

Prevalence and determinants of exclusive breastfeeding in the city of Serrana, São Paulo, Brazil

PREVALÊNCIA E DETERMINANTES DO ALEITAMENTO MATERNO EXCLUSIVO NO MUNICÍPIO DE SERRANA, SÃO PAULO, BRASIL

PREVALENCIA Y DETERMINANTES DEL AMAMANTAMIENTO MATERNO EXCLUSIVO EN EL MUNICIPIO DE SERRANA, SÃO PAULO, BRASIL

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ABSTRACT

The objective of this cross-sectional and quantitative study was to identify the prevalence and determinants of exclusive breastfeeding among infants less than six months of age in the city of Serrana, São Paulo, Brazil in 2009. A validated semi-structured questionnaire was administered to the guardians of the children less than six months of age who attended the second phase of a Brazilian vaccination campaign against polio. Univariate and multivariate analysis presented in odds ratios and confidence intervals was accomplished. Of the total of 275 infant participants, only 29.8% were exclusively breastfed. Univariate analysis revealed that mothers who work outside the home without maternity leave, mothers who did not work outside the home, adolescent mothers, and the use of pacifiers have a greater chance of interrupting exclusive breastfeeding. In the multivariate analysis, mothers who work outside the home without maternity leave are three times more likely to wean their children early. Results provide suggestions for the redirection and planning of interventions targeting breastfeeding.

DESCRIPTORS

Breast feeding
Prevalence
Indicators
Primary Health Care

RESUMO

Estudo transversal e quantitativo, com objetivos de identificar a prevalência e os determinantes do aleitamento materno exclusivo em crianças menores de 6 meses, no município de Serrana – SP, no ano de 2009. Aplicou-se um questionário semiestruturado validado junto aos responsáveis pelas crianças menores de 6 meses que compareceram à segunda etapa da Campanha Nacional de Vacinação contra a poliomielite. Foram realizadas análises uni e multivariadas apresentadas em Odds Ratio e intervalos de confiança. Do total das 275 crianças participantes, apenas 29,8% estavam em aleitamento materno exclusivo. Nas análises univariadas, verificou-se que mães que trabalham fora sem licença-maternidade, mães que não trabalham fora, adolescentes e o uso de chupeta apresentaram maior chance de interrupção do aleitamento materno exclusivo. Na análise multivariada, as mães que trabalham fora sem licença-maternidade têm 3 vezes mais chance de desmamárem precocemente seus filhos. Os resultados forneceram subsídios para o redirecionamento e planejamento de ações em aleitamento materno.

DESCRIPTORIOS

Aleitamento materno
Prevalência
Indicadores
Atenção Primária à Saúde

RESUMEN

Estudio transversal, cuantitativo, objetivando identificar la prevalencia y determinantes del amamantamiento materno exclusivo en lactantes menores de 6 meses, en el municipio de Serrana-SP, en 2009. Se aplicó cuestionario semiestructurado validado, junto a los responsables por los niños menores de 6 meses que comparecieron a la segunda etapa de la Campaña Nacional de Vacunación contra la Poliomielitis. Fueron realizados análisis uni y multivariados presentados en Odds Ratio e intervalos de confianza. De los 275 niños participantes, apenas 29,8% estaban en amamantamiento exclusivo. En los análisis univariados se verificó que madres que trabajan fuera sin licencia maternal, madres que no trabajan fuera, adolescentes y el uso del chupete presentan mayor chance de interrupción del amamantamiento exclusivo. En el análisis multivariado, las madres que trabajan fuera sin licencia maternal tienen tres veces más posibilidades de destetar precozmente a sus hijos. Los resultados brindaron ayuda para redireccionar y planear acciones de amamantamiento materno.

DESCRIPTORIOS

Lactancia materna
Prevalencia
Indicadores
Atención Primaria de Salud

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INTRODUCTION

The benefits of exclusive breastfeeding in the first six months of life represent a fundamental practice for short and long-term child health. A consensus exists in scientific literature on the importance of this practice to reduce child morbidity and mortality. Research by the World Health Organization (WHO) and the United Nations Children's Fund (UNICEF) appoint that, every year, this practice contributes to the prevention of more than six million deaths in children under one year of age⁽¹⁻²⁾ and that about two million deaths could also be avoided if Exclusive Breastfeeding (EB) until the age of six months were a universal practice⁽³⁾.

A study⁽⁴⁾ involving children under one year of age revealed that children who are not breastfed have 14 times more chance of dying due to diarrhea, and approximately four times more chance of dying due to a respiratory illness when compared with children of the same age who are exclusively breastfed.

