

Factors associated with breastfeeding duration among women in Sarajevo Canton, Bosnia and Herzegovina

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Abstract

Breastfeeding is the optimal method of infant feeding bringing short-and long-term benefits for infants, mothers, environment, economy and the entire society. A variety of factors influence and determine breastfeeding duration, including characteristics of the mother, the child and the family, aspects of the health care system, public health and social policies, advertising and promotion of alternative feeding methods. This study aimed to investigate the factors which are associated with breastfeeding duration in a sample of mothers living in Sarajevo Canton, Bosnia and Herzegovina. This cross-sectional study was carried out at the Pediatric Outpatient Department of the Public Institution Primary Health Care Centre of Canton Sarajevo. The study evaluated 150 mothers in three groups according to breastfeeding duration of 50 each (i.e. less than 3 months, 3–5 months and 6 months and more). As an instrument for data collection a questionnaire was used to provide sociodemographic data, information about mother's health during pregnancy, delivery in baby-friendly hospital and breastfeeding duration. The results of logistic regression analysis showed that delivery in baby-friendly hospital had a significant association with breastfeeding duration of 6 months and more ($p=0.023$). Maternal age ($p=0.873$), marital status ($p=0.628$), maternal education level ($p=0.228$), maternal employment ($p=0.949$), self-perceived financial status ($p=0.189$), maternal health during pregnancy ($p=0.874$) were not significantly associated with breastfeeding duration of 6 months and more. These results support the importance of the hospital environment and health provider practices in breastfeeding promotion.

Keywords: Breastfeeding; Hospital; Mother; Social Class

1. Introduction

Breastfeeding is a gold standard for infants' nutrition worldwide. The World Health Organization (WHO) recommend exclusive breastfeeding until infants reach 6 months of age, and continued breastfeeding along with supplemental feeding until at least 12 months [1].

It is indicated that once the decision to breastfeed is made, the physical and psychological health of the mother influence the duration of breastfeeding [2]. During pregnancy and the first weeks of postpartum, the physical and psychological health of the mother goes through considerable changes. Most mothers experience symptoms, which may influence mother's quality of life (QOL) [3]. Chen et al. reported a significant difference in mother's quality of life among the mothers who were breastfeeding for less than 1 month and those breastfeeding for equal to or more than 6 months. Compared to the other mothers, mothers who have breastfed for six months or longer had better quality of life [2].

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Previous studies on breastfeeding in developed countries have shown that different demographic and social factors influence duration of breastfeeding. Mothers' age and education level, family type and family income, and working status of the parents are among the main factors of influence [4-6].

The benefits of breastfeeding for mother and her infant are well-documented, however, these effects depends on its duration [7]. Some advantages of longer breast-feeding duration for mothers are improved bone strength and lower risk of breast cancer while better academic achievement and lower risk of obesity are some reported advantages for children who are breastfed [8-11].

Mothers and families need to be supported for their children to be optimally breastfed. Actions that help protect, promote and support breastfeeding include implementation of the "Ten steps to successful breastfeeding" specified in the Baby-friendly hospital initiative.

The Baby-friendly hospital initiative launched in 1991 is a key component of the WHO/UNICEF Global strategy for infant and young child feeding [12].

As breastfeeding promotion still remains a priority, it is important to focus on factors associated with breastfeeding duration. Therefore, this study aimed to investigate the factors which are associated with breastfeeding duration in a sample of mothers living in Sarajevo Canton, Bosnia and Herzegovina.

2. Material and methods

2.1. Design and Sample

This cross-sectional study was carried out at the Pediatric Outpatient Department of the Public Institution Primary Health Care Centre of Canton Sarajevo, Bosnia and Herzegovina (B&H) in the period March – July 2018.

