

Main Determinants on Duration and Exclusive or Supplementary Breast-feeding Pattern in the Eastern Part of Austria

Einflussfaktoren auf Stilldauer und Stillverhalten in Ostösterreich

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Summary

Background: According to UNICEF/WHO recommendations, newborns should be fed exclusively with breast milk during their first six months of life.

Objective: The aim of this paper is to identify the main determinants on duration and exclusivity of breast-feeding.

Subjects and methods: A retrospective study was conducted in the eastern part of Austria of 400 women with children at the age of one to two years. The mothers were asked about the duration and initiation of breast-feeding, skin-to-skin contact as well as practice of supplementary food.

Results: Children who had started suckling later than the first hour postpartum were significantly shorter exclusively breast-fed ($p < 0.001$) than children who started within the first hour. Babies who had been separated from their mothers postpartum were exclusively breast-fed significantly ($p < 0.01$) shorter than children who had stayed together with them. Supplementary feeding with formulae during the first days of life reduced both exclusive ($p < 0.001$) and supplementary ($p < 0.01$) breast-feeding significantly.

Conclusion: Breast-feeding initiation later than twelve hours after birth and feeding formulae during the first days of life are strong predictors for short breast-feeding duration. The relationship between breast-feeding duration and breastfeeding on demand as well as complications during delivery has to be observed furthermore.

Keywords:

breast-feeding, initiation, duration, rooming-in, feeding rhythms, supplementary food

Zusammenfassung

Hintergrund: Nach den Empfehlungen von UNICEF/WHO sollten Neugeborene in den ersten sechs Monaten ausschließlich mit Muttermilch ernährt werden.

Ziel: Das Ziel der Arbeit war es, die wichtigsten Faktoren zu ermitteln, die für die Dauer des Stillens ausschlaggebend sind.

Personen und Methode: Es wurde eine retrospektive Methode im östlichen Teil von Österreich mit 400 Frauen und Kindern im Alter von ein oder zwei Jahren durchgeführt. Die Mütter wurden über Dauer, Beginn, Hautkontakt und ergänzende Ernährung befragt.

Ergebnisse: Kinder, die später als in der ersten Stunde nach der Geburt zu saugen begannen, wurden signifikant kürzer gestillt ($p < 0,01$) als jene, die innerhalb der ersten Stunde begannen. Kinder, die man nach der Geburt von ihren Müttern trennte, wurden signifikant ($p < 0,1$) kürzer gestillt als jene, die bei den Müttern verblieben. Ergänzende Ernährung mit Formuladiät während der ersten Lebenstage reduzierte sowohl das ausschließliche ($p < 0,001$) als auch das ergänzende ($p < 0,01$) Stillen signifikant.

Zusammenfassung: Beginn des Stillens später als zwölf Stunden nach der Geburt und Verabreichung von Formuladiät während der ersten Lebenstage sind starke Einflussfaktoren für die Stilldauer. Die Beziehung zwischen der Stilldauer und Stillen nach Verlangen sowie Probleme bei der Durchführung sollten künftig weiter untersucht werden.

Kennwörter:

Stillen, Beginn, Dauer, Rooming-in, Fütterungszyklus, ergänzende Ernährung

1 Introduction

Exclusive breast-feeding for the first four to six months of life is considered optimal for the nutrition and health of the infant as well as for the health of the mother.

Since the 70s, many European countries have described an increasing breast-feeding prevalence and

duration. Maybe this is due to the introduction of "baby-friendly" hospitals as well as the change of maternity wards towards a more "family-friendly" attitude in general.

It seems that maternal characteristics (e.g. age, educational level) and neonatal care have an influence on breast-feeding success. Time of breast-feeding initiation, skin-to-skin contact, rooming-in, breast-feeding on demand and supplementary feeding during

the first three days of life are significant factors associated with breast-feeding duration. Therefore, maternity wards take an important role in supporting breastfeeding.

The aim of this study was to assess those specific factors which happen soon after delivery and their influence on breast-feeding duration.

2 Subjects and methods

Women with children at the age of one to two years living in the eastern part of Austria were asked about the state of physical as well as mental condition during breast-feeding period.

The assessment took place from July to December 2004.

670 questionnaires were distributed in practices of gynaecologists and paediatricians, through midwives and breast-feeding advisers as well as in guiding mother-and-child centres. The rate of return was 59.9% (n=401). 398 questionnaires were statistically evaluated.