Based on scientific evidence, WHO recommends exclusive breastfeeding (EMB) for six months and maintained breastfeeding in combination with complementary foods for two years of life or more⁽²⁾.

Despite the beneficial effects of EMB, widely disseminated in scientific literature, the early interruption of this practice remains one of the most important public health problems⁽⁵⁾ in Brazil, indicating the need for constant monitoring of child nutrition indicators, identification of determinants, intervention proposals and new studies for public health planning and for the definition and redirecting of maternal-infant policies, in the national as well as local context⁽⁶⁾.

Also, the complex nature of exclusive breastfeeding is taken into account, which goes beyond the biological dimension, following subjective courses permeated by social, cultural, political and economic aspects⁽⁷⁾.

This study aims to identify the prevalence and determinants of exclusive breastfeeding (EB) in children under six months of age in Serrana – SP, in 2009.

METHOD

A cross-sectional, quantitative research was developed during the second phase of the National Vaccination Campaign against polio, in September 2009, in the city of Serrana-SP, located in the Northeast of São Paulo State, with an estimated population of 38,891 inhabitants.

The method proposed in the Breastfeeding and Cities Project (AMAMUNIC)⁽⁸⁾ was adopted, one of the

pioneering and most successful health surveillance initiatives in Brazil, which the Health Institute of the São Paulo State Health Secretariat have developed since 1998⁽⁸⁻⁹⁾. This project advises Brazilian cities in the accomplishment of epidemiological surveys during the National Vaccination Campaign, with a view to providing municipal managers with a tool to diagnose and monitor the breastfeeding situation, thus permitting the assessment and planning of actions to put in practice local breastfeeding support and encouragement policies in the respective cities⁽⁸⁻¹⁰⁾.

Every year, the cities receive the Health Institute's proposal to perform the research, through communications to the State's Regional Health Departments and the São Paulo Council of Municipal Health Secretaries (CONASE-MS) and adhere spontaneously⁽⁸⁾.

The accomplishment of this research on a National Vaccination Campaign day has revealed its adequacy for the analysis of breastfeeding indicators in the cities, due to a range of advantages like: practicality, low cost, reliability and obtainment of representative data for the child population, as a result of the campaigns high vaccination coverage⁽⁶⁾.

The study population comprises children under six months of age, living in Serrana, who attended the vaccination centers in the city during the National Vaccination Campaign against polio in 2009.

The instrument used for data collection was a questionnaire elaborated and validated by the Health Institute of the São Paulo State Health Secretary⁽⁸⁾, based on WHO recommendations for breastfeeding indicators. This instrument was divided in the child's sociodemographic characteristics, child, maternal and health service variables. The questionnaire also comprised a group of questions to be applied only if the child's companion is his/her biological or foster mother.

The same instrument also included a 24-hour diary of the child's nutrition, which permitted identifying the following breastfeeding indicators⁽¹¹⁾:

- Exclusive breastfeeding (EB): children who received only mother's milk as the sole nutrition source, except for vitamin, mineral and/or medication drops or syrups.

- Predominant breastfeeding (PB): children who received, besides mother's milk, other fluids (water, tea, fruit juice), oral serum, vitamins, minerals and/or drugs.

- Breastfeeding (B): children who received mother's milk as well as another fluid or food, including other milk or child formulae.

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On the day of the Vaccination Campaign, the mothers or responsible caregivers stood in line, according to their arrival at the vaccination centers and, thus, those accompanying children under six months of age were identified and informed about the research aim, requesting their informed consent. Provided that they agreed to answer the questionnaire, they were included as research subjects.

The interviewers were undergraduate students at the University of São Paulo at Ribeirão Preto College of Nursing and professionals from the Serrana Municipal Health Secretariat. These interviewers received training before data collection, involving a standardized questionnaire application procedure approach, developed by one of the researchers who had previously participated in training at the São Paulo State Secretariat Institute of Health in June 2009.

After completion, the questionnaires were reviewed for possible incoherencies and lack of completion. If necessary, the interviewers were asked to provide the necessary clarifications.

To proceed with data analysis, initially, the questionnaires were typed in an application made available on-line by the General Coordination of the Breastfeeding and Cities Project (AMAMUNIC).

This tool contains resources to check for typing errors during this process. Then, this database was exported to Windows Excel worksheets and, for the sake of methodological strictness, 100% of the questionnaires were processed through the double-entry technique. In this process, 2% of disagreements were detected and immediately corrected in the database.

