

An assessment of the duration of breastfeeding in north-eastern Poland

Research Article

Jerzy Romaszko^{*1}, Mieczysława Czerwionka-Szaflarska², Natalia Piekuś³,
Barbara Skajewska³, Aurelia Sielużycka², Ewa Romaszko⁴, Andrzej Kwiatkowski¹,
Julia Gawryjotek², Adam Buciński³

¹ NZOZ Pantamed Sp. z o.o., 10-461 Olsztyn, Poland

² Department of Paediatrics, Allergy and Gastroenterology,
Nicolaus Copernicus University in Toruń, Collegium Medicum in Bydgoszcz,
85-094 Bydgoszcz, Poland

³ Department of Biopharmacy, Nicolaus Copernicus University in Toruń,
Collegium Medicum in Bydgoszcz,
85-094 Bydgoszcz, Poland

⁴ NZOZ Atarax, 10-117 Olsztyn, Poland

Received 24 May 2012; Accepted 15 August 2012

Abstract: In 2005, the European Commission presented a report on the current situation associated with the protection, promotion and support of breastfeeding in 29 European countries. According to the report, exclusive breastfeeding was undertaken by 71% of the mothers in Poland. We concluded that an attempt shall be made to verify these data values. The aim of our survey was to assess the duration of breastfeeding and identify the potential medical and social factors affecting this parameter in Poland. We surveyed 427 women aged 18 to 40 from Northeastern Poland. The duration of breastfeeding and the presence of selected potential factors that may affect this parameter were assessed in 591 children. The mean duration of exclusive breastfeeding was 4.73 months with breastfeeding being initiated in 97.87% and continued beyond 12 months (following the introduction of complementary foods) in 32.49 % of the children. In our region, nearly all mothers attempt to breastfeed. Exclusive breastfeeding is continued by 75.46% and 29.27% of the mothers by 3 and 6 months of the baby's life. Breastfeeding with complementary feeding is continued by 56.01% and 32.49% of the mothers by 6 and 12 months of the baby's life.

Keywords: Breastfeeding • Dummy use • Weaning

© Versita Sp. z o.o

1. Introduction

Human milk is the most natural and nutritionally complete liquid food in the nutrition of newborns, infants and – very often – children beyond one year of age. The World Health Organization (WHO) recommends breastfeeding of newborns and infants for the first six months of life and continuation of breastfeeding after introduction of complementary foods for two years or longer [1]. The American Academy of Pediatrics (AAP) adopted similar recommendations in 2005, according to which

exclusive breastfeeding should be provided for the first 4-6 months of life and followed, depending on the mother's or child's wishes, by continued breastfeeding for a year or more upon the introduction of complementary feeding [2]. According to the recommendations adopted by the European Society of Paediatric Gastroenterology, Hepatology and Nutrition (ESPGHAN) in 2008, it should be aimed to provide exclusive breastfeeding until approximately six months of life. These recommendations seem easy to implement, yet still statistics on breastfeeding initiation and duration in many countries are far

* E-mail: pantamed@mp.pl

from ideal [3]. A number of factors that contribute to the shortening of breastfeeding period have been reported in the literature. These include, for instance, smoking, caesarean section, young age of the mother, lower level of education, negative influence of the partner or grandmother [4-6]. Older, better educated mothers characterised by a higher socioeconomic status and those who breastfed their previous baby or were breastfed as babies undertake breastfeeding more commonly and continue it for longer [7,8].

In 1992, at the initiative of the Polish Ministry of Health, the Polish Committee for UNICEF and the Institute of the Mother and Child in Poland, a Committee for the Promotion of Breastfeeding was established, which has launched a programme for the promotion, support and protection of breastfeeding. While it has been established that as many as 97% of mothers start to breastfeed in Poland, the actual duration of breastfeeding has not been estimated [9].

The aim of our survey was to assess the duration of breastfeeding and identify the potential medical and social factors affecting this parameter in Poland.

2. Experimental methods

This study was conducted according to the guidelines laid down in the Declaration of Helsinki and all procedures involving patients were approved by the Bioethics Committee of the Nicolaus Copernicus University Collegium Medicum. Written informed consent was obtained from all patients.

2.1. Subjects

Mothers up to 40 years of age from Northeastern Poland (the Warmińsko-Mazurskie and the Kujawsko-Pomorskie Provinces) were invited to participate in the survey.

