

Relation of breastfeeding with type of family and parents education

Summary

Breastfeeding is an important strategy to provide all-around care for newborns during the first six months of life. It has the power to prevent early mortality, malnutrition and obesity of the child and also prevent some diseases and contribute for faster recovery of the mother. Moreover it contributes decisively for the establishment of successful bond between the mother and the child.

The purpose of this study was to contribute for the study of the relation of breastfeeding with parent's type of family and education.

An observational, cross-sectional, quantitative study was conducted with 364 children's attending preschool from a metropolitan area of the norther region of Portugal and their parents.

Results showed an overall breastfeeding proportion of 88.9%, regardless of the duration.

Considering duration, results showed that only 38.6% of the children were breastfed for a period equal or higher to six months, that is WHO's recommendation. Adjusted logistic regressions showed that the risk of not breastfeeding was associated with non-nuclear families (aOR = 3.19) and other types of families (aOR = 4.36). Regarding education, significant associations were found concerning mothers low education (aOR = 8.39) and both parents low education (aOR = 10.98).

No relation was found between breastfeed duration and education on overall, or considering the type of family.

KEYWORDS: BREASTFEEDING; TYPE OF FAMILY; EDUCATION.

Introduction

Breastfeeding is one of the best strategies to provide all-around care for children in the early stages of their life¹⁻³.

According to World Health Organization recommendations children should be breastfed exclusively for the first 6 months and gradually introduce other kinds of food in their diet since then⁴. Some studies have shown that breastfeeding is a good way of preventing malnutrition and obesity, among other problems⁵⁻⁶.

Breast milk nutrition strategy has the potential to prevent early childhood mortality for 800,000 children's bellow the age of five all around the world⁷.

Breastfeeding as also benefits for the mother, since it leads to faster post-delivery recovers and reduces the incidence of some chronic diseases⁸. Along with that it also provides a certain protection against a new pregnancy (during the breastfeed period) and for diseases like breast cancer and hyper-

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cholesterolemia⁹.

Moreover, breast feeding strengthens the found between mother and child, providing a solid contribution for children's socioemotional development².

According to Rollins et al. women's breastfeeding behavior is influenced by personal attributes such as age, weight, type of family and education².

There is some evidence of poor adherence to breastfeeding with non-nuclear types of families¹⁰ but it remains controversial, as it has not been consistently replicated¹¹.

On high income countries lower education has been associated with reduced odds of breast-feeding^{3,12-13}. Despite that, in Portugal there is no evidence of a consistent relation between these variables¹⁴.

This study aims to contribute for the investigation of the relation between breastfeeding and parents levels of education in Portugal. It also aims to contribute for the study of the relation between breastfeeding and some types of families found in Portuguese reality.

Research questions

Is there a relation between breastfeeding and parent's type of family and education?

Purpose of the study

This study attempts to contribute for the study of the relation of breastfeeding with parent's type of family and education in a sample of children attending preschool from a metropolitan area of Oporto city in Portugal.

Accordingly, the following objectives were delineated:

- Characterize the sample studied by biographical data collection.
- To analyze the relation between breastfeeding and type of family.
- To analyze the relation between breastfeeding and education.

Research methods

Observational, cross-sectional and quantitative study with a population composed by children attending preschool. Data was collected from September 2016 to February 2017 by used of a questionnaire and consisted in a non-probabilistic sample of 364 children's and their parents regarding 22 classes of six different school establishments from the metropolitan area of Oporto city in Portugal. Inclusion criteria were children attending preschool without special educational needs, that participated in the anthropometric assessment and whose parents agreed to participate in the study by signing informed consent.

Instrument and procedures

Instrument was a questionnaire, adapted from the original study of Sancho¹⁵ and addressed socio-demographics, anthropometric data and breastfeeding variables such as presence and duration. The study and questionnaire were approved by the ethical committee of Instituto de Ciências Biomédicas Abel Salazar (ICBAS). After approval, a total of 22 meetings (one per class) occurred in the presence of parents/tutors and the kindergarten teacher. After explaining the study, the parents that agreed to participate signed the informed consent and received an open envelop with the questionnaire. Afterwards, filled questionnaires were delivered to the kindergarten teacher or the researcher.