Mean age of the investigated mothers was 31.5 ± 4.9 years. Nearly all (95%) of them were native German speakers. More than half (52.4%) of the women had a high school degree. 59.5% of the investigated mothers were primiparous and of this group nearly one out of ten (9.8%) chose a most natur-like birth (birth at home, ambulant or in a maternity ward). Four out of five women (79.3%) had an employment with or without permanent tenure. During investigation nearly four out of five mothers (77.7%) were in the waiting period.

Data analysis was performed on SAS Learning Edition 2.0. Descriptive analysis and standard statistical tests (ANOVA, χ^2) were used to compare means for continuous variables or proportions for categorical variables as well as to compare different groups; p-values < 0.05 were considered statistically significant.

3 Results

More than three out of four (77.2%) women had started breast-feeding within the first hour after birth. There was a significant difference between the various time points of breast-feeding initiation regarding exclusive breast-feeding duration ($p < 0.001$). Mothers who had started breast-feeding within the first hour postpartum breast-fed their children in average 48 days longer than mothers who had started breast-feeding within 12 hours postpartum and in average 62 days longer than mothers who had started breast-feeding later than 12 hours postpartum. Mothers who

had started breast-feeding within 12 hours postpartum breast-fed their children in average 42 days longer than mothers who had started breast-feeding later than 12 hours postpartum ($p < 0.001$).

The vast majority of the mothers (88.7%) had skin-to-skin contact with their babies within the first hour after birth. The analysis showed that having had no skin-to-skin contact tended to reduce exclusive breast-feeding duration afterwards ($p > 0.05$).

Nearly all mothers (92.9%) had day- and night-rooming-in. There was a significant difference between children with day-and-night-rooming-in, children who were separated from their mothers postpartum and children who were born at home or ambulant regarding exclusive breast-feeding ($p < 0.01$). Children who had had day-and-night-rooming-in received exclusive breast milk in average 51 days longer than children who had been separated from their mothers postpartum. Those children that had been born at home or ambulant received exclusive breast milk in average 63 days longer than children who had been separated from their mothers postpartum.

Nearly half of the mothers (47.2%) had fed their infant on demand, 16.5% every two hours and 23.5% every three to five hours. Only 2.8% of the mothers had not tried breast-feeding. There was no significant difference between the various breast-feeding rhythms regarding exclusive breast-feeding duration, but we found significant differences between feeding on demand and feeding every three to five hours regarding supplementary breast-feeding: Infants who had been fed on demand received in average two months longer breast milk than infants who had been breast-fed every three to five months (< 0.01).

More than one out of three (36.5%) children (n=386) in hospital received supplements during the first days of life. Having received supplements had a great impact on exclusive and supplementary breast-feeding duration afterwards. Children who had never received supplements in hospital were exclusively breast-fed 27 days longer ($p < 0.001$) and supplementary breast-fed in average 48 days longer ($p < 0.01$) than children who had been fed supplements.

66% (n=68) of the children who were fed with supplements in hospital received formulae and 34% (n=35) of them other supplements like tea, glucose, energy and electrolyte solutions. Supplementary feeding with formulae during the first days of life significantly reduced both exclusive ($p < 0.001$) and supplementary breast-feeding ($p < 0.01$) duration. Children who had not received formulae in hospital were exclusively breast-fed in average 42 days longer ($p < 0.001$) and

Characteristics	Exclusive breast-feeding		Supplementary breast-feeding	
	n	p-value	n	p-value
Time of breast-feeding initiation				
Within the first hour postpartum	278	p<0.001	284	p<0.05
Within twelve hours postpartum	64		65	
Later than twelve hours postpartum	14		14	
Early skin-to-skin contact				
Yes	318	p<0.07	324	p<0.9
No	37		38	
Rooming-in				
Day and night	321	p<0.01	321	p<0.05
Daytime	11		11	
No rooming-in	1		1	
Mother and child separated	10		10	
Born at home or ambulatory	20		20	
Feeding rhythms				
Feeding on demand	96	n.s.	97	p<0.01
Every two hours	82		85	
Every three to five hours	174		177	
Not breastfed	4		4	
Supplementary feeding in hospital				
Yes	108	p<0.001	114	p<0.01
No	243		242	
Kind of supplement				
Not known	33	p<0.001	32	p<0.05
Tea, glucose, energy and electrolyte solutions	32		33	
Formulae	42		48	
No supplements	249		250	

Tab. 1: Factors associated with breast-feeding duration.

supplementary breast-fed 72 days longer ($p<0.01$) than children who had been supplementary fed with formulae. Other supplements did not influence breast-feeding duration negatively.

4 Discussion

The aim of this study was to assess neonatal care practices and their influence on breast-feeding duration.