After the double entry and correction of the errors identified in the questionnaires, univariate analyses were performed to check for the existence of possible associations between the variable corresponding to exclusive breastfeeding (EB) and the child, maternal and health service variables. The gross Odds Ratio (OR) and respective confidence intervals were calculated to measure the intensity of associations.

Logistic regression models were constructed to analyze the factors associated with early weaning, using the stepwise forward selection method in Statistical Package for the Social Sciences (SPSS) software. The criterion for entering the variables into the logistic regression model was the significance level $p < 0.20$, as a result of the univariate analyses. At the end, those models that best explained the interruption of EB, with significance set at $p < 0.05$.

The independent variables studied concerning exclusive breastfeeding (EB) were: age, parity, education and maternal work; type of birth, birth weight and pacifier use; (public and private) health services and birth in a Baby-Friendly Hospital (BFH).

Approval for this study was obtained from the Research Ethics Committee at the University of São Paulo at Ribeirão Preto College of Nursing, Opinion number 131/2009.

RESULTS

The study population comprised 275 children under six months of age, living in Serrana, who attended the second phase of the National Vaccination Campaign against polio, in 2009. Thus, out of 284 children in the age range studied who attended the vaccination campaign, two were excluded due to the mother or responsible caregiver's refusal to participate and seven because they did not live in Serrana. Hence, in view of exclusions, in total, 97% of the children under six months of age participated in the research.

In the city under analysis, in 2009, there were 663 children under one year of age⁽¹²⁾.

The prevalence rates of exclusive breastfeeding (EB), predominant breastfeeding (PB) and breastfeeding (B) corresponded to 29.8%, 18.5% and 82.8%, respectively.

The mean age, in days, of the children under six months of age who were receiving EB was 60.6 days, with a standard deviation of 45.9 days and median 47.5 days.

In the univariate analysis, displayed in Table 1, the following factors were observed that were associated with early weaning: mother's age younger than 20 years, paid job without maternity leave and not having a paid job. Pacifier use was considered a confounding factor (OR = 1.50; 95% CI: 0.89 – 2.52; $p = 0.160$) due to $p < 0.20$.

The variables parity, education, type of delivery, weight at birth, type of childcare service and birth in Baby-Friendly Hospital (BFH) showed no statistically significant association with early weaning. As for the variable type of childcare service, the category *others* was excluded which, according to the Breastfeeding and Cities Project (AMAMUNIC), refers to other public health services, like outpatient clinics of hospitals for example, but received a small number of answers, so that it was not considered.

Table 1 – Univariate analysis of factors associated with the interruption of exclusive breastfeeding in children younger than six months – Serrana, SP - 2009

Variables	Categories	N	Exclusive breastfeeding		OR	95% CI	p
			n	%			
Maternal age (years)	≥ 0.20	189	69	36.5	1.00		
	< 20	51	10	19.6	2.36	1.11 - 5.00	0.035
Primiparous	No	126	45	35.7	1.00		
	Yes	112	33	29.5	1.33	0.77 - 2.29	0.375
Education	Secondary and/or higher education	133	47	35.3	1.00		
	Up primary education	105	30	28.6	1.37	0.79 - 2.37	0.333
Current job	Paid job with maternity leave	53	28	52.8	1.00		
	Paid job without maternity leave	32	7	21.9	4.00	1.48 - 10.84	0.010
	No paid job	155	44	28.4	2.82	1.49 - 5.38	0.002
Delivery type	Normal + Forceps	116	32	27.6	1.00		
	C-section	155	50	32.3	1.25	0.74 - 2.12	0.487
Weight at birth	Normal	241	76	31.5	1.00		
	Low weight	20	5	25	1.38	0.48 - 3.94	0.722
Pacifier use	No	130	45	34.6	1.00		
	Yes	142	37	26.1	1.50	0.89 - 2.52	0.160
Type of childcare service	UBS (Public Network)	159	46	28.9	1.00	0.62 - 1.88	0.898
	Private or Health Insurance	95	29	30.5	1.08		
	Others*	13	5	38.5			
Born in BFH	Yes	19	5	26.3	1.00	0.43 - 3.53	0.903
	Não	246	75	30.5	1.23		

*Category "Others" not included in ODDS calculation

BFH: Baby-Friendly Hospital

The final logistic regression models are displayed in Table 2. The factors that contained as associated with the child's not receiving exclusive breastfeeding were: having

a paid job without maternity leave (OR= 3.08; 95% CI: 1.14 – 8.32; p = 0.027) and not having a paid job (OR= 2.26; 95% CI: 1.19 – 4.30; p = 0.012).