Statistical analysis

SPSS (version 24) (IBM Corporation, 2016) was used to perform statistical analysis¹⁵. Descriptive statistics were presented as means (M) and standard deviations (SD) for quantitative variables and frequencies (n) and percentages (%) for categorical variables. Percentages were adjusted for missing va-

lues always totalizing 100%. Missing values were discharged separately for each analysis. Crude and adjusted odds ratios (OR) were calculated via logistic regressions for determining the risk of not breastfeeding regarding type of family and parents education. Statistical significance was based on the analysis of the 95% confidence interval (CI) for the OR. Significance was considered if 1 was not included in the CI.

Sample

We assessed a total of 364 children, from 2.75 to 6.67 years of age ($M = 4.48$, $SD = 0.91$). Birthweight ranged from 1.32 kg to 4.15 kg ($M = 3.16$, $SD = 0.50$) and current BMI ranged from 9.42 to 24.09 ($M = 16.44$, $SD = 2.08$). Regarding family status, 314 (86.4%) were from nuclear families with/without brothers, 32 (8.8%) from monoparental families and 18 (4.9%) from families in which the mother or father lived with other elements (e.g. partners, uncle/aunt, grandparents). Because only three mothers/fathers reported to live with new partners they were included in this last group. Mother's age ranged from 19 to 51 years old ($M = 34.51$, $SD = 5.43$) and father's age ranged from 22 to 56 years old ($M = 36.94$, $SD = 5.73$). Questionnaire respondents were in the vast majority mothers ($n = 320$, 87.9%).

Findings

Variables description

Table 1 show results for parent's education regardless of their housing status (i.e. living or not with children) and including this variable. We considered basic education as any degree bellow the 9th grade, medium education as degrees between the 9th and 12th grade and high education as university degrees. Overall, parent's education levels ranged from basic to high education. No illiterate parents were found. Medium education was the most frequent degree among fathers (66.1%), mothers (61.2%) and when consi-

PARENT'S EDUCATION EXCLUDING/ INCLUDING HOUSING SITUATION AND QUESTIONNAIRE RESPONDENT

1

Excluding housing situation	Education n (%)		
	Low	Medium	High
Father (n = 336)	57 (17.0%)	222 (66.1%)	57 (17.0%)
Mother (n = 358)	25 (7.0%)	219 (61.2%)	114 (31.8%)
Both ^a (n = 355)	19 (5.4%)	212 (59.7%)	124 (34.9%)
Including housing situation			
Enquired (n = 358)	25 (7.0%)	223 (62.3%)	110 (30.7%)
Partner (n = 336)	57 (17.0%)	218 (64.9%)	61 (18.1%)
Both ^a (n = 355)	19 (5.4%)	212 (59.7%)	124 (34.9%)

NOTE: ^a maximum level among father and/or mother; includes monoparental and other types of families

CRUDE OR FOR BREASTFEEDING (YES/NO) RELATION WITH TYPE OF FAMILY 2

Type of family	Breastfeeding		OR (95% CI)
	No	Yes	
Nuclear	29 (9.4%)	281 (90.6%)	1
Non-nuclear	11 (22.0%)	39 78.0%	2.73 (1.27-5.91)*
Monoparental ^a	6 (18.8%)	26 (81.3%)	2.24 (0.85-5.88)
Other	5 (27.8%)	13 (72.2%)	3.73 (1.24-11.20)*

NOTES: ^a 31/32 mothers; *significant result

CRUDE OR FOR BREASTFEEDING (YES/NO) RELATION WITH EDUCATION FOR GLOBAL AND NUCLEAR FAMILIES 3

Education	Parent(s) OR (95% CI)		
	Father	Mother	Both ^a
<i>All types of families</i>			
Low	2.16 (0.61-7.66)	4.64 (1.62-13.28)*	6.42 (1.07-19.92)*
Medium	1.52 (0.50-4.58)	0.94 (0.43-2.04)	1.12 (0.52-2.40)
High	1	1	1
<i>Nuclear families</i>			
Low	1.99 (0.55-7.25)	8.49 (2.54-28.33)*	11.25 (3.05-41.53)*
Medium	1.26 (0.41-3.88)	1.00 (0.40-2.47)	1.22 (0.50-2.99)
High	1	1	1

NOTES: ^a maximum level among father and/or mother; * significant result.