2.2. Procedures

They were invited to participate in the survey during a routine check-up visit at their local health centre (e.g. visit for mandatory immunisation). Having signed an informed consent form, the mothers completed a questionnaire which included questions about the duration of breastfeeding, age of the child at which complementary feeding was started and the factors that may affect the initiation of modified formula. One questionnaire per child was completed. The survey was anonymous. Questionnaires lacking personal details were excluded from the analysis.

2.3. Measures

The subjects answered questions on the feeding method which they used in their children. Breastfeeding women provided information on the duration of breastfeeding and on the reason for termination of breastfeeding [10]. The women also provided information on their socioeconomic status. Some of the questions were multiple-choice questions, while the remaining ones were partly open. The following factors were analysed: mother's age, BMI before and after childbirth, number of children, mother's level of education, financial and occupational status, father's level of education, influence of the healthcare system (antenatal classes, midwife's care, education on breastfeeding, type of delivery). The analysis also included the habit of dummy sucking, active smoking and passive smoking. Passive smoking was defined as inhabitation with a smoker. In addition, due to our subjective impression and to the possible psychological influence of previous treatment for infertility on the duration of breastfeeding, we included this peculiar question in the questionnaire. The mothers had been invited to participate in the study during a direct contact with the investigators.

2.4. Data analysis

The data collected in the questionnaires were analysed using STATISTICA version 10 (StatSoft, Inc.). The basic statistics (mean, standard deviation, absolute and relative frequencies) were calculated for all investigated variables. The influence of the variables on the duration of breastfeeding for months 1, 3 and 6 in the case of exclusive breastfeeding and for months 6, 9 and 12 in the case of breastfeeding with complementary feeding, using step-down logistic regression analysis with quasi-Newton estimation were assessed. P values below 0.05 were considered statistically significant. After appropriate models had been developed odds ratios for a unit change for individual parameters along with the 95% confidence intervals were calculated [11].

3. Results

Approximately 2500 mothers were invited to participate in the study, 427 of whom completed a total of 591 questionnaires, one questionnaire per child. A total of 205 (48.37%) mothers had one child and 222 (51.63%) had more than one child with two children being the most common number in the latter group (184 [42.79%] mothers). The mean age at first childbirth was 26.2 (SD 4.36) years among mothers having one child and 25.26

(SD 4.13) years among mothers who had more than one child. The mean age at second childbirth was 28.86 (SD 4.37) years.

Most respondents had completed higher (45.03%) or secondary education (41.95%). Professionally active mothers accounted for 62.18% of the study population.

An overwhelming majority of the mothers did not have any reservations about breastfeeding (96.93%) and had been trained accordingly by a midwife at home (55.42%) or during postpartum hospitalisation (67.19%). Mothers who had taken antenatal classes accounted for a much lower percentage of the study population (12.90%). A positive history of treatment for infertility was founded by 7.68% of the respondents. A total of 10.39% of the women smoked during pregnancy and 8.15% did so during breastfeeding. Passive smoking (a smoker in the household) was recorded in 28.89% of the children. The mean birth weight was 3483.20 (SD 581.73) g and the mean Apgar score was 9.45 (SD 1.12). Preterm babies, defined as babies born before the end of the 37th week of gestation, accounted for 12.52%.

The main parameter of analysis was the duration of breastfeeding. In our study, the mean duration of breastfeeding was 13.48 (SD 7.39) months, where exclusive breastfeeding was 4.18 (SD 3.46) months. Complementary feeding was introduced at 5.14 (SD 1.46)

months and baby formulas at 4.40 (SD 1.47) months. At six months of age exclusive breastfeeding was being continued by 29.27% of the mothers. At 12 months of age breastfeeding along with complementary foods was being continued by about 32.49% of the mothers (Figure 1). Table 1 presents the results of logistic regression analysis of the parameters significantly affecting the duration of breastfeeding.

4. Discussion

The promotion, support and protection of breastfeeding implemented at the initiative of the WHO and UNICEF

Figure 1. The mean duration of exclusive breastfeeding and breastfeeding with any complementary food.

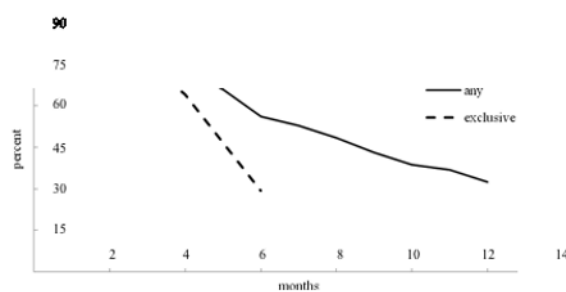


Table 1. The parameters significantly affecting the duration of breastfeeding.

