-50.
14. Silveira FJ. Fatores associados à duração do aleitamento materno em três municípios na região do Alto Jequitinhonha, MG [tese de doutorado]. Belo Horizonte (MG): Universidade Federal de Minas Gerais; 2004.
15. World Health Organization. Complementary feeding of young children in developing countries. Geneva: WHO; 1998.
16. Monte CM, Giugliani ER. Recommendations for the complementary feeding of the breastfed child. *J Pediatr (Rio J)* 2004;80 (Suppl 5):S131-41.
17. Brasil. Ministério da Saúde. Secretaria de Atenção à Saúde – Departamento de Ações Programáticas e Estratégicas. II Pesquisa de prevalência de aleitamento materno nas capitais brasileiras e Distrito Federal [Série C. Projetos, Programas e Relatórios]. Brasília: Ministério da Saúde; 2009.
18. Afzal M, Qudusi AI, Iqbal M, Sultan M. Breast feeding patterns in a military hospital. *J Coll Physicians Surg Pak* 2006;16:128-31.
19. Biagioli F. Returning to work while breastfeeding. *Am Fam Physician* 2003;68:2201-8.
20. Madlon-Kay DJ, Carr RJ. The effect of decreasing maternity leave on breastfeeding patterns. *Fam Med* 1988;20:220-1.
21. Mao CY, Narang S, Lopreiato J. Practices in military families: a 12-month prospective population-based study in the national capital region. *Mil Med* 2012;177:229-34.
22. Bosi ML, Machado MT. Amamentação: um resgate histórico. *Cadernos ESP* 2005;1:17-25.
23. Costa CR. Representação do papel do pai no aleitamento materno [dissertação de mestrado]. Portugal (Porto): Universidade do Porto; 2007.
24. Marques NM, Lira PI, Lima MC, da Silva NL, Filho MB, Huttly SR *et al*. Breastfeeding and early weaning practices in northeast Brazil: a longitudinal study. *Pediatrics* 2001;108:E66.
25. Volpini CC, Moura EC. Early weaning determinants in a district of Campinas, Brazil. *Rev Nutr* 2005;18:311-9.
26. Santiago LB, Bettiol H, Barbiere MA, Gutierrez MR, Ciampo LA. Incentivo ao aleitamento materno: a importância do pediatra com treinamento específico. *J Pediatr* 2003;79:504-12.
27. Safeera YH, Narmin D. Knowledge, attitudes and practices of health professionals and women towards medication use in breastfeeding: a review. *Int Breastfeed J* 2011;6:11.
28. Ramos VW, Ramos JW. Breast feeding, weaning and associated factors. *Ceres* 2007;2:43-50.