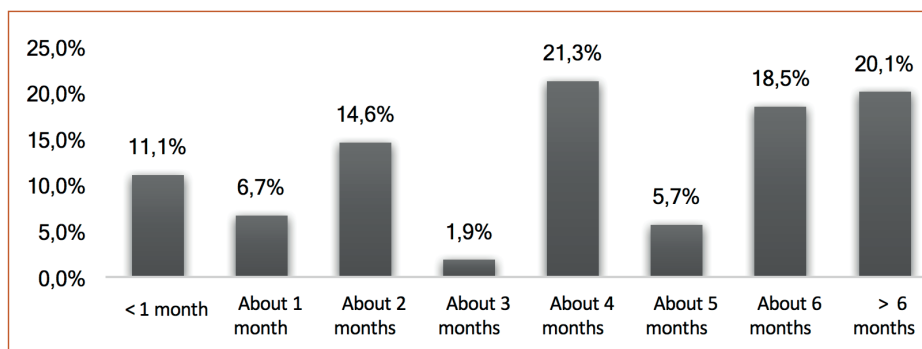


Figure 1. Duration of breastfeed (n = 321)

CRUDE OR FOR BREASTFEEDING (YES/NO) RELATION WITH EDUCATION (MOTHER/FATHER) FOR NUCLEAR FAMILIES 4

Education	OR (95% CI)
Both low (n = 16)	8.36 (1.87-37.43)*
Father low – mother medium (n = 39)	0.28 (0.03-2.61)
Father low – mother high (n = 2)	-
Father medium – mother low (n = 6)	3.25 (0.27-39.05)
Both medium (n=151)	1.04 (0.32-3.37)
Father medium – mother high (n = 64)	0.72 (0.17-3.07)
Father high – mother low (n = 0)	-
Father high – mother medium (n = 12)	-
Both high (n = 44)	1

NOTE: * significant result

dered the top grade between both parents (59.7%). The highest percentage of low educated people was found among fathers (17%); on the other end the highest percentage of high educated people was found among mothers (31.8%). Very similar results were found when considered the person that answered the questionnaire and responses about actual partner. No significant differences were found between groups. These results were expected because most of the respondents were mothers and most of the family types were nuclear.

Most of the children were breastfed (88.9%). Breastfeed duration ranged from less than one month (11.1%) to more than six months (20.1%). A four month duration (21.3%) was the most frequent period of breastfeed; 38.6% had a breastfeed duration equal or higher to six months (figure 1).

Variables association

Regarding the association between the type of family and breastfeeding we considered nuclear families the ones in which both parents lived together with/without other elements. All other types of families were considered non-nuclear. We divided non-nuclear families into monoparental (only one of the parents living with the children) and other types of families (mother or father living with other elements, such as partners, uncle/aunt, grandparents). OR were calculated considering nuclear families as reference category. An increased risk of not breastfeed was found for non-nuclear families (OR = 2.73, 95% CI = [1.27-5.91]). A more thorough analysis found that this risk was mainly attributed to families categorized as other type (OR = 3.73, 95% CI = [1.24-11.20]). Despite no significant differences were found for monoparental families a tendency for risk of not breastfeed was also observed (table 2).

When considering the relation between breastfeeding and parents

education global results, considering all types of family and high education as reference category, we found increased risk of not breastfeeding for aggregates with low educated mothers (OR = 4.64, 95% CI = [1.62-13.28]), despite father's education, and for aggregates in which both parents were low educated (OR = 6.42, 95% CI = [1.07-19.92]). The risk of not breastfeeding for aggregates with low educated mothers (OR = 8.49, 95% CI = [2.54-28.33]) and for aggregates in which both parents were low educated (OR = 11.25, 95% CI = [3.05-41.53]) was more prominent when considering only nuclear families (table 3).