Model	Variable Odds ratio -95%CL; 95%CL							
	Dummy	Number of children	Type of delivery	Father's education	Passive smoking	Age at childbirth	Mother's education	Weight gain
Exclusive breastfeeding until 1 month old	0.376 0.183; 0.770	-	2.495 1.412; 4.408	1.663 1.227; 2.254	-	-	-	-
Exclusive breastfeeding until 3 months old	0.374 0.220; 0.634	1.532 1.163; 2.016	2.579 1.642; 4.049	1.633 1.269; 2.101	-	-	-	-
Exclusive breastfeeding until 6 months old	0.346 0.236; 0.507	1.284 1.042; 1.583	-	-	-	-	-	-
Breastfeeding until 6 months old	0.327 0.209; 0.511	1.621 1.216; 2.161	-	-	0.467 0.286; 0.761	0.911 0.867; 0.957	1.850 1.319; 2.594	0.976 0.954; 0.998
Breastfeeding until 9 months old	0.223 0.154; 0.323	1.235 1.008; 1.512	-	-	-	-	-	-
Breastfeeding until 12 months old	0.236 0.160; 0.349	1.407 1.131; 1.751	-	-	0.585 0.366; 0.937	0.942 0.902; 0.984	-	-

seems to be yielding results on an international scale.¹ According to the WHO definition, exclusive breastfeeding refers to the practice whereby breast milk is the only food the newborn or infant receives [12]. In many countries, over the past few decades, the mean duration of breastfeeding has increased. The numbers of mothers who start and continue to breastfeed in the subsequent months are growing. In the United States, the percentage of mothers who started to breastfeed was 26.5% in the 1970s and grew to 74.2% in 2005 [13]. In Norway, there was a considerable growth in the percentage of breastfed babies from 30% at 12 weeks of age in the 1970s to more than 80% in the 1990s (1991) [14]. In 2005, the European Commission presented data on the current situation related to the promotion, support and protection of breastfeeding in 29 European countries. The initiation of breastfeeding at a level equal to or greater than 90% was shown in 14 countries, a level of 60-80% was observed in 6 other countries and a level below 60% was demonstrated in 3 countries: France, Ireland and Malta [15]. According to the report, exclusive breastfeeding in Poland was undertaken by 71% of the mothers (at discharge from a maternity ward) with 31% and 9% of the mothers continuing to breastfeed at 4 and 6 months, respectively. Most mothers emphasise that the decision whether to feed the baby with human or modified milk is based on the care for their babies' health and development. It turns out that about 80% of pregnant women declare the willingness to breastfeed, 16% of the women are hesitant about which method to choose and 1% decides to go for modified milk only. The situation is similar after childbirth, when exclusive breastfeeding is undertaken by 90% of the mothers and is being continued at 3 months by 80%. About 25% introduces modified milk and 8% use mixed feeding [16].

In our study, nearly 100% of the mothers attempted to breastfeed (99.73%). In the subsequent months this percentage decreased, but at 4 and 6 months exclusive breastfeeding was being continued by 63.96% and 29.27% of the mothers, respectively. At 7 months there was a rapid decline in the number of exclusively breastfed babies (Figure 1). This is a tendency arising from the commonly accepted model of child nutrition [1].

We observed in our material that mothers of more than one child were more likely to be breastfeeding at 6, 9 or even 12 months of age (OR 1.62, 1.24 and 1.41, respectively). Two findings seemed interesting: the positive correlation between the father's level of education with the likelihood of exclusive breastfeeding until 1 and 3 months of age (OR 1.66 and 1.63, respectively) and the failure to confirm the positive association between the duration of breastfeeding and maternal age. Some of the factors we analysed (e.g. dummy sucking, passive smoking) have previously been reported and are well-known parameters of risk that shorten the duration of breastfeeding, while others seem to be of practical significance (Table 1) [17-19].

The issue of previous treatment for infertility also merits attention. This parameter turned out to be statistically non-significant in the regression analysis. However, in the group of mothers who had undergone treatment for infertility the mean duration of exclusive breastfeeding and the mean duration of any breastfeeding was significantly shorter than in the group of mothers who had never experienced problems becoming pregnant (4.53 and 4.77 months, respectively, $p=0.026$, and 10.45 and 14.36 months, respectively, $p=0.017$). The problem of infertility is increasing and currently affects 6.9-9.3% of the couples (7.34% in our material), which is why further studies in this area by other researchers would be encouraging [20]. Treatment for infertility is not reported as a factor that decreases the duration of breastfeeding. When we were designing this study we thought that due to psychological factors any potential relationship would be quite the opposite, while it turned out that infertility treatment is a risk factor.