This study included 150 mothers. Mothers were recruited for this study when children were brought in for their health checkups in Health Care Centre. The inclusion criteria of the study were being a breastfeeding woman (adult) and being a mother of an infant or toddler aged 6–18 months. The exclusion criteria of the study were being pregnant, being a woman who has never breastfed, being the mother of infants aged <6 months or toddlers aged over 18 months.

The study was conducted according to the research ethics guidelines laid down in the Declaration of Helsinki [13].

A verbal informed consent for participation in the study was taken from all mothers before completing the self-administered questionnaire.

2.2. Data Collection

The questionnaires were given to mothers while they were waiting for the appointment. The questionnaire included the sociodemographic data, information about mother's health during pregnancy, delivery in baby-friendly hospital and breastfeeding duration.

In order to determine the association between maternal sociodemographic factors and breastfeeding duration, the respondents were divided into 2 groups according to age (20–30 years and 31–40 years old), into 3 groups according to the level of education (incomplete/completed elementary school, completed secondary school and completed university), into 3 groups according to the marital status (married, single and divorced), into 3 groups according to the self-perceived financial status (worse than average, average and better than average), into 2 groups according to maternal employment (employed, unemployed).

The mother's self-reported general health during pregnancy was reported using a 5-point Likert scale. The score was recoded into dichotomous groups: good health and poor health, following previous literature [14,15].

The respondents were divided into 2 groups according to delivery in baby-friendly hospital: mothers who birthed in baby-friendly hospital and mothers who birthed in other hospitals.

The WHO has defined 3 types of breastfeeding: exclusive breastfeeding, breastfeeding, and predominant breastfeeding [16]. The main outcome measure of this study was the duration of any breastfeeding during the first 18 months of life. The duration of breastfeeding in months was calculated from the dates of babies' birth and the dates of breastfeeding

cessation as stated by the mothers. The respondents were divided into 3 groups according to breastfeeding duration: less than 3 months, from 3 to 5 months, and 6 months and longer.

2.3. Statistical analysis

Statistical analyses were performed using the Statistical Package for Social Sciences software (IBM, version 23.0). In the descriptive characteristic of categorical variables, the number of observations and the percentage of occurrences were considered. The differences in variables between groups were evaluated using a Chi-squared test. Using logistic regression models, we assessed the relationship between socio-demographic characteristics of mothers, maternal health during pregnancy, delivery in baby-friendly hospital and breastfeeding duration of 6 months and more. The level of significance was set at $p < 0.05$.

3. Results

The study evaluated 150 mothers in three groups according to breastfeeding duration of 50 each (i.e. less than 3 months, 3–5 months and 6 months and more).

Table 1 The distribution of breastfeeding duration depending on the socio-demographic characteristics of mothers, maternal health status and delivery in baby-friendly hospital

Characteristics	Breastfeeding duration						χ^2	p
	Less than 3 months		3–5 months		6 months and more			
	n	%	N	%	n	%		
Maternal age, years								
20-30	6	11.1	9	19.6	7	14.0	1.445	0.485
31-40	48	88.9	37	80.4	43	86.0		
Marital status								
Married	52	96.3	44	95.7	46	92.0	3.953	0.412
Single	1	1.9	0	0.0	0	0.0		
Divorced	1	1.9	2	4.3	4	8.0		
Maternal education level								
Incomplete/completed elementary school	2	3.7	1	2.2	4	8.0	14.247	0.007
Completed secondary school	32	59.3	20	43.5	12	24.0		
Completed high school /university	20	37.0	25	54.3	34	68.0		
Maternal employment								
Yes	28	51.9	23	50.0	31	62.0	1.662	0.436
No	26	48.1	23	50.0	19	38.0		
Self-perceived financial status								
Worse than average	7	13.0	2	4.3	1	2.0	12.457	0.014
Average	35	64.8	24	52.2	24	48.0		
Better than average	12	22.2	20	43.5	25	50.0		
Maternal health during pregnancy								
Good health	46	85.2	45	97.8	49	98.0	12.252	0.016
Poor health	8	14.8	1	2.2	1	2.0		
Delivery in baby-friendly hospital								
Yes	10	18.5	12	26.1	23	46.0	9.820	0.007
No	44	81.5	34	73.9	27	54.0		

Table 1 shows the characteristics of the study groups according to the breastfeeding duration.