No results were presented for non-nuclear families because no significant differences were found for father, mother or both parents education regarding the risk of not breastfeeding.

Next, we selected nuclear families only and calculated crudes OR for the risk of not breastfeed regarding discriminated levels of education. Considering high education for both parents as reference category we found increased risk of not breastfeeding for aggregates with low educated parents (OR=8.36, 95% CI=[1.87-37.43]). The presence of other degrees of education higher than low, for any of the parents removed significance status (table 4).

Finally, adjusted OR (aOR) were calculated for all logistic regression models. Selected confounders were children's gender, birth weight, actual BMI and mother's BMI and pregnancy time. Increased risk for non-nuclear families (compared with nuclear families) maintained its significance in the presence of confounders (aOR = 3.19, 95% CI = [1.38-7.39]); similar results were found for other types of families (aOR = 4.36, 95% CI = [1.36-14.03]).

Considering nuclear families only, the relation between breastfeeding (yes/no) and parents education (low/medium/high) was significant, even in the presence of the confounders. Increased risk of not breastfeed was found for low educated mothers (aOR = 8.39, 95% CI = [1.93-30.22]) and low educated parents (both) (aOR = 10.98, 95% CI = [2.30-52.46]). The relation between breastfeeding (yes/no) and parents education (paired, e.g. low-low; low-medium) was also significant in the presence of the confounders (aOR = 7.13, 95% CI = [1.27-40.07]).

No relation was found between breastfeed duration and education on overall, or considering the type of family. Despite that a slight trend was found with reduced breastfeed duration in higher levels of education.

Discussion

This study aimed to bring some contributions to the establishment of the relation between breastfeeding and the variables type of family and parent's education.

In our sample, 38.6% of the children were exclusively breastfeed for at least six months, lower than the 89% recommended by WHO¹⁶, but high than other studies like Holowko et al. (2016) with 15%¹³.

In our sample, non-nuclear families had increased risk of not breastfeed, corroborating results found in Horwood and Fergusson¹⁷ but not in Dubois and Girard¹¹. Moreover, in our sample, higher risk was found for families categorized as other type. These families were composed by mothers or fathers living with other elements, such as partners, uncle/aunt, grandparents, and/or others. Hence, in our study, family structure seems to be an important issue for breastfeeding initiation.

Regarding education we found higher risk of not breastfeed for low educated mothers and when both parents had low levels of education suggesting that mother's education has more impact for breastfeeding behaviour. Similar results were found in the studies of Holowko et al.¹³ and Napoli, Lallo,

Pezzotti, Forastiere and Porta¹⁸, but with lower ORs, OR = 2.09 (95% CI = [1.49-5.19]) and OR = 2.78 (95% CI = [1.67-2.62]), respectively. By the other hand in a Portuguese study no association was found between breastfeeding and parent's education, mother or father¹⁴.

In this study, no relation was found for education and the duration of breastfeeding, corroborating results from the study of Olímpio, Kochinski and Ravazzani¹⁹. Different results were found by Holowko et al.¹³ where low educated women had higher risk of not breastfeed for at least six months. In the same way, Olson and Hayward²⁰ found that higher education levels of parents was associated with longer duration of breastfeeding. On the contrary Dandekar, Shafee and Kumar²¹ found that higher educated mothers were the ones with earlier drop outs concerning breastfeed in the first six months. Hence, relation between breastfeed duration and education seems to remain unclear.

Conclusion

This study had the purpose of contribute for the study of the relation of breastfeeding with parent's type of family and education in a sample of children attending preschool from rural areas of the north of Portugal. The proportion of children that were exclusively breastfeed up to six months was higher than the one found in other studies, but lower than WHO recommendations. Non-nuclear families were associated with higher risk of not breastfeeding, in particular families composed by mothers or fathers living with other elements, such as partners, uncle/aunt, grandparents, and/or others, categorized in this study as other types of families. Low educated parents, in particular low educated mothers were associated with higher risk of not breastfeeding, but not with duration of breastfeeding.