Table 2 – Logistic regression analysis of factors associated with the interruption of exclusive breastfeeding in children under 6 months of age – Serrana, SP - 2009

Variable	Category	Gross OR	Adjusted OR	CI (adjusted OR)	p
Model 1					
Pacifier use	No	1.00	1.00		
	Yes	1.50	1.06	0.61 – 1.86	0.831
Age	≥ 20 years	1.00	1.00		
	< 20 years	2.36	1.63	0.77 – 3.44	0.201
Current work	Paid job with maternity leave	1.00	1.00		
	Paid job without maternity leave	4.00	2.95	1.09 – 8.01	0.034
	No paid job	2.82	2.10	1.09 – 4.02	0.026
Model 2					
Age	≥ 20 years	1.00	1.00		
	< 20 years	2.36	1.63	0.77 – 3.45	0.197
Current work	Paid job with maternity leave	1.00	1.00		
	Paid job without maternity leave	4.00	2.96	1.09 – 8.04	0.033
	No paid job	2.82	2.11	1.10 – 4.04	0.024
Model 3					
Current work	Paid job with maternity leave	1.00	1.00		
	Paid job without maternity leave	4.00	3.08	1.14 – 8.32	0.027
	No paid job	2.82	2.26	1.19 – 4.30	0.012

The data in the final model, when related with exclusive breastfeeding (EB) among mothers who have a paid job with maternity leave, reveal that women who have a paid job without maternity leave have approximately three

times more chance of interrupting exclusive breastfeeding, while women who do not have a paid job present approximately two times more chance of weaning their children early.

DISCUSSION

Despite the recommendation that mother's milk should be the sole food children under six months of age are offered⁽²⁾, the EB indicator in the city under analysis remains below recommended levels. Other studies on the prevalence of EB also identify that this practice does not comply, like the national breastfeeding prevalence survey in 2008, which revealed 41% in the set of Brazilian capitals and the Federal District⁽¹³⁾. Other interior cities in São Paulo state, like Ribeirão Preto, Bauru, Botucatu, have displayed similar EB indicators in the last decades for children under six months of age: 21.3%, 24.2% and 29.6%, respectively^(10,14-15).

In this study, it was evidenced that some population groups need to be prioritized regarding the development and implementation of pro-breastfeeding actions. Concerning exclusive breastfeeding, it was verified that mothers with a paid job without maternity leave, mothers without a paid job, adolescents and children using pacifiers are categories associated with a greater chance of early weaning. Multivariate analysis results, however, appointed that mothers with a paid job without maternity leave is the factor showing the greatest chance for the abandonment of EB.

Based on these results, it should be observed that women's work with access to maternity leave allows them to have a source of financial revenues, which can decrease this kind of concern and enhance safety conditions regarding the costs of daily needs. One cannot guarantee that this financial resource surpasses other determinants of the breastfeeding process, but it can represent a facilitator for this practice.

The result that mothers with a paid job but without maternity leave and mothers without a paid job are at a greater chance for the interruption of EB, however, reveals that these two situations may indicate that these are breastfeeding women without their own guaranteed financial resources. Hence, having a job does not represent a bottleneck for EB, but the fact that the woman does not get a maternity leave, which may entail the need to start having a paid job early or to face financial cuts at a time when the situation may mean greater resource demands.

A study developed in Paraíba⁽¹⁶⁾ also evidenced that exclusive breastfeeding is more prevalent about women on a maternity leave.

In qualitative studies⁽¹⁷⁻¹⁸⁾, it has been highlighted that, besides the absence of maternity leave, the burden of housework and care for other children may represent other conditioning factors for early weaning. They also highlight the importance of social support and compliance with protection policies for this practice, considering that, in Brazil, many women with a paid job do not receive this benefit, due to employers' non-compliance with the law or of informal job contracts⁽¹⁷⁾.

Therefore, breastfeeding women need to be inserted in a consistent social support network (job conditions, family, friends, kindergartens, etc.) to enable them to guarantee their right to breastfeed.

Breastfeeding women without a paid job need research with a more specific focus to unveil other possible determinants of the greater chance of weaning, besides the strain on their own financial resources, as hypothesized earlier.

Concerning the abandonment of EB observed among adolescent mothers in this research, in a cross-sectional study⁽⁹⁾ of 84 cities in São Paulo State, a greater chance of early weaning was evidenced among adolescent mothers.