There were 68% of the mothers with a university education among those who breastfed longer than 6 months and only 37% among the mothers who breastfed for less than 3 months.

Twice as many mothers with the financial status which was better than average were among those who breastfed longer than 6 months, 25 (50%), than among the mothers who breastfed for less than 3 months, 12 (22.2%).

There were significantly more mothers who reported poor health status during pregnancy in the group of the shortest breastfeeding duration (14.8%) in comparison with the group of the longest breastfeeding duration (2%).

More mothers who birthed in baby-friendly hospital were among those who breastfed longer than 6 months than among the mothers who breastfed for less than 3 months (46.0% and 18.5%, respectively).

There was no statistically significant difference between the 3 study groups in terms of mother's age, marital status and maternal employment

Table 2 shows association between socio-demographic characteristics of mothers, maternal health during pregnancy, delivery in baby-friendly hospital and breastfeeding duration of 6 months and more.

The results of logistic regression analysis showed that delivery in baby-friendly hospital had a significant association with breastfeeding duration of 6 months and more.

Maternal age, marital status, maternal education level, maternal employment, self-perceived financial status, maternal health during pregnancy were not significantly associated with breastfeeding duration of 6 months and more.

Table 2 Factors associated with breastfeeding duration of 6 months and more

Variables	β	SE	Wald	df	p	Exp(β)
Child born in baby-friendly hospital	-1.074	0.474	5.138	1	0.023	0.342
Self-perceived financial status	0.542	0.412	1.726	1	0.189	1.719
Maternal education level	0.530	0.439	1.455	1	0.228	1.698
Lives alone	-0.811	1.158	0.491	1	0.484	0.444
Marital status	0.318	0.657	0.235	1	0.628	1.375
Maternal age	-0.107	0.665	0.026	1	0.873	0.899
Maternal health status during pregnancy	0.055	0.344	0.025	1	0.874	1.056
Maternal employment	-0.030	0.466	0.004	1	0.949	0.971
Constant	-0.409	4.452	0.008	1	0.927	0.664

4. Discussion

This study investigated the factors associated with breastfeeding duration among women in Sarajevo Canton, Bosnia and Herzegovina.

The results of this study showed that delivery in baby-friendly hospital had a significant association with breastfeeding duration of 6 months and more. Similar to our finding, Merten et al. found that children born in a baby-friendly health facility are more likely to be breastfed for a longer time [17]. The exact mechanisms by which baby-friendly practices extend the breastfeeding duration, however, are still unclear. Zhang et al suggest that higher compliance with baby-friendly practices may have a positive impact on breastfeeding duration and, in particular, promote the implementation of breastfeeding on demand and breastfeeding during hospitalization [18].

Demographic variables that may influence breastfeeding duration are well established and include maternal education, mothers' financial status, marital status and maternal age.

Most of the previous literature reported a positive association between maternal education and breastfeeding duration. Studies conducted in Nepal, the United States and Italy showed that higher maternal education level was related to better breastfeeding practices [19-21]. An increase in educational attainment may increase maternal knowledge on the infant health benefits of breastfeeding, which influences their intention to continue breastfeeding [22]. However, studies in Ethiopia and Bangladesh observed a negative association between breastfeeding duration and maternal education [23,24]. The results of this study showed that maternal education level had not a significant association with breastfeeding duration of 6 months and more. This is in accordance with the study conducted by Nayeri et al. among Iranian infants [25].

Research data have shown that low-income women have decreased duration of breastfeeding [26,27]. As a result, infants from lower-income families are more likely to fall ill and be hospitalized, and thus further increasing the health inequalities [28,29]. The results of this study showed that mothers' self-perceived financial status had not a significant association with breastfeeding duration of 6 months and more. This finding is consistent with the results of study conducted by Riva et al among Italian infants [30].