This study comprised mostly women with good social, economical and professional background. Therefore, we cannot rule out that our results may have been biased by maternal age and educational level. The mean age of the investigated mothers was 31.5 ± 4.9 years and 52.4% of them had a high school degree. In comparison to the figures of ÖSTAT for the year 2003 on average primiparous were 27.5 years and multiparous 30.1 years old, 26.6% of them had a high school degree at the time of delivery [1].

Early initiation as well as increased frequency of breast-feeding during the first days of life seems to effect breast-feeding success positively [2]. Furthermore, many advantages for the health of the baby (e.g. meconium passage, bilirubin level) have been described [3]. We analysed that more than three out of four mothers had started breast-feeding within the first hour after birth. Though it is necessary to point out that nearly 40% of the investigated mothers underwent circumstances during delivery, which may have made it impossible to start breast-feeding soon after birth. Moreover, we found out that every fifth mother (20%) had a caesarean section, but this procedure complication was neither influencing breast-feeding initiation nor duration negatively; thus the association between caesarean section and breast-feeding success is discussed controversially [4–7]. We found out that early breast-feeding initiation is significantly positively associated with exclusive breastfeeding duration. Former studies obtained similar results [7–10]. The vast majority of the investigated mothers had had skin-to-skin contact to their babies soon after birth. Skin-to-skin contact influences breast-feeding success positively [11, 12]. We found out that having had no skin-to-skin contact led to shorter breast-feeding durations afterwards.

One of the breast-feeding practices recommended by the American Academy of Pediatrics is that newborn infants should remain with their mother throughout the post-delivery period, except for special circumstances [13]. Rooming-in allows mothers to feed their child on demand and therefore influences breast-feeding duration positively. After introducing rooming-in practices in hospital, longer breast-feeding duration was described by former studies [14–16]. Data show that the hospitals in Eastern Austria where the woman delivered achieve this target on average because 90% of the mothers had day-and-night-rooming-in. We analysed no significant difference between day-and-night-rooming-in and day-rooming-in. Only those children who had been separated from their mothers were breast-fed significantly shorter. This association was described in former studies too [7, 17]. In addition to these results we found out that mothers who had delivered their babies outside of a hospital

ward (at home, ambulant or maternity home) were significantly longer both exclusive and supplementary breast-feeding than mothers who had delivered in hospital wards. Mothers who chose a nature birth were also significantly higher educated.

Feeding on demand is one of the recommended breast-feeding practices, too [13]. Although nearly all mothers in our study had day-and-night-rooming-in, only half of them (47.2%) fed their infant on demand. This result may be explained by the fact that those mothers who fed their infant all three to five hours (23.5%) described that this rhythms were in accordance with feeding on demand. We only analysed differences between the various breast-feeding rhythms regarding supplementary breast-feeding duration. Recent studies pointed out positive effects on both exclusive and supplementary breast-feeding duration for feeding on demand [19].

No supplements (water, glucose, formulae etc.) should be given to newborns unless a medical indication exists [13]. However, supplementary feeding practices are still discussed controversially. Former studies analysed either no associations [20–23] or significantly negative influences on breast-feeding duration by receiving supplements during the first days of life [24–27]. Furthermore, several studies showed contrary results regarding the relationship between the kind of supplements and breast-feeding duration [10, 28]. We found out that having received supplements during the first days of life influences breast-feeding duration negatively. Moreover, we analysed that newborns who had received formulae were significantly shorter breast-fed. Other supplements did not influence breast-feeding duration. Recent studies described similar results [29–32]. However, 36.5% of investigated children received supplements during the first days of life. 20 years ago, 60.7% of the newborns were fed with supplements in hospital [8]. Regarding this comparison it seems that supplementary feeding practices have changed positively.

5 Conclusion

Our study showed that hospitals in Eastern Austria seem to be very “family-friendly” in general and they mostly agree with UNICEF/WHO targets. Rooming-in, skin-to-skin contact, feeding on demand are the way of neonatal care at maternity wards and the use of supplements during the first days of life had reached a low point within one decade. Nevertheless it seems that labour complications, which may make it impossible to start breast-feeding soon after birth, are increasing.

However, we analysed that breast-feeding initiation later than twelve hours after birth and feeding formu-

lae during the first days of life are strong predictors for short breast-feeding duration. The relationship between breast-feeding duration and breast-feeding on demand as well as complications during delivery, e.g. caesarean section, have to be observed furthermore.

Acknowledgement

We thank the mothers, the staff of all doctors' practices, the midwives and breast-feeding advisers guiding mothers – centres; and Univ.-Prof. Ass.-Dr. Dipl.-Ing. *Barbara Schneider* for her statistical guidance.

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Received: 1.10.2007

Accepted: 10.3.2008

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