The complexity of this lifecycle phase demonstrates that adolescence implies challenges, in which the instruments based on medical, psychological and social rationality have not been sufficient to establish a relation between professionals and adolescents in which the latter are able to identify and express conflicts experiences in intra and extra-family relations⁽¹⁹⁾ that can be present across the pregnancy-puerperal cycle and can compromise EB. Therefore, health professionals' approach of breastfeeding-related aspects in adolescent mothers needs to be reconsidered, ranging from the shape of prenatal educative activities to breastfeeding support during the puerperium.

Pacifier use was also associated with the interruption of exclusive breastfeeding (EB). This result, also presented in other studies^(10,20), strengthens the orientation for mothers not to offer pacifiers to their infants. On the other hand, in health services' daily reality, it is commonly heard that pacifiers are adopted to relieve the infant's crying. Therefore, the orientation strategies adopted at most strategies to contraindicate this conduct need to be revised. Is there no need to invest in other strategies to calm down the infant's crying than merely contraindicating pacifier use?

Concerning the primiparity category, there research results are in line with another study⁽¹⁰⁾, in which it was also evidenced that no association exists between weaning and primiparity. It was identified, though, that primiparas are the mothers that least practice exclusive breastfeeding, demanding health teams' more attentive look at these women, in combination with more qualified prenatal education, based on welcoming listening. These actions can constitute strategies to enable and empower them to resist to the social pressures of weaning.

Like this research, others have also demonstrated that no association exists between weaning and maternal education level^(10,21). Other studies, however, demonstrate that the interruption of EB in children under six months of age is associated with mothers' low education level^(20,22). Women's higher instruction level seems to be a predictive factor of successful EB, which may be related to increased maternal self-confidence when confronted with breast-

feeding problems and discomfort, linked with the greater possibility of receiving information about the benefits of maternal benefits, which leads to less external influence, so that mothers start to reject practices that impair the breastfeeding process, with scientific evidence⁽²⁰⁾.

The delivery type and birth weight showed no association with exclusive breastfeeding either, as identified in other studies^(10,20-21). One study⁽²³⁾ demonstrates, however, the shorter duration of breastfeeding in low birth-weight children. According to the researchers, lack of information and support from health professionals after birth represents one of the obstacles for breastfeeding success in these children.

Despite the lack of an association between EB and the type of childcare service and in view of high weaning levels in public and private services, this result appoints that both services need to develop activities to set up and/or implement pro-breastfeeding actions.

As for the hospital type, the non-association between hospitals with the Baby-Friendly Hospital Initiative (BFHI) and exclusive breastfeeding may indicate that the efforts and stimuli established in political guidelines for the implementation of the BFHI, view of the encouraging and supporting EB during hospitalization, may not have been sufficient to enhance the continuity of this practice among the mothers in this research.

Special attention is needed, though, to scientific evidence that demonstrated the positive repercussion of the Baby-Friendly Hospital Initiative for EMB rates. A study⁽⁹⁾ reveals that birth in a Baby-Friendly Hospital (BFH) is a protection factor for exclusive breastfeeding, as chances of receiving other foods early are 2.2 times higher among children born in cities without this hospital.

It should be highlighted that the efforts of the Baby-Friendly Hospital Initiative alone are not sufficient to fight early weaning. Maternity services and the primary health care network need to articulate with a view to information exchange among professionals about the mother and

child's situation, so as to promote actions that can support breastfeeding women to overcome possible difficulties and, thus, to enhance breastfeeding encouragement beyond the hospital too, mainly in the family environment of their home. The need is underlined to effectively put in practice all steps of the Baby-Friendly Hospital initiative, without ignoring the tenth step, which establishes this articulation and information availability about the puerperal woman and infant's conditions, which are relevant for care continuity and to support and protect breastfeeding.

CONCLUSION

In view of the low prevalence of exclusive breastfeeding (EB) and the identification of its determinants in Serrana, the researchers hope these research results can support the reorientation and planning of breastfeeding actions, including the development and/or implementation of breastfeeding protection, promotion and support strategies in health service contexts, ranging from prenatal care to vaccination rooms, heel prick test collection rooms, outpatient clinics, among others, besides actions that permit articulation between maternities and primary health care networks, permitting home care delivery to puerperal women as early as possible, mainly to adolescents.

Besides, the abandonment of exclusive breastfeeding could be minimized if companies and public and private institutions' awareness were raised concerning adherence to the 180-day maternity leave, thus guaranteeing the child's right to exclusive breastfeeding for six months.

Not only different employers, but also health professionals and mainly pregnant and breastfeeding women need to incorporate the valuation of expanded breastfeeding, as this benefit enhances the maintenance of exclusive breastfeeding for six months and can avoid future health problems for the children, besides contributing to reduce these women's absences from work, justified by their children's health problems.

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