Data from research studies have shown that married women breastfeed longer than single or living with a partner [31]. Callen and Pinelli compared the differences in duration of breastfeeding across Canada, the United States, Europe, and Australia. They found that married women had a higher duration of breastfeeding [32]. In this study marital status was not significantly associated with breastfeeding duration of 6 months and more. This is in accordance with the study conducted by Agboado et al. in Eastern Lancashire [33].

Information from a comprehensive literature review that included multivariate analysis of data on breastfeeding duration demonstrated a strong and consistent association between duration of breastfeeding and maternal age [34]. However, the results of the studies have been contradictor. Colombo et al. reported increasing of maternal age is a risk factor for the cessation of breastfeeding in Italy [35], but in Leventakou's at al. study, mothers were more likely to breastfeed their child longer if they were older [36]. Previous studies suggest that older women may be in better circumstances, have higher education, be more financially secure, and may have prior breastfeeding experience, while younger mothers may be less knowledgeable about breastfeeding [37,38]. In this study maternal age was not significantly associated with breastfeeding duration of 6 months and more.

Maternal work outside the home is a social variable with a potentially strong influence on breastfeeding duration. In some studies, the mother's job was one of the main factors affecting breastfeeding duration and employment of mothers outside the home, especially full-time employment, had a negative influence on the duration of breastfeeding [39,40]. Kimbro found that working in an administrative or manual job was associated with one-third higher odds of quitting breastfeeding than not working, while he found no significant differences between not working and the other occupations [41]. In this study maternal employment was not significantly associated with breastfeeding duration of 6 months and more.

5. Conclusion

This study has some limitations. Factors related to the long-term health status of the mother, such as nutritional intake and acute or chronic infections during the breastfeeding period, were not measured; thus, these factors may affect the study findings.

This study provides valuable insight into the determinants of breastfeeding duration for up to 6 months among mothers in Sarajevo Canton, Bosnia and Herzegovina. The key predictors of breastfeeding duration was delivery in baby-friendly hospital. Children born in a baby-friendly health facility are more likely to be breastfed for a longer time. These results further support the importance of the hospital environment and health provider practices in breastfeeding promotion. Reinforcing the accreditation of hospitals as baby-friendly and investing in compliance are the best ways to reach and maintain long duration of breastfeeding.

Compliance with ethical standards

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Disclosure of conflict of interest

The authors declare that they have no competing interests.

Statement of informed consent

Informed consent was obtained from all individual participants included in this study.