5. Conclusions

In our region, nearly all mothers attempt to breastfeed. Exclusive breastfeeding is continued by 75.46% and 29.27% of the mothers by 3 and 6 months of the baby's life. Breastfeeding with complementary feeding is continued by 56.01% and 32.49% of the mothers by 6 and 12 months of the baby's life.

References

- [1] WHO (2002) WHO global strategy for infant feeding. WHA 55/2002/rec/1 Annex 2, 2002.WHO: Global strategy for infant and young child feeding. Switzerland, Geneva: WHO
- [2] Gartner LM, Morton J, Lawrence RA et al. (2005) American Academy of Pediatrics Section on Breastfeeding. Breastfeeding and the use of human milk. *Pediatrics* 115, 496-506
- [3] Cattaneo A, Burmaz T, Arendt M et al. (2010) Protection, promotion and support of breastfeeding in Europe: progress from 2002 to 2007. *Public Health Nutr.* 13, 751-759

- [4] Kohlhuber M, Rebhan B, Schwegler U *et al.* (2008) Breastfeeding rates and duration in Germany: A Bavarian cohort study. *Br J Nutr* 99, 1127-1132
- [5] Lanting CI, Van Wouwe JP, Reijneveld SA (2005) Infant milk feeding practices in the Netherlands and associated factors. *Acta Paediatr* 94, 935-942
- [6] Al.-Sahab B, Lanes A, Feldman M *et al.* (2010) Prevalence and predictors of 6-month exclusive breastfeeding among Canadian women: a national survey. *BMC Pediatr* 10, 20
- [7] Bolling K, Grant K, Hamlyn B *et al.* (2007) Infant feeding survey 2005. United Kingdom: Information Centre, Government Statistical Service
- [8] Giovannini M, Banderali G, Radaelli G *et al.* (2003) Monitoring breastfeeding rates in Italy: national surveys 1995 and 1999. *Acta Paediatr* 92, 357-363
- [9] Zagórecka E, Motkowski R, Stolarczyk A *et al.* (2007) Karmienie naturalne w żywieniu niemowląt z wybranych miast Polski Centralnej i Wschodniej. *Pediatrica Pol* 82, 538-549
- [10] Li R, Fein SB, Chen J *et al.* (2008) Why mothers stop breastfeeding: mothers' self-reported reasons for stopping during the first year. *Pediatrics* 122, 69-76
- [11] Hill T, Lewicki P (2006) *Statistics. Methods and Applications.* (1st ed.). Tulsa: StatSoft
- [12] American Academy of Pediatrics Section on Breastfeeding (2005) Breastfeeding and the use of human milk. *Pediatrics* 115, 496-506
- [13] Grummer-Strawn LM, Shealy KR (2009) Progress in protecting, promoting, and supporting breastfeeding: 1984-2009. *Breastfeed Med* 4, 31-39
- [14] Heiberg Endresen E, Helsing E (1995) Changes in breastfeeding practices in Norwegian maternity wards: national surveys 1973, 1982 and 1991. *Acta Paediatr* 84, 719-724
- [15] Cattaneo A, Yngve A, Koletzko B *et al.* (2005) Protection, promotion and support of breastfeeding in Europe: current situation. *Public Health Nutr* 8, 39-46
- [16] ESPGHAN Committee on Nutrition (2009) Breast-feeding: A Commentary by the ESPGHAN Committee on Nutrition. *J Pediatr Gastroenterol Nutr* 49, 112-125
- [17] Barros FC, Victora CG, Semer TC *et al.* (1995) Use of pacifiers is associated with decreased breastfeeding duration. *Pediatrics* 95, 497-499
- [18] Kramer MS, Barr RG, Dagenais S, *et al.* (2001) Pacifier use, early weaning, and cry/fuss behavior: a randomized controlled trial. *JAMA* 286, 322-326
- [19] Jedrychowski W, Perera F, Mroz E, *et al.* (2008) Prenatal exposure to passive smoking and duration of breastfeeding in nonsmoking women: Krakow inner city prospective cohort study. *Arch Gynecol Obstet* 278, 411-417; Epublication 4 March 2008
- [20] Boivin J, Bunting L, Collins JA, *et al.* (2007) International estimates of infertility prevalence and treatment-seeking: potential need and demand for infertility medical care. *Hum Reprod* 22, 1506-1512