Bibliography

1. Kimani-Murage EW, Wekesah F, Wanjohi M, et al. Factors affecting actualisation of the WHO breastfeeding recommendations in urban poor settings in Kenya. *Matern Child Nutr.* 2014;11:314-332.
2. Rollins NC, Bhandari N, Hajeebhoy N, et al. Why invest, and what it will take to improve breastfeeding practices? *The Lancet.* 2016;387:491-504.
3. Victora CG, Bahl R, Barros AJD, et al. Breastfeeding in the 21st century: epidemiology, mechanisms, and lifelong effect. *The Lancet.* 2016;387:475-90.
4. Naylor AJ. The Ten Steps: Ten Keys to Breastfeeding Success. *Breastfeed Med.* 2010;5:249-251.
5. Kramer MS. Breastfeeding, complementary (solid) foods, and long-term risk of obesity. *Am J Clin Nutr.* 2010;91:500-1.
6. Schack-Nielsen L, Sørensen TI, Mortensen EL, et al. Late introduction of complementary feeding, rather than duration of breastfeeding, may protect against adult overweight. *Am J Clin Nutr.* 2009;91:619-627.
7. Black RE, Allen LH, Bhutta ZA, et al. Maternal and child undernutrition: global and regional exposures and health consequences. *The Lancet.* 2008;371:243-60.
8. Yngve A, Sjöström M. Breastfeeding in countries of the European Union and EFTA: current and proposed recommendations, rationale, prevalence, duration and trends. *Public Health Nutrition* 2001; 4. Epub ahead of print 2001. doi: 10.1079/phn2001147.
9. Martin RM, Middleton N, Gunnell D, et al. Breast-Feeding and Cancer: The Boyd Orr Cohort and a Systematic Review With Meta-Analysis. *JNCI: Journal of the National Cancer Institute.* 2005;97:1446-57.
10. Feldens CA, Ardenghi TM, Cruz LN, et al. Advising mothers about breastfeeding and weaning reduced pacifier use in the first year of life: a randomized trial. *Community Dent Oral Epidemiol.* 2012;41:317-26.
11. Dubois L, Girard M. Social Determinants of Initiation, Duration and Exclusivity of Breastfeeding at the Population Level. *Can J Public Health.* 2003;94:300-5.
12. Callen J, Pinelli J. Incidence and Duration of Breastfeeding for Term Infants in Canada, United States, Europe, and Australia: A Literature Review. *Birth.* 2004;31:285-92.
13. Holowko N, Jones M, Koupil I, et al. High education and increased parity are associated with breast-feeding initiation and duration among Australian women. *Public Health Nutrition.* 2016;19:2551-61.
14. Ferreira R, Neves R, Virella D, Ferreira G. Amamentação e dieta materna. Influência de mitos e preconceitos. *Acta Pediátrica Portuguesa.* 2010;41:105-10.
15. Sancho TS. Healthy eating and physical activity intervention in preschool children to prevent obesity: a randomized controlled trial. *Dissertação de Doutoramento em Atividade Física e Saúde apresentada à Faculdade de Desporto da Universidade do Porto;* 2010.
16. World Health Organization. Indicators for assessing infant and young child feeding practices: conclusions of a consensus meeting held 6-8 November 2007. Washington DC.
17. Horwood LJ, Fergusson DM. Breastfeeding and Later Cognitive and Academic Outcomes. *Pediatrics* 1998; 101. Epub ahead of print January 1998. DOI: 10.1542/peds.101.1.e9.
18. Napoli A, Lallo D, Pezzotti P, et al. Effects of parental smoking and level of education on initiation and duration of breastfeeding. *Acta Paediatrica.* 2007;95:678-85.
19. Olímpio DM, Kochinsk E, Ravazzani E. Fatores que influenciam no aleitamento materno e desmame precoce em mães adolescentes e adultas. *Cadernos da Escola de Saúde Curitiba.* 2008;3:1-12.
20. Olson JS, Hayward MD. Breastfeeding, overweight status, and inflammation. *Social Science Research.* 2017;64:226-36.
21. Dandekar RH, Shafee M, Kumar R. Breastfeeding and weaning practices among literate mothers A community based study in rural area of Perambalur taluk, Tamil Nadu. *The Health Agenda.* 2014;2:15-21.