References

- [1] World Health Organization. The optimal duration of exclusive breastfeeding. Geneva: World Health Organization; 2001.
- [2] Chen YC, Chie WC, Kuo SC, Lin YH, Lin SJ, Chen PC. The association between infant feeding pattern and mother's quality of life in Taiwan. *Qual Life Res.* 2007; 16(8):1281-8.
- [3] Kurspahic Mujcic A, Mujcic A. Socio-demographic factors associated with quality of life of pregnant women in Sarajevo Canton, Bosnia and Herzegovina. *Journal of Family Medicine and Health Care.* 2020; 6(4):113-7.
- [4] Bulk-Bunschoten AM, van Bodegom S, Reerink JD, Pasker-de Jong PC, de Groot CJ. Reluctance to continue breastfeeding in The Netherlands. *Acta Paediatr.* 2001; 90(9):1047-53.
- [5] Sikorski J, Boyd F, Dezateux C, Wade A, Rowe J. Prevalence of breastfeeding at four months in general practices in south London. *Br J Gen Pract.* 2001; 51(467):445-50.
- [6] Dubois L, Girard M. Social determinants of initiation, duration and exclusivity of breastfeeding at the population level: the results of the longitudinal study of child development in Quebec (ELDEQ 1998-2002). *Can J Public Health.* 2003; 94(4):300-5.
- [7] Wang W, Lau Y, Chow A, Chan KS. Breast-feeding intention, initiation and duration among Hong Kong Chinese women: a prospective longitudinal study. *Midwifery.* 2014; 30(6):678-87.
- [8] Chapman DJ. Longer cumulative breastfeeding duration associated with improved bone strength. *J Hum Lact.* 2012; 28(1):18-9.
- [9] Nagata C, Mizoue T, Tanaka K, Tsuji I, Tamakoshi A, Wakai K, Matsuo K, Ito H, Sasazuki S, Inoue M, Tsugane S; Research group for the development and evaluation of cancer prevention strategies in Japan. Breastfeeding and breast cancer risk: an evaluation based on a systematic review of epidemiologic evidence among the Japanese population. *Jpn J Clin Oncol.* 2012;42(2):124-30.
- [10] Oddy WH, Li J, Whitehouse AJ, Zubrick SR, Malacova E. Breastfeeding duration and academic achievement at 10 years. *Pediatrics.* 2011; 127(1):e137-45.
- [11] McCrory C, Layte R. Breastfeeding and risk of overweight and obesity at nine-years of age. *Soc Sci Med.* 2012; 75(2):323-30.
- [12] World Health Organization, UNICEF. Global strategy on infant and young child feeding. vol. A55/15. 55th World Health Assembly. Geneva: World Health Organization; 2002.
- [13] World medical association. World medical association declaration of Helsinki: Ethical principles for medical research involving human subjects. *JAMA.* 2013; 310(20):2191-4.
- [14] Khanam R, Nghiem HS, Connelly LB. Child health and the income gradient: evidence from Australia. *J Health Econ.* 2009; 28(4):805-17.
- [15] Khanam R, Nghiem HS, Connelly LB. What roles do contemporaneous and cumulative incomes play in the income-child health gradient for young children? Evidence from an Australian panel. *Health Econ.* 2014; 23(8):879-93.
- [16] World Health Organization. Indicators for assessing infant and young child feeding practices. Part 1 – Definitions. Geneva; 2008.
- [17] Merten S, Dratva J, Ackermann-Liebrich U. Do baby-friendly hospitals influence breastfeeding duration on a national level? *Pediatrics.* 2005; 116(5):e702-8.
- [18] Zhang Y, Yang J, Li W, Wang N, Ye Y, Yan S, Wang S, Zeng T, Huang Z, Zhang F, Li Y, Yao S, Wang H, Rozelle S, Xu T, Jin X. Effects of baby-friendly practices on breastfeeding duration in China: a case-control study. *Int Breastfeed J.* 2020; 15(1):92.
- [19] Acharya P, Khanal V. The effect of mother's educational status on early initiation of breastfeeding: further analysis of three consecutive Nepal demographic and health surveys. *BMC Public Health.* 2015; 15:1069.

- [20] Heck KE, Braveman P, Cubbin C, Chávez GF, Kiely JL. Socioeconomic status and breastfeeding initiation among California mothers. *Public Health Rep.* 2006; 121(1):51-9.
- [21] Bertini G, Perugi S, Dani C, Pezzati M, Tronchin M, Rubaltelli FF. Maternal education and the incidence and duration of breast feeding: a prospective study. *J Pediatr Gastroenterol Nutr.* 2003; 37(4):447-52.
- [22] Kurspahic Mujcic A, Mujcic A. The relationship between education and self-reported mental and physical health. *Med Glas (Zenica).* 2019; 16(1):102-7.
- [23] Alemayehu T, Haidar J, Habte D. Determinants of exclusive breastfeeding practices in Ethiopia. *Ethiop J Health Dev.* 2009; 23(1):12–8.
- [24] Mahrshahi S, Kabir I, Roy SK, Agho KE, Senarath U, Dibley MJ. Determinants of infant and young child feeding practices in Bangladesh: Secondary data analysis of demographic and health survey 2004. *Food Nutr Bull.* 2010; 31(2) 295-313.
- [25] Nayeri F, Shariat M, Dalili H, Raji F, Karimi A. Breastfeeding status and effective factors in 21 - 27 months Iranian infants. *Open J Pediatr.* 2015; 5:156–63.
- [26] Coulibaly R, Séguin L, Zunzunegui MV, Gauvin L. Links between maternal breast-feeding duration and Québec infants' health: a population-based study. Are the effects different for poor children? *Matern Child Health J.* 2006; 10(6):537-43.
- [27] Dennis CL. The breastfeeding self-efficacy scale: psychometric assessment of the short form. *J Obstet Gynecol Neonatal Nurs.* 2003; 32(6):734-44.
- [28] Kurspahic Mujcic A, Mujcic A. Factors associated with overweight and obesity in preschool children. *Med Glas (Zenica).* 2020; 17: 538-43.
- [29] Amir LH, Donath SM. Socioeconomic status and rates of breastfeeding in Australia: evidence from three recent national health surveys. *Med J Aust.* 2008; 189(5):254-6.
- [30] Riva E, Banderali G, Agostoni C, Silano M, Radaelli G, Giovannini M. Factors associated with initiation and duration of breastfeeding in Italy. *Acta Paediatr.* 1999; 88(4):411-5.
- [31] Levinienė G, Tamulevičienė E, Kudzytė J, Petrauskienė A, Zaborskis A, Aželienė I, Labanauskas L. Factors associated with breastfeeding duration. *Medicina (Kaunas).* 2013; 49(9):415-21.
- [32] 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(4):285-92.
- [33] Agboado G, Michel E, Jackson E, Verma A. Factors associated with breastfeeding cessation in nursing mothers in a peer support programme in Eastern Lancashire. *BMC Pediatr.* 2010; 10:3.
- [34] Scott JA, Binns CW. Factors associated with the initiation and duration of breastfeeding: a review of the literature. *Breastfeed Rev.* 1999;7(1):5-16.
- [35] Colombo L, Crippa BL, Consonni D, Bettinelli ME, Agosti V, Mangino G, Bezze EN, Mauri PA, Zanotta L, Roggero P, Plevani L, Bertoli D, Gianni ML, Mosca F. Breastfeeding determinants in healthy term newborns. *Nutrients.* 2018; 10(1):48-58.
- [36] Leventakou V, Roumeliotaki T, Koutra K, Vassilaki M, Mantzouranis E, Bitsios P, Kogevinas M, Chatzi L. Breastfeeding duration and cognitive, language and motor development at 18 months of age: Rhea mother-child cohort in Crete, Greece. *J Epidemiol Community Health.* 2015; 69(3):232-9.
- [37] Fisher J, Hammarberg K, Wynter K, McBain J, Gibson F, Boivin J, McMahon C. Assisted conception, maternal age and breastfeeding: an Australian cohort study. *Acta Paediatr.* 2013; 102(10):970-6.
- [38] Whipps MD. Education attainment and parity explain the relationship between maternal age and breastfeeding duration in U.S. Mothers. *J Hum Lact.* 2017; 33(1):220-4.
- [39] Cernadas JM, Noceda G, Barrera L, Martinez AM, Garsd A. Maternal and perinatal factors influencing the duration of exclusive breastfeeding during the first 6 months of life. *J Hum Lact.* 2003; 19(2):136-44.
- [40] Matias SL, Nommsen-Rivers LA, Dewey KG. Determinants of exclusive breastfeeding in a cohort of primiparous periurban Peruvian mothers. *J Hum Lact.* 2012; 28(1):45-54.
- [41] Kimbro RT. On-the-job moms: work and breastfeeding initiation and duration for a sample of low-income women. *Matern Child Health J.* 2006; 10(1):19-26.